



University of HUDDERSFIELD

University of Huddersfield Repository

Parrish, Emily

The Impact of Individual Differences on Accuracy, Confidence, and Punitive Judgements for Eyewitness Testimony of Domestic Violence

Original Citation

Parrish, Emily (2018) The Impact of Individual Differences on Accuracy, Confidence, and Punitive Judgements for Eyewitness Testimony of Domestic Violence. Doctoral thesis, University of Huddersfield.

This version is available at <http://eprints.hud.ac.uk/id/eprint/35367/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

**THE IMPACT OF INDIVIDUAL DIFFERENCES ON ACCURACY,
CONFIDENCE, AND PUNITIVE JUDGEMENTS FOR
EYEWITNESS TESTIMONY OF DOMESTIC VIOLENCE**

EMILY PARRISH

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for
the degree of Doctor of Philosophy

The University of Huddersfield

September 2018

Copyright statement

- i. The author of this thesis (including any appendices and/or schedules to this thesis) owns any copyright in it (the "Copyright") and s/he has given The University of Huddersfield the right to use such copyright for any administrative, promotional, educational and/or teaching purposes.
- ii. Copies of this thesis, either in full or in extracts, may be made only in accordance with the regulations of the University Library. Details of these regulations may be obtained from the Librarian. This page must form part of any such copies made.
- iii. The ownership of any patents, designs, trademarks and any and all other intellectual property rights except for the Copyright (the "Intellectual Property Rights") and any reproductions of copyright works, for example graphs and tables ("Reproductions"), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property Rights and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property Rights and/or Reproductions.

Abstract

Previous research has predominantly focused on physical aspects of crimes that impact the reliability and accuracy of eyewitness testimony, such as the influence of proximity and visibility. There is a lack of research examining whether combinations of individual differences impact on how witnesses interpret and recall the events of a crime. This could have potential implications for the reliability of any subsequent eyewitness testimonies that are used during criminal investigations. Previous research has identified differences in relation to variables such as gender, age, and ethnicity on eyewitness accuracy and confidence, when examined individually. Additionally, some alternative research has identified that gender can impact on punitive judgements. The current thesis explores combinations of individual differences (gender, age, personality) and their impact on eyewitness accuracy, confidence, and punitive judgements in one thesis, as these are all inherent in any eyewitness. If eyewitnesses are perceived as being overly accurate or overly inaccurate and their testimonies do not support this perception, this could have negative consequences for the Criminal Justice System as unreliable evidence may be used in court proceedings and be subject to a jury's interpretation. This thesis aimed to explore how individual differences (gender, age, personality) impacted on eyewitness accuracy, confidence, and punitive judgements of domestic violence. To explore this, 590 participants comprising of 232 male and 358 female participants aged between 18 – 70 years ($M = 33.10$, $SD = 13.27$) were shown mock video footage depicting domestic violence scenarios comprising different condition combinations of clarity and perpetrator gender. Participants were subsequently questioned about their recall, confidence, and perceptions of the footage. Sub-studies then examined; a) overall accuracy and how this was impacted by the different conditions, b) relationships between accuracy and eyewitness confidence across the different conditions, c) how condition, accuracy and confidence influenced punitive judgements regarding the footage, and d) how individual differences facilitated the relationships between the various measures. The findings revealed that age and personality significantly impacted the accuracy of participants; however, this was not the case for gender, clarity, and perpetrator gender. Additionally, the results demonstrated that there was a significant positive correlation between accuracy and confidence, as well as significant correlations between accuracy and confidence and factors such as age and personality. It

was also indicated that participant gender, personality, clarity, and perpetrator gender impacted on participant responses to punitive judgements. The findings also showed that accuracy and confidence ratings impacted on the responses and punitive judgements. To conclude, this research examined how individual differences impacted upon accuracy, confidence, and punitive judgements, as well as looking at these components in combination with each other. This was to gain a better understanding of how witnesses of domestic violence may perceive and interpret the incident. The findings showed participants had a positive bias towards female victims of domestic violence compared with male victims in relation to punitive judgements. This research provided evidence to suggest that examining individual differences in combination with crime scene factors can allow for a better understanding of how witnesses interpret domestic violence and how individual factors and personal attributes may influence this. Therefore, from this research it is suggested that by examining the individual differences of witnesses and understanding the prejudices that may be linked to the incident witnessed, greater insight may be provided into flaws in eyewitness testimony.

Table of Contents

Abstract	3
Table of Contents	5
List of Tables	14
List of Figures	18
Dedications and Acknowledgements.....	19
Preface	20
Introduction.....	22
The current research	22
Chapter 1: Theories of Memory, Personality, Social Psychology and Decision- Making	30
1.1 Theories of Memory.....	30
1.1.1 Memory: How Memory Works	30
1.1.2 Memory: Memory Decay	32
1.1.3 Memory: Mortality Salience Theory	34
1.2 Theories of Personality and Memory.....	35
1.2.1 Personality: Arousal Theory	35
1.2.2 Personality: Theory of Agreeableness.....	37
1.3 Theories of Social Psychology	39
1.3.1 Social Psychology: Behaviourism and Social Learning Theory.....	39
1.3.2 Social Psychology: Cycle of Violence Theory	42
1.3.3 Social Psychology: Gender Socialisation Theory	44

1.4 Theories of Decision-Making	45
1.4.1 Decision-Making: Bystander Effect.....	45
1.4.2 Decision-Making: Attribution Theory.....	47
1.5 Conclusion.....	48
Chapter 2: Eyewitness Testimony Reliability.....	49
2.1 Previous research into the reliability of eyewitness evidence.....	49
2.2 Nature and type of crime	51
2.2.1 Witnessing violent and non-violent crimes	51
2.2.2 Previous source material used for depicting crimes	55
2.3 Conclusion.....	57
Chapter 3: Physical Aspects of Crimes	58
3.1 Distance, visibility, and ambiguity.....	58
3.1.1 Proximity and visibility of crimes.....	58
3.1.2 The clarity of a crime	60
3.2 Memorability of an incident.....	62
3.3 Conclusion.....	65
Chapter 4: Accuracy, Confidence, and Eyewitness Testimony.....	67
4.1 Gender, accuracy, and confidence.....	67
4.2 Age, accuracy, and confidence	72
4.3 Confidence and accuracy relationship.....	73
4.4 Conclusion.....	75
Chapter 5: Punitive Judgements	77
5.1 The use of punitive judgements in previous research	77

5.2 The practical implications of researching punitive judgements	78
5.3 Domestic violence and gender stereotypes.....	82
5.4 How punitive judgements are being used in the current thesis	86
5.5 Conclusion.....	87
Chapter 6: Individual Differences and Eyewitness Testimony.....	88
6.1 Gender.....	88
6.2 Age	93
6.3 Ethnicity	96
6.4 Personality.....	97
6.5 Methods for measuring personality	100
6.6 The use of personality in memory research	104
6.7 Extraversion and memory.....	108
6.8 Neuroticism and memory.....	109
6.9 Limitations of using personality measures.....	110
6.10 Conclusion.....	111
Chapter 7: The Current Empirical Research	113
7.1 Research aims.....	113
7.2 Research hypotheses.....	113
7.3 How the current thesis examines the aims and hypotheses	114
Chapter 8: Methodology	117
8.1 Sample	117
8.2 Materials and Covariates.....	120

8.3 Design	127
8.4 Procedure	130
8.5 Ethical Considerations	131
8.5.1 Informed Consent	131
8.5.2 Confidentiality	131
8.5.3 Anonymity	131
8.5.4 Right to Withdraw	131
8.5.5 Data Storage	132
8.5.6 Deception	132
8.5.7 Psychological Support	132
8.5.8 Practical Implications	133
Chapter 9: Results	135
9.1 Accuracy of recall of the incident	135
9.1.1 Accuracy and gender	135
9.1.2 Accuracy and age	136
9.1.3 Accuracy and personality	138
9.1.4 Accuracy, clarity and perpetrator gender	140
9.2 Key findings	141
Chapter 10: Eyewitness Confidence	142
10.1 Confidence and gender	142
10.2 Confidence and age	143
10.3 Confidence and personality	144
10.4 Confidence and accuracy	146

10.5 Confidence, Clarity and Perpetrator Gender	148
10.6 Key findings	148
Chapter 11: Punitive Judgements	149
11.1 Gender and punitive judgements.....	149
11.1.1 Gender and the severity of the incident.....	149
11.1.2 Participant gender and the perception of psychological and emotional distress	150
11.1.3 Gender and calling the police	151
11.1.4 Gender and domestic violence	152
11.1.5 Gender and delivering a guilty verdict	153
11.2 Personality and punitive judgements.....	154
11.2.1 Personality and the experience psychological or emotional distress	154
11.2.2 Personality and calling the police	156
11.3 Clarity and punitive judgements	157
11.3.1 Clarity and the severity of incident.....	157
11.3.2 Clarity and whether a crime was committed	158
11.3.3 Clarity and the experience of physical injury	159
11.3.4 Clarity and the sentence advocated	160
11.4 Perpetrator gender and punitive judgements	161
11.4.1 Perpetrator gender and perceived severity of the incident.....	161
11.4.2 Perpetrator gender and whether a crime was committed.....	162
11.4.3 Perpetrator gender and physical injury.....	163
11.4.4 Perpetrator gender and psychological or emotional distress.....	164
11.4.5 Perpetrator gender and calling the police.....	165
11.4.6 Perpetrator gender and domestic violence.....	166

11.4.7 Perpetrator gender and the type of sentence advocated	167
11.5 Key findings	167
Chapter 12: Accuracy, Confidence and Punitive Judgements	169
12.1 Accuracy and punitive judgements.....	169
12.1.1 Accuracy and whether a crime was committed	169
12.1.2 Accuracy and psychological or emotional distress	171
12.1.3 Accuracy and calling the police	172
12.1.4 Accuracy and guilt of perpetrator.....	173
12.1.5 Accuracy and domestic violence	174
12.2 Confidence and punitive judgements	175
12.2.1 Confidence and whether a crime was committed.....	175
12.2.2 Confidence and calling the police.....	176
12.2.3 Confidence and domestic violence	177
12.3 Key findings	177
Chapter 13: Accuracy and the Relationship Between Individual Differences, Clarity and Perpetrator Gender.....	179
13.1 Accuracy and the relationship between individual differences and clarity.....	179
13.2 Accuracy and the relationship between individual differences and perpetrator gender	183
13.3 Key findings	186
Chapter 14: Confidence and the Relationship Between Individual Differences, Clarity and Perpetrator Gender.....	187
14.1 Confidence and the relationship between individual differences and clarity	187

14.2 Confidence and the relationship between individual differences and perpetrator gender	191
14.3 Key findings	194
Chapter 15: The Relationships Between Individual Differences, Clarity and Perpetrator Gender on Punitive Judgements	195
15.1 Punitive judgements and the relationships between individual differences and clarity	195
15.1.1 Psychological or emotional distress and the relationship between individual differences and clarity	195
15.1.2 Calling the police and the relationship between individual differences and clarity	198
15.1.3 Domestic violence and the relationship between individual differences and clarity	200
15.2 Punitive judgements and the relationship between individual differences and perpetrator gender	202
15.2.1 Psychological or emotional distress and the relationship between individual differences and perpetrator gender	202
15.2.2 Calling the police and the relationship individual differences and perpetrator gender	204
15.2.3 Domestic violence and the relationship between individual differences and perpetrator gender	206
15.3 Key findings	207
Chapter 16: Discussion	209
16.1 Accuracy findings	209
16.2 Confidence findings	212
16.3 Punitive judgement findings.....	215
16.3.1 Punitive judgements and gender	215

16.3.2 Punitive judgements and personality	220
16.3.3 Punitive judgements and clarity	222
16.3.4 Punitive judgements and perpetrator gender	224
16.4 Accuracy, confidence, and punitive judgements	225
16.5 Accuracy and the relationship between individual differences, clarity, and perpetrator gender	228
16.5.1 Accuracy and the relationship between individual differences and clarity	228
16.5.2 Accuracy and the relationship between individual differences and perpetrator gender ..	230
16.6 Confidence and the relationship between individual differences, clarity, and perpetrator gender	231
16.6.1 Confidence and the relationship between individual differences and clarity	231
16.6.2 Confidence and the relationship between individual differences and perpetrator gender	233
16.7 Punitive judgements and the relationship between individual differences, clarity, and perpetrator gender	233
16.7.1 Punitive judgements and the relationship between individual differences and clarity	233
16.7.2 Punitive judgements and the relationship between individual differences and perpetrator gender	236
16.7.3 Summary	237
16.8 The real-life applicability of the study	239
16.9 Practical implications	240
16.10 Limitations and future research	244
16.10.1 Limitations	244
16.10.2 Future Research	247
16.11 Conclusion	249

References	252
Appendices	313
Appendix 1. Participant Information Sheet	313
Appendix 2. Participant Consent Form	315
Appendix 3. Questionnaire 1 – Participant Demographics	316
Appendix 4. Filler Task	318
Appendix 5. Questionnaire 2 – Events of the Incident.....	320
Appendix 6. Questionnaire 3 – Punitive Judgements	327
Appendix 7. Questionnaire 4 – NEO-FFI.....	334
Appendix 8. Debrief	342

List of Tables

Table 9.1 The descriptive statistics for accuracy and gender.....	135
Table 9.2 The descriptive statistics, reliability and correlations for personality for accuracy.....	138
Table 9.3 The multiple regression analysis and the impact of personality on accuracy.	139
Table 9.4 The overall descriptive statistics for clarity and perpetrator gender on accuracy.	140
Table 9.5 Descriptive statistics for clarity and perpetrator gender on accuracy.	140
Table 10.1 The descriptive statistics for confidence.	142
Table 10.2 The descriptive statistics, reliability and correlations for personality for confidence.....	144
Table 10.3 The multiple regression analysis and the impact of personality on confidence.....	145
Table 10.4 The descriptive statistics for confidence and accuracy.....	146
Table 10.5 Descriptive statistics for clarity and perpetrator gender on confidence.	148
Table 11.1 The descriptive statistics for gender and the severity of the incident.	149
Table 11.2 The descriptive statistics for gender and psychological distress being caused.....	150
Table 11.3 The descriptive statistics for gender and calling the police.....	151
Table 11.4 The descriptive statistics for gender and domestic violence.....	152
Table 11.5 The descriptive statistics for gender and delivering a guilty verdict.....	153
Table 11.6 The multinomial logistic regression for personality and the experience psychological distress.	154
Table 11.7 The multinomial logistic regression for personality and calling the police.	156
Table 11.8 The descriptive statistics for and severity of the incident and clarity.	157
Table 11.9 The descriptive statistics for clarity and if crime was committed.	158
Table 11.10 The descriptive statistics for clarity the experience of physical injury.....	159
Table 11.11 The descriptive statistics for clarity and the sentence advocated for the perpetrator. ...	160
Table 11.12 The descriptive statistics for perpetrator gender and severity of the incident.....	161
Table 11.13 The descriptive statistics for perpetrator gender and whether a crime was committed. 162	
Table 11.14 The descriptive statistics for perpetrator gender and physical injury.	163
Table 11.15 The descriptive statistics for perpetrator gender and psychological or emotional distress.	164

Table 11.16 The descriptive statistics for perpetrator gender and calling the police.	165
Table 11.17 The descriptive statistics for perpetrator gender and domestic violence.	166
Table 11.18 The descriptive statistics for perpetrator gender and the type of sentence advocated..	167
Table 12.1 The descriptive statistics and mean for accuracy and whether a crime was committed.	169
Table 12.2 The descriptive statistics and mean for accuracy and psychological or emotional distress.	171
Table 12.3 The descriptive statistics and mean for the accuracy and calling the police.	172
Table 12.4 The descriptive statistics and mean for the accuracy and guilt of perpetrator.....	173
Table 12.5 The descriptive statistics and mean for accuracy and domestic violence.	174
Table 12.6 The descriptive statistics and mean for confidence and whether a crime was committed.	175
Table 12.7 The descriptive statistics and mean for confidence and calling the police.	176
Table 12.8 The descriptive statistics and mean for confidence and domestic violence.	177
Table 13.1 The descriptive statistics, reliability and correlations of the variables (age, personality, and confidence) for the ambiguous condition.	180
Table 13.2 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the clear condition.	180
Table 13.3 Split multiple regression model accuracy and the relationship between individual differences and clarity.	181
Table 13.4 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the male perpetrator.	183
Table 13.5 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the female perpetrator.	184
Table 13.6 Split multiple regression model of accuracy and the relationship between individual differences and perpetrator gender.	185
Table 14.1 The descriptive statistics, reliability and correlations for the variables (age, personality, and accuracy) for the ambiguous condition.	188
Table 14.2 The descriptive statistics, reliability and correlations for the variables (age, personality, and accuracy) for the clear condition.	188

Table 14.3 Split multiple regression model of confidence and the relationship between individual differences and clarity.....	189
Table 14.4 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the male perpetrator.....	191
Table 14.5 The descriptive statistics, reliability and correlations for the variables (age, personality, and accuracy) for the female perpetrator.....	192
Table 14.6 Split multiple regression model of confidence and the relationship between individual differences and perpetrator gender.	193
Table 15.1 The binary logistic regression for the ambiguous condition and psychological or emotional distress, whilst accounting for individual differences.	196
Table 15.2 The binary logistic regression for the clear condition and psychological or emotional distress, whilst accounting for individual differences.	197
Table 15.3 The multinomial logistic regression for the ambiguous condition and calling the police, whilst accounting for individual differences.....	198
Table 15.4 The multinomial logistic regression for the clear condition and calling the police, whilst accounting for individual differences.....	199
Table 15.5 The multinomial logistic regression for the ambiguous condition and domestic violence, whilst accounting for individual differences.....	200
Table 15.6 The multinomial logistic regression for the clear condition and domestic violence, whilst accounting for individual differences.....	201
Table 15.7 The binary logistic regression for the male perpetrator and psychological or emotional distress, whilst accounting for individual differences.	202
Table 15.8 The binary logistic regression for the female perpetrator and psychological or emotional distress, whilst accounting for individual differences.	203
Table 15.9 The multinomial logistic regression for the male perpetrator and calling the police, whilst accounting for individual differences.....	204
Table 15.10 The multinomial logistic regression for the female perpetrator and calling the police, whilst accounting for individual differences.....	205
Table 15.11 The multinomial logistic regression for the male perpetrator and domestic violence, whilst accounting for individual differences.....	206

Table 15.12 The multinomial logistic regression for the female perpetrator and domestic violence,
whilst accounting for individual differences..... 207

List of Figures

Figure 8.1 Condition A	122
Figure 8.2 Condition B	122
Figure 8.3 Flow chart of the research design	129
Figure 9.1 The scatter plot for the Pearson's r correlation between total accuracy score and age. ...	137
Figure 10.1 The scatter plot for the Pearson's r correlation between total confidence and age.....	143
Figure 10.2 The scatter plot for the Pearson's r correlation between total confidence and accuracy.	147

Dedications and Acknowledgements

I would like to thank my parents Michele Parrish and Chris Parrish for their continuous support throughout this journey. For their support, love and encouragement has driven me to keep on going even when I did not believe in myself. I would also like to thank my partner Jordan Darley for keeping me motivated and for making this stressful journey as calm as possible. Thank you for making me have some down time and ensuring I still have a laugh, on what has been a roller coaster of a degree.

I would like to thank my supervisors Dr Laura Hammond and Dr Maria Ioannou who provided me with constant support and guidance throughout. I have loved working with you both and I would like to thank you for your inspiration and for helping me believe in myself as a PhD candidate. I would also like to especially mention a massive thank you to Dr Laura Hammond for continuing to support me through my PhD even when she moved to a different university. I could not have done this without your devoted support and encouragement. Thank you to Dr David Peebles and Dr Dara Mojtahedi who stepped in as my supervisors in my final year, both of you have provided fantastic support and laughter even at the most stressful times.

Lastly, I would like to thank Holly Doherty and Mark Bamford for their superb acting skills and willingness to help me with this project. Thank you for your patience and for showing just how talented you really are – I feel an Oscar will be coming your way one day.

Preface

This thesis aimed to explore how individual differences may impact eyewitness testimony, by measuring witness accuracy, confidence, and punitive judgements. The Introduction outlines what the current thesis aimed to explore and why this research is key to furthering knowledge on eyewitness testimony. Chapter 1 discusses theories of memory including the Multi-Store Model, Memory Decay Theory, and Mortality Salience and how these impact on how memory is interpreted and recalled. This chapter then focuses on theories of personality and memory; comprising of the Emotional Arousal Theory and the Theory of Agreeableness. Social psychology theories are discussed in relation to how these may impact eyewitness accounts and how personal biases may impact interpretations of events by exploring classical and operant conditioning and Social Learning Theory. Lastly, this chapter focuses on theories of decision-making and explores how this may impact eyewitness memory by examining the Bystander Effect and Attribution theory.

Chapter 2 acknowledges how previous literature has studied eyewitness testimony and the flaws with this type of evidence when used in criminal investigations. This chapter also focuses on the type of crime witnessed and the consequences of witnessing more violent crimes, compared with less violent crimes. Lastly, this chapter discusses the source material previous studies have used when studying eyewitness testimony. Chapter 3 draws attention to the physical aspects of a crime by looking at witness proximity and the visibility of a crime. This chapter then discusses how the clarity of a crime may impact eyewitness testimony and concludes by exploring the salience of a crime. Chapter 4 looks at the previous literature on individual differences, such as gender and age, and how these impact confidence and accuracy and their impact on eyewitness testimony.

Chapter 5 examines how punitive judgements have previously been studied in research and discusses the practical implications of researching punitive judgements, before exploring how domestic violence can be influenced by gender stereotypes. Punitive judgements are then explained in relation to the current thesis. Chapter 6 discusses research regarding individual differences and eyewitness testimony. Here, research surrounding gender, age, ethnicity, and personality are discussed in greater detail in relation to eyewitness testimony and focuses on the variables that will be manipulated in the current thesis. This chapter then discusses how personality can be measured

and the previous use of personality in memory research. Personality traits extraversion and neuroticism are explored in greater detail to understand how these traits have previously impacted memory recall. Lastly, the limitations of using personality measures are discussed.

Chapter 7 identifies the research aims and hypotheses and details how these are examined in the current thesis. Chapter 8 describes the methodology used, including the sample of participants, materials and covariates, as well as the thesis design, procedure, ethical considerations, and practical implications.

Chapter 9 presents analyses which examine gender, age, personality, clarity, and perpetrator gender in relation to accuracy. Chapter 10 examines the statistical analyses of gender, age, personality, clarity, and perpetrator gender in relation to confidence. Chapter 11 explores the statistical analyses of gender, personality, clarity, and perpetrator gender on punitive judgements. Chapter 12 looks at the statistical analyses of accuracy and confidence in relation to punitive judgements. Chapter 13 explores the relationships between accuracy and individual differences for clarity and perpetrator gender. Chapter 14 examines the relationship between confidence and individual differences for clarity and perpetrator gender. Chapter 16 looks at the relationship between punitive judgements and individual differences for clarity and perpetrator gender.

Lastly, Chapter 16 discusses and explores the findings of the current thesis. Here, the accuracy, confidence, and punitive judgement findings are discussed. This chapter also looks at the practical implications of this research, limitations, and recommendations for future research.

Introduction

The current research

The current thesis explores how individual differences may impact upon a person's eyewitness accuracy, confidence, and their punitive attitudes and judgements. Whilst previous literature has explored the impact of physical aspects of a crime and how personal factors of witnesses can influence their accuracy and confidence (Areh, 2011; Clark, Howell & Davey, 2008; Cowan, Read & Lindsay, 2014; Erickson, Lampinen & Moore, 2016; Kassin, Tubb, Hosch & Memon, 2001; Sauer, Brewer, Zweck & Weber, 2010), there has been minimal research combining these factors to consider how they may influence eyewitness testimonies as a whole. Additionally, the combination of physical aspects of a crime and individual differences has, to present knowledge, not been conducted on the perception of domestic violence, which also may challenge witnesses' stereotypical expectations of crimes (Osborne & Davies, 2014). By using a single paradigm this allowed for the investigation of how these naturally occurring factors may impact on eyewitness testimony. Additionally, there has been little detailed empirical research into how eyewitness confidence and accuracy may be influenced by a person's punitive judgements. A large body of literature has previously examined the relationship between confidence and accuracy, which has provided insight into witness confidence and how this may not be reflected in the accuracy of an eyewitness account (Delleman & Fernandes, 2015; Kurdi, Diaz, Wilmuth, Friedman & Banaji, 2018; Sarwar, Allwood & Innes-Ker, 2014). Kebbell, Wagstaff and Covey (1996) showed that when viewing video footage there were positive correlations between confidence and accuracy – higher levels of confidence resulted in having better memory recall. Additionally, Wheatcroft, Wagstaff and Kebbell (2004) showed how confidence-accuracy relationships could be impacted by the style of questioning. The results implied that providing participants with negative feedback to their responses reduced the participants' accuracy. This was particularly notable for interviewing styles that involved the recalling of more complex and difficult items. From this finding, it was suggested that the interviewer providing negative feedback may have confused the participants and therefore reduced their accuracy. Wheatcroft, Wagstaff and Manarin (2015) also demonstrated the relationships between confidence and accuracy. Participants were required to answer questions that were classified as either easy,

moderate or difficult to remember. After participants were initially interviewed they were then subsequently interviewed 6 months later. The findings showed that the time delay negatively affected all classifications of questioning; however, when examining the confidence-accuracy relationships within-subjects showed that participants were more likely to be more confident and accurate for the easy and moderate questions, yet less confident and accurate for the difficult questions. Interestingly, when analysing the findings between-subjects confidence-accuracy relationships were more likely to improve over time for the easy and moderate questions but were more likely to decrease for the difficult questions. This could suggest that for crimes where there is difficult information to remember confidence-accuracy relationships are less likely to be useful measures to calibrate and assess witness accuracy. This could have negative implications for police investigations as the initial reporting of a crime could be distorted and convoluted by aspects of statements from other witnesses.

It is also important to understand how perceptions of crimes may influence the reporting of an eyewitness statement and how this could become distorted. Distorted eyewitness testimonies, if presented in court, have the potential to impact upon jury decision-making and could reduce the reliability and validity of jury verdicts in a court of law (Duckworth, Kreiner, Stark-Wroblewski & Marsh, 2011; Magnussen, Melinder, Stridbeck & Raja, 2010; Martire & Kemp, 2009; Sheahan, Pozzulo, Reed & Pica, 2018). This has been demonstrated by various studies. Ito et al. (2019) stated that in many cases there can be multiple witnesses to a crime. Witnesses may talk amongst themselves before they undergo any formal interviewing. Ito et al. (2019) explored how discussions with other witnesses resulted in participants being more likely to incorporate details they had not personally witnessed but details that other witnesses had mentioned in conversations. This can create a convoluted eyewitness account that is contaminated with the recollections of others as well as the original memory.

Eyewitness accounts may then be compromised as the witness statements no longer consist of an authentic version of events but more collaborated information from multiple sources. This can make it difficult to understand the positioning of witnesses to an event and build up an accurate version of how an event unfolded. Witnesses may unintentionally influence each other's memory of an event, but this negative consequence can be further exacerbated during police interviewing. Chrobak, Rindal and Zaragoza (2015) concluded that the way a witness is questioned can impact and distort how witnesses recall the details of an event. Here, it was found that using misleading and complex styles of questioning resulted in a reduction in accuracy. Witnesses may become confused or unsure of their

account of an event due to the style of questioning – as witnesses may already be experiencing higher levels of stress either from the incident they witnessed, the legal implications of the situation, or the uniqueness of undergoing police interviewing. All these factors could negatively impact on the recollection of an event. In addition, Luke, Crozier and Strange (2017) suggested that incorporating misinformation into the police interviewing process increased the likelihood of the witness recalling erroneous details of the event and therefore having a distorted recall of an event. This could be due to witnesses viewing the police and interviewing officers as people in positions of authority and therefore instinctively trusting and incorporating the information provided by these individuals. All these factors can negatively impact memory recall and demonstrate the fragility of eyewitness testimony and how various aspects of a crime, from witnessing the event to being interviewed about the event, can manipulate and distort an eyewitness account.

In previous literature, individual differences have been defined as specific features of a person, such as their gender, age, ethnicity and personality, as well as their psychological differences and similarities (McWilliams, Goodman, Lyons, Newton & Avila-Mora, 2014; Wan, Crookes, Dawel, Pidcock & Hall, 2017). For the purpose of this thesis, individual differences will predominantly refer to gender, age, personality and psychological differences of people. This thesis aims to examine the impact of individual differences on memory accuracy, confidence and event interpretation on eyewitness testimony.

Domestic violence is a heavily underreported crime (Yamawaki, Ochoa-Shipp, Pulsipher, Harlos & Swindler, 2012) and therefore the true number of victims remains unknown. The Office for National Statistics (2017) estimated that around 1.9 million adults have experienced domestic violence in the last year – with around 1.2 million of these victims being female. However, this report also revealed that only 45 arrests were made per 100 domestic violence related incidents, suggesting that victims could remain trapped with an abusive partner even if police are called to attend an incident. Overall, in 2017 domestic violence accounted for 32% of all violent crimes, with the actual statistic most likely being even greater.

Although domestic violence remains a crime that is largely committed in the home, there are incidents that occur in public (Women's Aid, n.d.). However, research has shown that due to the invisibility of this crime it may be difficult for witnesses to correctly identify that a crime is taking place and the type of crime that is taking place (Shah, Rajani, Kataria, Trivedi & Patel, 2012; Stiles-Shields

& Carroll, 2015). This raises several potential issues; firstly, if witnesses are unable to identify that a crime is being committed when witnessing these actions on another person, it is unlikely that they would be able to identify the abuse if it occurred to themselves. This could jeopardise the safety of individuals by not having the ability to recognise and challenge abusive behaviours before the domestic violence becomes too severe. For example, in most cases domestic violence occurs over a period of time and victims slowly become controlled by their abusive partners (Entilli & Cipolletta, 2017). If the abuse becomes too severe this could result in either a dependency on the perpetrator with an unwillingness to leave them, the victim taking their own life, or a victim being murdered at the hands of their perpetrator (Naughton, O'Donnell & Muldoon, 2017). This highlights how the invisibility of this crime may result in distorted judgements and interpretations of incidents that reinforce the lonely culture for domestic violence victims (Kunst & van Bon-Martens, 2011). This could also negatively impact on justice for victims of domestic violence. As previously stated, domestic violence is a largely private crime (Jahanfar & Malekzadegan, 2007), although there could be incidents that are witnessed by friends, family or members of the public, as there can be times when perpetrators demonstrate abusive behaviours outside of the home. Therefore, if an external individual witnesses a domestic violence incident, due to victims being less able to tell anyone about their abuse (Gadd, 2012), the witness could be instrumental in determining outcomes with regards to the victim's wellbeing. If a witness of domestic violence is able to report this to the police and provide evidence of the abuse, this can help victims to receive support and obtain justice for their victimisation. It is therefore necessary to understand how witnesses of domestic violence interpret and judge this type of crime. There is a lack of awareness regarding incidents that do not adhere to stereotypical views of domestic violence and these could significantly impact upon the ultimate wellbeing of victims, if witnesses do not identify these actions as criminal. Therefore, it is essential to understand how eyewitnesses of domestic violence interpret, judge, and remember these events, as this could facilitate victims receiving justice and raise awareness of this type of crime to help others to identify unacceptable behaviours. This could also have the potential to influence jury decision-making if jurors are unaware of the different forms of domestic violence and what these may look like; making it imperative that these issues are addressed in academic research to provide additional insight.

Theoretical explanations have been given as to why domestic violence may go undetected for so long. One example is the Cycle of Violence theory (Taghizadegan & Otto, 2016). The Cycle of

Violence theory relates to repeated acts of violence and describes them as following a cyclical pattern. In this theory the type of violence experienced can be associated with high levels of emotion and actions that relate to revenge and retribution. It is theorised that violent victimisation, particularly physical abuse that is perpetrated by either a partner or a primary caregiver, can increase the likelihood of the victim exhibiting subsequent violent behaviour (Wright & Fagan, 2013). This theory suggests that individuals who have previous exposure to enhanced levels of violence may be more likely to have increased levels of aggression that result in family violence (Wright & Fagan, 2013). For example, individuals who suffered from Post-Traumatic Stress Disorder (PTSD) were more likely to exhibit reactive aggression towards others (Sherman, Sautter, Jackson, Lyons & Han, 2006). It must be noted, though, that the research conducted by Sherman, Sautter, Jackson, Lyons and Han (2006) could not distinguish whether the reactive aggression was a result of the PTSD or constitutes a risk factor for the progression of trauma-related disorders. It was concluded by Sherman, Sautter, Jackson, Lyons and Han (2006) that frequent exposure to severe levels of violence may increase the likelihood of individuals exhibiting aggressive and violent behaviours towards others. Therefore, in domestic violence cases where a perpetrator has previous exposure to severe violence there may be an increased probability of that individual displaying aggressive behaviours without being able to identify them as untoward due to their desensitisation to these types of situations.

Eriksson and Mazerolle (2015) provided further evidence to support the Cycle of Violence theory. They stated that individuals who experienced family violence as a child were more likely to engage in violence with a romantic partner. It was suggested that this could be due to the social learning process where children learn violent behaviours which they observe from their parents or primary caregivers. Eriksson and Mazerolle (2015) also suggested that violence was not only transmitted through direct observations but also through attitudes. It was concluded that childhood experience of family violence was the most prevalent predictor of an individual perpetrating violence later in life – showing that the socialisation process made a significant contribution to the development of domestic violence behaviours.

Jurors of domestic violence cases could also have their interpretation and judgements of an incident distorted by their own knowledge and personal biases. Shipway (2006) stated that around 90% of domestic violence victims are female. A considerable body of research has suggested that domestic violence is more likely to be experienced by females compared to males, but other statistics

have estimated around 70% - 80% of domestic violence victims as being female and around 30% as being male (Living Without Abuse, n.d.; Office for National Statistics, 2017; Refuge, n.d.). It could therefore be suggested that juries, which comprise of the general public, could be influenced by the representation of female and male victims of domestic violence in the media and society and may be inclined to formulate opinions and judgements based on general societal norms when reviewing a case. This could potentially put male victims at a disadvantage compared to female victims of domestic violence, as the awareness and visibility of domestic violence is not to the same extent for both genders. As juries are responsible for the conviction or acquittal of a defendant, this could result in biased and wrongful convictions or acquittals. One poignant example of this is the conviction and subsequent acquittal of Ched Evans. In this case, Ched was accused of raping a woman and served 2 years in prison before a retrial, where he was acquitted. It was suggested that Ched was convicted due to the belief in rape myths (BBC, 2016). This case demonstrated how the jury's perception of the crime hindered their interpretation and resulted in a wrongful conviction. Furthermore, this case provides evidence to suggest that the perception of domestic violence could also be distorted by perceived myths and stereotypes of this crime, as both domestic violence and rape crimes are typically perceived as having female victims and male perpetrators (Refuge, n.d.). In these cases, jurors could be influenced by how a witness recalls an incident dependent upon the witness's perceptions and biases of the incident. Thus, witnesses could exaggerate or understate the actions or details of an incident and therefore provide jurors with a limited or exaggerated account of the event.

Research has aimed to remove and breakdown myths and stereotypes about rape. A study conducted by Dinos, Burrowes, Hammond and Cunliffe (2015) found that rape myths may negatively impact juror decision-making. Jurors with stereotypical perceptions about rape; such as, that what the victim is wearing can result in a rape which is the victim's fault due to their choice of clothing, actions are only considered as rape if the victim fights back or physically resists and they have to be physically coerced, and believing that a lot of people commonly lie about being raped, are more likely to perceive a defendant as not guilty. There have been initiatives put in place to try and aid legal proceedings and raise further awareness of fallacies relating to rape cases (Rape Crisis, n.d.). A more recent development in raising awareness has been linked to male victims (Rape Crisis, n.d.). Walfield (2018) found that there were a significant number of people who believed that men could not be raped by women and that men who were raped by women would usually enjoy the encounter or be

physically able to fight back if they did not wish to continue. As Walfield (2018) showed, all of these perceptions of rape are myths which may result in male victims being even less likely to receive justice for crimes committed against them.

Gender Socialisation Theory has suggested that individuals learn behaviours and attitudes that are appropriate for their gender (Brody, 1997). This theory implies that observed gender differences may not only be as a result of physiological differences but also as a result of societal norms for each gender (Carter, 2014). As rape is largely perceived as a crime perpetrated by males against a female victim (Shipway, 2006) it is likely that there will be behaviours and attitudes that reflect how each gender contributes to the crime. For example, females may be more likely to wear provocative clothing compared with males, and there may be a societal attitude that believes females only dress this way to attract the attention of males. Therefore, when a victim is stated to have worn provocative clothing, gendered stereotypes may play a part in the interpretation and judgement of a rape crime having occurred. It is possible that individuals raised with these stereotypical attitudes and behaviours may be more likely to have an increased belief in rape myths due to such gender expectations.

Another aspect that may contribute to a belief in rape myths is Attribution Theory. This theory takes into consideration how individuals attribute blame in relation to crimes (Costa & Neves, 2017). Bruggen and Grubb (2014) suggested that victims of rape may be blamed for their attack due to an acceptance of rape myths. Grubb and Turner (2012) found that those with higher levels of rape myth acceptance were also more likely to attribute blame to the victim. They demonstrated how those who believe in traditional gender roles were more inclined to blame rape victims for their attacks. This suggests that internal biases may skew their decision-making abilities of individuals. In court environments where jurors are asked to pass judgements on such crimes, those with internal biases especially with higher levels of rape myth acceptance, could deliver unjust verdicts.

Rape has, over the years, been perceived as a crime predominantly perpetrated by males who victimise females (Edwards, Turchik, Dardis, Reynolds & Gidycz, 2011; Suarez & Gadalla, 2010), and it could be suggested that domestic violence may be subject to similar types of myths – particularly when it comes to male victims. It could be suggested that some of the rape myths regarding male victims are not just synonymous with rape but may also transfer to domestic violence – for example, myths stating that males can fight back more easily to female perpetrators, that males

are less affected when victimised by a female, and that a male may deserve the abuse as they have usually done something to deserve this response. These ideologies pose risks to not only the credibility of the Criminal Justice System but also prevent victims being able to seek the protection and help that they need (Edwards, Turchik, Dardis, Reynolds & Gidycz, 2011; Suarez & Gadalla, 2010; Walfield, 2018). For these reasons, the present thesis aimed to explore punitive attitudes and the accuracy and confidence of recalling a domestic violence incident, this was achieved by comparing judgements of stereotypical and non-stereotypical cases in an effort to understand whether different gender combinations impact on attitudes towards the victims and perpetrators and their memory of an incident.

Although wrongful convictions can be detrimental to those erroneously incarcerated, it can be equally detrimental if a perpetrator is not convicted of a crime they are guilty of committing. In criminal cases where perpetrators are not the typical stereotype for committing that crime (for example, a woman who is accused of committing domestic violence) they could be wrongfully acquitted. Therefore, to improve the reliability and validity of eyewitness testimony, it is essential that the interpretation of domestic violence is researched to establish how witnesses may be influenced by their individual differences and the type of crime witnessed, to be able to protect innocent suspects from erroneous convictions, convict guilty perpetrators, and protect victims of crime.

This thesis is the first of its kind to incorporate the combination of multiple individual differences to explore how biases and expectations that people may have in their perceptions of incidents may impact upon eyewitness accounts, accuracy, and confidence of recalling both in isolation and combination. Previous literature has predominantly focused on individual differences, such as age, gender, and ethnicity (Anastasi & Rhodes, 2005; Dodson & Dobolyi, 2016; Osborne & Davies, 2014; Price, Lee & Read, 2009; Ros & Latorre, 2010), and their impact on eyewitness accuracy and confidence individually. This thesis was also able to provide a unique perspective on the issues of eyewitness testimony by examining domestic violence, a crime perceived as typically having female victims and male perpetrators, through direct comparisons of male and female perpetrators on ambiguous and clear conditions to offer additional insight into the complicated and fallible nature of eyewitness testimony.

Chapter 1: Theories of Memory, Personality, Social Psychology and Decision-Making

1.1 Theories of Memory

1.1.1 Memory: How Memory Works

Memory is a process whereby the brain interprets and encodes information, which can be stored and later retrieved when necessary (Oberauer, Lewandowsky, Awh, Brown & Conway, 2018). One of the key functions for the retention of memories is its ability to influence future actions – potentially reducing the likelihood of harm or unfavourable outcomes (Bluck & Alea, 2009), e.g. limiting dairy intake for those who are lactose intolerant. Memory processes can be understood as two types of information processing systems: explicit and implicit memory.

Explicit memory refers to information that has to be consciously remembered – e.g. trying to remember a maths formula (Grandi & Sánchez de León, 2020). This type of memory is intentional and at times can be difficult to draw upon. Explicit memory is also sometimes referred to as declarative memory – though declarative memory is more of a subset of explicit memory (Finn et al., 2016). The reason for this interchangeability is because declarative memory often refers to events and facts that are consciously recalled – similar to explicit memory. However, the main difference between these two memories is that explicit memory relates to any kind of conscious memory that a person may recall, whereas declarative memory refers to any memory that can be described in words by the person – though it is assumed that a memory would need to consciously be recalled for a person to be able to describe it in words (Duff, Gupta, Hengst, Tranel & Cohen, 2011). This would be the case where a witness of a crime is being interviewed, it would be assumed that the person would have to consciously be able to remember the event to be able to describe to investigating police officers the details of the crime. Episodic memory is regarded as a subset of explicit memory (Rubin, 2006). This type of memory forms part of a person's long-term memories – this includes remembering everyday events such as times, locations and any associated emotions with these events, all which can be explicitly stated by the person recalling the event (Bäuml, Pastötter & Hanslmayr, 2010).

Another subset of explicit memory is semantic memory. Semantic memory is another form of long-term memory and relates to ideas and concepts that are not remembered through personal experiences, as well as knowledge of objects, faces, and words (Brewer & Sampaio, 2012). Semantic memory is essential for understanding language and concepts and therefore is a crucial aspect of memory, especially when dealing with witnesses of a crime, as this type of memory can influence how the event is interpreted.

Implicit memory refers to information that is recalled unconsciously and effortlessly – this type of memory is also known as automatic memory (Rowe, Valderrama, Hasher & Lenartowicz, 2006). Implicit memory uses a person's past experiences to remember things about these occasions regardless of whether they happened a few days ago or a few years ago (May, Hasher & Foong, 2005). A subset of implicit memory is procedural memory. This type of memory allows for activities to be carried out without a person having to consciously think and perform a specific task, e.g. riding a bike. Procedural memory primarily involves the learning of new motor skills and performing them until they become automatic – this can be done through practising the skill and using memory to retain the details of how to perform the task or activity (Adi-Japha & Karni, 2016). Priming, another subset of implicit memory, is the use of other stimuli, such as pictures, words, or sounds to help a person recognise another word or phrase. This means that exposure to certain stimuli can then later influence responses to similar stimuli (Mitchell, 2006).

A theoretical model of memory that has been used to explain how memories are interpreted, stored as either short-term or long-term memory depending upon their rehearsal and retrieval, is the Multi-Store Model developed by Atkinson and Shiffrin (1968). This model is a structural model that consists of three stores: sensory memory, short-term memory, and long-term memory. Information perceived by a person passes through each store in a linear fashion by having an input, process, and output. Information is detected through a person's senses (sight, hearing, touch, taste, and smell) and then enters the first store of the model: sensory memory. Here, the information is encoded, it is at this point that if the information is attended to then it will enter into the short-term memory store. If the information in the short-term memory store is rehearsed (the memory is activated repeatedly) then the information will progress into the long-term memory store. However, if the information is not rehearsed then it will be forgotten, and the person will be unable to recall the memory.

Though the Multi-Store Model is a widely accepted theory of memory, it has been criticised for its simplicity (Baddeley & Hitch, 1974). The Working Model of Memory developed by Baddeley and Hitch (1974) suggested that short-term memory comprised of more than just one single store. It was theorised that there are different systems for different information. Baddeley and Hitch (1974) suggested that when information entered the sensory store if a person attended to this information it would then progress to the central executive. The central executive would then allocate the different types of information to the two subsystems: the visuospatial sketchpad and the phonological loop; used for visual/spatial information and speech-based information respectively. However, Baddeley and Hitch (1974) have been criticised as their explanation of the central executive is vague and limited in its explanation. Furthermore, the idea that there is only one single central executive may not be accurate as it is likely that there could be several components that contribute to this process (Beech, 1984).

The Multi-Store Model developed by Atkinson and Shiffrin (1968) was one of the first testable theories of memory and sparked a wide range of memory research (Oberauer, Lewandowsky, Awh, Brown & Conway, 2018). Though this theory uses single stores to explain memory, without adequately focusing on the types of memory, it has been widely accepted that memory falls into either short-term or long-term memory stores – though it is debateable how sensory information is translated to these memory stores. It is clear from the Working Model of Memory theory developed by Baddeley and Hitch (1974) that even though their model includes additional processes, such as the central executive, the phonological loop, and the visuospatial sketchpad, this model may also be lacking a detailed explanation of how sensory information is encoded into short-term and long-term memories.

1.1.2 Memory: Memory Decay

Memory Decay Theory suggests that overtime memories will fade and become less readily available for later retrieval (Brown, 1958). It was suggested that the memory itself, as well as the strength of the memory, will gradually fade away overtime and be forgotten. When something new is learnt, such as a new memory, the brain creates a neurochemical memory trace (Altmann & Gray, 2002). However, if the memory trace is not regularly rehearsed then overtime the trace will disintegrate and be forgotten. One of the best ways to inhibit the memory trace from disintegrating is

actively rehearsing the information in the memory trace (Altmann & Gray, 2002). However, this does not explain why people with degenerative memory diseases, such as dementia, are able to recall older memories but are less able to recall more recent memories (Bowen et al., 1997). This would suggest that memory decay generally negatively impacts short-term memory. Therefore, older memories that are stored in a person's long-term memory may remain largely unaffected and could leave individuals with the ability to continually retrieve these older memories (Ricker, Vergauwe & Cowan, 2016).

Research has argued whether the natural decay of memories acts as a function of the brain, as way of getting rid of information that is not deemed as important enough to retain, or rather is due to the passing of time (Ricker, Vergauwe & Cowan, 2016). Brown (1958) was one of the first to theorise that memory decay was due to the loss of activation of a memory trace due to the passage of time and was able to demonstrate how short-term memory could be forgotten. Brown (1958) suggested that decay not only occurred due to the passing of time but also due to a person's short-term memory capacity. If this capacity was exceeded then the information would be forgotten. Over a person's lifetime they will have a large amount of information that is stored in their long-term memory and a small amount of information that is stored in their short-term memory. The fundamental difference between the two distinct types of memory is that long-term memory is unlimited, whereas short-term memory is limited (Ricker, Vergauwe & Cowan, 2016).

Brown (1958) found that memory decay can occur over a brief period of time, it is only when a threshold is exceeded that a memory will become unreliable. Brown (1958) offers a simple explanation as to why a person will forget: if a memory trace is not rehearsed then this would result in forgetting and due to the capacity limit of short-term memory as items take time to be interpreted and recalled by the brain. Farrell et al. (2016) proposed that distraction was one of the leading factors that caused memory loss. Therefore, contrary to the findings of Brown (1958), Farrel et al. (2016) suggested that if a memory experienced interference with an older memory it may cause the older memory to be forgotten. If the memories are of a similar format then it could negatively impact the information that a person is trying to recall, due to their similarity, and thus, making a memory unreliable as it creates a combination of more than one original memory (Farrel et al., 2016). However, the Inference Theory of Forgetting (Farrel et al., 2016) usually pertains to long-term

memories and is unable to explain why short-term memory is lost over a short period of time, e.g. such as remembering a telephone number.

The Memory Decay Theory has been tested in laboratory type situations which has provided evidence for the theory as it has demonstrated how memory is forgotten over time and can validate that short-term memory has a limited capacity (Brown, 1958). However, to put this theory into practice creates great difficulty. When witnesses of a crime are interviewed, it is impossible to determine which parts of a memory have decayed, as the original event is not known to the interviewer. Additionally, interviews with witnesses may not always happen immediately after they have witnessed an event, though it is likely that a witness will experience some form of questioning when they are at a crime scene if it is imperative to the immediate situation, e.g. did you see the object that cause the injury. Furthermore, Memory Decay Theory is unable to explain why some individuals can remember events that occurred years ago and that have not been thought of since, indicating that no memory rehearsal has occurred (Davachi, Maril & Wagner, 2001). This could indicate that some aspects of memories make it into long-term memory without the memory being rehearsed, however, it would be likely that the majority of information that is not rehearsed will be forgotten.

1.1.3 Memory: Mortality Salience Theory

The Mortality Salience Theory (Burns, Hart, Kramer & Burns, 2014), also known as the 'Dying to Remember' theory, is the processing of information subject to its relevance to survival. Situations that present as a risk to survival are likely to cause thoughts of dying, this is so that the individual at risk has a heightened awareness of the situation. When this process is activated a person can experience behavioural and emotional changes – these changes are brought about to increase the likelihood of survival (Burns, Hart, Kramer & Burns, 2014). Some of these changes may facilitate memory encoding and retrieval.

Situations that increase the risk of death or serious harm have been shown to increase a persons' memory recall accuracy (Bell, Röer & Buchner, 2013). From an evolutionary perspective the reason for increased memory accuracy could be because if the individual survives the threatening event, it would be beneficial to remember what actions and tactics were used as the individual will then have evidence of a successful method, which may be useful in future situations (Bell, Röer &

Buchner, 2013). However, this theory has some limitations as it can be difficult to determine whether memory recall will benefit from the survival instinct being activated – as individuals will all have different life experiences which may impact on whether this instinct is triggered. Therefore, this suggests witnesses of serious crimes, where a threat to life or harm may be present, cannot conclusively be expected to exhibit more accurate memory recall. In some cases, it could be argued that if an event is perceived as being too stressful then a persons' memory recall accuracy may significantly decrease – this is known as the Yerkes-Dodson law (Bugaiska, Mermillod & Bonin, 2015). This was demonstrated by Jeong and Biocca (2012) who found that increased levels of emotional arousal resulted in an increase in memory recall accuracy. In the research conducted by Zhu, Zhao, Ybarra, Stephan and Yang (2015) findings showed that participants had significantly better memory recall accuracy of threat words in comparison to neutral words. It was proposed that memory recall was generally better for the threat-related words due to people being more vigilant and attentive to threat-related information. Even though none of the participants were in any immediate threat, the vigilance around these words was still activated. Thus, the Mortality Salienc Theory is able to provide support for why individuals may have increased focus pertaining to dangerous events that may pose a risk, but it is unable to explain why in some cases memory recall becomes severely negatively impacted due to the stress of an event, especially when these events may increase the risk of death or significant harm to life.

1.2 Theories of Personality and Memory

1.2.1 Personality: Arousal Theory

According to the Emotional Arousal Theory (Zillmann, 2008) each person has an arousal level that is unique to themselves. This means that each individual will also have an optimal level of arousal. An optimal level of arousal is where a person's consciousness, attention, and information processing is at its peak and allows that person to be able to function at their best (Zillmann, 2008). If arousal levels are below the optimal level then a person may seek out activities that stimulate their level of arousal. In many cases if a person's level of arousal drops below the optimal, they will simply feel bored and in many cases this will not have any negative effects and can be easily changed

through increased stimulation. However, in relation to memory this can negatively impact the way in which a memory is recalled. If a person is not consciously aware to divert their attention to a specific event then they may take no notice of a crime unfolding before them until an element of the event draws their attention to it. This means that crucial information could easily be missed from the recalling of the event as it was not observed and attended to during the encoding stage (Bull, 2012). Equally, if a person has exceeded their optimal level of arousal then they may seek out activities to calm themselves down. In this case a person may not be able to focus their attention on a specific event as their optimal level of arousal is exceeded – this can then inhibit memory recall as the information is not attended to correctly (Abercrombie, Speck & Monticelli, 2006). In both cases, whether a person is below or above their optimal level of arousal a negative consequence on their memory recall may be observed.

Arousal levels vary from person to person and it is difficult to distinguish, without a laboratory setting, what a person's optimal level of arousal is (Tiwari, 2010). Arousal is impacted by several factors, such as genetics, personal experiences, and the current mood of the individual (Peace & Constatin, 2016). As previously stated, arousal is critical for the regulation of consciousness, attention, and information processing, which are all necessary for memories to be encoded and later retrieved (Zillmann, 2008). It is believed that different personality types may be likely to have different levels of arousal (Bullock & Gilliland, 1993). It was suggested that introverts and extraverts may have different baseline arousals to begin with and therefore they may respond to stimuli differently. For example, introverts appear to have higher levels of arousal, suggesting that they can become overstimulated more easily than extraverts. This suggests that introverts may be more likely to exceed their optimal level of arousal to less stimulating events, compared with extraverts. However, extraverts may also experience negative consequences with regards to their memory as they may not experience enough stimulation to activate them to their optimal level of arousal.

Research has suggested that personality, such as a person's level of extraversion, may impact on their memory recall (Bullock & Gilliland, 1993). However, this theory does not take into account that individuals who exhibit introverted personality traits may also be more likely to experience other factors that could further negatively impact on memory recall. It has been suggested that those who experience introverted traits may be more likely to also experience higher levels of anxiety (Hamed & Akbari, 2015). This could increase the negative impact on memory recall accuracy

as anxiety has been shown to have a detrimental effect on memory functioning (Kizilbash, Vanderploeg & Curtiss, 2002). It is believed the link between anxiety and reduced memory recall accuracy is due to the body's natural "fight or flight" response and having such stress on the body and brain can cause the normal functioning of memory to become compromised as resources are focused on other aspects of the body, such as preparing for a physical altercation. However, this means that extraversion alone may not be the only factor that inhibits memory recall, it could be suggested that individuals with lower levels of extraversion experience lower levels of memory recall accuracy due to their increased likelihood of also experiencing anxiety.

Furthermore, the Emotional Arousal Theory can suggest why a memory may have become compromised, especially when in a laboratory setting as this can be measured (Davidson, Dixon & Hultsch, 1991). However, in real-life situations where police interviews will evoke a natural increase in stress and anxiety it can be difficult to establish when an individual is becoming compromised. One of the main weaknesses of this theory is that the cause for reaching or exceeding optimal arousal is unknown as this will vary depending on the individual. Therefore, the approach to establishing a person's optimal level of arousal would need to be completed on an individual basis which would be time-consuming and impractical. However, this theory does provide evidence to suggest that different personalities will respond differently to the same information and is able to provide evidence to suggest that personality traits may impact on memory recall accuracy (Bullock & Gilliland, 1993).

1.2.2 Personality: Theory of Agreeableness

Agreeableness is a personality trait that has been defined as generating the following personal tendencies: likes to assist others, has an interest in helping others, altruistic, kind, sympathetic, cooperative, and considerate (McCrae & Costa, 1992). Individuals with high levels of agreeableness tend to be more likely to help others, are empathic towards others, and care about others; whereas individuals with low levels of agreeableness may be more likely to be selfish, lack empathy for others, and have little interest in others and assisting them (Bresin & Robinson, 2014).

McCrae and Costa (1992) stated that each personality trait was made up of sub-traits, and for agreeableness it was suggested that these following traits were what comprised agreeableness: trust, straightforwardness, altruism, compliance, modesty, and tender mindedness. It is thought that

individuals with higher levels of agreeableness may be more helpful during certain situations (Bresin & Robinson, 2014). For example, it could be suggested that because individuals with higher levels of agreeableness tend to have a greater interest in others, be more willing to assist others, and are more inclined to care about others, that if these individuals witness a crime then it is possible that their eyewitness testimonies may be more reliable and have higher validity. This is because these individuals may be more willing to engage with police questioning, rather than seeing this as a laborious and time-consuming task, as they will want to help the victim (Graziano & Tobin, 2002). However, if a witness of a crime has lower levels of agreeableness, then they may be less likely to want to engage with police interviewing processes due to being more selfish and having a lack of empathy for others – thus they are less likely to place themselves in the victims' situation or willing to invest personal time to help others.

The Theory of Agreeableness focuses on a positive personality trait where higher levels of agreeableness have been considered as favourable characteristics for people to have (Bresin & Robinson, 2014). However, Lowe, Edmundson and Widiger (2009) found that some individuals with higher levels of agreeableness could become negatively impacted by potentially putting them at risk by being overly agreeable with others and agreeing to undergo tasks that could result in a negative outcome – this is known as pathological agreeableness. Individuals who have pathological agreeableness usually tend to be overly compliant with others, even when it is not safe for them to do so. These individuals can need constant or repeated reassurance from others when making everyday decisions and can be too altruistic by volunteering themselves to do things even if they are unpleasant. In essence these individuals may want to please others to such an extent that it is detrimental to their own wellbeing. In regard to eyewitness testimony this could have notable implications. In these cases, should a witness experience pathological agreeableness this may result in a multitude of factors that could distort their account. Firstly, they may be more susceptible to misleading questions and any form of manipulation during interviewing stages. It would be expected that these individuals would want to be perceived in the most desirable way and therefore would be more likely to be liable to misinformation and misleading styles of questioning. Furthermore, they may be less likely to give a genuine account of the situation. It has already been documented that witnesses may converge their accounts with information from other witnesses (Rechdan et al., 2018) and it could be likely that individuals with pathological agreeableness are predisposed to being

influenced by others. Lastly, these individuals may be more likely to take a risk by protecting a guilty person in an effort to assist this person. This means that those with pathological agreeableness may refrain from divulging information with law enforcement to try to keep a guilty party “safe” – this could mean that these individuals are more subject to being manipulated by others (Lowe, Edmundson & Widiger, 2009).

The Theory of Agreeableness has come under scrutiny due to the way this personality trait is measured (Crowe, Lynam & Miller, 2018). One of the main issues in general with measuring personality traits is that they are largely reliant upon self-report techniques and it is possible that participants completing these measures may want to be seen as favourably as possible, which could lead to demand characteristics (Vartanian & Powlishta, 2001). Furthermore, Boyle (2008) suggested that personality was not a static structure but more a structure that is constantly developing and the Theory of Agreeableness does not account for this constant progression. It is likely that as individuals mature their experiential learning will influence the development of personality and therefore, it is likely that they will change to some degree (Boyle, 2008). In relation to eyewitness testimonies, if personality assessments were employed to distinguish where individuals' memories may be enhanced and where they may be subject to memory weakness, then it could be argued that if the personality measure is used within relatively quick succession of the interviewing processes it is likely that this will be an accurate depiction of the individuals personality. This means that the aspects of personality traits that can either increase or decrease the reliability and validity of eyewitness accounts are likely to impact upon their recall of events at that particular time. Though it is worth stating that if the individual was re-interviewed over a period of time then it may be necessary to re-assess their personality traits to ensure that the fluidity and variability of such traits are accounted for and the advantages and drawbacks of each trait is not unnecessarily weighted.

1.3 Theories of Social Psychology

1.3.1 Social Psychology: Behaviourism and Social Learning Theory

Behaviourism is a theory which suggests that individuals learn behaviours through classical and operant conditioning (Bandura, Adams & Beyer, 1977). Classical conditioning (Bandura, Adams

& Beyer, 1977) is the process of learning whereby individuals learn via association – e.g. learning to associate a stimulus to produce a behaviour. It has been suggested that nearly every human response is due to a pattern of stimulus responses (Horowitz, 1992). For classical conditioning to occur there needs to be a series of events that occur to cause a change in behaviour. Initially an unconditioned stimulus will cause an unconditioned response in a person, e.g. a virus may cause a person to feel nauseous, which would be an unconscious response to the virus. Next, the presence of a neutral stimulus needs to occur at the same time as the unconditioned stimulus to cause the unconditioned response. The neutral stimulus will have no effect on a person and can range from being an object, place or person etc. During the conditioning process the unconditioned stimulus will cause the unconditioned response and the neutral stimulus will be also present. At this point the neutral stimulus will be associated with the unconditioned response and if this occurrence happens multiple times then the neutral stimulus will become the conditioned stimulus. Once a behaviour has become conditioned this means that every time an individual is exposed to the now conditioned stimulus they will associate this with the unconditioned response and thus, this will become a conditioned response via association (Gershman & Niv, 2012). For example, if criminal behaviour occurs repeatedly in the presence of certain occurrences, such as substance abuse, this may eventually produce classical conditioning responses that motivate crime. This is because when an individual engages in such behaviour, they associate this with engaging in criminal activity.

It has been suggested that a strong conscience is critical in the development of socialised behaviour (Raine, Venables & Williams, 1996). It has been implied that a person's conscience can be viewed as a set of classical conditioned responses – where individuals may form associations between a signal of punishment and the punishment itself (Kumari, Ffytche, Das, Wilson & Goswami, 2007). This association creates an anticipatory fear. It has been suggested that anticipatory fear may reduce the incentive for individuals to engage in criminal behaviour (Raine, Venables & Williams, 1996). This implies that individuals who have a better ability to be conditioned are more likely to be protected from going on to engage with further criminal behaviour. This proposition was supported by Payne and Salotti (2007), who suggest that individuals are naturally deviant and need to control their behaviour to prevent their involvement in criminal activity. However, this does not account for free will and that a person is actively involved in their behaviour and may choose not to engage in criminal behaviour. Watt, Howells and Delfabbro (2004) implied criminal behaviour could be linked to social

factors such as criminal friends, family cohesion, and academic attainment. This indicates that individuals may learn their behaviours from others and their environment, and that behaviour cannot solely be explained by behaviourist approaches. It is too simplistic to state that all individuals have a natural propensity for engaging in criminal behaviour as research has demonstrated this (Watt, Howells & Delfabbro, 2004). Therefore, it cannot necessarily be stated that conditioning alone causes criminal behaviour – though it may be a contributing factor and it is likely that these associations would impact on how individuals interpret and recall crimes.

This notion was supported by Gao, Raine, Venables, Dawson and Mednick (2010), who found that children who had poor levels of fear conditioning were more likely to be involved in criminal behaviour as an adult. Therefore, it could be suggested that witnesses to crime who have poor fear conditioning may be less likely to identify behaviours as criminal due to their increased likelihood of engaging in criminal behaviour. Furthermore, a lack in capacity to experience anticipatory fear may reduce the likelihood of reporting crimes and influence the way in which crimes are reported by these individuals. For example, individuals with a lack of anticipatory fear may report criminal incidents less severely than a person with higher levels of anticipatory fear. This indicates there could be potential differences between individuals and their eyewitness reports of crimes due to personal experiences. However, accounting for personal experiences during police interviewing processes would be nearly impossible due to the extensive research that would need to take place for each individual difference to be accounted for. Further although it has been suggested that those with a lack of anticipatory fear may have an increased likelihood of engaging in criminal behaviour, it could also be suggested that this predisposition may also be linked to interpretational differences between individuals and may not be solely reliant upon their ability to experience anticipatory fear.

Operant conditioning is a form of learning through reinforcement and punishment (Puschmann, Brechmann & Thiel, 2013). Reinforcements can either be positive or negative and aim to correct and encourage a desired behaviour. Positive reinforcement is where an individual will be rewarded for producing a correct behaviour. Negative reinforcement aims to change behaviours that are not desirable, so that individuals will correct their behaviour to a desirable one. A punishment is used to decrease a behaviour altogether. An extension of the operant conditioning theory is observational learning or Social Learning Theory. This is where individuals observe those around them and imitate the behaviours of others. This can be most notably seen in young children who base

a lot of their behaviours on adults around them (Rader & Haynes, 2011). For this process to occur an individual will need to observe the behaviour, retain the behaviours observed, and then imitate the behaviours. It is likely that individuals may learn undesirable behaviours via observation learning, especially if the undesirable behaviours are being acted out by a child's primary role model, such as a parent or primary caregiver (Payne & Salotti, 2007). It has also been suggested that an individual's behaviour may be a product of their environment. If there is no role model to punish undesirable behaviours then individuals may not identify the negative impact these may have on different people (Payne & Salotti, 2007). This could ultimately negatively impact eyewitnesses of crimes depending upon the social attitudes and behaviours that individuals have been raised with. If witnesses have been brought up in environments where violence is a regular occurrence, it may be that the individuals exposed to these behaviours perceive them as normal and could fail to identify similar actions as criminal if they were observed. This could result in a reduced likelihood of reporting the incident initially and furthermore, even if the incident was reported the recalling of the event could be interpreted less severely than the incident actually is.

1.3.2 Social Psychology: Cycle of Violence Theory

The Cycle of Violence Theory suggests that repeated acts of violence take form in a cyclical pattern by constantly being repeated (Taghizadegan & Otto, 2016). For the cycle of violence to take place several factors need to occur. Initially there is a phase of tension building. During this phase tension will begin to increase between the people in the relationship; this could be verbal, physical, emotional, sexual, or financial abuse (White Ribbon, n.d.). For the individual experiencing this abuse this could be frightening as they may anticipate that the abuser will explode if they do anything perceived as wrong (Wright & Fagan, 2013). The tension in the relationship will then reach a peak where the abuse is at its worst – this is known as the acute explosion phase (White Ribbon, n.d.). Once this phase has passed the perpetrator may feel remorse for their actions and the abuse they committed. At this point the perpetrator may promise that the abuse will never happen again or that it was a result of another factor such as alcohol or stress, in a bid to pursue their victim and make them stay (Littman & Paluck, 2015). This is to try make the victim believe that the perpetrator has changed. If the victim decides to stay with the perpetrator then the cycle enters the denial phase. In this phase

both parties are in denial about the severity of the behaviour of the perpetrator (Brown, Graaf, Annan & Betancourt, 2017). Here, as both parties want to remain in the relationship it is likely that neither will acknowledge the likelihood of the abuse reoccurring – even if this cycle has previously occurred. Over time this “honeymoon” phase will diminish, and the cycle may begin again (White Ribbon, n.d.).

The Cycle of Violence Theory is able to clearly demonstrate how repeated violence forms and why victims may choose to stay with their abusive partners (Littman & Paluck, 2015), however, this explanation is simplistic and does not account for individual differences and different personal circumstances. It may be worth exploring in greater detail the manipulation used by perpetrators to influence the victim’s decision to stay in the relationship as this could play a key part in the victim’s decision-making (Lyndon, White & Kadlec, 2007). Other factors, such as proximity to family or friends (Voolma, 2018), financial circumstances (Conway, 2013), and children (Chanmugam, 2014) could all impact on a victim’s ability to escape their abuse. This demonstrates that victims of violence may not be able to escape their violence easily on their own, due to the victim’s entrapment with their perpetrator. This raises concerns over how the public respond to witnessing aspects of abuse.

Unfortunately, witnesses of domestic violence crimes rarely observe the full extent of the abuse (White Ribbon, n.d.). By only witnessing a single violent event, it is likely that the witness may perceive this as being an isolated incident – especially if there are no other signs to suggest reoccurring violence, e.g. bruising (Meyer, 2018). This means that the witness is unable to identify the build-up of tension over time or the abuse previously experienced and the overall cycle that they victim is a part of. This can be particularly notable in the denial and honeymoon phases where the relationship may look to be mended and continuing in a positive direction. Therefore, due to witnesses usually witnessing a one-off event it is likely that they will treat it as such and may be less likely to report this abuse to the police. This also adds to the cycle of violence as victims may have to suffer prolonged abuse before an incident is severe enough that either; a witness reports this to the police, the victim is hospitalised, or the victim is able to report their abuse themselves. However, it is unlikely that domestic violence incidents are reported after just one occurrence and usually the abuse will be experienced for an extended period of time (The Office of National Statistics, 2018).

1.3.3 Social Psychology: Gender Socialisation Theory

The Gender Socialisation Theory, Brody (1997) refers to the learning of behaviours and attitudes that are appropriate for each sex. Gender Socialisation Theory is not solely linked to the physiological differences between males and females but to how they are socialised in society (Brody, 1997). Brody (1997) identified that these observed gender differences may be a result of dissimilar gender roles, status, and power imbalances.

Carter (2014) argues that biological differences are unlikely to be responsible for gender differences in society, instead he suggests that this is dependent upon how the gender stereotypes emerge and develop throughout a person's life. To explore this notion, Scott and Mikell (2019) examined how Gender Socialisation Theory impacted on criminal behaviour in females. They found that females who adhered to more masculine stereotypes were more likely to turn to alcohol and drug use to help deal with strain, e.g. financial difficulties – this was in line with stereotypical male responses to financial stress. However, females who adhered to more feminine stereotypes had a reduced likelihood of using alcohol or drugs to deal with strain. It is possible that feminine females were more likely to perceive the drug and alcohol use as 'unlady-like' and therefore were less likely to engage in this behaviour. This implies that the perception of masculinity and femininity may impact how an individual will react to a situation based on their perceived stereotype of that gender. Rye, Greatrix and Enright (2006) found that witnesses of crime do not judge an incident primarily on the crime committed. Instead, they suggested that witnesses judged the perpetrator depending on who their victim was. This study showed that male victims were more likely to be blamed for their victimisation compared with female victims. Furthermore, female perpetrators were held less responsible for their crimes compared with males. This demonstrated that socialised stereotypical views of females result in them being less likely to be considered as responsible for committing a crime – regardless of whether they are the perpetrator or the victim. It has been theorised that this perception of females is attributed towards the notion that females are generally physically weaker, more emotional, and more likely to be a victim of previous crime (Radar & Haynes, 2011). This could mean that because of the already established perception of crimes, such as domestic violence a crime perpetrated by males against females that witnesses are predisposed to viewing females as more vulnerable than males even when this is not the case (Shipway, 2006).

1.4 Theories of Decision-Making

1.4.1 Decision-Making: Bystander Effect

The Bystander Effect Theory, (Fischer, Krueger, Greitemeyer, Vogrincic & Kastenmüller, 2011) suggests that the more people that are present the less likely an individual is to offer help to a victim of crime. There are multiple factors that can contribute to the Bystander Effect and decrease the likelihood of witnesses intervening in a crime. These include the ambiguity of the situation, the diffusion of responsibility, and group cohesiveness (Fischer, Krueger, Greitemeyer, Vogrincic & Kastenmüller, 2011).

One of the most renowned cases of the Bystander Effect in action is that of Kitty Genovese. In March 1964 Kitty was stabbed, sexually assaulted, and murdered whilst walking home in New York. Reports claimed that there were 38 witnesses to her stabbing but none of the witnesses intervened during her attack nor did they ring the police. It was not until after Kitty's perpetrator had fled and Kitty had died that the police were called (Lurigio, 2015). However, the reliability of this case has come under scrutiny as it is said there were fewer than 38 witnesses, the police were called and alerted to the situation during Kitty's attack, and many of the witnesses who heard the incident could not see what was happening and therefore were unlikely to understand the severity of the incident (Kassin, 2017). Despite the misrepresentations of Kitty's attack, the case raised awareness of the Bystander Effect and why this may occur in certain circumstances (Lurigio, 2015).

When crimes occur in public with multiple potential witnesses around there may be an increased likelihood that the witness will not get involved in the incident. For a witness to intervene with an incident several factors need to occur as outlined by Latané and Darley (1970). Firstly, the witness will need to identify the situation as an emergency requiring their assistance. If the incident is too ambiguous (it is not clear what is happening) then it may be difficult for a witness to accurately assess the severity of the situation – in this occurrence a witness may choose not to get involved. If a witness is able to identify the critical situation they will then need to develop a feeling of responsibility – e.g. that they need to intervene in the situation for the victim's safety. Once the witness feels responsibility for intervening they will then assess their ability to intervene. Witnesses will normally only get involved in an incident if they believe that their intervention will be successful (usually for both

themselves and the victim). Once a witness has determined whether they have the ability to successfully intervene they need to make a conscious decision to actively intervene in the incident (Latané & Darley, 1970).

Latané and Darley (1970) outlined the processes which can impact eyewitness testimony, these factors are explored below.

The ambiguity of the situation could result in witnesses being unable to accurately assess a situation whereby they are able to identify that a victim is in need of help. It is possible that crimes that do not adhere to societal norms and stereotypes may reduce a witnesses' ability to interpret a situation as an emergency. It is likely that witnesses who are familiar with the crime they are witnessing may be able to make better assessments and judgements of the severity of the situation. For example, it could be suggested that incidents where there is a female perpetrator may be less likely to have witnesses intervene due to perceiving the female perpetrator as having a reduced threat level compared with a male perpetrator (Rye, Greatrix & Enright, 2006). This could negatively impact the reliability of reporting of crimes and the accuracy of eyewitnesses. It is possible that how eyewitnesses perceive, interpret, and judge a situation could impact their assessments of the severity of an incident. It is fair to state that witnesses may not get involved, not because they do not want to intervene but rather that their judgement of the situation is flawed, and they are therefore unable to adequately assess threat of the situation.

One of the main viewpoints of the Bystander Effect is that witnesses do not intervene in a situation due to the diffusion of responsibility (Latané & Darley, 1970). This means that when a witness is surrounded by others there is a reduced chance of them intervening should an incident arise. This is usually due to two reasons; firstly, the witness may believe that someone else will have intervened in some way e.g. called the police, and secondly, that if no one else is intervening then why should they – this is known as group cohesiveness (Lurigio, 2015). Group cohesiveness could reduce the likelihood of witness intervention due to witnesses following the behaviours of those around them. If others around them do not react to an incident then witnesses may feel that they do not need to react either and may use the behaviours of those around them to help judge the severity of the incident. However, the Bystander Effect may still occur when the witness is the sole witness and therefore the diffusion of responsibility and group cohesiveness cannot be solely responsible for witnesses not intervening in crimes.

1.4.2 Decision-Making: Attribution Theory

One of the main concepts of Attribution Theory is locus of control (Costa & Neves, 2017). This is whether an individual perceives the outcome of events as a result of themselves or of some external factor (Cramer, Chandler & Wakeman, 2010). Individuals with an internal locus of control usually have a tendency to believe that it is their own facility for how an event turned out, e.g. if they are a victim of crime they may believe that it was something they did that caused their victimisation. Individuals with an external locus of control may attribute the outcome of an event with an external factor, e.g. if they had consumed alcohol at the time they are victimised then they may blame their victimisation on a perpetrator taking advantage of their vulnerability at that time. Although attribution can be done by oneself it is imperative to understand and explore how blame attribution is applied by witnesses of crimes as this could impact the recalling and subsequent reporting of crimes.

When witnesses observe a crime, they will be forced to make a decision on whether to report the crime to the police or not. Blame attribution could be heavily influential in this witness decision-making process. Bruggen and Grubb (2014) found that male victims were more likely to be blamed compared with female victims. It was believed that the blame on male victims was attributed to their physically larger body size and their ability to fight back. This study also observed that males were more likely to blame victims, especially in rape crimes, compared with females. This was thought to be as a result of common rape myths, e.g. the victim was dressed provocatively and therefore encouraged the perpetrator. This study was also able to demonstrate how witnesses of crimes can attribute blame and how this can be an important factor in how an incident is interpreted and reported. It is likely that crimes which do not adhere to stereotypical views are likely to have the blame placed on the victim. However, this was not only reported for crimes that did not adhere to societal stereotypes but also for crimes that did adhere to societal stereotypes, e.g. rape. This finding could be as a result of rape being a largely private crime, that may be less commonly seen in public and therefore the unusualness and reduced familiarity with the crime may have caused rape myths to be adhered to a greater extent. This raises questions as to how other typically private crimes are perceived by others, e.g. domestic violence, and how blame is attributed in the incidents. It could be suggested that for such crimes, due to them usually being hidden from public, there is a general lack of understanding of how victims and perpetrators act in these events. Therefore, stereotypical beliefs

may be used as a way of understanding the event and to pass judgement. Ultimately the lack of understanding may mean that events are interpreted inaccurately and that as a result blame is attributed to the victim instead of the perpetrator (Grubb & Turner, 2012).

1.5 Conclusion

Chapter 1 introduced the theoretical concepts for memory processes, personality, social psychology, and decision-making. These will be used throughout the thesis to explore the hypotheses and findings of the research. Chapter 2 will explore the reliability of eyewitness testimony and factors that can impact upon eyewitnesses, such as; the type of crime witnessed, and the source material used in eyewitness testimony studies.

Chapter 2: Eyewitness Testimony Reliability

2.1 Previous research into the reliability of eyewitness evidence

The reliability and usefulness of eyewitness testimony has been extensively researched due to its prevalence and extensive use in police investigations (Houston, Hope, Memon & Read, 2013; Loftus, 2013; Magnussen, Melinder, Stridbeck & Raja, 2010; Pawlenko, Safer, Wise & Holfeld, 2013, Valentine & Maras, 2011; Skagerberg & Wright, 2009). The Innocence Project (2015), which is an American organisation aimed at exonerating wrongly convicted individuals, has identified that faulty eyewitness statements and misidentifications have been responsible for over 70% of erroneous incarcerations in the U.S.. Whilst eyewitnesses have been shown to be unreliable in both academic (Memon, Mastroberardino & Fraser, 2008) and real-life contexts (Skagerberg & Wright, 2009), this form of evidence is still extensively employed to aid in the arresting, charging and convicting of individuals (Launay & Py, 2015). It was stated by O'Neill Shermer, Rose and Hoffman (2011), that physical forensic evidence alone (DNA evidence), is not always sufficient for some lines of enquiry. Although DNA and crime scene evidence can provide critical information for criminal investigations, witnesses can provide details surrounding the conversations, motivations, and reaffirm crime scene behaviours, which DNA evidence alone cannot offer (Jamel, 2014; Maeder, Ewanation & Monnink, 2017). Since witness statements are used in a large amount of criminal investigations it is imperative to explore the advantages and limitations of using such evidence (Overbeck, 2005).

The Innocence Project (n.d.) can be appointed to reinvestigate convictions where the person incarcerated may be innocent. However, The Innocence Project only gets involved with cases where there is a strong belief that a person is innocent and there is potential evidence available to prove a person's innocence. To date, The Innocence Project (n.d.) has exonerated 362 people, with around 70% of these wrongful convictions due to eyewitness misidentification, which included faulty eyewitness testimony. An example of this was uncovered in a case where faulty witness evidence had resulted in an erroneous prison sentence - the case of Ronald Cotton. Jennifer was in her home when a man came into her bedroom, held a knife to her throat, and threatened to kill her. Whilst the perpetrator raped Jennifer, she decided to memorise every detail about him, from his weight to his

voice – using this method, if she got out alive, she thought she would have a greater probability of later recognising her attacker. As Jennifer was able to provide an in-depth and detailed account of her perpetrator, police officers were convinced that she would be able to correctly identify her perpetrator from a photo line-up. After Jennifer had selected a photograph of her suspected perpetrator, Ronald Cotton, police officers confirmed to Jennifer that she had selected the same person the police believed to be the perpetrator. Subsequently, Jennifer was asked to identify her perpetrator from a police line-up. Ronald Cotton was the only person who was present in both the photo line-up and the police line-up. Thus, Jennifer selected Ronald Cotton again as the man who raped her. Once again, when Jennifer selected Ronald Cotton, police congratulated her on identifying the correct suspect. Ronald was consequently charged and convicted of raping Jennifer and spent over 10 years in prison, until DNA evidence later exonerated him.

In this case, there were several contributing factors that led to Ronald Cotton becoming initially accused of the crime and later convicted. Here, factors such as the photo line-ups and police line-ups were manipulating Jennifer's identification of her perpetrator, due to repeated exposure to Ronald Cotton and therefore familiarity with one person – this is also known as unconscious transference (Davis, Loftus, Vanous & Cucciare, 2008; Deffenbacher, Bornstein & Penrod, 2006; Ross, Ceci, Dunning & Togli, 1994; Steblay & Dysart, 2016). The police officers also reaffirmed Jennifer's identification of Ronald Cotton which may have contributed to her confidence in her account (Wade, Nash & Lindsay, 2018). Additionally, the ethnicity of Jennifer and Ronald Cotton could have impacted on the reliability of Jennifer's testimony – as the victim and perpetrator were not the same ethnicity and therefore further queried the accuracy of Jennifer's testimony. This is due to previous literature stating that witnesses are usually better at identifying a person who belongs to the same ethnicity as themselves, compared with someone of a different ethnicity (Arnold, 2013; Rundu & Kask, 2012; Wylie, Bergt, Haby, Brank & Bornstein, 2015).

In the case of Ronald Cotton, a lot of the factors that impacted on the accuracy and reliability of Jennifer's witness statement were due to police misconduct, though it cannot be stated whether this was intentional due to Ronald Cotton's ethnicity or due to police officers desperately wanting to get an arrest without knowingly performing misleading techniques. However, police misconduct alone has not been the only cause for unreliable eyewitness statements and previous research has demonstrated how the physical aspects involved with witnessing a crime can also heavily impact

upon the reliability and accuracy of a witness statement. The physical aspects of a crime that can affect the reliability of eyewitness recall are further discussed below.

2.2 Nature and type of crime

2.2.1 Witnessing violent and non-violent crimes

Different types of criminal incidents have been shown to elicit varying levels of emotional arousal (Peth, Vossel & Gamer, 2012). Research has shown that the type of emotional arousal experienced whilst viewing a criminal incident influences the accuracy of memory recall (Talarico, Berntsen & Rubin, 2009). Research has suggested that the more emotionally stimulating an event is the more likely a witness is to recall the event accurately (Touryan, Marian & Shimamura, 2007). When viewing emotionally arousing incidents, it has been suggested that witnesses may experience an optimal level of arousal, which benefits their memory recall of the event as their attention is directed towards the incident and encourages them to focus on the actions unfolding (Balmer et al., 2016). However, if a person witnesses a severely violent or distressing incident, this could lead to a witness's optimal level of arousal being exceeded and thus reducing the reliability and accuracy of their memory recall (Abercrombie, Speck & Monticelli, 2006). Therefore, eyewitness reliability could be impacted by the type of criminal incident witnessed, e.g. violent or non-violent.

This was demonstrated by Gunter, Furnham and Pappa (2005) who examined how memory encoding was impacted by witnessing either violent or non-violent videos. This research concluded that witnesses who viewed the violent video had less accurate memory recall than those who witnessed the non-violent video footage. The observed differences in memory recall accuracy could have been due to differing levels of emotional arousal. Here, it was suggested that the increased severity of the violent incident influenced the participants' attention, encoding, and later negatively impacted their memory retrieval. However, this research only focused on television advertisements and therefore lacked ecological validity as findings from this research cannot necessarily be extrapolated to criminal incidents, due to such incidents being real-life events with potentially serious legal consequences. Furthermore, the participants' memory recall resulted in no legal consequences on another person and therefore participants may have less motivation to provide an accurate

memory recall. In addition to this, participants were aware that they were watching an advertisement and would understand that the event witnessed was dramatized, further confirming that participants may have felt less inclined to provide a heavily detailed account as there were no consequences for not doing so.

Similarly, Talarico et al. (2009) studied memory recall of participants witnessing scenes from movies and found that memory recall accuracy reduced with increased violence. However, the dramatization of crimes or serious incidents cannot necessarily replicate how witnesses react to real-life crimes, as both advertisements and movies have layouts and footage quality that participants associate with the media and they will thus be aware that the witnessed event is staged. In addition, the media format used may not have escalated participants arousal levels to their optimal and therefore it would be difficult to make assumptions about real-life crimes based on events that are clearly dramatized for entertainment purposes alone (Zillmann, 2008). Therefore, the participants' judgement and interpretation of the incidents may differ compared to when recalling real-life incidents.

McGaugh (2006) suggested emotional arousal is essential for memory to be successfully accurate. In this study participants were shown neutral and emotional stimuli and were later asked to recall the information. Participants who witnessed emotional stimuli had better memory recall compared to participants who witnessed neutral stimuli. However, during this study stress hormones were administered artificially, and the findings therefore do not necessarily represent how participants would respond in a natural environment, as the induced stress hormones could have distorted the participants' natural stress reaction during these circumstances by either inducing too much or not enough stress. In addition to this, Hoscheidt, LaBar, Ryan, Jacobs and Nadel (2014) found that emotional arousal was beneficial when recalling distressing incidents. Here, the research findings implied that the induced stress from the incident and the enhanced emotional arousal resulted in participants having a strengthened memory recall of the incident and were less likely to be influenced by misinformation. However, this finding may have lacked ecological validity due to the experiment using a staged incident that participants were not directly involved with. When witnessing real-life incidents witnesses could have a differing level of emotional arousal as a real-life incident would most likely evoke more emotional arousal of the participants which could impact on the participants' memory recall of an event (Bull, 2012).

Some research conducted has suggested that a heightened state of emotional arousal could benefit the recalling of an event – this is particularly notable for witnesses viewing violent incidents (Nielson & Powless, 2007). Furthermore, Dando, Wilcock, Milne and Henry (2009) suggested that recreating the emotional state an incident was witnessed under might aid memory recall. However, although this method may be beneficial in facilitating memory recall, this practice could have serious ethical implications. This could be particularly problematic for witnesses of traumatic and violent crimes, as recreating their emotional state could cause witnesses to become distressed and experience psychological trauma. This was supported by Kikuchi et al. (2010) who demonstrated how some witnesses experienced dissociative amnesia after witnessing a distressing incident. In this study the witnessed incident was deemed as being so traumatic that witnesses repressed the memory and were later unable to accurately recall details of the incident. It was suggested that memory repression could be used as a defence mechanism to protect witnesses from the traumatic memory. However, this study only used participants who were real-life victims of trauma and is therefore unable to provide insight as to how witnesses of crimes, with no previous experience of trauma, may have their memory recall impacted.

Abercrombie, Speck and Monticelli (2006) suggested that witnesses of negative incidents have different levels of emotional arousal due to individual differences. In their research, all participants took part in two sessions; one session to ascertain their emotional arousal to neutral stimuli and then a second session where manipulated emotional stimuli were presented. Findings revealed that participants exposed to severely negative stimuli had less accurate memory recall compared with participants exposed to negative stimuli. This was in comparison to the control condition, where participants were exposed to neutral stimuli. Participants exposed to the neutral stimuli also had less accurate memory recall compared with participants exposed to negative stimuli. It was concluded that participants who witnessed the negative stimuli had the most accurate memory recall. This provided further support for the notion that witnessing severely distressing incidents may inhibit memory recall. These findings could be due to participants who viewed the negative incident having their attention drawn to the incident; that they were able to encode what they had witnessed and later were able to retrieve the information. This implies that these participants had an optimal level of emotional arousal. Participants in the neutral stimuli condition were not emotionally aroused enough and those in the severely negative stimuli condition were too emotionally aroused and

therefore their memory recall was negatively impacted. This study is one of few that compared the memory recall from two negative incidents, one being more graphic than the other. However, this study only used photographic images that were shown to participants and therefore this research cannot explain how emotional arousal would have impacted interpretations of video footage or a real-life incident. Further, using photographs would allow participants to interpret the incident potentially in greater detail as the image is not evolving or changing throughout, unlike with a real-life crime where participants have to react and interpret the actions as they occur. If participants can use more information to interpret and judge an incident their perceptions of an event may change and alter in line with the other actions developing throughout.

Therefore, it would be more beneficial to understand how witnesses perceive and interpret incidents that are congruent with witness expectations and those that are against, as this could provide insightful evidence to establish the reliability and validity of eyewitness recall. This could have the potential for police officers interviewing eyewitnesses to incorporate factors that may influence the recall accuracy of a crime, as crimes that are in line with expectations may be exaggerated due to the witness's media exposure and subsequent stereotypes of persons who commit certain crimes. Additionally, if witnesses see a crime that is non-congruent with their expectations, it could be suggested that recall may be less accurate as a result of a witness's personal biases and expectations being challenged. This could mean that the crime is not interpreted in the same way as a criminal whose actions matched a witness's expectations. This was supported by the Ministry of Justice (2015) who found that in 2015 53,892 females received sentences for their first main offence, whereas 300,807 males received sentences. This could have been as a result of an increase in witnesses/victims reporting male offenders to the police compared with female offenders, resulting in the disparity in sentencing between genders. However, the most common crime for female offenders was theft with 22% (12,050) of those sentenced convicted of this crime, whereas for male offenders the most common crime was violence against a person, with 22% (66,068) of those sentenced being convicted of this crime. Therefore, the differences in sentencing and gender could have been due to the types of crime each gender was more likely to commit and violence against another person could have been perceived as being more serious than theft, as there was a physical attack on another person that could pose as either a risk to life or a risk of injury. Additionally, Hopkins, Uhrig and Colahan (2015) also showed how non-white male offenders were more likely to be imprisoned as a

result of their crimes, with 22% being imprisoned compared with 17% of white males, despite non-white males being the minority group of all those imprisoned. This could suggest an unequal bias towards some demographics and potentially unfair reporting that subsequently influences juror decision-making regarding guilt. Therefore, this research provides supporting evidence that factors impacting on witness interpretation and judgements need to be examined to understand how this may affect eyewitness recall as this suggests that individual differences may impact on how incidents are recalled.

2.2.2 Previous source material used for depicting crimes

Throughout previous literature the relationship between confidence and accuracy has been measured (Brewer & Wells, 2006; Flowe et al., 2017; Matire & Kemp, 2009; Reinitz & Loftus, 2017; Reinitz, Ségun, Peria & Loftus, 2012; Sauer, Brewer, Zweck & Weber, 2010). These studies have all used similar methods when measuring confidence and accuracy. Accuracy has typically been measured by the number of correct answers participants give in response to either a question or their ability to identify individuals – a higher number of correct responses means a higher level of memory accuracy. Confidence has been measured using similar methods throughout these studies. Researchers either opted for a percentage scale, where participants rated how confident they were (e.g. 0%, 50%, 100%) in regard to their accuracy (Brewer & Wells, 2006; Flowe et al., 2017; Sauer, Brewer, Zweck & Weber, 2010), or used a point scale ranging between two numbers, with the higher number indicating higher confidence and the lower number indicating lower confidence. Participants select the rating they feel best represents their confidence. This method was adopted in the current thesis to measure confidence by a point scale. Here, a 10-point Likert scale was employed, with 1 representing no confidence in their memory recall and 10 representing total confidence in their memory recall. This was to enable confidence to be easily measured using a scale rating that participants would be familiar with and comfortable interpreting and using.

Previous research into eyewitness testimony has exposed participants to various criminal incidents (Aizpurua, Garcia-Bajos & Migueles, 2011; Mansour et al., 2012; Matsumoto & Hwang, 2015; Neuschatz et al., 2007; Paterson, Eijkemans & Kemp, 2015; Wade, Green & Nash, 2010; Westera, Powell & Milne, 2015). However, the literature demonstrated patterns in the types of crimes

being shown in academic studies. Areh (2011) exposed participants to a violent video of a robbery with a male perpetrator. Additionally, Shapiro (2009) conducted a study that depicted a theft. The video footage was 12 minutes long and showed a male stealing a bicycle. In this footage no victim was present. Theft has commonly been used in eyewitness testimony research (Leippe, Eisenstadt & Rauch, 2009; Mori & Kishikawa, 2014; Paterson, Eijkemans & Kemp, 2015; Valentine & Maras, 2011). The video footage shown to participants was typically around one to three minutes long, with the video in the study conducted by Shapiro (2009) being one of the longest. Memon, Hope and Bull (2003) showed that participants who were exposed to an event for longer periods of time had significantly better eyewitness accuracy. However, this research compared short and long periods of exposure to events with some lasting less than 30 seconds and others lasting several minutes. Conclusions cannot therefore be drawn about those who witness incidents over several minutes. It could be suggested that this may increase the ecological validity of Memon et al's (2003) research, as some incidents occur suddenly with little time for witnesses to fully observe and understand the entirety of the incident. Vranić and Tonković (2017) supported this notion of exposure duration, finding that participants with increased levels of exposure to a certain environment had increased memory recall accuracy. However, Carol and Compo (2018) found that memory may be more accurate when participants are only provided with a short encoding period rather than a longer one, but this was only deemed to be likely when participants witnessed multimodal events.

The research conducted by Shapiro (2009) demonstrated the popularity and usefulness of showing participants video footage as these allowed participants to witness a crime without psychologically or physically putting the participants at any real risk. Additionally, this removed implications of having participants imagine the events or examine photographs which lack ecological validity and are subject to the participants interpretations more easily (Anastasi & Rhodes, 2005; Liebman et al., 2002; Zhou, Pu, Young & Tse, 2014). However, these studies all consisted of either a victim that was not present in the video scenario or a scenario that clearly depicted a perpetrator and a victim, therefore making it easier for participants to identify the victim and perpetrator. This factor alone, by having a clear victim and a clear perpetrator, could have benefitted participants' memory recall as it was more likely to be in line with their expectations of a crime and less likely to be subjected to interpretation. Furthermore, none of these studies aimed to challenge expectations of a crime as they all depicted 'typical' behaviours and actions for the crime types. This means that this

research is unable to provide insight to how witnesses respond when they observe a crime that is not commonly seen and that may depict a non-stereotypical version of events.

Previous research has extensively used source material consisting of mock crimes, particularly focusing on thefts and robberies. A large amount of these mock crimes appeared to have been easily interpretable non-ambiguous videos, in terms of blame attribution and the actions and behaviours that were carried out. Therefore, the paradigm that was employed in the current thesis is more realistic, as it examines crimes that do not adhere to witness expectations because the footage used depicted both ambiguous and non-ambiguous scenarios. Using source material that replicates some of the issues with witnessing real-life crimes provided greater insight into how these issues impact eyewitness accounts, accuracy, and confidence. There is little to no research that has currently accounted for how the combination of individual differences impacts on accuracy, confidence, and punitive judgements.

2.3 Conclusion

Chapter 2 demonstrated how previously eyewitness memory has resulted in wrongful convictions and that eyewitness memory should be evaluated to ensure witnesses are protected from being exposed to misleading information. The type of crime witnessed was also shown to impact eyewitness testimony due to the expectations of this crime. The violence that was depicted in the stimuli was shown to impact on the accuracy of memory recall, with more violent events being less accurately remembered. It was suggested this could have been as a result of the emotional arousal of participants', but little research was conducted on real-life crimes, and therefore this cannot be accurately established. This chapter also discussed how expectations of crimes may impact on the interpretation and judgements of crimes that are not congruent with these expectations. Here, it was highlighted that previous research had not been able to adequately explain how eyewitness accounts may be affected by witnessing crimes that are not commonly seen in public and those that challenge a person's biases and stereotypes.

Chapter 3 will discuss the issues surrounding the physical aspect of witnessing crimes. Here, the visibility and clarity of a crime will be explored to understand what makes a person remember an event and how the nature of the incident can negatively impact memory recall.

Chapter 3: Physical Aspects of Crimes

3.1 *Distance, visibility, and ambiguity*

3.1.1 Proximity and visibility of crimes

Research has suggested that the distance a witness is situated from a criminal incident could potentially impact and alter their testimony and their likely subsequent identification accuracy (Noyes & Jenkins, 2017). Proximity has been linked to influencing the reliability and accuracy of memory recall (Price, Lee & Read, 2009). It has been implied that witnesses who have closer proximity to an incident have more reliable and accurate memory recall, compared with witnesses who are further away from an incident (Lindsay, Semmler, Weber, Brewer & Lindsay, 2008; Saunders, 2009; Lampinen, Erickson, Moore & Hittson, 2014). Eyewitness identification was noted to be particularly less accurate when witnesses were trying to identify an unknown face or 'stranger' at greater distances (Noyes & Jenkins, 2017). Noyes and Jenkins (2017) suggested this was due to specific facial features becoming distorted with greater distance. Additionally, Stevenage Howland and Tippelt (2011) proposed that accuracy decreased due to witnesses having difficulty seeing the actions being committed and/or having limited ability to adequately hear any conversations occurring between the individuals involved in the incident. Therefore, greater distances reduced eyewitness accuracy and reliability.

There are certain conditions which may favour a witnesses' observation of an incident and visibility has been regarded as a key factor. Poor lighting and weather conditions can contribute to the inaccurate encoding and ensuing retrieval of a memory (Safer, Murphy, Wise, Bussey & Holfeld, 2016). Additionally, obstructions that impede upon a witness's line of sight of an incident can impact upon the perception and interpretation of the actions during an incident – potentially resulting in a faulty memory (Green, n.d.). However, during real-life incidents it is impossible to account for all these issues and therefore each circumstance must be considered and appraised individually to determine the reliability of an eyewitness testimony.

Likewise, De Jong, Wagenaar, Wolters and Verstijnen (2005) found that facial recognition accuracy increased as the distance decreased between the target person and the participant and also

as illumination increased. This implied that when participants were at a greater distance and lighting was low more errors were made regarding the identification of the target person. Therefore, as the physical clarity and visibility of a person reduces, so does eyewitness identification accuracy.

However, this study focused only on the effects of distance and illumination of a person and did not account for how witnesses might interpret a criminal incident under such circumstances where their eyewitness identification may have legal implications (Bruer, Harvey, Adams & Price, 2017).

Furthermore, Lampinen, Erickson, Moore and Hittson (2014) examined the accuracy of facial recognition from varying distances. Similarly, these findings showed that as distance increased facial recognition accuracy decreased and also resulted in more wrongful eyewitness identifications.

However, this study only exposed participants to target people at different distances and during these times the target person was stationary and facing the participant. This suggested that participants were allowed to solely focus on the target person without any obstructions or movement to disguise or hide any of their facial features. This also meant that participants had no additional information to contend with, such as actions or other people. Therefore, this study had very few similarities with the witnessing of real-life events and how participants would recognise people, especially in criminal incidents where others may be involved, and where actions and movement would naturally occur and impact on their facial recognition.

Lastly, Hahn, O'Toole and Phillips (2016) had participants watch video clips of people walking towards the camera, therefore this replicated a person approaching the participant. This study, unlike those previously discussed, had participants view the target person in a natural viewing environment where they were moving around instead of having the target people stood stationary or using photographs. Findings revealed that facial recognition increased with proximity of the target person. Additionally, viewing more of the video did not increase eyewitness identification accuracy and participants made their identification decisions about recognition based on the most recently viewed footage, e.g. the last image of the target person. However, the video clips only contained one person and depicted the target person approaching the participant with good visibility, this limits the generalisability of these findings as this study cannot account for events where multiple people are present or where a target person is moving around displaying actions that are more demanding and diverting the participants attention away from the target person's facial – thus, potentially reducing the accuracy of eyewitness identification.

Based on the research discussed regarding proximity and recognition of individuals, although research has clearly stated that decreased proximity leads to better recall and recognition of a target person, the circumstances that identification has been undertaken in lacks ecological validity. The events regularly show one individual walking or moving or around in front of a camera. In terms of eyewitness identification, this would bear little resemblance to the circumstances in which a witness to a crime would observe another individual – either a victim or a perpetrator. Furthermore, the research discussed was unable to demonstrate how eyewitness identification and recognition functioned under different circumstances, such as witnessing events with more than one individual in, witnessing events which may result in legal actions being required, and how different behaviours and actions impact upon the recognition of a person.

3.1.2 The clarity of a crime

The clarity of a crime relates to how clear the incident is in regard to who perpetrated the incident and who was victimised during the incident (Thorley & Rushton-Woods, 2013). In some case it may be difficult to establish whether an individual is perpetrating a crime or defending themselves from a perpetrator. Thorley (2015) suggested that a co-witness statement may distort how witnesses perceive and re-interpret an event, and – similarly – the clarity of the roles played by the individuals involved may impact on how witnesses interpret and report an incident. Therefore, it is crucial to understand how different incidents are interpreted by witnesses.

Some previous research has investigated how ambiguity of an event has impacted on memory recall. This was shown by Thorley and Rushton-Woods (2013) who showed participants video footage of an accident involving two people. During the video footage the perpetrator and victim were not easily identifiable. In addition, participants were exposed to a written witness statement blaming either one of the individuals in the video or stating that neither were to blame as the incident was an accident. Findings showed that where the blame was attributed in the mock eyewitness statement impacted some of the interpretations of the incident. This suggested that when participants were not certain on where the blame should be attributed, they were more likely to be influenced by the eyewitness statement. This also suggested that the addition of another witness with a very certain interpretation of how the incident unfolded, automatically impacted the participants' own judgement of

the incident. Most participants changed their opinions to match that of the other witness. However, the video footage showed participants the witness's position in comparison to the incident; it could be suggested that participants believed the witness had a better viewpoint of the incident and thus would be better equipped to interpret the incident with greater ease and accuracy, compared to themselves. Furthermore, it could be suggested that when participants are uncertain of where blame should be attributed they look to other witnesses for guidance and due to their own uncertainty of the incident may be easily convinced by misleading or faulty eyewitness statements provided by other witnesses. This could potentially convolute original eyewitness interpretations of witnesses once they have been exposed to other witnesses and their interpretations. In addition, this could potentially indicate issues with not only personal biases and expectations of certain crimes but also how other witnesses' personal biases and expectations could influence an eyewitness account. This suggests that blame attribution may not only be linked to the individual witness themselves but also how impressionable they are to other peoples' opinions and perceptions of an event – resulting in their interpretations reflecting observations made by others.

Additionally, Mojtahedi, Ioannou and Hammond (2018) examined how blame was attributed in crimes where there was ambiguity regarding which party was at fault. Participants were shown CCTV footage of a bar fight and after viewing the footage, discussed this in small groups; some with strangers and some with acquaintances. Findings revealed that those with established relationships were more likely to impact on each other's statements and reporting of the event, making them more likely to conform to each other. This reinforces the notion that ambiguity caused participants to doubt their own accounts and turn to other witnesses for guidance. Though in police investigations this is highly disadvantageous as it can result in several witnesses reporting very similar accounts comprising of information from multiple witnesses and not the account of the one witness being interviewed (Wright, Memon, Skagerberg & Gabbert, 2009). However, previous literature examining ambiguous crimes rarely compared the interpretation of these incidents in comparison to a clearly defined incident, where the victim and the perpetrator were easily identifiable. Therefore, although research has shown insightful knowledge into the impact of ambiguity, especially with the influence of the co-witness effect, there was a lack of direct comparison to clearly defined incidents to show the potential difference in eyewitness statements. Overall, there is a lack of research exploring how

ambiguous scenarios, where it is difficult to identify the perpetrator and victim during the incident, impact on the eyewitness testimony of witnesses.

3.2 Memorability of an incident

The memorability or uniqueness of an incident has been shown to impact the reliability and accuracy of a witness's memory recall (Hope and Wright, 2007). Research has shown that people who witness extreme incidents, for example, a violent attack where the individuals involved were shouting and drawing attention to the event, have more accurate memory recall due to having their attention being drawn to the event, compared with witnesses who did not have their attention attracted to the event (Bolitho, 2017; Deffenbacher, Bornstein, Penrod & McGorty, 2004; Gurney, Ellis & Vardon-Hynard, 2016).

Some criminal incidents can be more attention grabbing and visually demanding than others, for example, a violent physical assault or an armed robbery, directing the witness's attention and consequently increasing the likelihood of witnesses being able to accurately recall the details of the crime (Kaplan, Van Damme, Levine & Loftus, 2016). Though in criminal investigations witnesses may also be questioned on the actions leading up to and after a crime (Hope, Gabbert, Fisher & Jamieson, 2014; Launay & Py, 2015). Witnesses may have less accurate memory recall of these events due to a lack of attention on the perpetrator and/or victim. For example, if a person was planning to shoplift a high street shop, as they approached and entered the shop their behaviour may not seem out of the ordinary to other shoppers, however, attention may be drawn to the shoplifters if they get into an altercation with a security guard and due to the aggressive physical interaction and raised voices between the two parties, other shoppers may have their attention drawn to the incident. As the actions prior to the shoplifter getting into the altercation with the security guard were not out of the ordinary, this could result in witnesses having less accurate memory recall of the actions prior to the crime occurring. Therefore, eyewitness accuracy of the actions proceeding and preceding a crime may be reduced due to witnesses being unaware that a crime would take place or be aware that a crime had previously occurred (Pottage & Schaefer, 2012).

MacLin and MacLin (2004) found that participants identified certain facial appearances as individuals with a higher propensity to commit crime. It was concluded that those classified as having

distinct or atypical faces were deemed as less attractive but perceived as having criminal faces and were more memorable. This suggested that memorability was not only linked to the actions of the crime but also the appearance of the perpetrator. Furthermore, it could be suggested that perceived criminality was influenced by stereotypes and expectations of criminals and those who matched this expectation were more likely to be accurately identified by witnesses. However, this study used a small sample of only 48 participants and thus these findings must be applied tentatively. Additionally, Dixon and Maddox (2006) provided further evidence of witness memorability being impacted by stereotypes. Here, participants had more accurate memory recall of a black perpetrator, compared with a white perpetrator. The researchers suggested this was linked to how non-white perpetrators were portrayed in news coverage of crimes. This showed that participants had a predisposition to perceive black perpetrators as criminal and therefore, had higher memory recall accuracy of this perpetrator due to their perceived threat. This was supported by Leding (2019) who suggested that when participants were in situations that increased their likelihood of dying the accuracy of their memory for the event would be increased. This theory is known as 'Mortality Saliency Theory', or 'Dying to Remember', where encoding life-threatening events benefits memory recall (Bugaiska, Mermillod & Bonin, 2015). The Dying to Remember theory has been tested across different countries and age groups and a consistent finding has been that the perceived threat of a situation can result in participants having increased memory recall (Bugaiska, Mermillod & Bonin, 2015). This could be explained by the Yerkes-Dodson law. Jeong and Biocca (2012) explained that this law relates to the relationship between arousal and performance in relation to memory. The law states that as arousal increases so does performance to a certain point. When arousal levels start to become too high, performance decreases. In the case of memory recall, this could be witnessing something distressing. Therefore, when a person believes their life is being threatened this could easily exceed the optimum level of arousal and reduce the person's memory recall performance. This could provide an explanation as to why witnesses of violent incidents have better memory recall as there is a perceived level of threat however, this raises the question whether the ambiguity of a crime impacts the memory recall of witnesses. It could be suggested that during an ambiguous crime it is harder for witnesses to establish what is happening and this lack of clarity may mean that their memory recall is not as accurate as the threat was not perceived in the same way. Thus however, it can be suggested from previous research, that the type and extent of detail provided in eyewitness testimonies of crimes

must be scrutinised and the memorability of the crime must be established, as faulty evidence, misleading information, and expected behaviours and facial appearances could alter and distort eyewitness memory recall.

Hope and Wright (2007) concluded that the presence of unusual and unexpected objects during an incident increased the reliability and likelihood of witnesses remembering an incident. This was due to the uniqueness of the object in the situation which increased encoding and focus on the object, which made witnesses more likely to remember the object accurately, compared to the conditions with no unique elements. In addition, Fawcett, Russell, Peace and Christie (2013) suggested that the presence of a weapon may impact on the memorability of an incident, again due to the uniqueness of seeing a weapon e.g. a gun, and the weapon's potential threat. Fawcett, Russell, Peace and Christie (2013) further showed how weapon focus hindered the accuracy and reliability of perpetrator identifications and descriptions of crime scene actions. Weapon focus involves a weapon or dangerous object being present during an incident and due to the objects potential to harm the witness or those around them, their attention primarily focuses on the weapon – thus, resulting in less attention being focused on the perpetrator and other external factors to the incident (Hope & Wright, 2007; Pickel, 2009; Saunders, 2009). This is largely due to the presence of the weapon demanding the attention of participants and encouraging witnesses to engage with the weapon because of its potential to cause harm, compared to participants in the control condition.

Previous research has implied that the presence of a weapon may alter the memorability of an incident and in some previous literature it was demonstrated how the weapon negatively impacted the memory recall of eyewitnesses; this is particularly noticeable for participants recalling features of the perpetrator (Hope & Wright, 2007; Pickel, 2009; Saunders, 2009). However, previous literature largely focused around the presence of unique or uncommon objects and how these impacted on eyewitness testimony, but these did not account for unique or unexpected actions. Although criminal events are not generally daily occurrence for many witnesses, it is possible that witnesses may be more familiar with certain crimes and are able to identify them easily. For example, shoplifting and theft are arguably easier to identify than other crimes such as domestic violence or forms of human trafficking (McAdam, 2013). Therefore, when witnesses observe a crime that they are unfamiliar with and may have biases and perceptions of what that crime 'should' look like, it is possible that their eyewitness accounts of these events will become distorted. Instead of witnessing an unusual object

during a crime, it would be advantageous to understand how eyewitness interpret crimes that are less commonly observed in public and portrayed in less typical ways, e.g. a female perpetrator of domestic violence. Unlike the unusual object, the actions and behaviours witnessed during a non-stereotypical crime may be more likely to be subjected to personal biases and expectations.

It was suggested by Alitavoli and Kaveh (2018) that the public's perceptions and expectations of crime may be a consequence of media coverage. It was implied that the media coverage of crimes increased the public's fear of crime, despite the statistics showing crime rates to have fallen (Alitavoli & Kaveh, 2018). However, this is debateable as The Office for National Statistics (2018) has shown that although some crimes, such as computer misuse, shoplifting and burglary, have been reducing in frequency, there has been an increase in other crimes, such as homicide, robbery, and sexual offences. These crimes are usually more violent in nature and involve interpersonal contact with a victim, along with the increased ability to inflict physical and psychological damage on the victims and their families. It could also be argued that the crimes that have an increased rate are more serious in nature due to their impact on others and the lengthy prison sentences that these perpetrators receive (Friehe & Miceli, 2017). This could also result in expectations of the type of person who would commit certain crimes, leading to a biased view of individuals who fit certain profiles, e.g. a person's gender, age, or ethnicity; therefore, the witness's knowledge about crimes and their expectations of some crimes may impact on their interpretation and subsequent memory recall of that crime.

3.3 Conclusion

To conclude, Chapter 3 explored how previous literature focused on the physical aspects of incidents and how these impact on the reliability and accuracy of memory recall. However, these factors alone are not the only reasons eyewitness testimony can be unreliable and inaccurate and in real-life eyewitness accounts these factors cannot be controlled. Research showed how increased distance from a crime and poorer lighting were crucial for accurate encoding and any subsequent retrieval. Incidents that were regarded as highly ambiguous were harder for witnesses to establish where blame should be attributed, due to a reduced ability to identify what happened. Clarity was used in the current thesis to directly compare the interpretations and judgements of witnesses for differing perpetrator and victim clarity, as little previous research had explored the clarity of crimes in

this way. Memorability was strongly related to how attention grabbing the incident was and as a result increased memory recall accuracy. Additionally, the unusualness of the incident was linked to witnesses being more likely to be remember due to its unexpectedness. However, it has not been established whether unusual crimes produce a similar level of accuracy or whether these crimes are more likely to be subjected to biases and expectations.

The following chapter will discuss how line-up processes may impact witness confidence and how this may influence jury interpretation and decision-making regarding the credibility of a witness. Chapter 3 explored the general issues with eyewitness testimony and how the nature of what a person witnesses and how this is recreated and measured in experiments can be potentially problematic. Chapter 4 aims to further expand on the issues of eyewitness testimony by focusing more in depth on how a witness may be compromised by their circumstances as a witness and the reasons for remembering an incident. Chapter 4 will also discuss differences in memory recall accuracy and the type of information recalled between male and female witnesses, as well as their confidence in their memory. The effect of a witness's age on memory recall and confidence will also be discussed, with Chapter 4 concluding by exploring the relationship between memory recall accuracy and confidence.

Chapter 4: Accuracy, Confidence, and Eyewitness

Testimony

4.1 Gender, accuracy, and confidence

Tekin and Roediger (2017) examined the relationship between confidence and accuracy and how using different scales to measure these variables may cause variations in findings. Confidence scales can include simple yes/no responses or can range from 3-point numerical scales to 100-point numerical scales. Tekin and Roediger (2017) found that different scales used throughout previous research did not produce different confidence-accuracy relationships. This showed that - despite the size of the scale - confidence positively correlated with accuracy. This research suggested that the type of confidence scale does not impact upon confidence-accuracy relationships. This provides support and increases the validity of previous research examining confidence-accuracy relationships using different confidence scales, as from this research it can be concluded that the different scales have not confounded the generalisability of these studies. This research also provides evidence to suggest that when police officers are assessing witness confidence, any confidence scale can be used without negatively impacting reliability. However, Tekin and Roediger (2017) discovered that when higher point scales were used to assess participant confidence, there was a decrease in the amount of participants rating the top score, e.g. 100. It was suggested that this could be due to participants having greater difficulty when rating confidence on a larger scale. Though it should be noted that higher confidence was still positively correlated with increased accuracy. Furthermore, Mickes, Hwe, Wais and Wixted (2011) stated that participants can find it difficult to meaningfully assign a numerical confidence value to strong autobiographical memories. It was suggested that strong memories may be difficult to scale due to them representing a memory-strength ceiling. Additionally, strong memories will have been rehearsed by the participant several times and therefore the information and details of the event become stronger – similar to the method described previously in the Multi-Store Model of memory (Atkinson & Shiffrin, 1968). However, some of the information of the event may become distorted over time and cannot necessarily be used in a court of law and there

may be limited methods to test the fallibility of a witness's memory even if they have high levels of confidence.

Smith, Kassin and Ellsworth (1989) looked at the confidence-accuracy relationships between- and within-subjects. The following research discusses the findings of between- and within-subjects experimental designs. Between-subjects (also known as between-groups) is an experimental design where different participants participate in each condition, thus participants are only exposed to one condition. Within-subjects (also known as repeated-measures) is an experimental design where the same participants take part in each condition, thus participants are exposed to all user interfaces.

Findings revealed that there was no significant differences in accuracy between-subjects when assessing confidence. This suggested that participants who were more confident in their responses were not more accurate. Additionally, there was no significant difference within-subjects regarding confidence and accuracy. This study showed that less confident participants did not have higher confidence ratings on questions that they thought were correct. It was acknowledged that this finding went against the expected hypothesis as the researchers deemed that common sense would state that participants with higher confidence ratings should be more accurate in their responses – though this was not found to be the case. Subjects were quicker to respond when their answers were correct, compared with incorrect responses. It was also shown that subjects were more confident in responses where they responded quicker. This research stated that overall confidence is not a good predictor of accuracy because when information was not sufficiently attended to then confidence scores were lower, but the responses were not less accurate. González-Vallejo and Bonham (2007) explored the confidence-accuracy relationships between- and within-subjects in regard to remembering information. Findings showed that repetition frequency of the information being learnt impacted the accuracy of responses within-subjects. This suggested that those who had higher confidence and accuracy scores were more likely to have rehearsed the information prior to recall. It was also found that the feedback given to participants, such as, whether they were performing well or not, increased the accuracy of participants in the between-subjects condition. This suggested that those who were informed they were performing well had higher accuracy scores. The same was also found for confidence ratings of participants. Those with higher repetition frequency had higher confidence scores within-subjects and those who were provided with more positive feedback also

gave higher confidence scores between-subjects. This research suggests that confidence-accuracy relationships can be impacted by external factors both between- and within-subjects.

Skagerberg and Wright (2009) examined how feedback on eyewitness identifications from line-up scenarios impacted on participant confidence scores. Findings revealed that participants who received feedback from a source that was deemed as being a highly credible source, such as a police officer, had increased confidence in their identifications, compared to participants who received feedback from a less credible source, such as a child. Additionally, the more confident a witness appeared the more likely these would be used in court proceedings as a form of evidence. However, as this study demonstrated, participant confidence may not be representative of the accuracy of participants and could be easily impacted by the people engaging and talking with a witness about a crime. As witnesses are most likely to discuss witnessed crimes with police officers, it would be beneficial if court proceedings accounted for the possible impact of feedback that witnesses may have been given in regard to their memory recall of a crime. Although this may be a lengthy and difficult addition to court procedures, it could be in the best interest for victims and defendants to assess this potential impact on confidence.

Cramer, Brodsky and DeCoster (2009) investigated how witness confidence impacted on juror perceptions. Participants watched scripted videotaped footage of a courtroom sentencing testimony. They were then asked to judge the witness's credibility and whether they believed the suspect deserved to receive the death penalty, if they thought they were guilty, based on the witness's testimony – this was rated on a 10-point Likert scale. The Likert scale ranged from 1 to 10, with one indicating that the suspect was not guilty at all and 10 indicating that the suspect was entirely guilty. Participants then rated the numerical value that they felt most aligned with their opinion of the case. It was concluded that witnesses with higher confidence received lower credibility scores from participants. Additionally, participants attributed higher credibility to witnesses with medium confidence and credibility decreased when witnesses had low confidence. This study suggests that participants were wary of witnesses who appeared overconfident or underconfident implying that confidence can be an integral part of jury interpretations and judgements. However, this study used exclusively undergraduate students and, therefore, lacked a generalisable sample. Furthermore, participants were only shown male witnesses and therefore this cannot establish how participants would have interpreted female witnesses. This may have impacted on the perceived credibility of a

witness and impacted on the likelihood that participants believed the suspect should receive the death penalty.

Brewer and Burke (2002) found that confidence had a crucial impact on mock-juror decision making. It was concluded that witnesses with higher confidence were regarded as being more accurate, regardless of the consistency of the testimonies. Findings also revealed that the consistency of the testimony did not impact on juror decision-making and demonstrated how confidence was the most influential factor in this study. However, participants were aware that they were not participating in a real-life trial and therefore their judgements and interpretations carried no significant weight that would result in real-life consequences. Therefore, it could be suggested that inconsistencies were less likely to be identified as participants would not have the same concentration and attention compared to if they were in a real-life court case. However, regardless of this issue, this study clearly identified that witness confidence had the ability to manipulate juror perceptions and interpretations of a crime.

Dahl, Allwood and Hagberg (2009) researched participant accuracy and confidence for general knowledge questions. Here, it was suggested that males were significantly more confident and had higher levels of memory recall accuracy compared with females. This study implied that the males' confidence was proportionate to their correct responses, thus suggesting they were able to accurately rate their correct responses. Females were less able to do this and were more likely to underestimate their accuracy and have lower confidence levels. However, this study measured the confidence and accuracy of participants in relation to general knowledge questions, and it could be suggested that this study tested the participants' ability to identify incorrect answers in an exam-like situation and therefore may not be representative of how participants would respond to having their memory evaluated for a real-life event. Thus, these findings may only be useful to determine how confident participants are at rating their general knowledge and cannot necessarily account for how participants would respond when evaluating their own recollection of a real-life event.

Areh (2011) exposed participants to video footage of a robbery. Findings revealed that females outperformed males when recalling details regarding personal descriptions of the event, whereas males were more accurate at describing the overall event. Furthermore, males were more confident in their responses compared to females; this was particularly notable for recalling the place of the crime. However, despite males being more confident in describing the place of the crime,

females were shown to have a higher accuracy for recalling this information yet lower confidence. This research showed that accuracy may be impacted by the type of information being recalled by males and females. However, from this research the confidence of males and females was shown to not be an accurate indicator of accuracy. It could be suggested that the overconfidence of males could have a negative impact on any subsequent investigations. However, it is necessary to understand the practicality of applying the evidence to real-life scenarios. For example, although this research supports the idea that males and females have differing accuracy levels based on the type of information recalled, it could be suggested that during interviews, where eyewitness statements are made, the ability to identify the potentially inaccurate information depending on the type of information could be difficult to apply in these environments. Therefore, it could be suggested that assessing accuracy and confidence based on a witness's gender could be more appropriate for establishing the reliability and validity of an eyewitness testimony, and this could help account for issues regarding overconfidence of males and the lower confidence of females.

Research conducted by Yarmey (1993) suggested that males and females had equal confidence in their memory recall of a young woman, who they were exposed to two minutes before being questioned about her characteristics. This suggested that gender did not impact on the participants' perceived confidence of their memory recall. However, participants only recalled the characteristics of a young woman and therefore may have had different confidence levels of males, as Wright and Sladden (2003) suggested that males were better at identifying other males and females were better at identifying other females. Therefore, although Areh (2011) and Dahl, Allwood and Hagberg (2009) found males to be overconfident in their memory recall, this could have been reduced in the study conducted by Yarmey (1993) due to the gender of person they were asked to recall.

As previously noted by Yarmey (1993) participants gave their responses to the questions after having two minutes of exposure to the stimuli. Jou (2008) examined the impact of latency and confidence and concluded that latency was a factor that could not account for the differences in memory recall or confidence. However, Koriat and Soroka (2015) used the Self-Consistency Model to explain how participants evaluated the information they were exposed to, to make a judgement on a situation. They found that when participants provided responses after a short time period they had higher confidence and were more able to recall rarer and more unique information, compared with

participants who had lower confidence and provided more common details. Brewer and Weber (2008) wanted to further this by including latency. They found that confidence and accuracy were largely positively correlated. They concluded that the latency-accuracy relationship was more effective, compared with confidence and latency. They stated that when there were no time pressures on a participant to respond quickly under time pressure then accuracy was less likely to be compromised. This is known as the 'Speed-Accuracy Trade-Off'. This was particularly useful for situations that relied on a single observation of a target person and an accuracy identification. However, this area has received little empirical attention, most likely due to its lack of relevance to real-life scenarios where questioning normally occurs several hours after the witnessed incident (Brewer & Weber, 2008).

Additionally, Roebers (2002) examined the impact of gender on the recalling of an unbiased event and revealed there were no differences between males and females when scoring their confidence. However, this study comprised of watching a video of children fighting. Although this can be serious in regard to bullying, it could be suggested that confidence levels may have differed for the recalling of crimes involving adults of a more serious incident due to the potential legal implications.

4.2 Age, accuracy, and confidence

Wong, Cramer and Gallo (2012) had older adults (aged 65 – 90 years) and younger adults (aged 18 – 25 years) examine photographs of objects and later asked them to recall these items. The sample comprised 28 older adults and 56 younger adults who had their confidence and accuracy compared. A 2 x 2 ANOVA was conducted to analyse any differences between the two age groups and their confidence and accuracy. Findings concluded that older adults had reduced memory accuracy and reduced confidence compared with younger adults. However, there were double the number of younger adults compared with older adults and therefore the unequal groups could have resulted in findings that were skewed and not necessarily representative of the age groups.

Additionally, West and Stone (2014) exposed participants to an event and participants were required to recall the witnessed event through both free and cued recall. Findings showed that younger adults (aged 18 – 25) were more accurate than older adults (aged 65 – 71) in both the free and the cued conditions. However, this research does not account for witnesses of criminal events where there is more stress involved and the accuracy of their memory recall may have legal

implications. Further research conducted by Pansky, Goldsmith, Koriat and Pearlman-Avni (2009) also support the notion that older adults (over 60) have less accurate memory recall than younger adults (under 25). It was concluded that these age differences were as a result of older adults having poorer encoding and less effective monitoring during the event being witnessed.

On the contrary, it was suggested by Wolters and Goudsmit (2005) that there were no age differences between the confidence and accuracy of participants who were recalling the details of the terrorist attack that happened on September 11, 2001. However, it could be suggested that due to the severe nature of these attacks' memory was encoded differently and due to the wide media coverage and likely repetition of these events in personal and legal contexts the memories appeared to be more vivid. Therefore, it could be suggested that during extremely distressing events memory confidence and accuracy is not influenced by age. However, it is difficult to establish from this research whether the witness's memory was better for both older and younger adults or whether this was due to the extensive media coverage and video footage available that increased their accuracy and subsequent confidence in their memories.

4.3 Confidence and accuracy relationship

Smith, Kassin and Ellsworth (1989) identified a lack of research exploring the confidence-accuracy relationship within-subjects, meaning that participants took part in each condition. Their research explored how witnessing a video of a crime impacted on confidence-accuracy relationships within-subjects. However, their findings showed that there were no significant differences within-subjects in regard to their confidence and memory recall accuracy. This suggested that those who were more confident were not always as accurate. Similar was found by Brown, Deffenbacher and Sturgill (1977), who asked participants to identify suspects from photographs after witnessing the suspects in real-life. The results revealed that increased confidence did not correlate with increased accuracy and vice versa, thus no within-subject correlations were reported. This suggested that even though participants were exposed to all user interfaces this did not significantly impact correlations. However, it must be noted that the experimental scenario used by Brown, Deffenbacher and Sturgill (1977) lacked ecological validity and did not replicate the majority of witness identification scenarios. This is because the researchers had participants identify multiple suspects which in real-life cases

rarely occurs. Therefore, as participants were trying to identify multiple suspects their memory may have become more distorted and may have resulted in the non-significant finding.

Similarly, Deffenbacher, Leu and Brown (1981) asked participants to observe 50 photographs of faces and then asked participants to rate their confidence of their facial identifications. This study found a significant difference within-subjects for confidence-accuracy relationships. However, it was deemed that the experiment lacked real-life applicability as it is a rare occurrence for participants to have to identify more than one suspect and therefore this could impact on their memory and confidence.

Previous research has examined the relationship between confidence and accuracy (Martin-Luengo & Luna, 2010; Simons & Chabris, 2011; Smalarz & Wells, 2015). This showed how confident eyewitnesses may not necessarily be as accurate as they appear. Brewer and Wells (2006) showed participants a video of a theft in small groups before participants completed subsequent accuracy and confidence tests based on eyewitness identification. Findings revealed that participants were generally overconfident in the accuracy of their identifications. However, there was a positive correlation between accuracy and confidence in the between-subjects condition. Using the between-subjects design meant that participants were only exposed to one condition in the study. Although this research was able to provide evidence to suggest that there was a positive relationship between accuracy and confidence, it was acknowledged by the researchers that this was not the only factor to potentially influence the recalling of an event. Therefore, this study's findings were limited as it is not able to reliably account for other factors such as gender, age, or ethnicity.

Cowan, Read and Lindsay (2014) assessed the confidence and accuracy of participant eyewitness identifications. Participants were shown 287 store clerks and were then tested on their ability to correctly identify the store clerk at a later date. Findings showed a positive relationship between accuracy and confidence in the between-subjects condition – meaning participants took part in only one condition. However, this study had informed participants' that they would later have to identify the store clerks. This reduced the ecological validity of the study, as during real-life scenarios there are no warnings about the type of information that will need to be recalled. Thus, warning the participants could have altered the way in which they observed the store clerks and therefore this study is unable to adequately replicate how memory is used in recalling information in real-life. This was further explored by Sarwar, Allwood and Innes-Ker (2014) who examined how the type of

information recalled impacted on the relationship between confidence and accuracy. Findings revealed that accuracy and confidence positively correlated for actions, such as crime scene details, therefore suggesting that participants were more confident recalling details of the scene in the between-subjects condition. This was in comparison with recalling detail information, such as personal descriptions; this implied that participants had better memory recall for the environment and were more confident in their memories of this, compared with recalling details about people. However, this study consisted of 89 participants, using such a small sample makes it difficult for these findings to extrapolated and applied to wider society. Nevertheless, this study does provide evidence to suggest that participants are able to accurately judge their own memory recall of an event.

4.4 Conclusion

To conclude, Chapter 4 discussed the impact of gender and age on confidence and accuracy and the relationship between confidence and accuracy. In some cases, gender was shown to impact on memory recall accuracy and confidence. Here, research demonstrated that males may be more confident in their memory recall, compared with females, and may be better at assessing their memory accuracy. However, other studies demonstrated that females may have better memory recall accuracy, compared with males, but may lack confidence therefore making them less likely to be considered as a reliable source of information. Equally, in some studies males demonstrated overconfidence which could also negatively impact their reliability and credibility in legal contexts. Though it must be noted that gender differences were not always reported when assessing confidence and accuracy. Overall, research indicated that generally older adults were less accurate and less confident than younger adults. Though there is evidence to suggest that this may not always be the case. It was revealed that confidence could not always accurately predict memory recall accuracy, but some of the previous research was able to demonstrate that participants were able to accurately rate their memory recall with their confidence. Interestingly, some research showed how those with higher confidence levels were also more likely to have harsher judgements of an event – suggesting the importance of confidence in interpretation of an event. This chapter shows how individual differences such as; gender, age, and confidence can impact on the accuracy of how an event is recalled. From the research reviewed, it is evident that not all witnesses will recall an event in

the same way. This view then queries whether an individual's interpretations and judgements of an event will impact on how the memory is recalled – as it is unlikely that these memory differences will be limited to only physical factors of the individual (e.g. gender and age). This leads to the next chapter which will discuss punitive judgements. Punitive judgements relate to the interpretation of an incident and this can be crucial for criminal incidents as they may aid in determining the guilt of a person. It is suggested from previous research that the confidence of a witness may impact and potentially be able to predict the severity of a witness's punitive judgements. This notion will be further discussed in the Chapter 5 to explore how witnesses may perceive and interpret actions and how this may impact their accuracy and confidence.

Chapter 5: Punitive Judgements

5.1 The use of punitive judgements in previous research

Punitive judgements have been used to understand how people think and feel about crimes and the punishments they believe perpetrators should receive from criminal events (Gerber & Jackson, 2016; Ludwin-Peery & Tingley, 2014; Maeder & Laub, 2012; Petrocelli & Dowd, 2009). Over the years, several factors have been shown to impact on an individual's punitive judgements (Dambrun, 2007; Keller, Oswald, Stucki & Gollwitzer, 2010; McKee & Feather, 2008). For example; in the study conducted by Oswald and Stucki (2010) participants were shown written vignettes of crime scenes. Participants were exposed to either one of two conditions; in the first condition participants were not told any additional information, whereas in the second condition participants were alerted to being more self-aware and more accountable for their judgements; this was achieved by informing participants that they would have to explain and justify their decisions and during this statement they would be videoed. The study concluded that participants who were more self-aware and accountable for their judgements had different judgements about the punishments the offender should receive. Here, it was shown that harsher punishments were advocated for the offender when the victim had a good reputation, compared with a victim who had a bad reputation. Additionally, when participants were asked to explain the reasons for their recommended punishment, participants typically corrected their automatic judgement. This suggested that when participants were motivated to correct their biased judgements they were able to do so; however, in some cases this led to some participants going too far in the opposite direction of their advocated punishment, which also resulted in an unfair punishment. Overall, this study provided evidence to suggest that, when questioned and asked to reason their responses, participants were able to correct their own judgements resulting in a less biased punishment.

Côté-Lussier (2016) found that participants who perceived criminals as rebellious to society and as wanting power and resources, as well as being from a low social class, were more likely to perceive these criminals as cold and untrustworthy. This showed how participants with these views had less compassion towards criminals. If participants were angry towards criminals, they were more

likely to advocate and support a harsher punishment. This study therefore provided evidence to suggest that criminal stereotypes may impact on punitive judgements. However, this study did not examine unusual or unexpected criminal incidents. It would be beneficial to investigate how punitive judgements of a criminal incident that involved offenders and victims in non-stereotypical roles were impacted. This could suggest that eyewitnesses with certain expectations of perpetrators/victims may recall the incident differently and could result in eyewitness testimonies becoming distorted.

5.2 The practical implications of researching punitive judgements

Research, previously discussed, has suggested that punitive judgements were not necessarily judged by the criminality of an incident alone, such as the severity of the crime, but rather other factors contributed to witness interpretations and judgements – with some influencing factors being out of the suspect's control, e.g. gender or ethnicity. Additionally, Salerno and Bottoms (2009) examined how the emotionality of an incident could impact on punitive judgements. The findings revealed how emotionally upsetting images and additional information may emotionally heighten jurors and result in them having harsher punitive judgements. This research suggested that the admission of emotional evidence in a court of law may impact and alter jurors' perception of a crime.

Harper, Bartels and Hogue (2016) revealed how stigmatisation and social punitiveness (societal perceptions of how perpetrators of different crimes should be punished) impacted on the punitive judgements of a group of criminals that belong to largely negative social attitudes; paedophiles. This research provided evidence to suggest that other people's perceptions of certain criminals may be the overriding factor that determines their punishment. In these cases, it could be suggested that society's perceptions on how this crime should be punished may impact on the subsequent sentencing, as judges need to be perceived as serving justice to victims and to set a precedent to society without being unfairly harsh. Therefore, if sentences are not perceived as matching the severity of the crime, this could result in a backlash from victims and wider society. This is difficult to accomplish as the general public are not exposed to all the evidence presented to the jury and formulate their own opinions based on partial information (Forrest et al., 2012; Salerno, Bottoms & Peter-Hagene, 2017). The Criminal Justice System then has to determine a sentence that the crime deserves and one that the general public will agree with as a reasonable punishment.

However, this study only examined a group of male paedophiles and did not account for any other crimes or compare its findings to that of female paedophiles. Additionally, this study focused on a serious type of criminal that has particularly negative perceptions in society. It could be suggested that the type of crime being examined during court proceedings could determine how much the perceptions of that type of criminal should be punished. Such as, if judges give a sentence to a perpetrator that society does not perceive as being harsh enough for that crime, then society may believe that justice has not been served. This may result in a public outcry and encourage some members of the general public to take matters into their own hands. Therefore, research needs to address how punitive judgements are impacted by cases that go against the social stereotype and are not consistent with society's perceptions and expectations of that crime.

The study conducted by Swan, Gambone, Caldwell, Sullivan and Snow (2008) stated that female perpetrators of domestic violence were less likely to be arrested than male perpetrators. This research showed that males may be less likely to report their abuse due to a lack of fairness in arrest rates and subsequently being left with their perpetrator and potentially subjected to further abuse. Furthermore, this research showed that male victims were less likely to implement self-defence against a female perpetrator compared with female victims against male perpetrators, suggesting that males could be at more risk of psychological and physical harm. In addition to these findings, Machado, Santos, Graham-Kevan and Matos (2017) examined male help-seeking behaviours and found that one of the most common reasons for male reluctance of reporting domestic violence was due to them believing that the police would not take their reports seriously. Additionally, Goodman-Delahunty and Crehan (2016) also found that females who reported their domestic violence felt victimised by the police and that their reports were not taken seriously. Furthermore, MacQueen and Norris (2016) found that there was a deficit in police knowledge and understanding of domestic violence, despite increasing focus on this under-reported crime. Therefore, this research further supports the reasons why victims of domestic violence may be reluctant to report the crime and confirms that they may not be treated with the fairness and understanding that they deserve. The research of Goodman-Delahunty and Crehan (2016), Machado, Santos, Graham-Kevan and Matos (2017) and Swan et al. (2008) demonstrated how victims of domestic violence may be less likely to report their victimisation as they can feel that police officers may not treat them with a fair attitude. However, this research only focused on how victims of domestic violence felt about reporting their

crimes, this research cannot necessarily explain how witnesses of domestic violence would feel about reporting the crime. However, from this research it could be suggested that if police officers are showing biases in the reporting of domestic violence, then it is possible that witnesses of this crime would also demonstrate the same biases.

It was reported by Cismaru, Jenson and Lavack (2010) that bystanders to domestic violence can play a crucial part in the reporting of the incident, however, most witnesses to the crime are reluctant to get involved in such disputes. Additionally, it was difficult for witnesses to understand what kind of intervention is appropriate in these situations. Cismaru, Jenson and Lavack (2010) also looked at the witness's responsibility to intervene. It was concluded that certain demographics were less likely to physically intervene, such as females or elderly people compared with males. Findings also revealed that males were more likely to intervene in situations when there was a female victim. The assessment of whether intervention should be attempted was believed to be due to the witnesses' physical capability to deal with the situation. The research showed that the bystanders' own physical capabilities were the overriding factors that decided whether they would physically intervene or not. This explained why women and elderly people were less likely to intervene due to a lack of physical strength or lesser power than the perpetrator. Nevertheless, females and elderly people were more likely to call the police or engage with the victim. It can therefore be concluded that authorities are only likely to be called when the witness to the crime feels unable to cope with the situation themselves and this is more likely to occur when there are female or elderly witnesses. However, this study is unable to demonstrate whether less common crimes, such as domestic violence, are reported to the police in the same way as more familiar crimes, e.g. a mugging.

Nicksa (2014) investigated the likelihood of reporting crimes. Participants were shown written vignettes of crimes and questioned on their reporting of the incidents. Findings revealed that in crimes where the victim was physically harmed both males and females were highly likely to report this to authorities; however, females were also more likely to report a sexual assault compared with males. It was suggested this gender difference was due to females being more likely to identify with the victim of sexual assault. This implied that females related to the victim and therefore involved authorities to provide help and support. For ambiguous crimes participants (crimes that were difficult for witnesses to identify the victim and the perpetrator due to their actions) were less likely to intervene in the incident, this was due to participants being unsure of what to do and how to deal with the situation –

as blame and victimisation was not easily attributed. Overall, females were more likely to report the crimes to authorities and it was suggested that this was due to females following traditional gender socialisation (Blakemore & Hill, 2008; Dassonneville & McAllister, 2018; Lawson, Crouter & McHale, 2015), where females are seen as putting others before themselves and to being strong protectors. However, it was acknowledged by the researchers that the vignettes used were not always able to explain the severity of an incident and therefore could have been misinterpreted by participants. Additionally, this study only focused on sexual assaults, physical assaults, and theft, therefore it cannot account for all crime types and did not compare how participants would report crimes based on the gender of the victims and perpetrators – as only male perpetrators and female victims were examined. It might be the case that females were more likely to report the crimes because they generally identified with the victim throughout, as they were the same gender. Thus, it would be beneficial to understand how witnesses reacted to male victims and female perpetrators to gain a greater understanding of how victim/perpetrator gender impacts the reporting of crimes.

Sokol, Bussey and Rapee (2015) explored bystander attitudes towards victims in bullying scenarios. High-school age participants were shown a video depicting a mock bullying scenario. They were then asked questions regarding their attitudes and opinions of the witnessed footage. It was concluded that victims who displayed anger received more negative reactions from participants. This was more prevalent with females, compared with males. Here, females appeared to have greater negative attitudes towards angry victims compared with males and were less likely to understand the victim's emotional response. Generally, participants were more likely to blame angry victim's – suggesting that participants believed the victim deserves the maltreatment. Furthermore, participant emotional responses were stronger when the victim was sad or passive. Although this study focused on high school children's perception of bullying, it provided a crucial insight into the interpretation and perception of victims. It could be suggested that in ambiguous scenarios where blame attribution can be more difficult, or where a victim retaliates to a perpetrator, the negative attitudes towards the victim may increase and result in witnesses being less likely to intervene or report the incident to authorities. The ambiguity of a crime could negatively impact upon objectiveness when recalling the event and impact on their punitive attitudes and judgements, as a witness may incorrectly assume an individual is the perpetrator or the victim of a crime. This could have serious and legal repercussions in criminal investigations as this could lead to witnesses providing inaccurate information that may distort and

negatively impact those involved in the investigation and legal proceedings and may unintentionally favour perpetrators of crimes based on how victims react. However, further research needs to be conducted to examine this notion on real-life crimes.

5.3 Domestic violence and gender stereotypes

One of the most common forms of violence is domestic violence (Bradbury-Jones, Taylor, Kroll & Duncan, 2014). Domestic violence is defined by the law as: any incident or pattern of incidents of controlling coercive, threatening behaviour, violence or abuse between those aged 16 or over who are, or have been, intimate partners or family members regardless of gender or sexuality. The abuse can encompass psychological, physical, sexual, financial, and emotional (GOV.UK, n.d.). Acts of domestic violence can comprise of the following but are not limited to: physical abuse; hitting, kicking, punching, choking, and using weapons, verbal abuse; calling someone abusive names or using insulting language, emotional abuse; using control to make someone feel bad or intimidated, blackmailing a person, withholding finances or constantly checking up on a person, sexual abuse; forcing or pressuring a person to engage in sexual activities without their consent, touching or other unwanted sexual activity (Support Line, n.d.). However, more historical definitions of domestic violence, particularly those pertaining to the 1970's, defined it as male violence against females – suggesting a bias in power (Entilli & Cipolletta, 2017). Though current definitions of domestic violence are inclusive of all genders, it has been suggested that there continues to be a common belief that domestic violence is more likely to pertain to males being physically violent to females, whereas analogous female behaviour may be less likely to be labelled in the same way (Carlson & Worden, 2005). This demonstrates the practical implications that occur when assessing the reliability and validity of an eyewitness account. This can be due to how the witness relates and empathises with the victim which then impacts on how the details and actions of an event are recalled. If witnesses do not identify an incident as criminal, then they may not report this incident further – resulting in the victim not receiving the justice for their victimisation. However, by incorporating factors such as individual differences and punitive judgements this could change the way in which information is presented to jurors. The information presented to jurors should remain as factual as possible and therefore having witnesses only represent the details and actions of an incident may increase the reliability of the

Criminal Justice System. Though, even actions could be recalled differently depending on a witnesses' perceptions and biases (Loftus & Palmer, 1974).

ManKind Initiative (2018) revealed there have been increases in the number of convictions for female perpetrators. In 2004/05, there were 806 females convicted of committing partner abuse, and this number escalated to 3,735 by 2013/14, in the UK. This evidence showed an increase in female perpetrators being convicted but also an increased willingness of male victims to report their abuse and perhaps an increase in witnesses speaking up. Research conducted by Kaukinen, Meyer and Akers (2013) has continued to reinforce the notion that females are more likely to be victims of domestic violence compared with males. Statistics appear to support this claim, as Shipway (2006) stated that 90% of all domestic violence cases were where a female was being abused by a male. Despite this, a study conducted by Frieze (2005) found that males and females were both as likely to commit domestic violence – suggesting a mutual level of violence between a couple. However, this was found to be more prominent in younger couples. This research demonstrated that there could be a potential shift in attitudes for younger couples, where females are no longer victims but equal to males in perpetrating domestic violence. However, as ManKind Initiative (2018) demonstrated the convictions of female perpetrators may not necessarily reflect this, though research has shown an increase in the conviction of female perpetrators of domestic violence.

An explanation for this gender difference could be due to males being typically physically stronger and bigger than females, therefore, in some cases it could be suggested that if male victims really wanted to take control off their female abuser, then they would physically be able to do so – although few rarely do due to the psychological control perpetrators hold over their victims (Swan, Gambone, Caldwell, Sullivan & Snow, 2008). Another suggestion for this gender bias could be due to significantly less males reporting their victimisation, therefore the psychological impact cannot be appropriately researched and understood in the same way as it can for females (Alhabib, Nur & Jones, 2010).

This notion was further supported by Wong and Van de Schoot (2011). In their research Wong and Van de Schoot (2011) examined the reporting of real-life robberies and found that female offenders were less likely to be reported to the police, compared with male offenders. It was suggested that a reason for this difference was due to the victim's characteristics, such as their gender and relationship to the offender. It was reported that females were more likely to victimise a

person they knew, compared to a stranger, whereas males were more likely to commit offences against strangers. In addition to this, victims were less likely to report their victimisation if they knew the offender and males were less likely to report their victimisation to the police. Therefore, this provided evidence to explain why female offenders were less likely to be reported for their offences. However, this research was only conducted on victims and perpetrators of robberies and therefore cannot be extrapolated to other crimes. As this study has emphasised that females are more likely to victimise a person they know and male victims who know their perpetrator, are less likely to report this to the police, it therefore necessitates for further research to investigate how witnesses may perceive male victims of female offenders, as these victims feel less willing to report the crime themselves. Therefore, the wider societal perception of gender and crime needs to be examined as this could have further implications for eyewitness testimony and the interpretation of crimes.

Additionally, Suarez and Gadalla (2010) furthered this by examining male and female victims of rape. It was concluded that male victims of rape were less likely to report the offence, compared with female victims of rape. It was suggested this was due to male victims being more likely to blame themselves for the incident, even though they were victims. Previous research focusing on rape and sexual violence has largely focused on female victims and therefore this has encouraged a societal shift and increased education around appropriate types of sexual behaviour and identifying rape (Rutherford, 2011; Turchik, Probst, Irvin, Chau & Gidycz, 2009; Wolitzky-Taylor et al., 2010). However, this has not been publicly demonstrated in the same way for male victims of rape and sexual violence. Therefore, male victims were less able to understand their victimisation in these offences. Furthermore, as sexual abuse has been categorised as a form of domestic violence (Office for National Statistics, 2018), it is important to understand the perceptions of male victims of other abuse.

Some previous research on domestic violence has focused on the interpretation of the abuse from the victim's point of view (Bostock, Plumpton & Pratt, 2009), the perpetrator's point of view (Levitt, Swanger & Butler, 2008), and the police officer's point of view (Logan, Shannon & Walker, 2006). There has been a lack of research examining the interpretation and perceptions of the witnesses' point of view on domestic violence – who have the potential to witness a crime or be a member of a jury in some cases.

However, research has been conducted examining public perceptions of domestic violence. Carlson and Worden (2005) conducted surveys via telephone calls regarding domestic violence and the public's understanding. Findings showed that the majority of participants believed that physical violence constituted domestic violence, and this was one of the most prevalent findings. In addition, participants were less likely to identify a female's aggressive behaviour as unlawful. This suggested that female violence was not seen to be as equally unlawful as when a male exhibited violence. Overall, the general consensus was that physical and sexual violence were more likely to be viewed as unacceptable by the public. Other forms of domestic violence, such as psychological or emotional abuse, were less likely to be identified in the same way. Carlson and Worden (2005) conducted their research via telephone and asked participants questions from a structured questionnaire. Therefore, this study cannot provide insight as to how participants may react if they witnessed video footage of domestic violence, which would not rely solely on participants to imagine domestic violence scenarios, which could be influenced by their personal biases and expectations of this crime.

System Justification Theory, proposed by Jost and Banaji (1994), has previously been used to explain the acceptance of rape myths and the effects of such myths on society (Chapleau & Oswald, 2013). This theory suggests that certain groups in society may defend actions that may not be beneficial to all members of society in order to meet their own individual needs (Jost, Banaji & Nosek, 2004). Chapleau and Oswald (2013) proposed that people want to maintain a favourable attitude about themselves and the social groups which they belong to. Individuals also want to uphold positive attitudes regarding the social structure which they live in. In some cases, this system-justifying behaviour can cause subordinate group members to identify with the dominant culture. This results in the subordinate groups defending a culture which then reinforces ideologies to explain why subordinate groups are suited to lower statuses. Therefore, when the system that individuals identify with is threatened it may cause distress. In the case of rape myths, cognitive schemas that support rape myth acceptance distort how societal information is interpreted. Rape myth acceptance decreases a person's inhibitions towards committing rape, increases victim blaming, and decreases willingness to blame the perpetrator. Given the similarities between rape crimes and domestic violence crimes in terms of victim gender stereotyping (Hester & Lilley, 2016; Rouhaniah, 2017), as both are predominantly perceived as being perpetrated by males with female victims, this could

suggest that similar system justifications could occur in relation to perceptions/interpretations of domestic violence offences.

Social Learning Theory can also provide support for suppositions regarding gender-stereotyping (Radar & Haynes, 2011). Radar and Haynes (2011) suggest that Social Learning Theory could contribute towards gender and crime socialisation. They proposed that females tend to have a disproportionate fear of crime. On the contrary, males are at greater risk of crime victimisation, yet report less fear of crime. Social Learning Theory suggests that females may be more fearful because they believe they are physically weaker and less able to defend themselves. Additionally, females may be more fearful because of the severity of the crimes that may be committed against them, e.g. rape and sexual assault. Although these crimes are committed against males, statistically females are more likely to be targeted (Office for National Statistics, 2017). Social Learning Theory could provide an explanation for why males and females experience different levels of fear in regard to crimes, by suggesting that family, friends, and the media reinforce threatening ideologies of females being the victims of crime (Radar & Haynes, 2011). This may be by encouraging females not to go out late at night alone, to dress modestly, along with television dramatizations which may reinforce “the lone female being attacked by a stranger” ideology. Exposure to this societal norm may result in a gendered fear that conditions females to believe they are more likely to be a victim, particularly of a violent sexual crime, and teaches males they are more likely to be a perpetrator of such a crime. Therefore, it is possible that members of the public have predispositions of what they may expect of certain crimes and how they interpret behaviours.

5.4 How punitive judgements are being used in the current thesis

In the current thesis punitive judgements were used to understand how witnesses make sense of what happens during an incident. This was done by examining how serious participants perceived the incident to be. Punitive judgements were further assessed by exploring the interpretation of responsibility of the incident occurring and whether any victimisation occurred. However, it was also important to understand whether participants identified the victimisation of an individual as crossing legal boundaries or just something uncomfortable to view. To further examine this, the current thesis then explored whether participants would report the incident, as this could be a

way of the victim being able to escape from the perpetrator and could be crucial for the victim's wellbeing. The participants were also requested to explain the reasoning for their answers. This provided further insight into the participants' interpretation of the incident. Additionally, the thesis explored attitudes towards judicial punishments being received as a result from what they witnessed. Punitive judgements are used to understand how witnesses of the video footage perceived and interpreted the event. This enabled exploration of how perceptions and interpretations impacted the accuracy and confidence of witnesses.

5.5 Conclusion

To conclude, Chapter 5 showed how punitive judgements were used in previous literature to gauge participant interpretations and judgements of crimes. Additionally, the use of punitive judgements in the Criminal Justice System has been crucial as this can potentially impact on juror decision-making but more importantly whether witnesses report the crime in the first place. Therefore, it is important to explore the relationships between punitive judgements and eyewitness accuracy and confidence, as witnesses' punitive attitudes may be harsher dependent upon the crime witnessed and subsequently more confident in their memory, but it could be that punitive judgements and confidence do not positively correlate to memory recall accuracy. The next chapter, Chapter 6, will explore how individual differences such as, age, gender, ethnicity, and personality have previously impacted eyewitness testimony. This chapter will also discuss how personality traits can be measured and explores the limitations of using some of these methods.

Chapter 6: Individual Differences and Eyewitness

Testimony

As noted earlier, the previous chapters explored how the physical aspects of a crime and interviewing techniques impacted on eyewitness testimony by altering and misleading witnesses of crimes. However, whilst aspects were controlled in previous empirical research, these studies rarely incorporated individual differences. Here, the impact of individual differences on eyewitness testimony was explored. For the purpose of this thesis, individual differences were defined as the psychological differences between individuals (Gignac & Szodorai, 2016).

6.1 Gender

Research has shown differences in the memory recall of males and females (Fuentes & Desrocher, 2013; Gysman, 2014; Herlitz, Nilsson & Bäckman, 1997; Lawton & Hatcher, 2005; Wühr & Schwarz, 2016). For example, in the study by Areh (2011), where participants were shown video footage of a violent robbery captured by a surveillance camera, findings revealed that females were overall more reliable eyewitnesses, especially when identifying person descriptions and place descriptions, compared with males. Males were shown to be better at recalling the event, compared with females. Furthermore, males were more confident than females, especially when identifying place descriptions but despite being more confident males were not more accurate. From these findings it could be suggested that both male and female witnesses could be unintentionally misleading in their eyewitness testimonies; females may underestimate their reliability when it comes to person descriptions, whereas males could overestimate it when it comes to person descriptions. However, this study used exclusively first year undergraduate students with an average age of 19. Therefore, it may be difficult to extrapolate these findings to wider society as there was little variation in participant age and educational attainment.

Price, Lee and Read (2009) conducted an experiment which examined how gender impacted the recalling of spatial tasks. In this study participants had to steal an exam paper from a professor's

unattended office by using a map to navigate. Overall, males scored significantly higher than females when recalling information and when reconstructing the map. This research provided evidence to demonstrate that males were significantly better at recalling spatial information compared with females. However, this study only tested participants on spatial tasks and was unable to provide a comparison of other types of memory and how gender might impact on this, such as auditory and visual episodic memory. Further support of gender differences was found by Rose and Latorre (2010).

Ros and Latorre (2010) asked participants to recall a specific emotional autobiographical memory when they were exposed to positive and negative cues, e.g. emotional words. The results indicated that females have better memory recall of emotional autobiographical memories but only when recalling negative memories in response to negative cues. The research found no gender differences for the recalling of positive emotional autobiographical memories to positive cues. The researchers suggested this could be due to females being less happy than males – as the females had higher rates of depressive symptoms than the males. Ros and Latorre (2010) suggested that females might be less effective at coping with emotion regulation and that people are more likely to recall memories that correlate to how they currently feel. This could explain why females had significantly better memory recall of negative memories in response to the negative cues, compared with males. However, this study relied on self-report from the participants. It could be suggested that some participants may have more negative experiences than others with some participants potentially experiencing more extreme negative experiences. This needed to be accounted for in this study to determine whether it was gender alone that impacted on their memory recall and not their personal experiences. As this was not accounted for in this research it cannot be concluded that females are less effective at coping with emotion regulation if the females in the study had more traumatic or serious negative events compared with the males. Research should account for previous experience of negative events, especially when using autobiographical memories as this could skew the findings of the research.

Wang (2013) also examined the effect of gender on autobiographical memories. Here, participants recorded what they were doing at specific points in time over the course of a week. Participants were then given a surprise memory test of the responses they had submitted to the researchers. The results revealed that females recorded a greater number of details, compared with males, at the encoding stage – showing that the females submitted more details about their events.

Females recalled more details compared with males and also the details recalled were more accurate for females at the delayed memory recall stage. The study found no gender differences for forgetting. This implied that neither gender had an advantage for retaining information long-term. From this research it appears that females might attend to and encode more information during the event than males, allowing them to retain the information and therefore allowing them greater accessibility to event information when later asked to recall it. This research also provided evidence to suggest that females had better episodic memory than males. The study concluded that females had an advantage when a task involved verbal processing of a narrative. However, this study only examined one type of memory; autobiographical, and therefore it cannot explain any potential gender differences between other types of memory, such as spatial memory.

Atkinson and Shiffrin (1968) proposed the Multi-Store Model to attempt to explain how memory processes worked. This theory suggested that memory is comprised of 3 distinct components: sensory stores, short-term store, and long-term store. These stores of information can help build memories. A sensory store is defined as the information that the individual processes through their sensory receptors via the nervous system. Sensory information is processed subconsciously and includes senses such as; sight, hearing, smell, taste, and touch. This information allows individuals to recall the details of a stimulus even after the stimulus has ceased. This is because these senses are used to formulate the memory. Short-term store relates to the sensory information that is attended to, whilst the majority of the sensory information naturally decays if it is not attended to. If the information held in the short-term store is not actively rehearsed, then the retention of the information being remembered will reduce. Long-term store is a more permanent store of memories. Atkinson and Shiffrin (1968) suggested that information will automatically move over from the short-term store to the long-term store. However, the quality and accuracy of the memory will depend on how well the information was attended to during the encoding stage. An event that demands the attention of the individual will be more likely to be remembered more accurately. Any memories being transferred from the store-term store to the long-term store may be intentionally or accidentally manipulated. This could be due to a multitude of reasons, such as retelling the event in a story like manner where gaps are filled in, contamination from other individuals who witnessed the same event, and natural memory decay where intricate details may be less likely to be remembered over the salient features of the memory. Nanova, Lyamova, Hadjigeorgieva, Kolev and Yordanova

(2008) stated that the processing of some sensory information could vary between males and females. It was concluded that females could process auditory information quicker than males, making their cognitive performance on reactions tasks much quicker and more accurate. It was suggested this could be as a result of females being more adept in processing this type of sensory information. However, when exploring the gender differences of visual sensory information, Dumitru, Chraif and Anitei (2014) found that males were more accurate when solving the visual task whereas females had quicker reaction times in response to the task.

Episodic memory is categorised as the recalling of autobiographical events. This is a type of long-term memory that requires a person to consciously recollect the incident. This type of memory is always located in the past and is accompanied by feelings of remembering and is specific to each individual (Clayton, Salwiczek & Dickinson, 2007). Herlitz, Nilsson and Bäckman (1997) examined gender differences and episodic memory and concluded that females overall had significantly better memory recall than males. This included being significantly more accurate in the following tasks; object location, picture recall, word recall, word recognition, story recall, face and name recall and facial recognition. However, the researchers stated these factors should be considered with trepidation, as they were unable to provide a reason for why females may outperform males in episodic memory and felt this could not be sufficiently explained by females having higher verbal abilities than males. Further research conducted by Pauls, Petermann and Lepach (2013) indicated that males outperformed females in visual episodic memory, which directly contrasted with the findings of Herlitz, Nilsson and Bäckman (1997). However, it was found that females outperformed memory of auditory memory tasks, which was suggested to be due to females having better verbal abilities and therefore being better at recalling this type of sensory information. Grysman (2017) looked at gender differences for recalling autobiographic memories. It was concluded that females were significantly better at recalling details regarding the individuals involved in the event and the specific details of these individuals, whereas males were significantly better at recalling the environment the event took place in. It was suggested that these gender differences may not be due to females having better memory recall than males, but because they include more words in their narratives when they recall the event, thus making it appear that they can recall more details. From these studies outlined it is clear that males and females attend to information differently, resulting in differences in memory.

Semantic memory relates to the recalling of factual information and is referred to as general knowledge about the world that an individual will acquire throughout their life (Hertlitz, Nilsson & Bäckman, 1997). Grysman (2017) found that females were significantly better at recalling semantic memory compared with males. It was suggested this was to help substantiate a memory and explain who each person is and why they know this. In this study, semantic memory was used to help support the story that was being told. However, contrary to the findings of Grysman (2017), Fuentes and Desrocher (2013) concluded that when recalling semantic details of an event there were no significant differences between males and females. This finding was also further supported by Hertlitz, Nilsson and Bäckman (1997).

Research conducted by Pauls, Petermann and Lepach (2013) provided further supporting evidence for female superiority with regards to memory recall. Here, the researchers directed multiple tests on participants' auditory episodic memory, visual episodic memory, and visual working memory and showed that females outperformed males when recalling verbally encoded information. Whereas, males outperformed women on visuospatial processing and visual episodic memory. This research offers additional support to the propositions of Price et al. (2009), emphasising that males have an advantage at recalling spatial information, compared with females. Furthermore, Pauls et al. (2013) were able to demonstrate how males and females recalled different types of information differently, with males having better spatial memory recall and females having better recall of verbal information. Most previous literature focused on one type of memory and therefore this study provided new insight into how males and females directly compare on different types of memory. This is advantageous as typically during memory recall a person will recall spatial, verbal and visual information, particularly in eyewitness statements. Such findings are essential in building an understanding of how these statements may be unreliable.

Bloise and Johnson (2007) studied the impact of recalling emotional information from a script which contained both neutral and emotional information. They concluded that females were better at recalling emotional information compared with males. Further, when the importance of the neutral information was highlighted to the participants, females also had increased memory recall for the neutral information as well. Additionally, when the neutral information was made salient to the females their memory recall also increased, suggesting that females could improve their memory recall even for information that was not naturally salient for them, e.g. emotional information. This suggested that

females may encode and reflexively process emotional information in a more elaborate way than males. This results in females having significantly better memory recall of emotional information. The researchers implied this gender difference could relate to females being more able to organise the information from their experiences into retrievable detailed memories. Bloise and Johnson (2007) believed this could be linked to parents discussing past memories and events in greater detail with their daughters than with their sons.

Overall, the literature demonstrated a difference in memory recall for males and females. From the literature discussed it showed how females may have an advantage at recalling personal descriptions of people, verbal information, and have better memory recall of negative emotional events, compared with males. However, males appeared to have an advantage at recalling the physical event, visual information, and spatial information, compared with females. Research suggests that males and females may encode information differently, resulting in differences in the type of information recalled. Further; there may be differences between males and females in their memory recall, which could suggest that eyewitness memory would be impacted by gender as well. The gender of a witness could thus have either a positive or negative impact on the reliability of the memory being recalled – making witness gender a crucial variable to consider when reviewing eyewitness accuracy.

6.2 Age

Previous literature has suggested witnesses may have an own-age bias when identifying others (Harrison & Hole, 2009; Hills & Lewis, 2011; Wiese, 2013; Wiese, Komes & Schweinberger, 2013). This was highlighted in the study conducted by Wright and Stroud (2002). Participants were shown video footage of a crime. A total of 4 videos were shown, with 2 videos depicting older adults as the culprit and the other 2 videos depicting younger adults as the culprit. Participants were then asked to identify the culprits from a police line-up which comprised suspects their own age and suspects of a different age. Findings revealed that participants were better at correctly identifying the culprits when they were the same as age the participants. However, this study did not account for gender for both the participants and the culprit and this could have impacted on the memory recall of participants as well as the age of the participants. It could be suggested that the memory differences

could be as a result of gender of participant and the gender of the culprits. Thus, it cannot be concluded that age alone was responsible for the accuracy of identification.

Anastasi and Rhodes (2005) provided additional research to support the own-age bias theory. In their research older and younger participants were shown photographs of people of different ages. The results showed that both younger and older adults had an own-age bias. Furthermore, Rhodes and Anastasi (2012) conducted a meta-analysis and theoretical review of some of the existing literature around own-age bias. The research determined that participants consistently had superior memory recall when identifying people of the same age as themselves, compared to people of a different age. The researchers suggested this was due to participants' social groups and whether the participant identified as being part of that group (for example being the same age) or being out of that group (for example being of a different age). However, this study, like previous studies, only accounted for the age of participants without considering other individual differences, such as ethnicity, gender, or personality.

Further research conducted by Ros and Latorre (2010) investigated how the recalling of positive and negative memories was impacted by age. The researchers asked participants to recall a specific memory when they were presented with positive and negative cues. The study showed that older adults retrieved fewer negative memories when shown the negative cues, compared with younger adults. Ros and Latorre (2010) suggested this might be a result of the positivity effect in aging. They proposed that as people age they are more likely to prioritise emotionally gratifying memories, and memories that increase negative emotions are more likely to be forgotten. Additionally, younger adults were also more likely to retrieve more memories in response to negative cues. This study also accounted for participants' depressive symptoms. From this information, this study concluded that younger adults had more depressive symptoms than older adults – resulting in them being able to recall more negative memories in response to negative cues. Although this study accounted for depressive symptoms and was able to provide evidence that showed how this might impact memory, it would be beneficial to consider a wider scope of individual differences, such as a personality with multiple traits examined. Then the interaction between traits and memory recall might be further explored and understood.

Wong, Cramer and Gallo (2012) showed participants different pictures and words and later participants were asked to identify the images previously viewed. Findings revealed older adults had a

reduction in their recollection of the images, compared with younger adults. The researchers implied this finding was a result of older adults having impaired recollecting and monitoring processes, which reduced their ability to retrieve the information during recall. In addition to this, West and Stone (2014) explored how age impacted on the exposure to misinformation. Participants in this study were given a story to read and remember. Half of the participants were warned that there would be an interruption during the study and were told to remember this event. During the interruption misinformation was deployed. Memory tests were later conducted on participants, including cued and free recall. Findings showed that older adults provided fewer details compared with younger adults in both cued and free recall questions. However, both younger and older adults were equally susceptible to misinformation for cued and free recall. Overall, the findings showed that older adults were generally less accurate than younger adults and were unable to provide as much detail as younger adults. However, this study only provided evidence for photographic images and how age impacted on the memory recall of this stimulus. Therefore, this study cannot explain how a witnesses' age may impact on their recall of a real-life event, or video footage of an event which provides witnesses with more detailed information.

Research has also investigated how age impacts decision-making and accuracy during criminal events. Sheahan, Pozzulo, Reed and Pica (2018) examined how the age of a witness influenced mock juror decision-making. Mock jurors heard accounts from a young witness (10 years old) and an older witness (20 years old). The study revealed that the age of the witness did not significantly impact on the decision-making of mock jurors – implying that both witnesses were treated as being equally valid as one another. However, research conducted by Wagstaff, MacVeigh, Boston and Scott (2003) examined how the age of the witness might impact the accuracy of recalling an incident. In this research data was gathered from real-life crimes of offender descriptions and these descriptions were compared to the actual event of the crime, whilst accounting for the age of the witness. Findings showed that the age of the witness did not significantly alter the memory recall accuracy of the crimes. However, in the study conducted by Sheahan et al. (2018) the ages between two mock witnesses may not have been great enough to elicit a difference. It could have been beneficial to compare the perception of the 10-year-old and 20-year-old mock witnesses with an older adult mock witness to have a greater understanding of the impact of age. Additionally, the witnesses were mock witnesses which could have resulted in participants viewing the witnesses more

favourably compared to being in a real court and determining the credibility of the witness there. Furthermore, the findings could also be due to participants not wanting to discredit either of the mock witnesses due to demand characteristics and because in the study there were no legal consequences for believing the mock witnesses. It is possible this could differ if participants had to make the same decisions for a real-life crime.

The research reviewed emphasises the observed memory differences between older and younger participants. If this notion is then adapted to eyewitness memory, it is likely to have a similar effect, with age impacting the reliability of an account. Therefore, this variable is a key factor to include when assessing the reliability of eyewitness testimony.

6.3 Ethnicity

The cross-race effect has been well researched within the field of eyewitness testimony (Gross, 2009; Meissner & Brigham 2001; Wiese, 2012). Research has suggested that individuals are more reliable when identifying a person from the same ethnicity as themselves, compared with witnesses identifying an individual from a different ethnicity (Dodson & Dobolyi, 2016). Additionally, racial stereotypes have also been found to affect the reliability of a witness and subsequent recalling of a criminal incident (Osborne & Davies, 2014). This was demonstrated in research conducted by Arnold (2013). In this study participants were shown a mixture of faces, some relating to their own race and some of other races. Participants were then shown a mixture of new and previously seen faces and were asked to identify if they had seen the face in the initial demonstration. During the second set of faces participants were again shown faces of people relating to their own race and people of other races. Findings concluded that participants consistently had superior memory recall for recognising faces that belonged to their own race, compared with recognising faces of other races. This research suggested that participants had an own-race bias when identifying previously seen faces. However, participants were only shown pictures of the individuals and this study cannot explain how eyewitness identification may have differed when participants viewed individuals who were moving around in naturalistic environments, as facial expressions, which cannot be seen properly in photographs, may also have impacted on the interpretations and judgements of participants.

The own-race bias theory was also supported by Zhou, Pu, Young and Tse (2014). Here, participants were shown photographs of people from their own race and photographs of people from other races. During the experiment participants in the experimental condition had their attention divided at some point in the encoding stage. The results showed that the control group had better memory recall of photographs of individuals from the same race as themselves. However, dividing attention eliminated the own-race bias effect completely. This research suggested that attention was a crucial aspect in creating the own-race bias in participants. Furthermore, the researchers stated that this study could highlight that the own-race bias was an effect of participants paying more attention to photographs of people from their own race rather than people of other races. This research provides evidence to suggest that individual differences of witnesses may impact on their memory recall accuracy.

6.4 Personality

The impact of personality on eyewitness testimony has been an under-researched area, with limited studies examining relationships between the two. Some research has shown that personality might impact on the memory of an event (Liebman et al., 2002) – though research has produced contrary findings. Research conducted by Areh and Umek (2007) examined whether personality traits could be used to predict the quality of memory recall. In this study participants were shown a video of a robbery and had their personality measured by The Eysenck Personality Questionnaire (EPQ). Seven days after watching the video, participants had their memory recall of the event tested. The findings revealed that some personality traits were associated with differing qualities of memory recall. Participants with higher levels of extraversion had significantly higher memory recall accuracy. Furthermore, participants with lower levels of neuroticism were also more likely to have decreased levels of confidence in their memory recall. The researchers suggested this could be due to the connection between anxiety and neuroticism, as participants with higher levels of anxiety had lower self-confidence. Additionally, participants with higher levels of neuroticism also had decreased memory recall of the event and were found to be more likely to fabricate aspects of the event. To conclude, Areh and Umek (2007) believed that a model could be created to evaluate the credibility of a witness, but they insisted an alternative personality measure to the EPQ should have been used.

This was due to the results not being able to adequately predict witness accuracy based on the way personality was measured in the EPQ. However, it is also worth noting that Areh and Umek (2007) only accounted for personality alone and did not incorporate additional factors that may have impacted on witness accuracy, such as gender or age.

Buratti, Allwood and Kleitman (2013) explored how personality traits might influence the recalling of semantic memories. Participants were given an adjustment task where they were asked to complete a general knowledge test and then instructed to reconsider their answers. Participants had their personality measured using the Goldberg's Big Five Markers (GBFM). The findings demonstrated how personality traits did not significantly impact on participants' ability to identify incorrect answers and modify them. However, the overall study was quite lengthy with an average time of 90 minutes of participants answering mainly questionnaires. The personality measure was the last measure to be completed and therefore participants may have lost interest in the task and a lack in concentration in completing the measure could have resulted in a lack of significant findings.

Adams-White, Wheatcroft and Jump (2018) explored how personality impacted decision-making in relation to air defence in a navy vessel's operation room. It was suggested that personality could play a vital role in the decisions being made as traits may impact on how individuals feel and behave. In this study, participants had their personality measured via the NEO-PI-R. Generally, it was concluded that personality traits were not related to confidence-accuracy relationships. However, workload was found to be negatively correlated with openness and, thus, the study provided some evidence to suggest that some personality traits may impact upon individuals' perceptions of situations.

Other research examined the impacts of personality and emotion. In the study conducted by Rusting (1999), half the participants had their personality measured using the EPQ and also had their current mood state measured. Participants were then asked to complete several memory tasks. The other half received a mood induction to alter their current mood and then proceeded to complete the personality and memory tasks. The results suggested there was no significant correlation between personality and mood that could predict emotion congruency in memory. However, as mood is not a constant state it may be more difficult to establish relationships between personality and mood. Therefore, it would be more beneficial to examine personality and other individual differences such as age and gender, which are more stable.

Additionally, Richards and Gross (2006) investigated how personality might affect emotional memory. Participants were shown pictures of a car accident involving a pedestrian. There were two experimental conditions; one condition saw a car stopped at a stop sign and the second condition saw a car stopped at a yield sign. Participants then had their personality measured using The Myers-Briggs Type Indicator and answered questionnaires relating to the images they had witnessed. They were also asked to rate their confidence of their answers. Findings implied that personality influenced confidence. It was concluded that participants who were regarded as extroverts were more confident in their responses, compared with participants who scored as introverts. However, no other personality traits were shown to have any significant effect on either the accuracy or the confidence of a participant's memory recall. However, this may have been due to the personality test used in this study. The Myers-Briggs Type Indicator has a total of 16 different personality types and therefore, the lack of significant findings could be as a result of participants not fulfilling these categories in equal numbers.

Denkova, Dolcos and Dolcos (2012) further assessed how the recalling of emotional memories was impacted by personality. The study had participants recall an autobiographical memory in response to verbal cues. Participants then rated their memory of the event on aspects like; personal significance, amount of detail provided, and the amount of context details provided. The results revealed that personality contributed to how participants experienced autobiographical memories and how these memories were retrieved. The findings showed that extroverted participants were more likely to report positive autobiographical memories compared with introverts. The researchers argued that the recalling of more positive memories could contribute to extroverts maintaining a positive mood – suggesting that extroverts are naturally more able to recall positive memories compared with introverts. However, this study assumed that introverts were less positive than extroverts, though positivity was not accounted for in this study. Additionally, the experiences of participants were not accounted for. It could be suggested that the introverted participants in the study had more salient negative experiences, compared with the extroverted participants and thus could recall this information more easily. Therefore, it cannot be concluded that extroverts are more positive than introverts alone without accounting for other factors, such as past experiences.

As noted earlier, previous literature has demonstrated that personality might have an effect on the recalling of memories (Areh & Umek 2007; Denkova, Dolcos & Dolcos, 2012; Richards &

Gross, 2006). These studies largely focused on the recalling of personal memories that held no significant weight if they were recalled inaccurately. However, in situations where witnesses of crimes are required to provide an eyewitness testimony this could result in significant judicial repercussions. Therefore, the literature explored the impact of personality on eyewitness testimony. Liebman et al. (2002) explored how personality impacted eyewitness accuracy. Participants completed the NEO PI-Revised personality test and then listened to an audio description of an incident and were later asked to recall their memory of that description. However, during the questioning participants were exposed to misleading information. The findings showed that openness was positively associated with memory recall accuracy. Additionally, participants who scored highly on neuroticism but lowly on agreeableness and conscientiousness were more likely to incorporate the misinformation in their memory recall. This research demonstrated how memory recall could be impacted by personality traits. However, this study only used audio descriptions of crimes and therefore relied on participants to imagine the crime instead of visually recalling it. Therefore, the intensity and severity of the crime was open to the interpretation of the participants. Participants' personal biases and expectations could have impacted how they imagined the event unfolded and subsequently how they recalled the information. Additionally, this study would have required total concentration from the participants whilst listening to the audio and therefore it could also be suggested that a lack of concentration could have contributed to the inaccurate memory recall rather than personality traits.

The research discussed provides evidence to suggest that memory may be impacted by personality traits. It is likely that these personality traits could impact on the interpretation of incidents and result in biases against certain groups. If not accounted for, personality traits could have a large impact on eyewitness testimonies, as the interpretation and recalling of an incident may predisposed to certain biases due to higher or lower levels of particular personality traits.

6.5 Methods for measuring personality

Over the years there has been the development of different personality measures (Garcia, Rosenberg & Sikström, 2016; Hendy, 2017; Siers & Christiansen, 2013). The validity and reliability of these tests has come under great scrutiny in previous research (Jeong, Christiansen, Robie, Kung & Kinney, 2017). The following personality measures are some of the mostly widely used and

recognised, these will be discussed below; Myers-Briggs Type Indicator, Eysenck Personality Questionnaire, Eysenck Personality Profiler – Short , Eysenck Personality Questionnaire – Revised, Five Factor Model, NEO PI-R, and NEO-FFI.

The Myers-Briggs Type Indicator (MBTI), created in 1921, has been one of the most widely used measures of personality types to date (Lee & Min, 2016; Lloyd, 2012; Pulver & Kelly, 2008). Previous research conducted by Capraro and Capraro (2002) explored the validity and reliability, via test-retest of the MBTI, and found that the personality measure was generally reliable. However, this was one of the first studies to account for the reliability of the test, compared with other previous research. Salter, Evans and Forney (2006) also examined the reliability of the MBTI; however, this study tested the personality test over the course of two years. The scores of the study revealed that the MBTI was shown to be reliably stable. However, it must be noted that the scores did differ slightly and showed some variation in responses. The researchers suggested this may be due to an exposure effect, as the participants had been repeatedly exposed to the MBTI. Therefore, this may have impacted participant responses.

Though this personality measure has been used extensively in previous contexts (Brown & Reilly, 2009; Kuipers, Higgs, Tolkacheva & de Witte, 2009; Mattare, 2015; Rashid & Duys, 2015; Tobacyk, Livingston & Robbins, 2008), this measure may not be the most effective for some academic research purposes. The MBTI has largely been used in business and work contexts to help company employers and employees understand attributes that are suited to certain job types and to increase understanding of colleagues working styles. Thus, although it might prove useful in academic research, there is a lack of research using the MBTI in eyewitness testimony research. Therefore, the MBTI's applicability to criminal contexts remains to be determined (Boyd & Brown, 2005; Mulay, 2006; Rushton, Morgan & Richard, 2007). Furthermore, this personality measure consists of 16 types, which in academic research would create potential issues as some personality types may be more common than others and equal division of participants may be difficult to achieve (Myers, 1962).

The Eysenck Personality Questionnaire (EPQ) was used in previous research. The EPQ has been used more frequently in academic contexts compared with the MBTI (Escorial & Navas, 2007; Smillie et al., 2009; Sato, 2005). Bowden, Saklofske, van de Vijver, Sudarshan and Eysenck (2016) looked at the application of the EPQ cross-culturally. Here, it was concluded that the test had good

validity due to its cross-cultural consistency across all four factors measured in the test; neuroticism, extraversion, psychoticism, and the lie scale. This indicated that the personality measure had application to multiple cultures, as a total of 33 countries were examined. This finding was deemed as striking due to many personality measures having limited use cross-culturally.

Furthermore, Picconi, Jackson, Balsamo, Tommasi and Saggino (2018) investigated how gender and age impacted on the Eysenck Personality Profiler – Short (EPP-S), which was a shortened version of the original EPQ. The study revealed that age and gender did not overly distort the EPP-S scoring and was shown to be a valid measure of the four factors; neuroticism, extraversion, psychoticism, and lie scale. However, the validity of this test was only adequate. It showed variation in responses depending on gender and age; for example, females had higher neuroticism scores than males. Although research has demonstrated that females are more likely to have higher levels of neuroticism than males, this personality measure does not account for gender differences. Therefore, the application of this personality measure to males and females may not be as reliable as initially assumed.

Additionally, Caruso, Witkiewitz, Belcourt-Dittloff and Gottlieb (2001) tested the reliability of the EPQ and the EPQ – Revised and found that all scores varied between the two scales, with psychoticism having the lowest reliability. Moreover, Corr (2010) suggested that psychoticism was on a continuum with psychopathy, which has been linked to anti-social behaviour, personality disorders, and maladjustment. Therefore, psychoticism may have negative connotations associated with this trait by participants and could lead to a desired response, or participants who receive higher psychoticism scores could be negatively impacted by the undesirable qualities associated with this trait.

The Five Factor Model (FFM) of personality moved away from including psychoticism as a trait, instead it was created through empirical findings rather than theory. The five factors established through factor analysis were; neuroticism, extraversion, openness, agreeableness, and conscientiousness (Hofmans, Kuppens & Allik, 2008). However, due to the FFM being time consuming to complete, this measure is best suited to longitudinal studies, as it can be inappropriate for shorter studies (Hofmans, Kuppens & Allik, 2008). Despite this, the FFM has been largely used and has been considered a universal measure of personality (Gurven, von Rueden, Massenkoff, Kaplan & Vie, 2013).

The NEO PI-R examined the same five personality factors as the FFM and is considered an updated version, with fewer items in each personality facet yet maintaining good levels of validity and reliability (Hofmans, Kuppens & Allik, 2008). However, although this test contains less items in the neuroticism, extraversion, openness, agreeableness, and conscientiousness facets, the completion of this personality test still is lengthy and time-consuming, taking around 45 minutes to complete the 120 items which can give the participants' the feeling of being over surveyed – especially if additional tests are required in a study (Mooi, Comijs, De Fruyt, De Ritter, Hoekstra & Beekman, 2011). However, a shortened version of the NEO PI-R, called the NEO-FFI has been shown to be as reliable and valid yet less time consuming, with the test taking around 10 – 15 minutes to complete the 60 items (Hull, Beaujean, Worrell & Verdisco, 2010). Furthermore, Magalhães et al. (2014) concluded that the NEO-FFI had some cross-cultural applicability from their research. Here, the five personality dimensions were consistently reliable and valid when applied to Portuguese participants. However, due to the limited research on the NEO-FFI's cross-cultural relevance these findings must be applied with trepidation. Additionally, the NEO-FFI accounts for differences in male and female participants, as well as a combined scoring for male and females for all personality dimensions (Helle & Mullins-Sweatt, 2019). Therefore, due to its extensive use, reduced completion time, evident reliability and validity, and accounting for gender in the scoring of personality dimensions, this measure of personality was used in the current thesis.

Some personality measures have been shown to be reliable throughout various studies (Doughty, Paterson, MacCann & Mond, 2017; Safer & Keuler, 2002; Smith, Persyn & Butler, 2011). Sato (2005) examined the reliability of the Eysenck Personality Questionnaire brief version and discovered that extraversion and neuroticism were rated as being higher, compared with other versions of the Eysenck Personality Questionnaire. This suggested that the brief version may be an inaccurate measure of some personality traits. However, this personality measure had good test re-test reliability, but the validity of this measure was unsatisfactory. Therefore, this suggested that shorter personality tests, although they can be more convenient and practical, may provide less reliable and less valid data.

Additionally, Aluja, García, Rossier and García, (2005) examined the reliability of the NEO-FFI-R, which was a shortened version of the NEO-FFI. It was concluded that the NEO-FFI-R did not outperform the NEO-FFI. It was found that both personality measures reached acceptable values of

the alpha coefficients. Therefore, this suggested the old version does not need to be replaced as the new version provided data that was only equally as reliable.

Despite previous research contributing valuable insight into the effect of factors such as age, gender, and ethnicity, there is a lack of research accounting for personality traits (Houston, Hope, Memon & Read, 2013; Magnussen, Melinder, Stridbeck & Raja, 2010; Memon, Mastroberardino & Fraser, 2008; Schmechel, O'Toole, Easterly & Loftus, 2006). As personality traits may be one of the key aspects of a person that alter interpretation and judgement of events (Hall, Gunnery, Letzring, Carney & Colvin, 2017; Lawrence & Hodgkins, 2009; Petrosky, 2008), it is vital that this individual difference is incorporated into research to understand the potential impact of personality traits.

6.6 The use of personality in memory research

Areh and Umek (2007) were some of the initial researchers who included personality traits as a factor when assessing eyewitness testimony. In this research the researchers used the EPQ to measure personality traits. Participants were shown a video of a robbery before having their memory recall tested. The findings revealed how memory recall accuracy and confidence were impacted by participant personality traits. Here, extraversion was positively correlated ($p = .05$) with memory recall accuracy and confidence. This suggested that participants who were more extraverted were more likely to remember the event accurately and were subsequently more likely to correctly rate their confidence in their responses, compared with less extraverted participants. However, neuroticism ($p = .04$) was shown to be negatively correlated with confidence and psychoticism ($p = .01$) was negatively correlated with memory recall accuracy. This research implied that personality traits could potentially impact on the accuracy and confidence of eyewitnesses. However, this study only used participants aged between 19 and 22 years old, therefore this cannot be generalised to other age groups, and in addition a relatively small sample of 98 participants was used. This was supported by the research conducted by Wong, Cramer and Gallo (2012), who found that older participants (aged between 65 - 90 years) had significantly lower memory recall accuracy compared to younger participants (aged between 18 – 25 years). This was further supported by Johnson and Jefferson (2018), who found that older adults had greater difficulty recalling who they had told information to, compared with younger

adults. These studies indicate that older individuals generally have poorer memory recall than younger individuals which can result in memory recall differences for accuracy and confidence.

Areh (2008) conducted a study where participants were shown video footage of a robbery. The study found weak correlations between memory recall and personality traits, although the research was able to suggest that neuroticism ($p = .01$) was negatively correlated with recall accuracy. It was suggested that the lack of significant findings could be due to methodological errors as this study used only undergraduate students all aged 18 to 21. This sample was shown to have significantly higher extraversion than the average population, suggesting that the obtained sample was not representative of the general population. This could have generated distorted findings and produced results that cannot easily be extrapolated to the general population.

Pajón and Walsh (2017) exposed participants to video footage of a crime and explored the impact of personality on memory recall. The researchers concluded that the personality trait honesty ($p = .05$) was positively correlated with memory recall accuracy. This implied that participants who were more honest were significantly more likely to have higher levels of accuracy. On the contrary, emotionality and openness were negatively correlated with memory recall accuracy. This research provided evidence to support the notion that personality traits may impact memory recall of criminal incidents. However, this study used a small sample size of 53 undergraduate students and therefore the findings from this study cannot necessarily represent the general population, especially as all students studied criminology and would therefore have additional knowledge about crimes that may impact on their memory recall. Additionally, the experiment was conducted during a lecture and participants were sat in close proximity to others and were able to view each other's responses. Although they were advised not to, this could have also impacted on the findings.

Tiwari (2010) indicated that extraverts had lower basal rates than introverts. Tiwari (2010) suggested that introverts were more likely to exceed the optimal level of arousal more easily than extraverts. It was suggested that individuals who were not emotionally aroused enough or those who exceeded the optimal level of arousal will have inhibited memory recall. This could be particularly notable for participants witnessing a criminal incident as the event would elicit stress and impact on their level of arousal. As extraverts had a lower basal rate, the event might induce arousal that raises these individuals to the optimal level of arousal, which may enhance their memory recall of the incident. Whereas, if introverts already have a higher basal rate of arousal, they could exceed the

optimal level of arousal when witnessing a stressful criminal incident and therefore may have hindered memory recall.

In relation to the misremembering of events, Peace and Constantin (2016) looked at how the recalling of positive and negative events was impacted by psychopathic traits. Results showed that psychopathic personality traits did not significantly correlate with memory recall accuracy, suggesting that these traits had little impact on the accuracy of a memory. However, participants with higher levels of psychopathic traits were more likely to incorporate misinformation into their memory recall when exposed to this information. It was suggested that participants with higher levels of psychopathy paid less attention to the stimulus they were observing, and this notion was reflected in the study by these participants recalling less central and peripheral information relating to the event, compared to participants with lower levels of psychopathy. This suggests that participants with higher levels of psychopathy are more susceptible to incorporating misinformation. Peace and Constantin (2016) theorised that the low-arousal theory of psychopathy suggests that individuals with higher levels of psychopathy are in a constant state of stimulation and therefore this constant need for stimulation may lead these individuals to become distracted and consequently negatively impact their memory recall. However, this study focused solely on one personality trait and future research should aim to explore different directions and traits of personality. Zhu et al., (2010) furthered this idea by exploring how multiple personality traits impact the recalling of false memories and misinformation. Findings showed that lower levels of harm avoidance traits were associated with the increase of false memories. Zhu et al., (2010) implied this was due to these individuals having lower levels of anticipatory anxiety and fear of danger. This was due to these individuals being less worried about being accurate in their memory recall as they could not fully appreciate the consequences and impact providing incorrect information could have, especially in a legal environment. Additionally, those with higher levels of reward dependence and cooperativeness were more likely to be impacted by others – by incorporating the recollections told by others into their own accounts of an event. This relates to wanting to be accepted by others and feeling the need to align memories to others. This research showed that different personality traits can impact the memory of an event in multiple ways. This research raises questions about how social interactions manipulate memories and the drive for acceptance of others may lead to a memory being either intentionally or unintentionally misremembered. From this research, it could be suggested that personality traits do not only impact

on how well event details are remembered but also how external factors of an event can be equally as powerful for distorting memory recall.

Doughty, Paterson, MacCann and Mands (2017) investigated the impact of personality on memory conformity. Results showed that participants with higher levels of openness were less susceptible to incorporating misinformation into their memories. Those with higher levels of extraversion correlated to having increased levels of memory accuracy. Participants with higher levels of neuroticism were less likely to recall misinformation. However, the researchers suggested that the results yielded may be as a result of the individual facets for each personality trait rather than the trait itself, but due to the study only examining these personality traits as a whole these conclusions cannot be drawn. This research is still able to provide evidence to suggest that eyewitness testimony could be negatively impacted by the same personality traits and in some cases lead to greater conformity amongst witnesses, which could be detrimental to a criminal investigation as certain details may be over emphasised or underplayed due to individuals aligning their memories to incorporate other witness accounts.

Toffalini, Miranda, Drabik, Melinder and Cornoldi (2014) suggested that events which are emotionally negative are more likely to be remembered more accurately and with fewer errors than emotionally positive and neutral events. This research aimed to explore how depressive-anxious personality traits impacted the recalling of false memories. Results revealed that participants who had depressive-anxious personality traits were more likely to make errors when recalling emotional information. It was suggested that this increase in errors was due to the active mental reconstruction that happens to individuals with these traits. Therefore, these individuals may be more likely to dwell on a negative event and then make inferences about what they witnessed – though this information may not be accurate. As depression and anxiety are two of the most common mental illnesses in the UK (Mental Health Foundation, n.d.) and with the increasing number of diagnoses (Mind, 2017), this research provided insight into how witnesses with these personality traits could have their memory negatively impacted. Therefore, providing further evidence to support the notion that personality traits may impact the recalling of events. The impact of mental illness and personality traits on recalling events was also demonstrated by Delduca, Jones and Barnard (2010). Their research explored how hypomanic personality, caused by being bipolar, impacted the recalling of autobiographical memories. Results showed that participants with hypomanic traits could respond quicker to negative cues

relating to specific autobiographical memories, compared to participants with lower levels of hypomanic traits. This provided supporting evidence to imply that there are multiple personality traits that can impact upon a witness recalling a memory. Furthermore, as previously noted, the increase in recognition of mental illness and individuals being diagnosed suggests that personality traits may play a more crucial aspect in memory recall than previously understood. Thus, implying that personality traits could be one of the most influential variables impacting eyewitness testimony, yet personality is one of the least accounted for factors when assessing witness credibility (Cramer, Brodsky & DeCoster, 2009).

Literature has found personality traits to impact on memory recall in relation to false memories; the incorporation of misinformation and inclusion of information presented by other witnesses. However, these previous studies have focused largely on a limited number of personality traits and focused on personality traits that are a result of mental illnesses. Though these studies provide insight into how these personality traits may impact memory recall, they do not account for personality traits that are more common. Previous literature has also found that extraversion and neuroticism may impact upon memory recall (Areh, 2008; Areh & Umek, 2007; Pajón & Walsh, 2017; Tiwari, 2010). However, this could be due to most personality measures consistently accounting for these two personality traits and therefore are more standardised than other traits. Thus, future research should aim to incorporate several common personality traits that all individuals will display to some extent and investigate how these traits impact eyewitness testimony.

6.7 Extraversion and memory

Personality research has shown that one of the most common personality traits to impact on memory recall is extraversion (Lander & Poyarekar, 2015). The influence of extraversion was demonstrated in the study conducted by Sanford and Fisk (2009). The researchers categorised participants as being either extroverts or introverts and concluded that extroverts provided more information during memory recall when compared with introverts. However, despite extroverts being able to recall more information, the additional information provided by the extroverted participants was more inaccurate than the information recalled by the introverted participants. This therefore suggested that being able to recall a greater amount of an event did not positively correlate with accuracy.

However, it was suggested that extroverts were able to provide more information due to having better access to associative networks in semantic and episodic memory, though this can make them more susceptible to false memories due to the amount of information activated. In a judicial context this could mislead and confuse jurors by having extra information, thus appearing to have a comprehensive account of an incident but providing more errors that a jury might not detect.

Research conducted by De Carolis and Ferracuti (2010) showed that extraverts had lower accuracy in their memory recall of descriptive and qualitative features of the event than those who were less extraverted. This implied that the details and descriptions provided by those who were more extraverted could be less reliable and less accurate. This further supported the findings of Sandford and Fisk (2009), suggesting those with lower levels of extraversion have better memory recall accuracy.

Rafienia, Azadfallah, Fathi-Ashtiani and Rasoulzaden-Tabatabaiee (2008) examined the type of information recalled by participants and how this was impacted by personality traits. Results revealed that participants with higher levels of extraversion were more likely to recall positive events when they were presented with cues, compared with participants with lower levels of extraversion. This research demonstrated how personality could impact on the processing of emotional information, implying that levels of extraversion played an important role in this. Therefore, if personality traits impact on the processing of emotional information, it could potentially impact on the interpretation and judgement of an incident, resulting in a distorted memory recall.

6.8 Neuroticism and memory

Another consistently measured personality trait throughout several personality measures is neuroticism (Rafienia, Azadfallah, Fathi-Ashtiani & Rasoulzaden-Tabatabaiee, 2008). As noted earlier, Areh and Umek (2007) showed participants a video of a robbery and tested memory accuracy and confidence. The researchers suggested there was a negative correlation between neuroticism and confidence. This suggested that as confidence increased neuroticism decreased. However, the researchers implied this could be due to the positive correlation between anxiety and neuroticism. They suggested that those with higher levels of neuroticism were also more likely to have higher levels of anxiety. As higher levels of anxiety can result in a person having reduced self-confidence

(Delleman & Fernandes, 2015), this could explain why participants with higher levels of neuroticism were less confident in their answers compared with participants who had lower levels of neuroticism. Additionally, Chan, Goodwin and Harmer (2007) concluded from their research that participants with higher levels of neuroticism were better at processing negative events compared with participants who had lower levels of neuroticism. However, this does not correlate with the research conducted by Areh and Umek (2007), as they showed participants video footage of a robbery, which would be deemed as a negative event, yet participants with higher levels of neuroticism did not have significantly better memory recall than participants with lower levels of neuroticism – only their confidence was negatively impacted as levels of neuroticism increased.

Areh (2008) also conducted research that directly contradicted the findings of Chan et al. (2008). In this research Areh (2008) examined the efficiency of episodic memory for eyewitness testimony. It was suggested that participants with higher levels of neuroticism were negatively correlated with memory recall accuracy, therefore suggesting that higher levels of neuroticism decreased memory accuracy. However, the experiment showed participants video footage of a crime, and therefore cannot necessarily predict real-life responses where anxiety would be significantly increased, especially in contexts where a crime is taking place.

Similarly, McDougall and Pfeifer (2012) found that participants with lower levels of neuroticism were more responsive when recalling information from different stimuli. Overall, participants with higher levels of neuroticism were found to have a flat recall for all the stimuli recalled. This suggested that higher levels of neuroticism negatively impacted on the recalling of different stimuli. However, it is necessary to highlight that none of the stimuli shown to participants was emotionally arousing and therefore could have elicited different results if either positive or negative emotional stimuli were shown to participants. However, the previous research largely supported the finding that neuroticism negatively impacts memory recall of events, whether there are negative or neutral stimuli.

6.9 Limitations of using personality measures

Personality measures have largely used self-report as a method of obtaining information about individuals (Geiger, Olderbak, Sauter & Wilhelm, 2018; Okada & Oltmanns, 2009; McDaniel,

Beier, Perkins, Goggin & Frankel, 2009; Walters, 2008). Although it has been suggested this is one of the best ways to obtain information about a person and their personality traits as they know themselves better than anyone, there are some limitations of using this method (McDonald, 2008). McDonald (2008) suggested that the way a question or statement is worded in personality measures may not result in the same interpretation and response throughout participants. Here, it was suggested that small changes to the wording of the questions/statements resulted in significant changes to the information obtained. Therefore, implying that not every person who completes the measure is going to interpret and respond in the desired way. Though many standardised measures of personality have undergone expensive validity and reliability checks to ensure the majority of respondents are consistent, this still cannot account for exactly how participants are interpreting the information. The main suggestion to overcome this limitation is by using additional measures alongside the personality measure to enhance the information obtained about that individual.

Furthermore, Berry and Pakes (2007) explained how participants may adhere to demand characteristics where they give either the responses that they believe the researcher is looking for or, especially in personality measures, the responses that are most favourable to them as a person. In some personality measures questions that pertain to traits that are perceived as being negative may result in participants changing their responses to reflect them in a more desirable light (Fossati et al., 2004). Not only could this potentially skew findings but it could also imply that some personality measures may lack validity. In addition to the potential lack of validity, personality measures can be a time-consuming process, especially when the personality measure is used alongside other experimental components (McDonald, 2008).

6.10 Conclusion

To conclude, in Chapter 6 the literature discussed and demonstrated how individual differences might impact on witnesses of criminal incidents. Here, gender was shown to impact on memory recall with females having better emotional and auditory memory recall and males having more accurate visuospatial memory recall. In addition, research demonstrated how witnesses of incidents might have an own-age and an own-race bias – making witnesses more reliable when identifying a person of a similar age or race to themselves. Lastly, personality was shown to have

some impact on memory recall, although the research findings are less consistent with regards to this. Additionally, it was demonstrated how personality is beginning to be incorporated into eyewitness testimony research. However, due to the limited research it is necessary for future research to continue to facilitate studies in this area using different personality measures to provide a greater understanding of this individual difference and its effects on witness recall. To overcome this shortfall, it would be beneficial to conduct large scale experiments with participants from the general public. When examining personality traits and their potential impact on eyewitness testimony, larger samples are favourable as this helps to gather evidence of the overall impact of these personality traits. This is because personality traits are usually measured on a scale and therefore to gather a general overview of how a trait may impact aspects of eyewitness testimony a larger sample is the best way to do so, as smaller samples would generate findings that may be exaggerated and therefore not generalisable to the wider population. Chapter 7 will discuss the current thesis and its hypotheses, along with how the aims and hypotheses will be achieved.

Chapter 7: The Current Empirical Research

7.1 Research aims

The aim of the research was to determine whether individual differences and crime-related factors impacted on witness accuracy, confidence, and punitive judgements. The research further aimed to establish whether a model, consisting of individual differences and crime-related factors, could be used to ascertain how participants might respond to certain features of a crime.

7.2 Research hypotheses

Hypotheses were largely two-tailed due to there being a lack of previous research in the studied areas making one-tailed directional hypotheses more difficult to construct. A one-tailed hypothesis was presented for H5 as the research regarding accuracy and confidence is more substantial allowing for a directional hypothesis to be posited.

(H1) There will be a significant difference in memory recall accuracy between the following individual differences; gender, age, and personality.

(H2) There will be a significant difference between memory recall accuracy and the relationship between the clarity of the incident and the perpetrator gender.

(H3) There will be a significant difference in confidence ratings between the following individual differences; gender, age, and personality.

(H4) There will be a significant difference between confidence ratings and the relationship between the clarity of the incident and the perpetrator gender.

(H5) There will be a positive correlation between accuracy and confidence.

(H6) There will be significant relationships for the responses for punitive judgements between the individual differences; gender and personality.

(H7) There will be significant relationships in responses for punitive judgements between the crime scene factors; clarity and perpetrator gender.

(H8) There will be relationships between memory recall accuracy and the reporting of punitive judgements.

(H9) There will be a significant difference between confidence and punitive judgements.

(H10) Perpetrator gender, clarity, and individual differences will significantly impact accuracy, confidence, and punitive judgements.

7.3 How the current thesis examines the aims and hypotheses

This study used video footage of a clear and an ambiguous domestic violence incident with male and female perpetrators, as source material. Participants accuracy, confidence, and punitive judgements were subsequently measured. Additionally, participant age, gender, and personality were also examined.

Throughout the examination of previous literature, it was evident that a large amount of eyewitness research had used video stimuli depicting predominantly female victims and male perpetrators (Areh, 2011; Centofanti & Reece, 2006; Frumkin, 2007; Mori & Kishikawa, 2014; Sauerland, Holub & Sporer, 2008; Saunders & Jess, 2010). Therefore, as previous research heavily focused on showing males as perpetrators of crimes there was a lack of research focusing on the eyewitness testimony of participants witnessing scenarios with female perpetrators as well as male perpetrators. The limited available research in this area demonstrated there was a lack of understanding of how female perpetrators of crime were interpreted and judged by witnesses of these crimes. Research is necessary to determine whether gender of the perpetrator impacts on eyewitness recall and any potential subsequent legal proceedings that may follow.

There has been a multitude of research suggesting that psychological and emotional abuse can be a more common form of domestic violence (Alhabib, Nur & Jones, 2010; Bostock, Plumpton & Pratt, 2009). However, the current thesis only accounted for physical abuse. The reason for focusing solely on physical abuse was because psychological abuse can be difficult to detect and used as evidence in crimes, therefore this form of violence is less likely to be seen in courtrooms, compared with incidents involving physical abuse, which can involve physical evidence, such as visible injuries. Furthermore, physical violence has been one of the most salient features of domestic violence (Bradbury-Jones, Taylor, Kroll & Duncan, 2014; House of Commons Library, 2013; Madoc-Jones & Roscoe, 2010). Therefore, the current thesis examined only physical violence with the hope of future research exploring the interpretation and punitive judgements of psychological abuse.

To reduce the potential impact of extraneous external information, the current thesis ensured that participants received no information regarding the events and persons in the stimuli. This was to try and ensure that the participants' judgements and interpretation of the event was based solely on

the video footage being viewed. The current thesis aimed to avoid misleading punitive judgements with emotional information.

Some previous research used written vignettes when exposing participants to crimes (Nicksa, 2014; Oswald & Stucki, 2010), which arguably lacks ecological validity. Therefore, to make findings more replicable to real-life scenarios video footage was used as this does not rely primarily on the participants' visual imagination to understand the severity and actual actions of a crime.

The current thesis aimed to understand how witnesses of domestic violence interpreted the incident to investigate participants' punitive judgements of such a crime. The lack of understanding regarding domestic violence in the public setting could lead to a reduction in the reporting of domestic violence that does occur in public. Previous studies have shown that people can often view domestic incidents as something that is a private matter and something they should not get involved with (Langhinrichsen-Rohling, 2012). It is only in extreme cases where people felt most comfortable intervening as it was clear that the actions were criminal (Casey & Ohler, 2012; Fenton & Mott, 2017; Palmer, Nicksa & McMahon, 2017). In addition to this, people reported being more likely to intervene when there was a female victim and a male perpetrator. Research showed that people felt less need to intervene with male victims and female perpetrators (Alegría-Flores, Raker, Pleasants, Weaver & Weinberger, 2017). Therefore, the perpetrator and victim genders in the current thesis were manipulated to explore this area. The video footage depicted a male attacking a female and a female attacking a male, therefore participant responses to the source material could be directly compared.

The current thesis refrained from educating the general public regarding domestic violence, as this practice does not currently take place in the UK justice system. Punitive attitudes were gauged from questions around the criminality and sentencing of the incident witnessed. From the domestic violence literature, the emerging findings have revealed the following. There is a greater awareness of incorporating not only physical violence but also psychological, emotional, sexual, and financial abuse (Bradbury-Jones, Taylor, Kroll & Duncan, 2014). However, domestic violence is a difficult area to measure and monitor as it is a largely private crime that is under-reported (House of Commons Library, 2013). Furthermore, research acknowledges the notion that males and females can equally be responsible for either perpetrating domestic violence or being a victim of domestic violence (Peterman & Dixon, 2003). However, it is crucial to note that Kaukinen, Meyer and Akers (2013) found that females were more likely to seek help compared to males. Nevertheless, this could be due to the

prevalence and higher availability of safe housing and refuge centres for females, which results in them being more likely to seek help whereas, males are not facilitated in the same way as they have less safe housing and refuge centres, suggesting they have a lack of resources for seeking help (ManKind Initiative, 2018). Lastly, it is clear from the current available research that the true number of victims of domestic violence is largely unknown and the available statistics having discrepancies between them (Alhabib, Nur & Jones, 2010).

In the current thesis, clarity was defined as the ease of participants being able to identify who the perpetrator was and who the victim was during the incident. The clarity of the video footage was regarded as either being ambiguous; where there was the involvement of two people interacting in a way that made it unclear who the perpetrator and victim was, or the clarity of the video was considered as being clear; where during the footage it clearly portrayed the perpetrator and the victim in stereotypical roles. This was to examine how participants interpreted and judged the incident when there was no clear victim or perpetrator. This was because a vast amount of previous research used video footage with scenarios that had clear depictions of what the crime was, who the victim was, and who the perpetrator was (Areh, 2011; Frumkin, 2007; Valentine & Maras, 2011). However, as real-life crimes do not unfold in such a way, it was imperative to investigate how these factors may impact on the accuracy, confidence, and punitive judgements of witnesses as this could affect eyewitness statements and subsequently impact on juror decision-making (Cowen, Read & Lindsay, 2014; Lieberman, 2011; Pawlenko, Safer, Wise & Holfeld, 2013; Smalarz & Wells, 2015; Vredeveldt & Sauer, 2015; Woody & Greene, 2012). This could lead to an unfair trial where the verdict of either an acquittal or a conviction is delivered. Therefore, it is important that research and practice continuously evolve to keep up to date and in line with moral and legal proceedings (Haidt & Graham, 2007). In the current thesis, clarity was manipulated by having two conditions depicting the same crime (domestic violence). The conditions were ambiguous and clear. In the ambiguous condition, the perpetrator instigated the incident and was more dominant during the crime – exhibiting more severe levels of violence. During the video the victim retaliated and fought back to their perpetrator but with lesser violence. In the clear condition, the perpetrator instigated the incident but in this condition the victim did not retaliate and was passive during the incident.

Chapter 8: Methodology

8.1 Sample

The research required participants aged between 18 – 70 years ($M = 33.10$, $SD = 13.27$) and to be British citizens in line with the current guidelines for juror eligibility in the UK; the research advised any participants with a history of violence to not participate in the research as it may have caused distress – however, they were not eliminated from participating. Participants needed access to a computer or laptop with an internet connection for the experiment to be conducted. The sample consisted of 232 (39.3%) male participants and 358 (60.7%) female participants: most participants were White British (79.8%), see Table 8.1 for further ethnicity demographics and Table 8.2 for the participant age range breakdown.

Table 8.1 The ethnicity of participants.

Ethnicity	Number of Participants	Percentage
White - English/Welsh/Scottish/Northern Irish/British	471	79.8%
White – Irish	26	4.4%
British Mixed Ethnic Groups – White and Caribbean	3	0.5%
British Mixed Ethnic Groups – White and African	4	0.7%
British Mixed Ethnic Groups – White and Asian	6	1%
British Asian – Indian	16	2.7%
British Asian – Pakistani	16	2.7%
British Asian – Bangladeshi	1	0.2%
British Asian – Chinese	20	3.4%
Black British – African	10	1.7%
Black British – Caribbean	15	2.5%
White – Other	1	0.2%
British Mixed Ethnicity– Other	1	0.2%

Table 8.2 The age categories of participants.

Age Group	Number of Participants	Percentage
18 to 25	242	41%
26 to 30	110	18.6%
31 to 35	46	7.8%
36 to 40	25	4.2%
41 to 45	29	4.9%
46 to 50	53	9%
51 to 55	35	5.9%
56 to 60	30	5.1%
61 to 65	5	1%
66 to 70	15	2.5%

Participation was obtained through opportunistic and snowball sampling. Participants were approached via email and a combination of university students and members from the general population were targeted as potential participants. This was to ensure that the thesis incorporated a variety of participants. A total of 1,190 individuals were approached to participate in the research and there was an uptake of 49.6% of the approached population. This study obtained participants from the general population. Data was collected via an online questionnaire. No incentives were offered for participation. Ethical approval was sought from the University of Huddersfield's ethics committee before proceeding with the research. The thesis was granted approval from the University's ethics committee. This was granted on the following amendments being made to the thesis; a) the application stated that participants would have the right to withdraw but that also the unique participant identifiable codes would be destroyed within seven days of participating in the study – making them no longer identifiable – this needed to be clarified in the documentation supplied to participants; b) the applicant should obtain permission from the participants for their data to be used in subsequent publications – e.g. conferences, journal articles, and the thesis; c) ensure that participants were fully debriefed on the reasons behind not informing them of a domestic violence situation beforehand; and d) recommended that participants with personal experience of victimisation that they may choose not to take part in the study rather than stating they are not permitted to take part. This thesis was conducted in accordance with the guidelines and regulations of The British Psychological Society (2018) – both The British Psychological Society Code of Ethics (The British Psychological

Society, 2018) and The British Psychological Society Online Guidance was adhered to for this thesis (The British Psychological Society, 2017).

Before the study was carried out, the experiment was piloted on 18 participants to check understanding of the questionnaires, to determine whether the video manipulations were successful, and to appraise the flow of the experiment. Participants provided feedback via surveys, which consisted of open and closed questions, and they were able to freely give any additional feedback. This feedback was collated, and the questionnaires and videos were amended as necessary. The amendments made to the questionnaires were minor and included the rewording of some of the questions for better understanding.

8.2 Materials and Covariates

The participants conducted the experiment on their own computers and their data was collected online. The experiment comprised of several questionnaires with open, closed, and multiple-choice questions. Participants viewed the video footage via YouTube (an online video sharing platform) where all commenting facilities were disabled. All participants were given the same instructions to complete the experiment. There was no experimenter involvement during the running of the experiment. No additional information was provided to any of the participants before the running of the experiment.

The materials used in the experiment were as follows: Participant Information Sheet (Appendix 1) – explaining what the experiment required of participants, Consent Form (Appendix 2) – to check understanding and enable informed consent to be obtained from participants, Questionnaire 1 (Appendix 3) – to record the participants' demographics, Task 1 (Appendix 4) – a filler task consisting of 20 general knowledge questions, Questionnaire 2 (Appendix 5) – to assess accuracy and confidence, Questionnaire 3 (Appendix 6) – to assess the punitive judgements and confidence of participants, and Questionnaire 4 (Appendix 7) – the NEO-FFI which was a personality assessment tool. Lastly, a Debrief (Appendix 8) provided participants with details of the deception used in the experiment and where to find the appropriate help if necessary.

Four video conditions were created for the experiment using actors. The scenarios depicted four domestic violence scenarios, showing the actors involved to gesture, physically grab one another, and use threatening actions. Actions were derived from the definitions of physical domestic violence to remain as realistic as possible. Condition A depicted a male perpetrator attacking a female victim in an ambiguous setting where the female retaliated to the male. Condition B depicted a female perpetrator attacking a male victim in an ambiguous setting where the male retaliated to the female. Condition C depicted a male perpetrator attacking a female victim in a clear setting where the female did not retaliate. Lastly, Condition D depicted a female perpetrator attacking a male victim in a clear setting where the male did not retaliate.

All video conditions consisted of the same actions acted out with different perpetrator/victim gender combinations. The scenario was on private land and could not be seen by the public. The incident was captured in the style of CCTV footage with no sound and all YouTube comments were

disabled on the video (see Figure 8.1 for the male perpetrator and Figure 8.2 for the female perpetrator). The lack of sound on the video footage may bear little resemblance to incidents that are witnessed in real-life and cause a reduction in ecological validity; however, this was done to ensure that participants judged and interpreted the actions of the incident only. By doing this, it facilitated the interpretation of the actions alone without the dialogue and verbal cues altering how participants interpreted and judged the actions. Though the removal of sound could potentially be considered as a limitation of the experiment, it was deemed as imperative for the research aims that the video replicated CCTV footage, which may be presented to jurors in a court situation, in order to assess the implications of the findings for real-world settings.

The camera angle remained at a high, static angle throughout the video. Participants watched one of the four videos. Videos 1 and 3 depicted an ambiguous incident, the video starts by showing the perpetrator and the victim sat in the car in the driveway arguing. The perpetrator walks around the car, opens the passenger car door where the victim is sat and pulls the victim out of the car. The perpetrator then walks off after shouting and gesturing aggressively at the victim. The victim then physically pushes the perpetrator several times. The perpetrator and victim then continue to argue, push, and hit each other whilst approaching the house. The perpetrator then grabs the victim by the throat and holds the victim against the wall of the house whilst gesturing aggressively. Both the perpetrator and the victim enter the house and the footage ceases. This was acted out with the female and the male as both the perpetrator and the victim (videos 1 and 3).

Videos 2 and 4 depicted a clear incident, the video starts by showing the perpetrator and the victim sat in the car in the driveway arguing. The perpetrator walks around the car, opens the passenger car door where the victim is sat and pulls the victim out of the car. The perpetrator then walks off after shouting and gesturing aggressively at the victim. The victim is then repeatedly pushed and pulled by the perpetrator. The perpetrator continues to argue, push, and hit the victim whilst approaching the house. The perpetrator then grabs the victim by the throat and holds the victim against the wall of the house whilst gesturing aggressively. Both the perpetrator and the victim enter the house and the footage ceases. This was acted out with the female and the male as both the perpetrator and the victim (videos 2 and 4).



Figure 8.1 Condition A



Figure 8.2 Condition B

Questionnaire 2 consisted of questions relating to the physical aspects of the incident. This included questions regarding the clothing the individuals were wearing, the appearance of the

individuals, the location in which the incident occurred, and the physical actions that were witnessed. This questionnaire focused on the objective facts of the incident.

Questionnaire 3 covered questions regarding more subjective answers to what was witnessed. Here, the interpretation of the incident was obtained. This was accomplished by asking how the incident was perceived and assessing the participants' punitive judgements. This included asking questions regarding the following; whether the incident was perceived as a crime and how severe it was judged to be, the responsibility of the individuals involved and perceptions as to who perpetrated the incident and who was victimised, the likelihood of physical and psychological harm being caused and who was the most likely to experience this, whether the police should be contacted, the likelihood of one of the individuals being guilty, whether the actions constituted domestic violence, and the likelihood of giving a guilty verdict and type of sentence advocated. Throughout Questionnaires 2 and 3 participants had their confidence measured. The maximum confidence score was 430, which was if the individual scored 10 for every question.

The accuracy of participants was measured using a questionnaire. This method of data collection was employed due to the practicality of being able to collect data from a large sample size – this method in particular enabled greater scalability. The scalability of the study was made easier by participants being emailed the study being able to complete it in their own time and in their own home – however, this raised concern of whether the questions would be interpreted correctly. Though researcher contact details were provided, it is unlikely that should any interpretation issues have arisen that participants would have contacted the researcher to clarify this and would most likely have guessed what they believed the question was asking. To overcome this, the study was piloted and any issues with the interpretation of the questions were addressed during this time – though it is acknowledged that not necessarily every issue was adequately addressed.

One of the main reasons for implementing a questionnaire for data collection was because the questions could be tailored specifically to the research aims and objectives without having to follow standard questioning, which may focus more on the identity of the individuals. However; in the current thesis, participants were not offered the opportunity to provide any additional information that they may have remembered and therefore other aspects of their memory recall were not explored. In the thesis, the style of questioning was based on the types of questions that might be asked during police interviewing of eyewitnesses, which meant that the questions could be formatted as either

open-ended or closed questions. Due to there being several questionnaires in this thesis, it may be that participants experienced survey fatigue and lost interest in the completion of the questionnaires – though it was imperative for the research aims and objectives for each of these questionnaires to be implemented.

The design of the study allowed for all respondents to remain anonymous – as they all had unique identifiable codes (used only for data retraction). Anonymity may benefit the validity of the research as it encourages participants to give their true attitudes and opinions on a topic, which can be particularly valuable when discussing difficult or taboo subjects. Questionnaires are always potentially subjected to demand characteristics as participants may want to come across more favourable. However, due to the subject area of the study, domestic violence, it was regarded as favourable to the validity of the study for participants to remain anonymous in the hopes that this encouraged them to be more open and honest about their attitudes and opinions on the topic.

The study implemented no time constraints on participants for completing the questionnaires, which meant that participants could work at their own pace. However, this could negatively impact on memory recall accuracy as some participants may take significantly longer than others and their natural memory decay may be greater due to the passage of time. Though, it was expected that the majority of participants would fall within a specific time frame and very few outliers would complete the study significantly quicker or longer than the majority.

Confidence was measured using a Likert scale which is a psychometric measurement, this can be used to obtain opinions, attitudes and beliefs about certain topics. By using this method, respondents must indicate a level of agreement or disagreement to a question or statement. Likert scales are frequently used in surveys and questionnaires and due to their familiarity to most people, they are a method that is easily understood.

For quantitative research, this method of data collection can be beneficial as this data is easily quantifiable. This method allows participants to respond to questions or statements with a level of agreement, rather than forcing them to give a concrete answer of either yes or no. This is particularly advantageous when measuring dependent variables such as confidence as participants rarely fall into either a confident or unconfident category.

Likert scales do have some disadvantages. These scales are unidimensional as they only offer limited options for choice (e.g. 1 – 10). Furthermore, the space between each choice cannot be

equal and will be open to the interpretation of the respondents. It is possible that when using Likert scales participants may be influenced by how they responded in previous questions and may alter their scoring accordingly – questioning the scales ability to accurately measure attitudes, opinions, and beliefs. Lastly, participants may be less likely to give extreme responses (e.g. 1 or 10). This could be due to the negative associations with extremists and the certainty of their response. Despite some of the limitations of using a Likert scale, the scale is generally good at gaging the general attitudes and opinions of participants and it was deemed that for measuring participant confidence this was the best way to do so. This is due to Likert scales being a measurement that participants are usually familiar with and therefore less demanding for participants to complete. This is important in studies that use multiple questionnaire.

To assess personality the NEO-FFI was used. This personality measure was utilised due to its extensive use in previous studies and its reported validity (Gooding, Padruitt, & Pflum, 2017; Körner et al. 2015; Perera, McIlveen, Burton & Corser, 2015). The NEO-FFI comprised of 60 items (12 items per trait) examining the Big Five personality traits; neuroticism, extraversion, openness, agreeableness, and conscientiousness (Aluja, García, Rossier & García, 2005). These five personality traits are most likely to comprise of the following behaviours and feelings; individuals who score high on neuroticism are more likely to experience anxiety, fear, anger, frustration, depressed mood and loneliness and is seen as one of the most powerful predictors of mental wellbeing (Furnham & Cheng, 2017). Extraversion has been linked to those with higher levels being more outgoing, social and enjoy being around others (Furnham & Cheng, 2018) – with extraversion being one of the most widely understood traits. Openness relates to how open individuals are to new experiences, can indicate intellectual curiosity, and creativity (DeYoung, Quilty, Peterson & Gray, 2014). Agreeableness usually relates to those with higher levels being generally friendly, with optimistic views on others, and the ability to get along with other individuals well (Jensen-Campbell, Gleason, Adams & Malcolm, 2003). Conscientiousness is linked to those with higher levels as those who aspire to do a task well, are organised and efficient, and are individuals who usually take seriously the obligations they may have to others – meaning these individuals are generally more dependable (Hill, Samuel & Foti, 2016). Other personality measures that accounted for the same personality traits were available, such as the NEO PI-R which consisted of 240 items. However, this was deemed as being too lengthy for participants to complete, given that the study was already

relatively long. This was to reduce the study becoming monotonous and losing participant interest. Nevertheless, the 60 question NEO-FFI was shown in previous experiments to have high levels of validity and was able to measure personality.

The current thesis aimed to examine how members of the public or potential witnesses interpret violence between different perpetrator and victim gender combinations. This was considering the findings of Houston, Hope, Memon and Read (2013) who concluded that jurors can be easily influenced by their own personal biases and their confidence in the evidence presented to them. This could potentially lead to a misunderstanding of witness evidence when unusual or atypical crimes are presented to jurors. Furthermore, the initial witness statement or the expectation from jurors may already be biased due to the individuals gender stereotyping, as suggested by Osborne and Davies (2014), thus leading to a distorted and unreliable eyewitness testimony and lead to an inappropriate conviction/acquittal.

8.3 Design

A random assignment method was applied throughout this study. An assignment sequence was generated and assigned each condition to participants in a logical order (questionnaire 1A, questionnaire 2A, etc....). This was to ensure there was a relatively equal number of participants in each condition.

The study was a 2 x 2 design. The experiment consisted of four video conditions: an ambiguous scenario of a male perpetrator attacking a female victim (Condition A), a clear scenario of a male perpetrator attacking a female victim (Condition B), an ambiguous scenario of a female perpetrator attacking a male victim (Condition C), and a clear scenario of a female perpetrator attacking a male victim (Condition D). Due to the relatively equal split of participants in each condition, this allowed for clarity and perpetrator gender to be analysed by combining the clear and the ambiguous conditions and the male perpetrator and female perpetrator conditions. This study used video footage depicting domestic violence, which is a unique factor as most previous research tended to focus on crimes that were easily interpretable, non-ambiguous source material (Aizpurua, Garcia-Bajos & Migueles, 2011; Mansour et al., 2012; Matsumoto & Hwang, 2015; Neuschatz et al., 2007; Paterson, Eijkemans & Kemp, 2015; Wade, Green & Nash, 2010; Westera, Powell & Milne, 2015). This study therefore provided a unique exploration of the potential impacts on eyewitness testimony accuracy, confidence, and punitive judgements, as a direct comparison was able to be made between the different conditions.

The intended sample size for the research was 540 participants, however the actual sample size acquired was 590 participants. Sample size was determined by the most advanced statistical analysis to be conducted for the analyses and the participation assumptions that needed to be met. The most advanced statistical analysis conducted in the analyses was a multiple regression. It was suggested by Tabachnick and Fidell (2007) to have a sample size that was greater than 50 plus eight times the number of independent variables in the experiment ($N > 50 + 8 \times \text{number of IV's}$). A minimum sample size of 114 was necessary for this experiment. A-priori sample size calculator recommended a minimum sample of 158. However, due to the length of time and level of this research a larger sample was desired and sought.

The analytic strategy use for the experiment was as follows; a) to examine how accuracy was impacted by the conditions, b) to determine how the relationship between accuracy and confidence was impacted by the different conditions, c) to evaluate how the difference conditions, accuracy, and confidence impacted on the punitive judgements in relation to the video footage witnessed, and d) to determine how individual differences facilitated the relationships between the various measures.

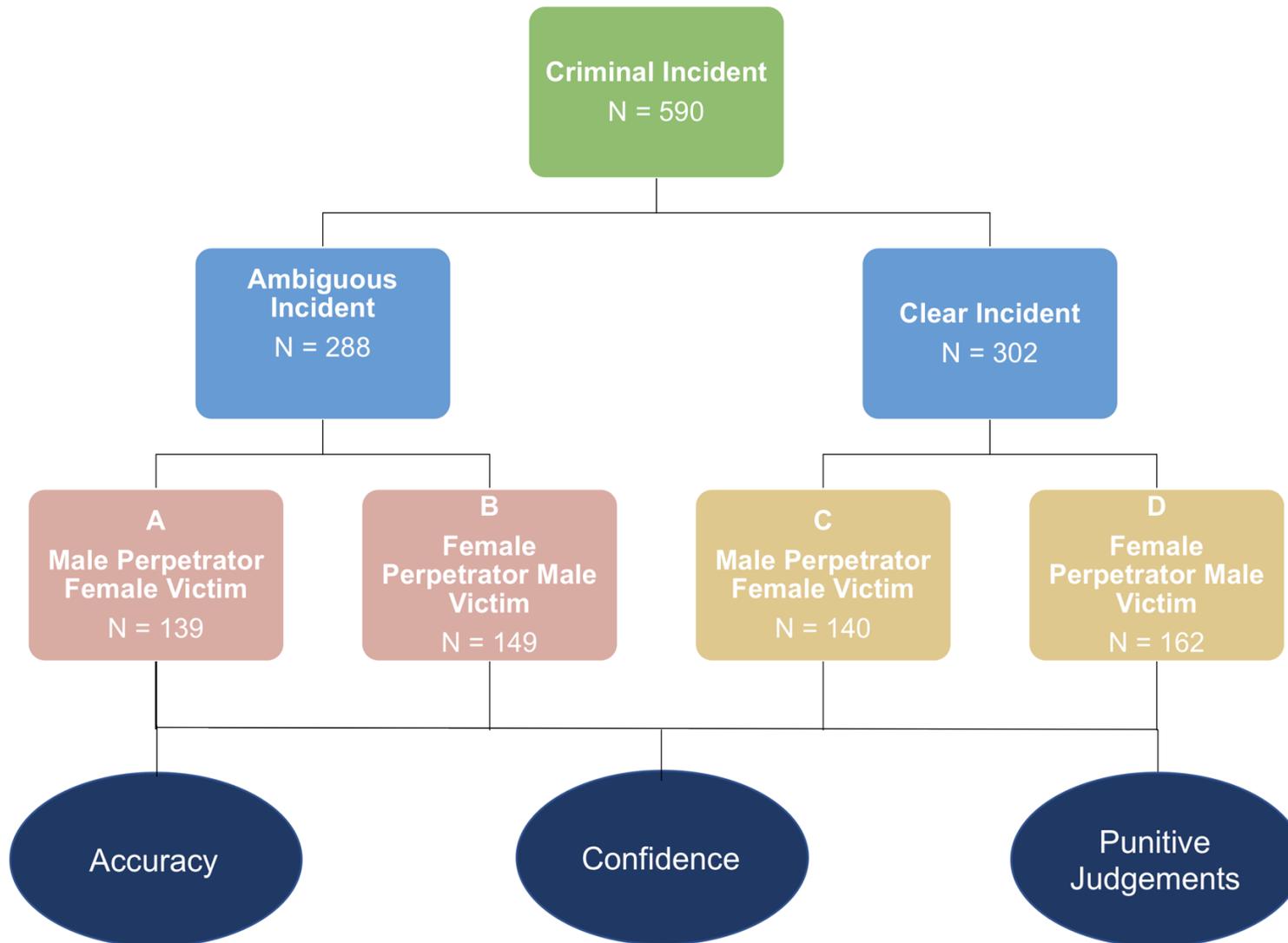


Figure 8.3 Flow chart of the research design

8.4 Procedure

The participants were sent the link to access the experiment via email and asked to read and follow the instructions throughout the experiment. Participants were also provided with the researcher's details to contact the researcher if any problems occurred with the experiment. Participants were firstly shown the Participant Information Sheet and Consent Form to sign if they were willing and agreed to participate in the experiment. This was validated by ticking electronic boxes which checked their understanding.

Participants were then led through the experiment completing Questionnaire 1 regarding their personal demographics. After, participants watched one of the randomly assigned video conditions. Upon completion of the video footage a filler task (Task 1) was provided to participants. This was to be completed in their own time. Participants then had their accuracy and confidence assessed in Questionnaire 2 and Questionnaire 3 evaluated their punitive judgements and confidence. The participants finished with Questionnaire 4 which was the NEO-FFI to measure personality. Once the final questionnaire was concluded the Debrief was shown to participants. Participants were then thanked for their participation and provided with the relevant contact details for the researcher and supervisory team and helplines.

8.5 Ethical Considerations

8.5.1 Informed Consent

Participants were given an Information Sheet informing them of what the experiment required of them. This informed participants that they would watch a video and answer questions based on this. The Consent Form checked the participants' understanding of their ethical rights and the appropriate persons to contact should they need to do so. The Consent Form also requested participants for their permission to use the data in any subsequent publications, such as conferences, journal articles, and the thesis.

8.5.2 Confidentiality

The data collected throughout the experiment remained confidential. Data was stored in secure, encrypted files that were only accessed by the researcher and the supervisory team. Furthermore, any of the views or opinions expressed by participants during the experiment were not pursued.

8.5.3 Anonymity

Participants remained anonymous throughout the data collection process and write-up of the thesis. Participants were provided a unique code which was used to link the data to the participants if they chose to withdraw their data from the experiment. Subsequently, after the data collection had concluded the unique codes were destroyed and participants were not referred to personally or by identifiable information.

8.5.4 Right to Withdraw

Participants were informed of their right to withdraw from the experiment and this was explained in the Consent Form and Debrief. As the experiment was conducted online, participants

were in control of stopping the experiment at any time and did not have to provide any reasons for doing so. Furthermore, participants were made aware they could withdraw their data from the research up to 7 days after they had completed the experiment, as after this time the codes were destroyed, and the data would no longer be identifiable. This was also to ensure further data collection could be conducted if necessary to meet sample size guidelines. If participants wanted to withdraw their data, they emailed the researcher their unique code and stated that they wished to withdraw from the experiment. The researcher confirmed their withdrawal and no further questions were asked. No participants requested to withdraw their data from this experiment.

8.5.5 Data Storage

The data was stored electronically. The data set was password protected and the files were stored on a password protected computer. The computer and the raw data were only accessible by the researcher and supervisory team and these were stored on an academic account of the University's secure Microsoft OneDrive cloud-based storage system. The data set will be stored for 10 years in accordance with the University of Huddersfield's guidelines, and the University will own the data once the analysis has been completed.

8.5.6 Deception

The experiment involved minor deception. Participants were not initially informed the study was focusing on domestic violence. However, it was crucial for the experiment and its aims that participants were not aware of the type of criminal incident they were witnessing, as this may have later influenced their memory recall, confidence and punitive judgements of the incident. Thus, the use of deception was essential for this research.

8.5.7 Psychological Support

The Consent Form and Debrief offered websites and helplines for participants to get support should they need to. Participants with previous experience of victimisation were advised not to

participate as to avoid distressing or evoking disturbing memories. Furthermore, participants who attended the University of Huddersfield were also provided with details of the available help on campus from the Wellbeing Services.

The School Research Ethics Panel reviewed the research plan prior to the study being conducted and advised the following; to clearly state that participant codes for identifying data would be destroyed after 7 days and participants would no longer be able to withdraw data after this point, to gain consent from participants for their data to be published in subsequent journals, articles and presented at conferences, for the debrief to clearly state why deception was used, and to advise participants with any previous experience of victimisation to choose whether to participate in the study instead of excluding these participants altogether.

8.5.8 Practical Implications

Though this research strives to provide a unique insight into the perceptions and interpretation of different domestic violence scenarios, it must be noted that there are a number of potential practical applications of the research to real-life events. Individuals in society have ideologies and societal biases that are already in place and acting upon an individuals' perception of events that happen in their everyday lives. This could be potentially problematic to overcome as the current thesis is aiming to show a less stereotypical depiction of a crime to challenge the judgement and interpretation of this crime. This could be difficult to apply to real-life scenarios as witnesses of such crimes may not identify the incident as illegal and therefore the reporting and subsequent interviewing process conducted by police officers would never take place. Therefore, any implied differences between the witnessing of these stereotypical and non-stereotypical crimes may not transpire or be applicable in real-life cases.

As previously discussed, domestic violence is a largely private crime and therefore the general invisibility of this crime may impact upon how the event is interpreted when witnessed in real-life. Witnesses may not understand that the behaviours and actions constitute domestic violence, and if the scenarios depicted in the experiment are not in line with the witnesses perception of that crime then the interpretation and judgement of the event could be negatively impacted. For example, the

witness may not identify the actions as domestic violence but see the issues as a private matter between a couple, and therefore not want to get involved as it is not their place.

As this experiment explores the differences between male and female victims and perpetrators, this factor alone could impact upon how the incident is interpreted. In society females are generally physically smaller than males (Cismaru, Jenson & Lavack, 2010). This could mean that witnesses perceive females are being more likely to be victimised than males due to the imbalance of strength. The scenarios in the experiment did depict a male who was physically taller than the female and therefore this may impact upon the interpretation and judgement of the incident. It could be suggested that witnesses of crimes may look at which individual is more vulnerable in the situation and adapt their interpretation of an incident based on this bias.

Chapter 9: Results

9.1 Accuracy of recall of the incident

9.1.1 Accuracy and gender

To examine the differences between gender and accuracy an independent samples t-test was conducted, as the data was shown to be normally distributed. The dependent variable, accuracy, was interval level data and the independent variable, gender, consisted of two categorical levels: male and female, see Table 9.1 for descriptive statistics.

Table 9.1 The descriptive statistics for accuracy and gender.

	N	Range	Min	Max	Mean	Std. Deviation
Male	232 (39.3%)	22	26	48	37.17	4.25
Female	358 (60.7%)	30	20	50	37.79	4.22

The Levene's test for equality of variances showed a non-significant result therefore equal variances were assumed. The results revealed a non-significant difference between male and female participants and accuracy ($t = -1.0$, $df = 588$, $p = .09$). These findings implied there was no significant difference between male participants ($M = 37.17$, $SD = 4.25$) and female participants ($M = 37.79$, $SD = 4.22$). The magnitude of the differences in the means (mean difference = $-.60$, 95% CI: -1.30 to $.11$) was large (eta squared = $.14$). This finding showed that males and females did not differ in their memory recall accuracy of the video footage.

9.1.2 Accuracy and age

The relationship between age and accuracy was investigated by conducting a Pearson's *r* correlational test, due to the data being normally distributed. The dependent variable, accuracy, was interval level data and the independent variable, age, was ordinal level data. The analysis consisted of 590 participants aged between 18 and 70. The mean age of the sample was 33.10, with a standard deviation of 13.27. The accuracy scores ranged from 21 to 52 with a mean accuracy of 38.75 and a standard deviation of 4.26.

The coefficient of determination revealed 1.3% of the variance between the variables, age and accuracy, was shared. The Pearson's *r* correlational analysis revealed a significant weak, negative correlation between age and accuracy ($r = -.11$, $N = 590$, $p = .01$, $df = 588$). The effect size was calculated and revealed a small effect (eta squared = $-.12$). Thus, this analysis suggested that as age increased, accuracy decreased and therefore older participants were less accurate than younger participants.

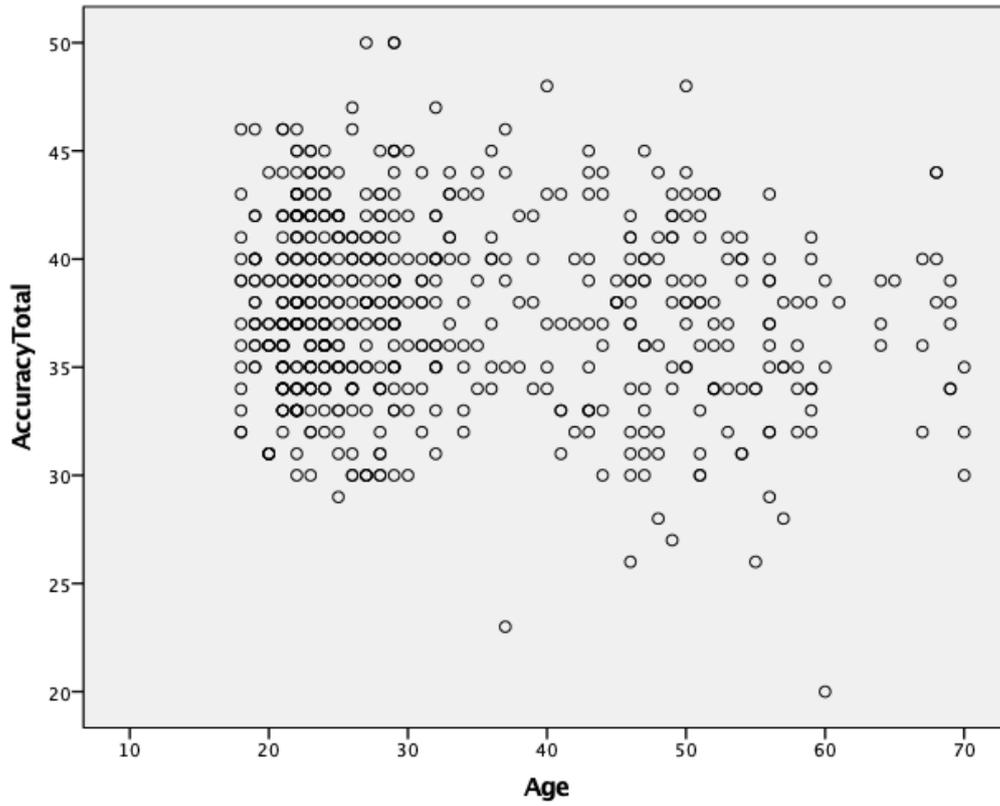


Figure 9.1 The scatter plot for the Pearson's r correlation between total accuracy score and age.

9.1.3 Accuracy and personality

A multiple regression analysis was conducted to investigate the influence of personality on accuracy. The dependent variable, accuracy, was interval level data. The independent variable, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), was interval level data, see Table 9.2 for the descriptive statistics.

The analysis showed the tolerance value was higher than .10 and the variance inflation factor (VIF) was lower than 10, therefore it was concluded there was no multicollinearity between the independent variables. The model summary indicated personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness) explained approximately 1.1% of the variance in the accuracy scores.

Table 9.2 The descriptive statistics, reliability and correlations for personality for accuracy.

Personality	N	E	O	A	C
Neuroticism	1				
Extraversion	-.35***	1			
Openness	-.06	.18***	1		
Agreeableness	-.07*	.26***	.16***	1	
Conscientiousness	-.38***	.27***	.23***	.23***	1
Means	21.52	28.56	26.36	29.64	32.11
Std. Deviation	8.73	6.24	5.11	4.33	6.51
Range	0-45	11-42	12-40	15-43	12-48
Possible Range	0-48	0-48	0-48	0-48	0-48
Cronbach's Alpha	.87	.76	.53	.47	.82

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9.3 The multiple regression analysis and the impact of personality on accuracy.

Personality	R ²	β	B	SE	CI 95% (B)
Model	.01*				
Neuroticism		.01	.01	.02	-.04 / .05
Extraversion		-.10*	-.06	.03	-.13 / -.01
Openness		.02	.02	.04	-.05 / .09
Agreeableness		.11*	.11	.04	.03 / .19
Conscientiousness		.04	.03	.03	-.03 / .09

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The results revealed the overall model was significant $F(5, 584) = 2.26, p = .02, df = 584$, see Table 9.3 for the inferential statistics. The analysis discovered two of the independent variables significantly impacted accuracy. From these findings it was suggested that higher levels of agreeableness ($\beta = .11, p = .01$) and lower levels of extraversion ($\beta = -.10, p = .04$) significantly impacted on accuracy. The Cohen's f^2 was calculated and revealed a small effect (eta squared = .02). Thus, it was concluded that higher levels of agreeableness were significantly associated with higher levels of accuracy, whereas lower levels of extraversion were linked to higher levels of accuracy. This therefore suggests that participants who were more agreeable and less extraverted had higher levels of accuracy in their memory recall.

9.1.4 Accuracy, clarity and perpetrator gender

A two-way between subjects' ANOVA was conducted to assess the impact of clarity and perpetrator gender on accuracy. A two-way ANOVA was used due to the data having two categorical independent variables; clarity which consisted of ambiguous and clear and perpetrator gender which comprised of male and female. The dependent variable, accuracy, was continuous level data. The data was normally distributed and collected from a random sample.

Table 9.4 The overall descriptive statistics for clarity and perpetrator gender on accuracy.

Variables		N	M	SD
Clarity	Ambiguous	288	38.16	4.49
	Clear	302	36.96	3.90
Perpetrator Gender	Male	279	37.84	4.22
	Female	311	37.29	4.25

Table 9.5 Descriptive statistics for clarity and perpetrator gender on accuracy.

Perpetrator Gender	Clarity	N	M	SD
Male	Ambiguous	139	38.43	4.20
	Clear	140	37.24	4.16
Female	Ambiguous	149	37.91	4.74
	Clear	162	36.72	3.66

The analysis revealed there was no significant interaction between clarity and perpetrator gender on accuracy; $F(1,586) = .00, p = .99$, see Table 9.4 for overall descriptive statistics and Table 9.5 for the variable statistics. These findings revealed that participants in the ambiguous conditions were significantly more accurate than participants in the clear conditions. There was a main effect of clarity $F(1,586) = 11.80, p = .01$; however, the main effect was small (partial eta squared = .02). There was no main effect of perpetrator gender $F(1,586) = 2.31, p = .13, df = 3$. This showed that participants who viewed the ambiguous video footage were more accurate than participants who viewed the clear video footage.

9.2 Key findings

Chapter 9 revealed the following; a) gender did not significantly impact accuracy, b) age was negatively correlated with accuracy, and c) personality significantly impacted on accuracy as participants with higher levels of agreeableness had higher levels of accuracy and participants with higher levels of extraversion had lower levels of accuracy. Moreover, the findings revealed those in the ambiguous conditions had better accuracy than participants in the clear conditions. Lastly, perpetrator gender did not significantly impact on accuracy. Hypothesis (H1) that there will be a significant difference in memory recall accuracy between age and personality was supported by these research findings. However, this was not the case for gender and thus, the null hypothesis was accepted. With regards to (H2) there will be a significant relationship between memory recall accuracy and the relationship between the clarity of the incident and perpetrator gender, therefore the experimental hypothesis can be accepted for the clarity of the incident. The perpetrator gender was shown to have no significant impact on the accuracy of participants and thus, the experimental hypothesis was rejected, and the null hypothesis was accepted.

Chapter 10: Eyewitness Confidence

Here, the initial key findings relating to eyewitness confidence were examined. The personal demographics gender, age, and personality were analysed. Lastly, the relationship between confidence and accuracy was explored at the end of Chapter 10.

10.1 Confidence and gender

To examine whether there was a significant difference between confidence and gender, an independent samples t-test was conducted. The dependent variable, confidence, was interval level data and the independent variable, gender, consisted of two categorical levels: male and female, see Table 10.1 for descriptive statistics.

Table 10.1 The descriptive statistics for confidence.

Confidence	N	Range	Minimum	Maximum	Mean	Std. Deviation
Male	232 (39.3%)	219	211	430	335.30	51.56
Female	358 (60.7%)	279	151	430	330.82	52.54

The Levene's test for equality of variance was non-significant and therefore equal variances were assumed. The analysis revealed a non-significant difference between gender and confidence; $t(588) = 1.02, p = .31$. These findings suggested there was no significant difference between male and female confidence. The magnitude of the differences in the means (mean difference = 9.48, 95% CI: -11.03 to 26.41) was medium (eta squared = .09). Thus, males and females had equal levels of confidence when rating their memory recall accuracy.

10.2 Confidence and age

To examine the relationship between confidence and age, a Pearson's r correlational analysis was conducted. The dependent variable, confidence, was interval level data and the independent variable, age, was ordinal level data. The analysis consisted of 590 participants aged between 18 and 70. The mean age of the sample was 33.10, with a standard deviation of 13.27. The confidence scores ranged from 151 to 430 with a mean confidence of 332.58 and a standard deviation of 52.16.

The coefficient of determination revealed that 0.7% of the variance between the variables, age and confidence, was shared. The results revealed a significant negative, weak correlation ($r = -.08$, $N = 590$, $p = .05$, $df = 588$). From these results, it can be suggested that older participants had lower levels of confidence compared with younger participants.

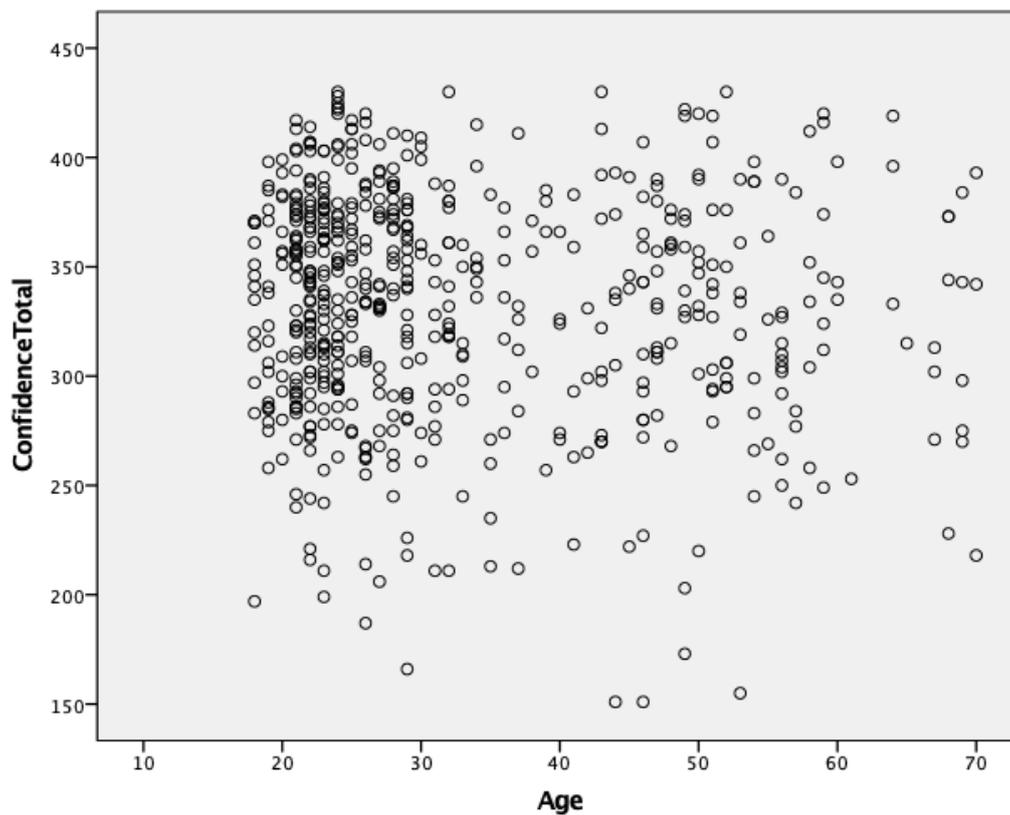


Figure 10.1 The scatter plot for the Pearson's r correlation between total confidence and age.

10.3 Confidence and personality

A multiple regression analysis was conducted to examine personality and confidence. The dependent variable, confidence, was interval level data. The independent variables, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), was interval level data, see Table 10.2 for descriptive statistics.

The analysis showed the tolerance was higher than .10, therefore there was no multicollinearity. Furthermore, the variance inflation factor (VIF) was lower than 10, again showing no multicollinearity between the independent variables. The model summary showed the independent variables (neuroticism, extraversion, openness, agreeableness, and conscientiousness) explained approximately 4.1% of the variance in confidence.

Table 10.2 The descriptive statistics, reliability and correlations for personality for confidence.

Personality	N	E	O	A	C
Neuroticism	1				
Extraversion	-.35***	1			
Openness	-.06	.18***	1		
Agreeableness	-.07*	.26***	.16***	1	
Conscientiousness	-.38***	.27***	.23***	.23***	1
Means	21.52	28.56	26.36	29.64	32.11
Std. Deviation	8.73	6.24	5.11	4.33	6.51
Range	0-45	11-42	12-40	15-43	12-48
Possible Range	0-48	0-48	0-48	0-48	0-48
Cronbach's Alpha	.87	.76	.53	.47	.82

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 10.3 The multiple regression analysis and the impact of personality on confidence.

Personality	R ²	β	B	SE	CI 95% (B)
Model	.04***				
Neuroticism		-.01	-.03	.27	-.57 / .50
Extraversion		.09*	.74	.38	-.00 / 1.49
Openness		.12**	1.25	.43	.40 / 2.09
Agreeableness		-.05	-.65	.52	-1.66 / .37
Conscientiousness		.09	.71	.37	-.01 / 1.43

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The results revealed the model overall was significant $F(5, 589) = 4.96, p = .01, df = 584$, see Table 10.3 for inferential statistics. The analysis revealed two of the independent variables significantly impacted confidence. The analysis implied an increased level of openness ($\beta = .12, p = .01$) and an increased level of extraversion ($\beta = .09, p = .05$) significantly increased confidence. The effect size was calculated and revealed a small effect (eta squared = .04). This finding revealed that participants who were more open and extraverted rated themselves as being more confident.

10.4 Confidence and accuracy

Here, accuracy and confidence were analysed to understand the relationship between the two variables. To examine the relationship between confidence and accuracy, a Pearson's r correlational analysis was conducted. The dependent variable, confidence, was interval level data and the independent variable, accuracy, consisted of interval level data. The analysis examined the relationship between confidence and accuracy within-subjects – meaning participants had both their accuracy and their confidence measured.

Table 10.4 The descriptive statistics for confidence and accuracy.

Variables	N	Range	Min	Max	Mean	Std. Deviation
Accuracy	590	30	20	50	37.55	4.24
Confidence	590	279	151	430	332.58	52.16

The coefficient of determination revealed 2.34% of the variance between the variables, accuracy and confidence, was shared. The results revealed a significant weak, positive correlation between confidence and accuracy ($r = .15$, $N = 590$, $p = .01$, $df = 588$), see Table 10.4 for descriptive statistics. The effect size revealed a small effect ($\eta^2 = .17$). Thus, these results suggested that participants who were more accurate in their memory recall were also more likely to have higher confidence in their memory.

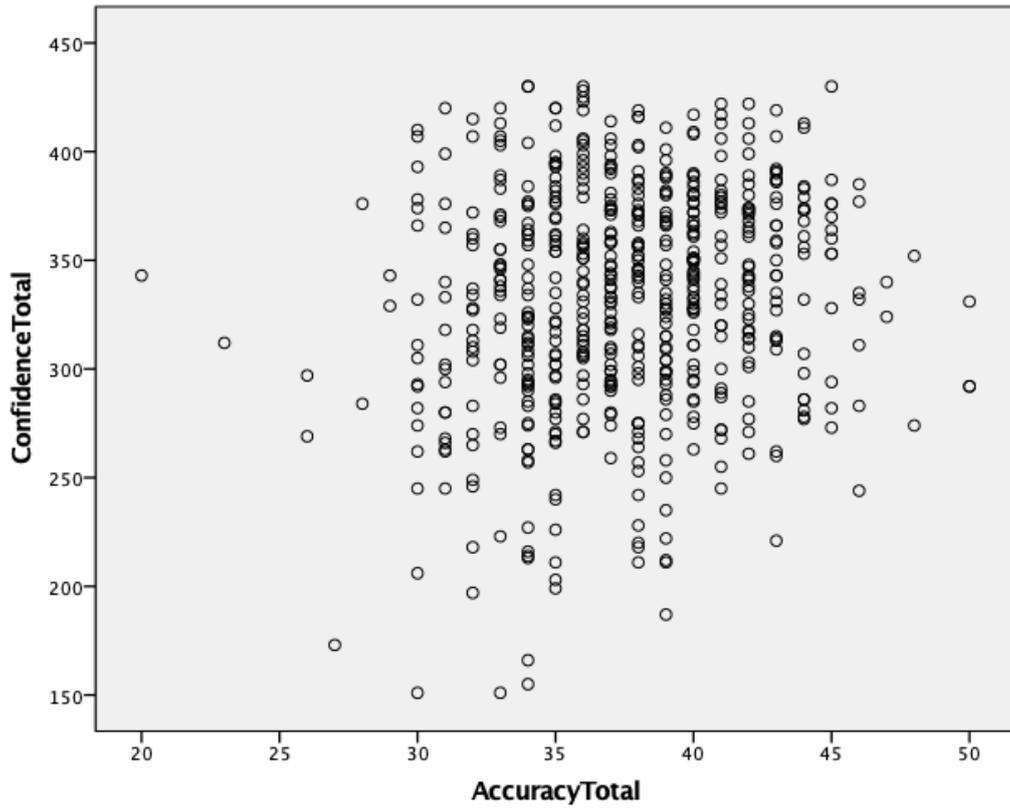


Figure 10.2 The scatter plot for the Pearson's r correlation between total confidence and accuracy.

10.5 Confidence, Clarity and Perpetrator Gender

A two-way between subjects' ANOVA was conducted to assess the impact of clarity and perpetrator gender on confidence. This analysis was used due to the data having two categorical independent variables; clarity which consisted of ambiguous and clear and perpetrator gender which comprised of male and female. The dependent variable, confidence, was continuous level data. The data was normally distributed and collected from a random sample.

Table 10.5 Descriptive statistics for clarity and perpetrator gender on confidence.

Perpetrator Gender	Clarity	N	M	SD
Male	Ambiguous	139	331.12	52.12
	Clear	140	338.21	44.61
Female	Ambiguous	149	334.95	52.15
	Clear	162	326.80	57.78

The analysis revealed there was no significant interaction between clarity and perpetrator gender on confidence; $F(1,586) = 3.14, p = .08$, see Table 10.5 for descriptive statistics. There was no main effect of clarity $F(1,586) = .02, p = .90$ or of perpetrator gender $F(1,586) = .78, p = .38, df = 3$. Here, it was implied that neither the prevalence of a male or a female perpetrator, or the ambiguous or clear video footage impacted on the participants' confidence in their memory recall.

10.6 Key findings

The results from this chapter examining the impact of gender, age, personality, accuracy, clarity, and perpetrator gender on confidence revealed the following; a) gender did not impact on participants confidence, b) age was negatively correlated with confidence, and c) personality significantly impacted on confidence. Results also revealed that neither the clarity of the incident nor the perpetrator gender significantly impacted on confidence.

Chapter 11: Punitive Judgements

In Chapter 10 the initial key findings of punitive judgements and the personal demographics of participants were explored. Here in Chapter 11, the gender and personality of participants are examined in relation to their punitive judgements surrounding the witnessed incident.

11.1 Gender and punitive judgements

11.1.1 Gender and the severity of the incident

To explore the differences between gender and the perceived severity of the incident, a Mann-Whitney test was conducted. The dependent variable, the perceived severity of the incident, was ranked on a 1 to 10 Likert scale. The independent variable, gender, consisted of two categorical levels: male and female, see Table 11.1 for descriptive statistics.

Table 11.1 The descriptive statistics for gender and the severity of the incident.

Seriousness	Gender	N	Mean Rank
	Male	232	278.83
	Female	358	306.30

The Mann-Whitney U-value was found to be statistically significant $U = 37661.50$ ($Z = -1.93$), $p = .05$, $df = 1$, and the difference between male and females was small ($r = -.08$). The analysis revealed male participants (mean rank = 278.83) scored significantly lower when rating the severity of the incident, when compared with female participants (mean rank = 306.30) who had significantly higher ratings. Thus, females were more likely to perceive the incident with increased severity compared with males.

11.1.2 Participant gender and the perception of psychological and emotional distress

To explore the relationship between the gender of the participants and perceived psychological or emotional abuse, a Chi-square analysis was conducted. The independent variable, gender, consisted of nominal data with two levels: male and female. The dependent variable, the response to the question 'could either individual have experienced psychological or emotional distress', consisted of nominal data: yes and no. Throughout this thesis psychological or emotional distress consistently refers to the experience of unpleasant feelings or emotions than can negatively impact on an individuals' functioning.

Table 11.2 The descriptive statistics for gender and psychological distress being caused.

Psychological Distress	Gender	Yes	No
	Male	176 (75.9%)	56 (24.1%)
	Female	305 (85.2%)	53 (14.8%)

The analysis revealed a significant difference between the gender of participants and whether psychological or emotional distress could have been caused, $X^2(1, N = 590) = 8.14, p = .01, df = 2$, see Table 11.2 for descriptive statistics. The association was of small strength: $\phi = .12$ and therefore the gender of participants accounted for 1% of the variance. These findings show females were significantly more likely to state 'yes' to psychological or emotional distress being caused when compared with males and males were significantly more likely to state 'no' when compared with females. Therefore, females were more likely to say that psychological distress was caused during the incident compared with males.

11.1.3 Gender and calling the police

To determine whether gender significantly impacted whether participants stated they would call the police, a Chi-square analysis was conducted. The independent variable, gender, consisted of nominal data with two levels: male and female. The dependent variable, whether participants thought that they would call the police if the incident was witnessed in real-life, was nominal and consisted of three levels: yes, no, and don't know.

Table 11.3 The descriptive statistics for gender and calling the police.

Calling Police	Gender	Yes	No	Don't Know
	Male	68 (29.3%)	91 (39.2%)	73 (31.5%)
	Female	141 (39.4%)	101 (28.2%)	116 (32.4%)

The analysis determined gender significantly impacted the likelihood of participants calling the police, $X^2(2, N = 590) = 9.32, p = .01, df = 2$, see Table 11.3 for descriptive statistics. The association was of small strength: $\phi = .13$ and therefore gender accounted for only 2% of the variance on whether participants would call the police if they witnessed incident in real-life. These findings revealed females were most likely to say 'yes' and males were most likely to state 'no' to calling the police.

11.1.4 Gender and domestic violence

To examine whether gender had a significant impact on whether the actions were perceived as constituting domestic violence, a Chi-square analysis was conducted. The independent variable, gender, consisted of nominal data with two levels: male and female. The dependent variable, 'did the actions witnessed constitute domestic violence', was comprised of nominal data with three levels: yes, no, and don't know.

Table 11.4 The descriptive statistics for gender and domestic violence.

Domestic Violence	Gender	Yes	No	Don't Know
	Male	134 (57.8%)	41 (17.7%)	57 (24.6%)
	Female	250 (69.8%)	34 (9.5%)	74 (20.7%)

The Chi-square analysis determined gender significantly impacted whether the actions witnessed constituted as domestic violence, $X^2(2, N = 590) = 11.52, p = .01, df = 2$, see Table 11.4 for descriptive statistics. The association was of small strength: $\phi = .14$ and therefore gender accounted for 2% of the variance in whether the actions witnessed constituted as domestic violence. Here, females were significantly more likely than males to view actions as constituting domestic violence, suggesting that females were more likely to identify the incident as representing domestic violence.

11.1.5 Gender and delivering a guilty verdict

To explore the relationship between gender and delivering a guilty verdict, a Mann-Whitney test was conducted. The dependent variable, the participants' certainty of delivering a guilty verdict if the incident ended up in court, was ordinal level data rated on a 1 to 10 Likert scale. The independent variable, gender, was comprised of nominal data with two levels: male and female.

Table 11.5 The descriptive statistics for gender and delivering a guilty verdict.

Certainty of Guilty Verdict	Gender	N	Mean Rank
	Male	232	279.53
	Female	358	305.85

The Mann-Whitney U-value was found to be non-statistically significant $U = 37823.50$ ($Z = -1.85$), $p = .08$, $df = 1$, see Table 11.5 for descriptive statistics. The analysis revealed a non-significant difference between male participants (mean rank = 279.53) and female participants (mean rank = 305.85), when rating the certainty of delivering a guilty verdict. These findings implied there were no significant differences between males and females on their likelihood of delivering a guilty verdict.

11.2 Personality and punitive judgements

11.2.1 Personality and the experience psychological or emotional distress

A multinomial logistic regression was conducted to examine whether personality: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness, significantly impacted on the perceptions of experience of psychological or emotional distress. The dependent variable, 'who was perceived to be more likely to experience psychological or emotional distress', consisted of nominal data with four levels: man, woman, both, and neither. The personality traits were interval level data. The reference category for the outcome variable was 'both'. The lack of significance in the goodness-of-fit test indicated the model was a good fit.

Table 11.6 The multinomial logistic regression for personality and the experience psychological distress.

Variable	Man		Woman		Neither	
	OR (95% CI)	SE	OR (95% CI)	SE	OR (95%)	SE
Neuroticism	1.01 (.98/1.04)	.02	1.00 (.97/1.02)	.01	.94 (.91/.98)**	.02
Extraversion	1.04 (1.00/1.09)	.02	1.01 (.97/1.04)	.02	.97 (.93/1.02)	.02
Openness	1.04 (.99/1.10)	.03	1.06 (1.01/1.10)**	.02	.98 (.93/1.04)	.03
Agreeableness	.94 (.89/1.00)	.03	1.00 (.95/1.05)	.03	.95 (.90/1.01)	.03
Conscientiousness	1.01 (.97/1.05)	.02	.97 (.94/1.00)	.02	.98 (.93/1.02)	.02

Note. Reference group: both the male and the female (n = 237). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant, $X^2(15) = 39.24$, $p = .01$, $df = 5$, (see Table 11.6 for inferential statistics), this indicated the model could accurately place 42.4% of cases. The findings revealed neuroticism and openness were statistically significant predictors in the model. The analysis showed openness (OR = 1.06) was the stronger predictor variable as participants with higher levels had an increased likelihood of stating that the

female was more likely to experience psychological or emotional distress. These findings also indicated lower levels of neuroticism (OR = .94) increased the likelihood of participants stating neither would experience psychological or emotional distress. These findings revealed that participants who were more open were more likely to say that the woman would experience psychological distress and participants who had lower neuroticism levels were more likely to say that psychological distress would not be experienced.

11.2.2 Personality and calling the police

A multinomial logistic regression was conducted to examine whether personality significantly impacted participants calling the police. The dependent variable, whether participants stated that they would call the police if the incident was witnessed in real-life, consisted of nominal data with three levels: yes, no, and don't know. The personality traits: neuroticism, extraversion, openness, agreeableness, and conscientiousness were interval level data. The reference category for the outcome variable was 'yes'. The significance in the goodness-of-fit test indicated that the model was a not a good fit. Due to the poor fit of the model the pseudo R-square was examined. The Cox and Snell value was 3.8%, the Nagelkerke value was 4.3%, and the McFadden value was 1.8%. This further indicated that the model was not a good fit and findings should be interpreted with caution.

Table 11.7 The multinomial logistic regression for personality and calling the police.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Neuroticism	1.00 (.98/1.03)	.01	1.01 (.98/1.04)	.01
Extraversion	.97 (.93/1.00)	.02	1.00 (.97/1.04)	.02
Openness	.98 (.94/1.02)	.02	.97 (.93/1.01)	.02
Agreeableness	.99 (.94/1.04)	.03	.98 (.93/1.03)	.03
Conscientiousness	.96 (.93/1.00)*	.02	.97 (.94/1.00)	.02

Note. Reference group: yes (n = 117). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant, $X^2(10) = 23.04$, $p = .01$, $df = 5$, (see Table 11.7 for inferential statistics), this indicated the model was significant and could accurately place 39.3% of cases. The results showed conscientiousness (OR = .96) was the only significant predictor. This finding indicated that participants who had lower levels of conscientiousness were less likely to call the police if they witnessed the event in real-life. However, due to the poor fit of the model these findings are unreliable and therefore the null hypothesis should be accepted.

11.3 Clarity and punitive judgements

11.3.1 Clarity and the severity of incident

To understand the relationship between the perceived severity of the incident and clarity, a Kruskal-Wallis analysis was conducted. This analysis was used due to the data not being normally distributed, the independent variable consisting of ordinal level data, and testing one independent variable with 2 levels. The independent variable, the perceived severity of the incident, was ranked on a 1 to 10 Likert scale and was ordinal level data. The dependent variable, clarity, consisted of two categorical levels: ambiguous and clear.

Table 11.8 The descriptive statistics for and severity of the incident and clarity.

Clarity	N	Mean Rank
Ambiguous	288	288.35
Clear	302	302.32

The results revealed a non-significant difference between clarity and the perceived severity, $\chi^2(1) = 1.01, p = .32, df = 1$, see Table 11.8 for descriptive statistics. These findings suggested that neither participants in the ambiguous or the clear video conditions rated the incident as being more severe.

11.3.2 Clarity and whether a crime was committed

To establish the relationship between clarity and whether participants perceived the incident as a crime, a Chi-square analysis was conducted. The dependent variable, clarity, consisted of two categorical levels: ambiguous and clear. The independent variable, the response to the question 'was a crime committed', also consisted of two categorical levels: yes and no.

Table 11.9 The descriptive statistics for clarity and if crime was committed.

Clarity	N	Yes	No
Ambiguous	288	185	103
Clear	302	198	104

The Chi-square analysis revealed a non-significant difference between clarity and whether a crime was committed, $X^2(1, N = 590) = .11, p = .40, df = 1$, see Table 11.9 for descriptive statistics. The association was of small strength: $\phi = .01$. This finding revealed that the clarity of the video footage (ambiguous or clear) did not significantly impact upon the participants' ability to state whether a crime was committed.

11.3.3 Clarity and the experience of physical injury

A Chi-square analysis was conducted to explore the relationship between clarity and the perceptions of whether one individual was more likely to be harmed during the incident. The dependent variable, clarity of the incident, consisted of two categorical levels: ambiguous and clear. The independent variable, whether one individual was perceived as being more likely to be harmed during the incident, also consisted of two categorical levels: yes and no.

Table 11.10 The descriptive statistics for clarity the experience of physical injury.

Clarity	N	Yes	No
Ambiguous	288	207	81
Clear	302	244	58

The results revealed a significant difference between clarity and whether one individual was more likely to be harmed during the incident, $\chi^2(1, N = 590) = 6.51, p = .01, df = 1$, see Table 11.10 for descriptive statistics. The association was of small strength: $\phi = .01$. Therefore, this analysis revealed clarity significantly impacted on whether one individual was more likely to be harmed. Here, the results showed that participants in the clear condition were significantly more likely to identify that one person, from the video footage, was more likely to experience physical injury than the other, compared with participants in the ambiguous condition.

11.3.4 Clarity and the sentence advocated

To explore the impact of clarity and the type of sentence advocated for the perpetrator, a Chi-squares analysis was conducted. The dependent variable, clarity, was comprised of two categorical levels: ambiguous and clear. The independent variable, type of sentence advocated for the perpetrator, was comprised of categorical level data with six levels: no sentence, community service, pay a fine, suspended prison sentence, short determinate prison sentence and long determinate prison sentence.

Table 11.11 The descriptive statistics for clarity and the sentence advocated for the perpetrator.

	No Sentence	Community Service	Pay A Fine	Suspended Prison Sentence	Short Prison Sentence	Long Prison Sentence
Ambiguous	52	57	27	119	25	8
Clear	25	56	15	142	43	21

The results revealed a significant difference between clarity and the type of sentence advocated for the perpetrator, $\chi^2(5, N = 590) = 25.21, p = .01, df = 5$, see Table 11.11 for descriptive statistics. The association was of small strength: $\phi = .21$. Therefore, this analysis revealed clarity significantly impacted upon the type of sentence advocated for the perpetrator. In both the ambiguous and the clear scenarios, a 'suspended prison sentence' was the option that was most likely to be selected. However, participants' in the clear condition had significantly more severer punishments recommended for the perpetrator, such as 'short and long determine prison sentence' when compared with the participants in the ambiguous condition.

11.4 Perpetrator gender and punitive judgements

11.4.1 Perpetrator gender and perceived severity of the incident

To understand whether there was a significant relationship between the perceived severity of the incident and perpetrator gender, a Kruskal-Wallis analysis was conducted. The independent variable, the perceived severity of the incident, was ranked on a 1 to 10 Likert scale and was ordinal level data. The Likert scale was rated with 1 being that the incident was not severe at all and 10 meaning that the incident was extremely severe. Participants rated the numerical value that aligned best with their perceived severity of the incident. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator.

Table 11.12 The descriptive statistics for perpetrator gender and severity of the incident.

Perpetrator Gender	N	Mean Rank
Male	279	348.07
Female	311	248.34

The results revealed a significant difference between perpetrator gender and the perceived severity rated by participants, $\chi^2(1) = 51.38, p = .01, df = 1$, see Table 11.12 for descriptive statistics. These findings indicated that participants were more likely to have higher severity ratings when the video conditions contained a male perpetrator, compared with the female perpetrator condition which received an overall lower severity rating.

11.4.2 Perpetrator gender and whether a crime was committed

To establish whether there was a significant relationship between perpetrator gender and perceptions of whether a crime had been committed, a Chi-square analysis was conducted. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator. The independent variable, was a crime committed, also consisted of two categorical levels: yes and no.

Table 11.13 The descriptive statistics for perpetrator gender and whether a crime was committed.

Perpetrator Gender	N	Yes	No
Male	279	213	66
Female	311	170	141

The analysis revealed a significant difference between perpetrator gender and whether a crime been committed, $\chi^2(1, N = 590) = 30.36, p = .01, df = 1$, see Table 11.13 for descriptive statistics. The association was of small strength: $\phi = .23$. This analysis revealed perpetrator gender significantly impacted upon whether participants ability to state whether a crime was committed. These results showed that participants who witnessed the condition with the male perpetrator were significantly more likely to state that a crime had been committed, compared with the female perpetrator condition. This implied that the male perpetrator's actions were more likely to be perceived as criminal compared with the female perpetrator's actions.

11.4.3 Perpetrator gender and physical injury

A Chi-square analysis was conducted to determine whether there was a significant relationship between perpetrator gender and whether participants perceived that physical injury could have been caused. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator. The independent variable, whether physical injury could have been caused, also consisted of two categorical levels: yes and no.

Table 11.14 The descriptive statistics for perpetrator gender and physical injury.

Perpetrator Gender	N	Yes	No
Male	279	132	147
Female	311	93	218

The results revealed a significant difference between perpetrator gender and whether participants thought the behaviour was severe enough to cause physical injury, $\chi^2(1, N = 590) = 18.89, p = .01, df = 1$, see Table 11.14 for descriptive statistics. The association was of small strength: $\phi = .23$. Therefore, this analysis revealed perpetrator gender significantly impacted upon whether participants thought the behaviour in the incident was severe enough to cause physical injury. These findings indicated that participants were significantly more likely to state 'yes' to physical injury being caused in the conditions with a male perpetrator, compared to the conditions with a female perpetrator. This suggested that participants were more likely to believe that the male perpetrator would cause injury.

11.4.4 Perpetrator gender and psychological or emotional distress

A Chi-square analysis was conducted to determine whether there was a significant relationship between the gender of the perpetrator and whether participants thought that either individual could have experienced psychological or emotional distress. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator. The independent variable, whether either individual could have experienced psychological or emotional distress, also consisted of two categorical levels: yes and no.

Table 11.15 The descriptive statistics for perpetrator gender and psychological or emotional distress.

Perpetrator Gender	N	Yes	No
Male	279	258	21
Female	311	223	88

The results revealed a significant difference between perpetrator gender and whether participants thought that either individual could experience psychological or emotional distress, $X^2(1, N = 590) = 42.12, p = .01, df = 1$, see Table 11.15 for descriptive statistics. The association was of small strength: $\phi = .27$. Therefore, this analysis revealed that participants were significantly more likely to state 'no' to either individuals experiencing psychological or emotional distress for the female perpetrator condition, compared to the male perpetrator condition. This indicated that the male perpetrator was more likely to inflict psychological or emotional distress to the female victim. This also implied that female perpetrators are perceived as being less able to cause psychological or emotional distress to male victims.

11.4.5 Perpetrator gender and calling the police

A Chi-square analysis was conducted to determine whether there was a significant relationship between perpetrator gender and the likelihood of participants calling the police. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator. The independent variable, would the police be called if the incident was witnessed in real-life, consisted of three categorical levels: yes, no, and don't know.

Table 11.16 The descriptive statistics for perpetrator gender and calling the police.

Perpetrator Gender	N	Yes	No	Don't Know
Male	279	127	65	87
Female	311	82	127	102

The results revealed a significant difference between perpetrator gender and whether participants would call the police if the incident was witnessed in real-life, $\chi^2(2, N = 590) = 29.25, p = .01, df = 1$, see Table 11.16 for descriptive statistics. The association was of small strength: $\phi = .22$. Therefore, this analysis suggested that participants witnessing the male perpetrator were significantly more likely to state 'yes' to calling the police, compared with participants witnessing the female perpetrator. Furthermore, participants in the female perpetrator condition were also significantly more likely to state they 'don't know' whether they would call the police, compared with participants in the male perpetrator condition. This finding showed that participants were more likely to call the police when there was a male perpetrator and less likely to call the police when there was a female perpetrator.

11.4.6 Perpetrator gender and domestic violence

A Chi-square analysis was conducted to determine whether there was a significant relationship between perpetrator gender and whether the actions were perceived as constituting domestic violence. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator. The independent variable, whether the actions constituted domestic violence, consisted of three categorical levels: yes, no, and don't know.

Table 11.17 The descriptive statistics for perpetrator gender and domestic violence.

Perpetrator Gender	N	Yes	No	Don't Know
Male	279	208	16	55
Female	311	176	59	76

The results revealed a significant difference between perpetrator gender and whether participants would call the police if the incident was witnessed in real-life, $\chi^2(2, N = 590) = 29.04, p = .01$, see Table 11.17 for descriptive statistics. The association was of small strength: $\phi = .22$. Therefore, this analysis implied that participants witnessing the male perpetrator were significantly more likely to state 'yes' to the actions constituting domestic violence, compared to the participants witnessing the female perpetrator conditions. Furthermore, participants were significantly more likely to say 'no' to the actions constituting domestic violence in the female perpetrator condition, compared to the male perpetrator condition. This finding implied that the condition depicting a male perpetrator attacking a female victim was more likely to be interpreted as domestic violence, compared with the condition that depicted a female perpetrator attacking a male victim.

11.4.7 Perpetrator gender and the type of sentence advocated

A Chi-square analysis was conducted to determine whether there was a significant relationship between perpetrator gender and the type of sentence advocated for the perpetrator. The dependent variable, perpetrator gender, consisted of two categorical levels: male perpetrator and female perpetrator. The independent variable, the type of sentence advocated for the perpetrator, consisted of six categorical levels: no sentence, community service, pay a fine, suspended prison sentence, short determinate prison sentence, and long determinate prison sentence.

Table 11.18 The descriptive statistics for perpetrator gender and the type of sentence advocated.

Perpetrator Gender	No Sentence	Community Service	Pay a Fine	Suspended Sentence	Short Prison	Long Prison
Male	16	50	11	139	44	19
Female	61	63	31	122	24	10

The results revealed a significant difference between perpetrator gender and the type of sentence they would advocate for the perpetrator, $\chi^2(5, N = 590) = 45.50, p = .01, df = 5$, see Table 11.18 for descriptive statistics. The association was of small strength: $\phi = .28$. Therefore, this analysis revealed participants were significantly more likely to advocate harsher punishments for the male perpetrator and lesser punishments for the female perpetrator.

11.5 Key findings

Chapter 11 found the following; female participants were more likely to be sympathetic to the incident by being more likely to say that they would call the police if they witnessed the event in real-life, were more likely to identify that psychological or emotional distress could have been caused, and were more likely to identify the actions as domestic violence. Furthermore, personality impacted on the perception of psychological and emotional distress and whether participants would call the police. In addition to this the clarity of the incident significantly impacted on the participants' perception of whether physical harm was caused during the incident and the type of sentence they would advocate

for the perpetrator. However, clarity did not significantly influence the perceived severity of the incident nor did it impact on whether participants would state if a crime was committed. Additionally, Chapter 11 found that the perpetrator gender significantly impacted on the perceived severity of the incident, whether participants believed a crime was committed, the likelihood of physical injury or psychological damage being caused, the likelihood of calling the police, whether the actions constituted domestic violence, and the type of sentence advocated for the perpetrator.

Chapter 12: Accuracy, Confidence and Punitive Judgements

Chapter 12 investigated how punitive judgements impacted on eyewitness accuracy and confidence. Here in Chapter 12, accuracy was defined as the total number of correct answers provided by participants. The punitive judgements were regarding the features of the incident, the interpretation of the actions, and how participants stated they would respond to the incident.

12.1 Accuracy and punitive judgements

12.1.1 Accuracy and whether a crime was committed

To determine if there was a significant relationship between whether a crime was perceived to have been committed and accuracy, an independent samples t-test was conducted. The dependent variable, accuracy, was interval level data. The independent variable, whether participants thought a crime had been committed, consisted of two categorical levels: yes and no.

Table 12.1 The descriptive statistics and mean for accuracy and whether a crime was committed.

	N	Mean	Std. Deviation
Yes	383	37.98	4.32
No	207	36.74	3.96

The Levene's test for equality of variance was observed and was non-significant, thus equal variances were assumed. The results revealed a significant difference between accuracy and whether a crime was committed; $t(588) = 3.41, p = .01$, see Table 12.1 for descriptive statistics. These findings implied that participants who answered 'yes' to a crime being committed ($M = 37.98, SD = 4.32$) were significantly more accurate than participants who answered 'no' to a crime being committed ($M = 36.74, SD = 3.96$). This suggested that participants who believed a crime had been committed also had better memory recall accuracy of the incident. The magnitude of the differences in the means

(mean difference = 1.24, 95% CI: .52 to 1.95) was small (eta squared = .02). Thus, these findings suggested that participants who stated that they thought a crime had been committed were significantly more accurate, compared with participants who stated that they believed that a crime had not been committed.

12.1.2 Accuracy and psychological or emotional distress

An independent samples t-test was conducted to explore accuracy and perceived psychological or emotional distress. The dependent variable, accuracy, consisted of interval level data. The independent variable, whether either individual was perceived to have potentially have experienced psychological or emotional distress from the incident, consisted of two categorical levels: yes and no.

Table 12.2 The descriptive statistics and mean for accuracy and psychological or emotional distress.

	N	Mean	Std. Deviation
Yes	481	37.75	4.26
No	109	36.62	4.05

The Levene's test for equality of variances was observed and revealed a non-significant value, thus equal variances were assumed. The results revealed a significant difference between accuracy and the likelihood of experiencing psychological or emotional distress, $t(588) = 2.53, p = .01$, see Table 12.2 for descriptive statistics. The magnitude of the differences in the means (mean difference = 1.13, 95% CI: .25 to 2.01) was small (eta squared = .01). These findings indicated that participants who responded that psychological or emotional distress could have been caused had significantly higher memory recall accuracy, compared to participants who stated that psychological or emotional distress was not caused.

12.1.3 Accuracy and calling the police

To explore whether there was a significant relationship between accuracy and the likelihood of calling the police, a one-way between subjects' ANOVA was conducted. The dependent variable, accuracy, consisted of interval level data. The independent variable, whether participants thought they would call the police if the incident was witnessed in real life, comprised of three categorical levels: yes, no, and, don't know.

Table 12.3 The descriptive statistics and mean for the accuracy and calling the police.

	N	Mean	Std. Deviation
Yes	209	38.11	4.38
No	192	37.28	4.11
Don't Know	189	37.19	4.17

The results revealed a significant difference between accuracy and calling the police if witnessed in real-life, $F(2, 587) = 2.96, p = .05$, see Table 12.3 for descriptive statistics. The eta squared revealed a small effect size (eta squared = .01). Post-hoc comparisons using the Tukey HSD test indicated that although the analysis revealed a significant result, there were no significant differences between the mean scores for each category. However, from these results it can be suggested that participants who stated 'yes' they would call the police were the most accurate and participants who stated 'don't know' were the least accurate. Therefore, participants who stated they would call the police also had better memory recall accuracy.

12.1.4 Accuracy and guilt of perpetrator

A one-way between-subjects' ANOVA was conducted to investigate if there was a significant relationship between accuracy and perceived guilt of perpetrator. The dependent variable, accuracy, was interval level data. The independent variable, whether participants thought that the perpetrator was guilty of committing a crime, consisted of three categorical levels: yes, no, and, don't know.

Table 12.4 The descriptive statistics and mean for the accuracy and guilt of perpetrator.

	N	Mean	Std. Deviation
Yes	308	38.06	4.35
No	137	36.98	4.25
Don't Know	145	36.99	3.85

The results revealed a significant difference between accuracy and the guilt of the perpetrator, $F(2, 587) = 4.84, p = .01$, see Table 12.4 for descriptive statistics. The eta squared revealed a small effect size (eta squared = .02). Post-hoc comparisons using the Tukey HSD test indicated the mean scores for the 'yes' category ($M = 38.06, SD = 4.35$) were significantly more accurate compared to the 'no' category ($M = 36.98, SD = 4.25$), and the 'don't know' category ($M = 36.99, SD = 3.85$). Thus, these findings indicated that participants who stated the perpetrator was guilty were significantly more accurate than those who stated the perpetrator was not guilty, and participants who said they did not know the perpetrator's guilt. Thus, this finding suggested that participants who were more likely to believe the perpetrator was guilty also had better memory recall accuracy.

12.1.5 Accuracy and domestic violence

To assess the differences between accuracy and whether the actions witnessed constituted as domestic violence, a one-way between-subjects' ANOVA was conducted. The dependent variable, accuracy, was interval level data. The independent variable, the question 'did the actions witnessed constitute domestic violence', consisted of three categorical levels: yes, no, and, don't know.

Table 12.5 The descriptive statistics and mean for accuracy and domestic violence.

	N	Mean	Std. Deviation
Yes	384	37.87	4.26
No	75	36.20	3.96
Don't Know	131	37.36	4.21

The results revealed a significant difference between accuracy and whether the actions constituted as domestic violence, $F(2, 587) = 5.12, p = .01$, see Table 12.5 for descriptive statistics. The eta squared revealed a small effect size (eta squared = .02). Post-hoc comparisons using the Tukey HSD test indicated the mean scores for the 'yes' category ($M = 37.87, SD = 4.26$) were significantly more accurate than the 'no' category ($M = 36.20, SD = 3.96$). These findings suggested that participants who stated the incident constituted domestic violence were significantly more accurate than participants who stated the incident did not constitute domestic violence. This finding implied that participants who stated that the actions constitute as domestic violence also had better memory recall accuracy.

12.2 Confidence and punitive judgements

12.2.1 Confidence and whether a crime was committed

To understand the relationship between confidence and whether a crime was perceived to have been committed, an independent samples t-test was conducted. The dependent variable, confidence, was interval level data. The independent variable, was a crime committed, consisted of two levels: yes and no.

Table 12.6 The descriptive statistics and mean for confidence and whether a crime was committed.

	N	Mean	Std. Deviation
Yes	383	340.58	46.77
No	207	317.79	58.18

The Levene's test for equality of variances was observed and revealed a significant value, therefore equal variances were not assumed. The results of the independent samples t-test revealed a significant difference between the two groups, $t(588) = 4.85$, $p = .01$, see Table 12.6 for descriptive statistics. These results suggested participants who stated 'yes' to a crime been committed ($M = 340.58$, $SD = 46.77$) were significantly more confident than participants who stated 'no' to a crime being committed ($M = 317.79$, $SD = 58.18$). Therefore, suggesting that participants who were more confident in their responses were also more likely to state that a crime had been committed, compared with participants who stated that a crime had not been committed. The magnitude of the differences in the means (mean difference = 22.79, 95% CI: 13.55 to 32.02) was small (eta squared = .01).

12.2.2 Confidence and calling the police

To establish if there was a relationship between confidence and the likelihood of a participant calling the police, a one-way between subjects' ANOVA was conducted. The independent variable, would the police be called if the incident was witnessed in real-life, consisted of three categorical levels: yes, no, and don't know. The dependent variable, confidence, was interval level data.

Table 12.7 The descriptive statistics and mean for confidence and calling the police.

	N	Mean	Std. Deviation
Yes	209	349.16	42.90
No	192	326.36	53.17
Don't Know	189	320.58	55.91

The results revealed a significant difference between confidence and likelihood of calling the police, $F(2, 586) = 17.90, p = .01$, see Table 12.7 for descriptive statistics. The eta squared revealed a medium effect size (eta squared = .06). Post-hoc comparisons using the Tukey HSD test indicated the mean confidence for the 'yes' category ($M = 348.16, SD = 42.90$) was significantly higher compared to the 'no' category ($M = 326.36, SD = 53.17$), and the 'don't know' category ($M = 320.58, SD = 55.91$). This indicated participants who stated 'yes' they would call the police were significantly more confident, compared with participant's who stated 'no' to calling the police and participants who did not know if they would call the police. This finding indicated that participants who would call the police were more confident and those who did not know if they would call the police were the least confident.

12.2.3 Confidence and domestic violence

To examine whether there was a significant relationship between confidence and whether or not the event was perceived as constituting domestic violence, a one-way between subjects' ANOVA was conducted. The independent variable, do you believe the actions constituted domestic violence, consisted of three categorical levels: yes, no, and don't know. The dependent variable, confidence, was interval level data.

Table 12.8 The descriptive statistics and mean for confidence and domestic violence.

	N	Mean	Std. Deviation
Yes	384	342.87	47.49
No	75	325.11	61.43
Don't Know	131	306.72	50.16

The results revealed a significant difference between confidence and whether or not the event was perceived as domestic violence, $F(2, 587) = 26.44, p = .01$, see Table 12.8 for descriptive statistics. The eta squared revealed a medium effect size (eta squared = .08). Post-hoc comparisons using the Tukey HSD test indicated the mean confidence scores for the 'yes' category ($M = 342.87, SD = 47.49$) were significantly higher compared to the 'no' category ($M = 325.11, SD = 61.43$) and the 'don't know' category ($M = 306.72, SD = 50.16$). This finding suggested that participants who believed the actions constituted domestic violence were also significantly more confident in their responses and those who did not know if the actions constituted domestic violence were the least confident.

12.3 Key findings

From Chapter 12 the following findings were observed; participants who were more likely to state that a crime had been committed were more accurate and more confident in their responses. Participants who stated that psychological distress was likely to have been caused were also more accurate in their memory recall of the incident. Those who said they would call the police if they witnessed the incident in real-life were more accurate in their responses and more confident.

Participants who believed the perpetrator was guilty of committing a crime were more accurate in their memory recall. Lastly, participants who stated that they thought the actions witnessed constituted domestic violence were more accurate and more confident in their responses. To summarise, punitive judgements had significant relationships with participant accuracy and confidence, and in some cases both. These findings indicate that punitive judgements can be indicative of a witness's accuracy and confidence levels – implying people may not want to place blame when they are unsure and have a poor recollection of an incident.

Chapter 13: Accuracy and the Relationship Between Individual Differences, Clarity and Perpetrator Gender

Chapter 13 aimed to look at accuracy using all the previously explored individual differences and collectively examine how this impacted accuracy. This analysis also took into consideration the clarity of the incident and analysed both ambiguous and clear scenarios. In Chapter 13 accuracy is analysed by incorporating the previous individual differences and the perpetrator gender. This included investigating the impact of the male and female perpetrator.

13.1 Accuracy and the relationship between individual differences and clarity

A split multiple regression was conducted to examine the impact of clarity on accuracy and measuring individual differences. These included; age, personality, and confidence. Initial tests were conducted, and the data was normally distributed and no evidence of multicollinearity, see Table 13.1 for descriptive statistics for the ambiguous condition and Table 13.2 for descriptive statistics for clear condition. The dependent variable was the total number of correct responses that participants provided – their accuracy, which was interval level data. The experimental design used was between-subjects as participants only took part in one experimental condition.

Table 13.1 The descriptive statistics, reliability and correlations of the variables (age, personality, and confidence) for the ambiguous condition.

Variables	Age	N	E	O	A	C	Confidence
Age	1						
Neuroticism	-.27***	1					
Extraversion	-.04	-.33***	1				
Openness	.02	-.00	.17**	1			
Agreeableness	.05	-.08	.30***	.20***	1		
Conscientiousness	.21***	-.37***	.29***	.18***	.23***	1	
Confidence	-.05	-.37	.12*	.11*	-.01	.06	1
Means	33.50	21.78	28.27	25.87	29.81	31.82	333.10
Std. Deviation	13.38	8.75	6.25	5.25	4.45	6.48	52.08
Range		1-45	13-41	12-39	15-39	12-46	151-430
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	43-430
Cronbach's Alpha		.88	.76	.54	.50	.81	.95

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.2 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the clear condition.

Variables	Age	N	E	O	A	C	Confidence
Age	1						
Neuroticism	-.21***	1					
Extraversion	-.04	-.37***	1				
Openness	.05	-.10*	.19***	1			
Agreeableness	.07	-.07	.23***	.12*	1		
Conscientiousness	.18***	-.39***	.26***	.27***	.23***	1	
Confidence	-.11*	-.10*	.13*	.27***	.03	.20***	1
Means	32.72	21.28	28.84	26.83	29.48	32.39	332.39
Std. Deviation	13.16	8.73	6.23	4.93	4.21	6.54	52.32
Range		0-45	11-42	14-40	19-43	13-48	151-430
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	43-430
Cronbach's Alpha		.87	.76	.51	.45	.82	.94

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.3 Split multiple regression model accuracy and the relationship between individual differences and clarity.

Variables	R ²	B	B	SE	CI 95% (B)
Ambiguous					
Model	.07**				
Age		-.17**	-.06	.02	-.10 / -.02
Neuroticism		-.07	-.04	.03	-.10 / .03
Extraversion		-.11	-.08	.05	-.17 / .02
Openness		.05	.04	.05	-.06 / .14
Agreeableness		.17**	.17	.06	.05 / .30
Conscientiousness		.12	.08	.05	-.01 / .17
Confidence		.06	.01	.01	-.01 / .02
Clear					
Model	.10***				
Age		-.10	-.03	.02	-.06 / .00
Neuroticism		.00	.00	.03	-.06 / .06
Extraversion		-.16*	-.10	.04	-.18 / -.02
Openness		-.01	-.01	.05	-.10 / .08
Agreeableness		.05	.05	.05	-.06 / .15
Conscientiousness		-.02	-.01	.04	-.09 / .06
Confidence		.26***	.02	.00	.01 / .03

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The predictor variables were entered directly to the model, these consisted of age, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), and confidence. The variables were entered in a single step.

For the ambiguous scenario the individual differences were able to account for 7% of the variance in the accuracy, $F(7, 280) = 3.14$, $p = .01$, see Table 13.3 for inferential statistics. The final model revealed age and agreeableness were significant predictors of accuracy. The findings showed that age ($\beta = -.17$, $p = .01$) and agreeableness ($\beta = .17$, $p = .01$) were both equal predictors in the model. This analysis showed that in the ambiguous condition younger participants and those with higher levels of agreeableness had better memory recall accuracy.

For the clear scenario the individual differences explained 10% of the variance in the accuracy, $F(7, 294) = 4.50$, $p = .01$. The final model showed that extraversion and confidence were significant predictors in the model. The results revealed confidence was the best predictor ($\beta = .26$, p

= .01), followed by extraversion ($\beta = -.16, p = .01$). This analysis showed that in the clear condition participants with lower levels of extraversion had better memory recall accuracy.

13.2 Accuracy and the relationship between individual differences and perpetrator gender

A split multiple regression was conducted to determine the impact of perpetrator gender on the accuracy and measuring individual differences. The individual differences comprised of age, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness) and confidence. Initial tests were conducted, and the data was normally distributed and no evidence of multicollinearity, see Table 13.4 for descriptive statistics for the male perpetrator condition and Table 13.5 for descriptive statistics for the female perpetrator condition.

Table 13.4 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the male perpetrator.

Variables	Age	N	E	O	A	C	Confidence
Age	1						
Neuroticism	-.25***	1					
Extraversion	-.03	-.41***	1				
Openness	.04	-.04	.16**	1			
Agreeableness	.07	-.14**	.32***	.20**	1		
Conscientiousness	.20	-.35***	.27***	.21***	.36***	1	
Confidence	-.09	-.10	.10*	.15**	.01	.14**	1
Means	33.16	21.95	28.18	26.27	30.11	32.06	334.68
Std. Deviation	13.40	9.09	6.10	5.21	4.64	6.38	48.54
Range	18-70	2-45	11-42	14-40	15-43	13-48	151-430
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	43-430
Cronbach's Alpha		.89	.75	.54	.54	.81	.94

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.5 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the female perpetrator.

Variables	Age	N	E	O	A	C	Confidence
Age	1						
Neuroticism	-.23***	1					
Extraversion	-.05	-.30***	1				
Openness	.03	-.07	.21***	1			
Agreeableness	.05	-.00	.23***	.13**	1		
Conscientiousness	.19***	-.41***	.28***	.24***	.10*	1	
Confidence	-.07	-.13**	.15**	.15**	.00	.12*	1
Means	33.04	21.14	28.90	26.44	29.21	32.16	330.70
Std. Deviation	13.17	8.40	6.36	5.02	3.98	6.63	55.22
Range	18-70	0-42	11-42	12-39	15-40	12-47	151-430
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	43-430
Cronbach's Alpha		.86	.78	.53	.39	.82	.95

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13.6 Split multiple regression model of accuracy and the relationship between individual differences and perpetrator gender.

Variables	R ²	B	B	SE	CI 95% (B)
Male Perpetrator					
Model	.98**				
Age		-.09	-.03	.02	-.07 / .01
Neuroticism		-.08	-.04	.03	-.10 / .03
Extraversion		-.16*	-.11	.05	-.20 / -.02
Openness		-.08	-.07	.05	-.16 / .03
Agreeableness		.08	.07	.06	-.04 / .19
Conscientiousness		.08	.06	.05	-.03 / .14
Confidence		.26***	.02	.01	.01 / .03
Female Perpetrator					
Model	.66*				
Age		-.17**	-.06	.02	-.09 / -.02
Neuroticism		-.10	-.01	.03	-.07 / .06
Extraversion		-.11	-.08	.04	-.16 / .01
Openness		.09	.08	.05	-.02 / .18
Agreeableness		.16**	.17	.06	.05 / .29
Conscientiousness		.02	.01	.04	-.07 / .09
Confidence		.06	.01	.00	-.00 / .01

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The predictor variables were entered directly to the model, these consisted of age, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), and confidence.

For the male perpetrator condition the individual differences were able to account for 9.8% of the variance in the accuracy, $F(7, 271) = 4.21$, $p = .01$, see Table 13.6 for inferential statistics. The final model revealed extraversion and confidence were significant predictors of accuracy. The findings showed confidence ($\beta = .26$, $p = .01$) was the best predictor, followed by extraversion ($\beta = -.16$, $p = .05$) in this model. This analysis showed that for the male perpetrator condition participants with lower levels of extraversion and higher levels of confidence had better memory recall accuracy.

For the female perpetrator condition the individual differences explained 7% of the variance in the accuracy, $F(7, 303) = 3.07$, $p = .01$. The final model showed age and agreeableness were significant predictors in the model. The results revealed age was the best predictor ($\beta = -.17$, $p = .01$), followed by agreeableness ($\beta = -.16$, $p = .01$). This analysis showed that for the female perpetrator

condition younger participants and those with higher levels of agreeableness had better memory recall accuracy.

13.3 Key findings

The findings suggest that, in combination, the clarity of the incident and the participants' individual differences significantly impact eyewitness accuracy. However, the model predicted more of the variance for the clear condition compared with the ambiguous condition. The model including the individual differences examined the impact of this on the perpetrator gender was also significant. In this analysis the model was a better predictor for participants witnessing the male perpetrator condition, compared with the female perpetrator condition.

Chapter 14: Confidence and the Relationship Between Individual Differences, Clarity and Perpetrator Gender

In Chapter 14 confidence was examined by using previously examined individual differences (age, personality, and accuracy). These analyses then looked at the impact of clarity and perpetrator gender on confidence and how well individual differences could predict for the variance in confidence.

14.1 Confidence and the relationship between individual differences and clarity

A split multiple regression was conducted to examine the impact of clarity on confidence, whilst accounting for individual differences, such as age, personality, and accuracy. Here, the dependent variable was the accuracy score of participants. Initial tests were conducted, and the data was normally distributed and no evidence of multicollinearity, see Table 14.1 for descriptive statistics for the ambiguous scenario and Table 14.2 for the descriptive statistics for the clear condition. For this analysis all variables were added in a single step.

Table 14.1 The descriptive statistics, reliability and correlations for the variables (age, personality, and accuracy) for the ambiguous condition.

Variables	Age	N	E	O	A	C	Accuracy
Age	1						
Neuroticism	-.27***	1					
Extraversion	-.04	-.33***	1				
Openness	.02	-.00	.17***	1			
Agreeableness	.05	-.08	.30***	.20***	1		
Conscientiousness	.21***	-.37***	.29***	.18***	.23***	1	
Accuracy	-.12*	-.05	.03	.09	.17***	.13*	1
Means	33.50	21.78	28.27	25.87	29.81	31.82	38.16
Std. Deviation	13.38	8.75	6.25	5.25	4.45	6.48	4.49
Range							
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	0-50
Cronbach's Alpha		.88	.76	.54	.50	.81	

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 14.2 The descriptive statistics, reliability and correlations for the variables (age, personality, and accuracy) for the clear condition.

Variables	Age	N	E	O	A	C	Accuracy
Age	1						
Neuroticism	-.21***	1					
Extraversion	-.04	-.37***	1				
Openness	.05	-.10*	.19***	1			
Agreeableness	.07	-.07	.23***	.12*	1		
Conscientiousness	.18***	-.39***	.26***	.27***	.23***	1	
Accuracy	-.13*	.07	-.12*	.00	.01	-.02	1
Means	32.72	21.28	28.84	26.83	29.48	32.39	36.96
Std. Deviation	13.16	8.73	6.23	4.93	4.21	6.54	3.90
Range							
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	0-50
Cronbach's Alpha		.87	.76	.51	.45	.82	

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 14.3 Split multiple regression model of confidence and the relationship between individual differences and clarity.

Perpetrator	R ²	B	B	SE	CI 95% (B)
Ambiguous					
Model	.03				
Age		-.05	-.19	.25	-.67 / .30
Neuroticism		-.02	-.13	.41	-.92 / .67
Extraversion		.11	.89	.56	-.22 / 1.99
Openness		.10	1.00	.61	-.19 / 2.20
Agreeableness		-.08	-.89	.75	-2.36 / .59
Conscientiousness		.02	.19	.54	-.87 / 1.25
Accuracy		.06	.70	.71	-.69 / 2.09
Clear					
Model	.15***				
Age		-.12*	-.47	.23	-.91 / -.03
Neuroticism		-.03	-.19	.38	-.93 / .55
Extraversion		.08	.70	.52	-.32 / 1.72
Openness		.14**	1.48	.60	.30 / 2.66
Agreeableness		-.04	-.54	.71	-1.93 / .85
Conscientiousness		.16**	1.31	.50	.33 / 2.28
Accuracy		.25***	3.31	.74	1.86 / 4.76

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The results demonstrated for the ambiguous condition the model was able to predict 3% of the variance in confidence, $F(7, 280) = 1.40$, $p = .08$, see Table 14.3 for inferential statistics. This model revealed the individual differences did not significantly predict the differences in confidence for the ambiguous scenario.

However, when analysing the model of individual differences for the clear condition, this yielded different results. The model was able to account for 15% of the variance in confidence between participants, $F(7, 294) = 7.14$, $p = .01$. The variables that were significant predictors were age ($\beta = -.12$, $p = .05$), openness ($\beta = .14$, $p = .01$), conscientiousness ($\beta = .16$, $p = .01$), and accuracy ($\beta = .25$, $p = .01$). This analysis revealed accuracy ($\beta = .25$) was the best predictor of confidence, followed by conscientiousness ($\beta = .16$), openness ($\beta = .14$), and age ($\beta = -.12$). For the clear condition younger participants with higher levels of openness and conscientiousness were more confident. The results were only significant for the clear condition. The clear condition may have

adhered more to participant expectations of a domestic violence incident – where one person is victimised showing no retaliation to the perpetrator. The clear condition may also have facilitated memory encoding as it allowed participants to focus on one individual enacting harmful behaviours on another without the added confusion of retaliation. This therefore could have resulted in participants in the clear condition having greater confidence in their memory recall due to a lack of ambiguity around the situation. The ambiguous condition could have been too unclear for participants to be able to formulate an accurate opinion on what they witnessed. The ambiguous condition was more open to interpretation and this could have resulted in participants being less likely to conclude what the actions were thus making them less confident in their responses.

14.2 Confidence and the relationship between individual differences and perpetrator gender

A split multiple regression was conducted to analyse the impact of perpetrator gender on confidence, whilst accounting for individual differences. The individual differences comprised of age, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness) and accuracy. Initial tests were conducted, and the data was normally distributed and no evidence of multicollinearity. Based on the previous significant findings between confidence and accuracy, the accuracy of participants was included in the multiple regressions as one of the predictor variables. See Table 14.4 for the descriptive statistics for the male perpetrator condition and Table 14.5 for the descriptive statistics for the female perpetrator condition.

Table 14.4 The descriptive statistics, reliability and correlations for the variables (age, personality, and confidence) for the male perpetrator.

Variables	Age	N	E	O	A	C	Accuracy
Age	1						
Neuroticism	-.25***	1					
Extraversion	-.03	-.41***	1				
Openness	.04	-.04	.16**	1			
Agreeableness	.07	-.14**	.32***	.20***	1		
Conscientiousness	.20***	-.35***	.27***	.21***	.36***	1	
Accuracy	-.07	-.03	-.06	-.04	.05	.01*	1
Means	33.16	21.95	28.18	26.27	30.11	32.06	37.84
Std. Deviation	13.40	9.09	6.10	5.21	4.64	6.38	4.22
Range							
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	0-50
Cronbach's Alpha		.89	.75	.54	.54	.81	

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 14.5 The descriptive statistics, reliability and correlations for the variables (age, personality, and accuracy) for the female perpetrator.

Variables	Age	N	E	O	A	C	Accuracy
Age	1						
Neuroticism	-.23***	1					
Extraversion	-.05	-.30***	1				
Openness	.03	-.07	.21***	1			
Agreeableness	.05	-.00	.23***	.13**	1		
Conscientiousness	.19***	-.41***	.28***	.24***	.10*	1	
Accuracy	-.16***	.04	-.03	.10*	.14**	.01	1
Means	33.04	21.14	28.90	26.44	29.21	32.16	37.29
Std. Deviation	13.17	8.40	6.36	5.02	3.98	6.63	4.25
Range							
Possible Range	18-70	0-48	0-48	0-48	0-48	0-48	0-50
Cronbach's Alpha		.86	.78	.53	.39	.82	

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 14.6 Split multiple regression model of confidence and the relationship between individual differences and perpetrator gender.

Perpetrator	R ²	B	B	SE	CI 95% (B)
Male Perpetrator					
Model	.12***				
Age		-.08	-.30	.22	-.73 / .14
Neuroticism		.06	.33	.36	-.38 / 1.03
Extraversion		.11	.91	.53	-.15 / 1.96
Openness		.14*	1.27	.55	.18 / 2.36
Agreeableness		-.10	-1.04	.67	-2.35 / .28
Conscientiousness		.13*	1.01	.51	.02 / 2.01
Accuracy		.25***	2.88	.67	1.56 / 4.19
Female Perpetrator					
Model	.06**				
Age		-.09	-.39	.25	-.88 / .10
Neuroticism		-.10	-.67	.42	-1.50 / .16
Extraversion		.08	.71	.54	-.36 / 1.78
Openness		.12*	1.32	.64	.05 / 2.59
Agreeableness		-.04	-.57	.81	-2.16 / 1.03
Conscientiousness		.05	.41	.53	-.64 / 1.46
Accuracy		.06	.77	.75	-.71 / 2.24

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The predictor variables were entered directly to the model, these consisted of age, personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), and accuracy for this multiple linear regression analysis.

For the scenario with a male perpetrator the individual differences were able to account for 12% of the variance in the confidence of participants, $F(7, 271) = 5.23$, $p = .01$, see Table 14.6 for inferential statistics. The final model revealed that only openness, conscientiousness, and accuracy were significant predictors of confidence. The findings showed that accuracy ($\beta = .25$, $p = .01$) was the best predictor, followed by openness ($\beta = .14$, $p = .02$) and conscientiousness ($\beta = .13$, $p = .05$) in this model. This analysis suggested that for the male perpetrator condition participants with higher levels of openness, conscientiousness, and accuracy also had higher confidence.

For the scenario with a female perpetrator the individual differences explained 6% of the variance in the confidence of the participants, $F(7, 303) = 2.81$, $p = .01$. The final model showed that

only openness was a significant predictor in the model ($\beta = .12, p = .04$). This analysis suggested that for the female perpetrator condition participants with higher levels of openness also had higher confidence.

14.3 Key findings

Chapter 14 found that the individual differences for predicting confidence and clarity were only significant for the clear condition and not the ambiguous condition. This suggested the model predictors were only significant for participants witnessing the clear condition. Furthermore, the model predictors were able to predict confidence for the perpetrator gender conditions. This analysis revealed the model was better at predicting confidence for participants in the male perpetrator condition.

Chapter 15: The Relationships Between Individual Differences, Clarity and Perpetrator Gender on Punitive Judgements

In Chapter 15 the punitive judgements were analysed by exploring the combined impact of individual differences, clarity and the perpetrator gender. The individual differences consisted of gender, age, personality, accuracy and confidence. The analyses then examined the impact of the variables on the clarity and perpetrator gender for punitive judgements.

15.1 Punitive judgements and the relationships between individual differences and clarity

15.1.1 Psychological or emotional distress and the relationship between individual differences and clarity

To explore the impact of clarity and whether participants thought that psychological or emotional distress could have been experienced from the incident, whilst accounting for individual differences, a binary logistic regression was conducted. The dependent variable, whether participants indicated that they thought that psychological or emotional distress could have been experienced, consisted of two categorical levels: yes and no. The independent variables were as followed; gender, which comprised of two categorical levels: male and female. Personality which consisted of neuroticism, extraversion, openness, agreeableness, and conscientiousness which all comprised of interval level data, as well as accuracy and confidence which was also interval level data. The sample size was calculated by using the method for logistic regressions by Peduzzi, Concato, Kemper, Holford and Feinstein (1996). From this method a sample of 444 was recommended for this analysis ($N = 10k / p$). This is with k relating to the number of predictor variables and p relating to the smallest proportions of responses from the cases. This method was employed to calculate all the sample sizes for the logistic regressions.

Table 15.1 The binary logistic regression for the ambiguous condition and psychological or emotional distress, whilst accounting for individual differences.

	B	S. E	Sig	Exp (B)	95% C.I.
Gender	-.35	.28	.21	.70	.40/1.22
Neuroticism	-.02	.02	.32	.98	.95/1.02
Extraversion	-.02	.02	.46	.50	.94/1.03
Openness	-.05	.03	.07	.96	.91/1.00
Agreeableness	.07	.03	.02*	1.07	1.01/1.14
Conscientiousness	.01	.02	.74	1.01	.97/1.05
Accuracy	-.02	.03	.41	.98	.92/1.03
Confidence	-.01	.00	.01**	.99	.99/1.00

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The full model containing all the predictor variables for the ambiguous condition was statistically significant, $X^2(8, N = 590) = 20.88, p = .01$ (see Table 15.1 for inferential statistics), suggesting the model could distinguish between those who stated 'yes' psychological or emotional distress could have been experienced, compared with participants who said 'no'. The model explained between 7% (Cox and Snell R square) and 9.5% (Nagelkerke R square) of the variance in responses, and correctly classified 65.3% of cases. The strongest predictor for the model was confidence (OR = .98), followed by agreeableness (OR = 1.07). This analysis suggested that lower levels of confidence and higher levels of agreeableness resulted in participants being more likely to state that psychological or emotional distress could have been caused.

Table 15.2 The binary logistic regression for the clear condition and psychological or emotional distress, whilst accounting for individual differences.

	B	S. E	Sig	Exp (B)	95% C.I.
Gender	-.52	.26	.05*	.60	.36/1.00
Neuroticism	.00	.02	.99	1.00	.97/1.03
Extraversion	-.02	.02	.43	.98	.94/1.03
Openness	.02	.03	.59	1.02	.96/1.07
Agreeableness	-.01	.03	.71	.99	.93/1.05
Conscientiousness	.01	.02	.59	1.01	.97/1.06
Accuracy	.01	.03	.89	1.01	.94/1.07
Confidence	-.01	.00	.00***	.99	.98/.99

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The full model containing all the predictor variables for the clear condition was statistically significant, $X^2 (8, N = 590) = 28.88, p = .01$ (see Table 15.2 for inferential statistics), suggesting the model could distinguish between participants who stated 'yes' to psychological or emotional distress being experienced, compared with participants who said 'no'. The model explained between 9.1% (Cox and Snell R square) and 12.4% (Nagelkerke R square) of the variance in responses, and correctly classified 64.2% of cases. The best predictor was confidence (OR = .99), followed by gender (OR = .60). This analysis suggested that females with lower levels of confidence were more likely to state that psychological or emotional distress could have been caused.

15.1.2 Calling the police and the relationship between individual differences and clarity

A multinomial logistic regression was conducted to examine the clarity of the incident and likelihood of participants calling the police, whilst accounting for individual differences – a multinomial logistic regression was conducted. The dependent variable, would the police be called if the incident was witnessed in real-life, consisted of nominal data with three levels: yes, no, and don't know. The independent variables consisted of; gender, which comprised of two categorical levels: male and female. Personality consisted of neuroticism, extraversion, openness, agreeableness, and conscientiousness with all variables being interval level data, including accuracy and confidence which were also interval level data. The sample size was calculated using the previously discussed method ($N = 10k / p$) and revealed a sample of 250 should be used.

Table 15.3 The multinomial logistic regression for the ambiguous condition and calling the police, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	2.29 (1.17/4.47)*	.34	1.59 (.82/3.07)	.34
Neuroticism	1.03 (.99/1.07)	.02	1.02 (.98/1.06)	.02
Extraversion	.97 (.91/1.02)	.03	.99 (.94/1.04)	.03
Openness	1.00 (.95/1.06)	.03	.98 (.92/1.04)	.03
Agreeableness	1.01 (.94/1.09)	.04	.98 (.92/1.06)	.04
Conscientiousness	1.00 (.95/1.05)	.03	1.02 (.97/1.08)	.03
Accuracy	.94 (.88/1.01)	.04	.93 (.87/1.00)*	.04
Confidence	.99 (.99/1.00)*	.00	.99 (.99/1.00)*	.00

Note. Reference group: yes ($n = 95$). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the ambiguous condition, $X^2(16) = 27.35$, $p = .01$, $df = 8$, (see Table 15.3 for inferential statistics), this indicated the model was significant and could accurately place 42% of cases. The results showed that participants who stated 'no' to calling the police, gender and confidence were significant predictors. The results revealed gender was the best predictor (OR = 2.29) followed by confidence (OR = .99). For participants who stated, 'don't know' to calling the police, accuracy and confidence were

significant predictors. The findings showed confidence (OR = .99) was the best predictor followed by accuracy (OR = .93). This analysis indicated that female participants with higher levels of confidence and accuracy were more likely to call the police.

Table 15.4 The multinomial logistic regression for the clear condition and calling the police, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	2.05 (1.13)*	.31	1.28 (.68/2.39)	.32
Neuroticism	1.00 (.96/1.04)	.02	1.01 (.97/1.04)	.02
Extraversion	.98 (.93/1.03)	.03	1.03 (.98/1.09)	.03
Openness	.97 (.91/1.03)	.03	1.00 (.94/1.07)	.03
Agreeableness	.98 (.91/1.05)	.04	.98 (.91/1.05)	.04
Conscientiousness	.95 (.90/1.00)	.03	.94 (.89/.99)*	.03
Accuracy	1.00 (.92/1.08)	.04	1.02 (.94/1.10)	.04
Confidence	.99 (.98/1.00)**	.00	.99 (.98/.99)***	.00

Note. Reference group: yes (n = 95). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the clear condition, $X^2(16) = 52.34$, $p = .05$, $df = 8$, (see Table 15.4 for inferential statistics), this indicated the model was significant and could accurately place 48% of cases. The results showed that participants who stated 'no' to calling the police, gender and confidence were significant predictors. The results revealed gender was the best predictor (OR = 2.05) followed by confidence (OR = .99). For participants who stated, 'don't know' to calling the police, conscientiousness and confidence were significant predictors. The findings showed confidence (OR = .99) was the best predictor followed by conscientiousness (OR = .94). This analysis indicated that female participants with higher levels of confidence and conscientiousness were more likely to call the police.

15.1.3 Domestic violence and the relationship between individual differences and clarity

A multinomial logistic regression was conducted to examine whether the clarity of the incident significantly impacted on whether participants perceived the actions witnessed as constituting domestic violence, whilst accounting for individual differences – a multinomial logistic regression was conducted. The dependent variable, whether the actions constituted domestic violence, consisted of nominal data with three levels: yes, no, and don't know. The independent variables were as followed; gender, which comprised of male and female categories, neuroticism, extraversion, openness, agreeableness, and conscientiousness which all consisted of interval level data, as well as accuracy and confidence which was also interval level data. The sample size calculation revealed that an expected sample of 364 should be implemented.

Table 15.5 The multinomial logistic regression for the ambiguous condition and domestic violence, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	2.88 (1.22/6.76)*	.44	1.90 (.99/3.62)*	.33
Neuroticism	.98 (.93/1.03)	.03	.99 (.95/1.03)	.02
Extraversion	1.02 (.95/1.09)	.04	1.00 (.95/1.06)	.03
Openness	.94 (.87/1.02)	.04	1.01 (.96/1.07)	.03
Agreeableness	.95 (.86/1.04)	.05	1.01 (.96/1.08)	.04
Conscientiousness	.94 (.88/1.01)	.03	.96 (.92/1.01)	.03
Accuracy	.96 (.88/1.04)	.04	1.00 (.94/1.07)	.03
Confidence	1.00 (.99/1.00)	.00	.99 (.98/1.00)***	.00

Note. Reference group: yes (n = 187). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the ambiguous condition, $X^2(16) = 39.74$, $p = .01$, $df = 9$, (see Table 15.5 for inferential statistics), this indicated the model was significant and could accurately place 65.3% of cases. The results showed that participants who stated 'no' the actions did not constitute domestic violence revealed gender (OR = 2.88) was the best predictor variable. For participants who stated 'don't know' to the actions constituting domestic violence showed that gender (OR = 1.90) was the best predictor, followed by

confidence (OR = .99). This analysis suggested that female participants with higher levels of confidence were more likely to state that the actions constitute as domestic violence.

Table 15.6 The multinomial logistic regression for the clear condition and domestic violence, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	1.49 (.73/3.05)	.36	1.33 (.70/2.52)	.33
Neuroticism	.99 (.95/1.04)	.02	1.01 (.97/1.05)	.02
Extraversion	.97 (.91/1.03)	.03	.97 (.92/1.03)	.03
Openness	1.00 (.93/1.08)	.04	1.02 (.96/1.09)	.03
Agreeableness	.99 (.91/1.08)	.04	1.01 (.93/1.08)	.04
Conscientiousness	1.00 (.94/1.06)	.03	1.02 (.96/1.07)	.03
Accuracy	.91 (.82/1.00)*	.05	1.00 (.92/1.09)	.04
Confidence	.99 (.98/1.00)*	.00	.98 (.98/.99)	.00

Note. Reference group: yes (n = 197). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the clear scenario, $X^2(16) = 51.59$, $p = .01$, $df = 8$ (see Table 15.6 for inferential statistics), this indicated the model was significant and could accurately place 65.6% of cases. The results showed that participants who stated 'no' the actions did not constitute as domestic violence, revealed that confidence (OR = .99) was the best predictor followed by accuracy (OR = .91). This analysis indicated that participants with higher accuracy and confidence levels were more likely to state that the actions constitute as domestic violence.

15.2 Punitive judgements and the relationship between individual differences and perpetrator gender

15.2.1 Psychological or emotional distress and the relationship between individual differences and perpetrator gender

To explore the impact of perpetrator gender and perceived psychological or emotional distress, whilst accounting for individual differences, a binary logistic regression was conducted. The dependent variable, whether psychological or emotional distress could have been experienced, consisted of two categorical levels: yes and no. The independent variables were as followed; gender, which was comprised of two categorical levels: male and female. Personality which comprised of neuroticism, extraversion, openness, agreeableness, and conscientiousness which all consisted of interval level data, as well as accuracy and confidence which was interval level data. It was recommended that a minimum sample of 444 was used in this analysis.

Table 15.7 The binary logistic regression for the male perpetrator and psychological or emotional distress, whilst accounting for individual differences.

Variable	B	S. E	Sig	Exp (B)	95% C.I.
Gender	.41	.49	.41	1.50	.58/3/91
Neuroticism	-.06	.03	.07	.94	.89/1.01
Extraversion	-.09	.05	.04*	.91	.84/1.00
Openness	-.01	.05	.83	.99	.90/1.09
Agreeableness	-.05	.05	.33	.95	.85/1.06
Conscientiousness	.01	.04	.89	1.01	.93/1.09
Accuracy	-.05	.06	.42	.96	.86/1.07
Confidence	-.01	.01	.28	1.00	.99/1.00

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The full model containing all the predictor variables for the male perpetrator model was not statistically significant $X^2 (8, N = 590) = 12.55, p = .13$ (see Table 15.7 for inferential statistics), suggesting the model could not distinguish between participants who stated 'yes' to psychological or emotional distress being experienced, compared with participants who said 'no'. The model explained between 4.4% (Cox and Snell R square) and 10.6% (Nagelkerke R square) of the variance in the

responses, and correctly classified 92.5% of cases. The significant predictor for the model was extraversion (OR = .91), meaning that those with lower levels of extraversion were more inclined to say that psychological or emotional distress would not be experienced.

Table 15.8 The binary logistic regression for the female perpetrator and psychological or emotional distress, whilst accounting for individual differences.

Variable	B	S. E	Sig	Exp (B)	95% C.I.
Gender	.56	.27	.04*	1.76	1.03/2.99
Neuroticism	-.04	.02	.04*	.96	.93/1.00
Extraversion	-.03	.02	.22	.97	.93/1.02
Openness	.06	.03	.03*	.94	.89/1.00
Agreeableness	.02	.04	.60	1.02	.95/1.09
Conscientiousness	-.02	.02	.49	.98	.94/1.03
Accuracy	-.05	.03	.11	.95	.89/1.01
Confidence	.00	.00	.93	1.00	1.00/1.01

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$.

The full model containing all the predictor variables for the female perpetrator was statistically significant, $X^2(8, N = 590) = 20.96, p = .01$ (see Table 15.8 for inferential statistics), suggesting the model could distinguish between participants who stated 'yes' to psychological or emotional distress being experienced, compared with participants who said 'no'. The model explained between 6.5% (Cox and Snell R square) and 9.4% (Nagelkerke R square) of the variance in responses, and correctly classified 73.6% of cases. The best predictor was gender (OR = 1.76), followed by neuroticism (OR = .96), and openness (OR = .94). This analysis implied that females with lower levels of neuroticism and higher levels of openness were more likely to state that psychological or emotional distress could have been caused.

15.2.2 Calling the police and the relationship individual differences and perpetrator gender

A multinomial logistic regression was conducted to examine whether the perpetrator gender would significantly impact the participants' perception of whether the police would be called if the incident was witnessed in real-life, whilst accounting for individual differences – a multinomial logistic regression was conducted. The dependent variable, would the police be called if the incident was witnessed in real-life, consisted of nominal data with three levels: yes, no, and don't know. The independent variables were as followed; gender, which comprised of male and female categories, personality; neuroticism, extraversion, openness, agreeableness, and conscientiousness which all consisted of interval level data, as well as accuracy and confidence which was interval level data. See Table 15.9 for the inferential statistics for the male perpetrator condition and Table 15.10 for the inferential statistics for the female perpetrator condition. The sample size was calculated to be no less than 250.

Table 15.9 The multinomial logistic regression for the male perpetrator and calling the police, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	1.90 (.97/3.70)	.34	1.15 (.63/2.12)	.31
Neuroticism	1.01 (.97/1.05)	.02	1.01 (.98/1.05)	.02
Extraversion	.95(.89/1.00)	.03	1.02 (.97/1.08)	.03
Openness	.95 (.89/1.01)	.03	.97 (.91/1.02)	.03
Agreeableness	1.04 (.96/1.12)	.04	.96 (.90/1.03)	.04
Conscientiousness	1.01 (.95/1.07)	.03	1.00 (.95/1.05)	.03
Accuracy	1.02 (.94/1.10)	.04	1.03 (.96/1.10)	.04
Confidence	.99 (.98/1.00)**	.00	1.15 (.98/1.00)**	.00

Note. Reference group: yes (n = 127). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the male perpetrator scenario, $X^2(16) = 36$, $p = .01$, $df = 8$, this indicated the model was significant and could accurately place 50.5% of cases. The results showed that participants who stated 'no' to calling the

police, confidence (OR = .99) was the best significant predictor. The results revealed confidence (OR = 1.15) was also the best significant predictor for participants who stated, 'don't know' to whether they would call the police if they witnessed the incident in real-life. This analysis suggested that participants with higher levels of confidence were more likely to call the police, compared with those who had lower confidence.

Table 15.10 The multinomial logistic regression for the female perpetrator and calling the police, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	2.72 (1.41/5.24)*	.34	2.08 (1.04/4.15)*	.35
Neuroticism	1.02 (.98/1.06)	.02	1.02 (.98/1.06)	.02
Extraversion	.97 (.92/1.02)	.03	.99 (.94/1.05)	.03
Openness	1.03 (.97/1.19)	.03	1.03 (.96/1.10)	.03
Agreeableness	1.00 (.92/1.08)	.04	1.03 (.94/1.12)	.04
Conscientiousness	.93 (.88/.98)*	.03	.94 (.89/.99)*	.03
Accuracy	.91 (.84/.98)*	.04	.89 (.82/.96)*	.04
Confidence	.99 (.99/1.00)*	.00	.99 (.98/.99)***	.00

Note. Reference group: yes (n = 95). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the female perpetrator scenario, $X^2(16) = 55.96$, $p = .01$, $df = 8$, this indicated the model was significant and could accurately place 46.6% of cases. The results showed that participants who stated 'no' to calling the police, gender (OR = 2.72) as the best predictor followed by confidence (OR = .99), conscientiousness (OR = .93) and accuracy (OR = .91). For participants who stated, 'don't know', gender, confidence conscientiousness and accuracy were significant predictors. The findings showed gender (OR = 2.08) was the best predictor followed by confidence (OR = .99), conscientiousness (OR = .94) and accuracy (OR = .91). This analysis showed that female participants with higher levels of confidence, accuracy, and conscientiousness were more likely to call the police.

15.2.3 Domestic violence and the relationship between individual differences and perpetrator gender

A multinomial logistic regression was conducted to examine whether perpetrator gender significantly impacted participants when asked whether the actions witnessed constituted domestic violence, whilst accounting for individual differences, a multinomial logistic regression was conducted. The dependent variable, whether the actions constituted domestic violence, consisted of nominal data with three levels: yes, no, and don't know. The independent variables were as followed; gender comprised of two categorical levels: male and female. Personality consisted of neuroticism, extraversion, openness, agreeableness, and conscientiousness which all consisted of interval level data, as well as accuracy and confidence which was interval level data. The sample size was calculated to be no less than 364.

Table 15.11 The multinomial logistic regression for the male perpetrator and domestic violence, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	2.84 (.89/9.02)	.59	2.21 (1.15/4.28)*	.34
Neuroticism	.97 (.90/1.04)	.04	1.01 (.97/1.05)	.02
Extraversion	.93 (.84/1.02)	.05	.98 (.92/1.04)	.03
Openness	.94 (.84/1.05)	.06	1.00 (.94/1.07)	.03
Agreeableness	.96 (.85/1.09)	.07	1.02 (.95/1.10)	.04
Conscientiousness	.96 (.87/1.05)	.05	1.03 (.97/1.09)	.03
Accuracy	.91 (.80/1.04)	.07	.97 (.90/1.05)	.04
Confidence	.99 (.98/1.00)	.01	.99 (.98/.99)***	.00

Note. Reference group: yes (n = 171). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the male perpetrator condition, $X^2(16) = 42.41$, $p = .01$, $df = 8$, see Table 15.11 for the inferential statistics, this indicated the model was significant and could accurately place 74.2% of cases. The results showed that participants who stated 'don't know' whether the actions constituted domestic violence, gender (OR = 2.21) and confidence (OR = .99) were significant predictors – with gender being the best

predictor. This analysis showed that female participants with higher levels of confidence were more likely to state that the actions constitute domestic violence.

Table 15.12 The multinomial logistic regression for the female perpetrator and domestic violence, whilst accounting for individual differences.

Variable	No		Don't Know	
	OR (95% CI)	SE	OR (95%)	SE
Gender	1.88 (1.00/3.52)*	.32	1.33 (.72/2.45)	.31
Neuroticism	.98 (.94/1.03)	.02	.99 (.95/1.03)	.02
Extraversion	1.00 (.95/1.05)	.03	.99 (.94/1.04)	.03
Openness	.98 (.92/1.05)	.03	1.02 (.96/1.08)	.03
Agreeableness	1.00 (.92/1.08)	.04	.99 (.91/1.06)	.04
Conscientiousness	.97 (.92/1.02)	.03	.95 (.91/1.00)	.03
Accuracy	.94 (.87/1.01)	.04	1.02 (.96/1.09)	.03
Confidence	1.00 (.99/1.00)	.00	.99 (.98/.99)***	.00

Note. Reference group: yes (n = 187). OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * $p < .05$. ** $p < .001$. *** $p < .0005$.

The full model containing all the predictor variables was statistically significant for the female perpetrator condition, $X^2(16) = 45.28$, $p = .01$, $df = 8$, see Table 15.12 for inferential statistics, this indicated the model was significant and could accurately place 58.5% of cases. The results showed that participants who stated 'no' the actions did not constitute domestic violence, gender (OR = 1.88) was the significant predictor. For participants who stated 'don't know' to whether the actions constituted domestic violence, the significant predictor was confidence (OR = .99). This analysis suggested that females and those with higher levels of confidence were more likely to state the actions constitute domestic violence.

15.3 Key findings

Chapter 15 found that by including individual differences in the model for the punitive judgements when examining the clarity of the incident was able to predict punitive judgements for whether participants believed psychological damage was caused, whether participants would call the police, and whether the actions constituted domestic violence. Furthermore, this model was then

applied to the perpetrator gender conditions to explore how punitive judgements were impacted. The model was found to be significant for whether participants would call the police and whether the actions constituted domestic violence. However, the model was only significant for the female perpetrator condition and whether psychological damage could have been caused, but this was not the case for the male perpetrator condition.

To conclude, punitive judgements were impacted by some individual differences, most notably, confidence, gender, and accuracy. In addition, there were significant differences between ambiguous and clear incidents on all the punitive judgements analysed. Lastly, perpetrator gender had a significant impact for all but one punitive judgement. This was due to there being no significant difference between participants' responses for assessing whether psychological distress could have been caused during the incident when there was either a male or female perpetrator. All other punitive judgements were significantly impacted by the gender of the perpetrator, indicating that male and female perpetrators are perceived differently.

Chapter 16: Discussion

16.1 Accuracy findings

Findings revealed that gender does not significantly impact on accuracy. This refuted the experimental hypothesis: there will be a significant difference in memory recall accuracy and gender (H1), and the null hypothesis was accepted. This finding was not in line with previous research (Areh, 2011; Fuentes & Desrocher, 2013; Grysman, 2014; Herlitz, Nilsson & Bäckman, 1997; Lawton & Hatcher, 2005; Price, Lee and Read, 2009; Wühr & Schwarz, 2016). A reason for this difference could be due to previous literature examining one type of memory during an experiment, such as episodic or spatial, where males and females have been shown to differ from one another. Though these studies have provided insight into how gender may impact on different types of memory, in real-life scenarios this is a difficult aspect to account for as witness accounts tend to focus on the entirety of an event (Snook & Keating, 2011). In the current thesis, the questions regarding the incident comprised of details about the environment in which the incident took place, physical characteristics of those involved, and the actions observed. Therefore, by encompassing all of these aspects during the questioning stage, the potential limitations of gender on certain types of memory may have been counteracted.

The findings regarding accuracy and age were in line with previous literature (Anatasi & Rhodes, 2005; Harrison & Hole, 2009; Hills & Lewis, 2011; Wiese, 2013; Wiese, Komes & Schweinberger, 2013; Wiese & Schweinberger, 2018). This supported the experimental hypothesis: there will be a significant difference in memory recall accuracy and age (H1). Here, the findings demonstrated that as age increased the accuracy of witnesses decreased. This was most likely due to a lack of sufficient monitoring during the encoding stage (Pansky, Goldsmith, Koriat & Pearlman-Avni, 2009), resulting in older participants having less accurate memory recall of the incident. The findings were consistent with previous literature and therefore these findings were able to provide supporting evidence for the theory that memory accuracy decreases as age increases. However, research conducted by Anastasi and Rhodes (2005) suggested that witnesses have an own-age bias. This theory proposes that witnesses are better at remembering and recognising individuals who are a

similar age to themselves. Therefore, in the current thesis, it could be suggested that an unfair comparison was made as the actors in the video footage were in their early twenties and the mean age of participants in the experiment was 33.10 – meaning that participants were generally more able to identify with the age group of the actors and therefore this may have resulted in an own-age bias. It would be beneficial for future research to include the individuals' age when manipulating a stimulus as this could yield some useful findings. The findings from the current thesis could have important implications for real-life cases where witnesses provide some of the most crucial evidence to a crime. However, as previously stated the findings of the thesis were in line with a large amount of previous literature which has identified a difference in memory recall depending on the witness's age. As shown, as age increases accuracy decreases. This could have negative implications as the age of a witness cannot be controlled for in real-life events and it may be that the accounts of older witnesses might be less accurate and reliable. However, as this finding is correlational there is no cut-off point where age would begin to negatively impact accuracy. Therefore, this makes it difficult to identify a witness's overall validity.

The previous research on the impact of personality on memory has not been widely consistent (Areh, 2008; Areh and Umek, 2007; Pajón and Walsh, 2017; Tiwari, 2010). The findings from the current thesis concluded that some of the NEO-FFI's personality traits (neuroticism, extraversion, openness, conscientiousness, and agreeableness) could significantly predict accuracy. Findings revealed that some of these personality traits significantly impacted on accuracy. Specifically, extraversion and agreeableness were both found to have a significant impact on accuracy. None of the other three traits were found to have a significant impact. This supported the experimental hypothesis: there will be a significant difference in memory recall accuracy and personality (H1). Findings revealed that participants with lower levels of extraversion were more accurate and participants with higher levels of agreeableness were also more accurate. This supported the research conducted by De Carolis and Ferracuti (2010) and Sanford and Fisk (2009) who both concluded that introverts had better memory recall accuracy than extraverts. This could also be linked to the Emotional Arousal Theory. It could be suggested that those who had higher levels of extraversion were not aroused to their optimal level and therefore had lower accuracy scores (Abercrombie, Speck & Monticelli, 2006), thus those with lower levels of extraversion were able to perform at a more optimal level. Although the current thesis did not categorise participants as being

either introverted or extraverted but rather on a continuum of the extraversion trait, it can be suggested that those with lower levels of extraversion were more likely to have introverted characteristics and therefore these findings were consistent with some previous literature (Allen & Walter, 2016). However, the current thesis used a methodological design that previous literature had not frequently used, therefore this provided a unique perception on how extraversion may impact the recalling of events. Additionally, the finding that higher levels of agreeableness were associated with better memory recall accuracy had little supporting evidence. However, as this personality trait has been associated with kindness, warmth, and empathy (Kotov, Gamez, Schmidt & Watson, 2010), this study further demonstrated how this may impact the encoding and subsequent recalling of the incident. It could be suggested that because participants with higher levels of agreeableness are reported as being more sympathetic, cooperative, and considerate (Jensen-Campbell, Gleason, Adams & Malcolm, 2003), this may alter how they interpret and judge an incident. This notion, the Theory of Agreeableness, was implied in the study conducted by Steiner, Allemand and McCullough (2012), who found that participants with higher levels of agreeableness were more likely to forgive others. It could be argued that if individuals with higher levels of agreeableness have a better understanding of other people they are better able to put themselves in another person's perspective and provide a more objective and accurate recall of an incident. In line with the Theory of Agreeableness, it could be suggested that because those with higher levels of agreeableness are interested in others and concerned by others wellbeing (McCrae & Costa, 1992), this may have resulted in such participants having more accurate memory recall.

Perpetrator gender was shown to have no impact on the memory recall accuracy of participants. However, it was unlikely that the perpetrator gender would impact on the recalling of clothing and personal characteristics, as the gender of the perpetrator and the victim would not alter the perception of recalling physical aspects. This refuted the experimental hypothesis: there will be a significant difference between memory recall accuracy and the perpetrator gender (H2), and the null hypothesis was accepted. Additionally, it could be suggested that the recalling of the actions may differ depending on perpetrator gender but cannot be established from these findings alone.

The clarity of the incident was shown to impact on memory recall accuracy. This supported the experimental hypothesis; there will be a significant difference between memory recall accuracy and the clarity of the incident (H2). The findings revealed that participants in the ambiguous conditions

had more accurate memory recall; however, the effect size was small. Nevertheless, it could be suggested that attention contributed towards these observed differences in memory recall accuracy. Previous research has suggested that participants who had their attention drawn to an incident were better at recalling the information later (Bolitho, 2017; Deffenbacher, Bornstein, Penrod & McGorty, 2004; Gurney, Ellis & Vardon-Hynard, 2016). Therefore, it could be implied that participants in the ambiguous group had their attention drawn to both the victim and the perpetrator, as both were involved in the incident more equally, than in the clear conditions where attention may be focused primarily on either the victim or the perpetrator.

16.2 Confidence findings

The findings revealed that gender did not significantly impact on the participants' confidence. This refuted the experimental hypothesis: there will be a significant difference in confidence ratings and gender (H3), and the null hypothesis was accepted. Though this finding was contradictory to many previous findings (Areh, 2011; Dahl, Allwood & Hagberg, 2009; Wright & Sladden, 2003), where gender was found to impact confidence. However, the findings of the current thesis were in line with the previous findings of Roebbers (2002) and Yarmey (1993), who both found that gender did not impact on a witnesses' confidence. As the current thesis examined the confidence of participants who witnessed a female victim with a male perpetrator and a male victim with a female perpetrator, this accounted for factors that previous studies were unable to account for, providing stronger evidence to support this theory.

The findings concluded there was a negative relationship between age and confidence; as age increased, confidence decreased. This supported the experimental hypothesis; there will be a significant difference in confidence ratings and age (H3). This supported the study conducted by Wong, Cramer and Gallo (2012). Additionally, the findings revealed there was a positive correlation between confidence and accuracy, which supported previous findings (Brewer & Wells, 2006; Weber, Woodard & Williamson, 2013; Wixted, Read & Lindsay, 2016). Increased age resulted in less accurate memory recall and lower confidence ratings. This suggested that participants were able to identify the reliability of their own memory recall without distorting their confidence. Kopylov and Miller (2018) stated that Memory Decay theory is a natural process that can occur when memories are not

rehearsed. This reduction in memory means that the witness will have a less accurate account of an event and, therefore, will be less confident in their memory recall. However, other factors relating to a witness may impact upon their confidence. Cyr and Anderson (2013) state that older adults tend to have poorer memory recall due to the natural deterioration of the hippocampus region of the brain, which is related to the formation and retrieval of memories. The Memory Decay theory suggests that this natural memory degeneration makes older adults less confident in their memories (Brown, 1958). Research has demonstrated that the confidence-accuracy relationship is consistent, meaning that people generally have a good understanding of how good their recollection is (West, Cramer & Gallo, 2012; Wolters & Goudsmit, 2005; Wong, Cramer & Gallo, 2012). Therefore, the observed age difference in confidence ratings could be due to elderly witnesses having an awareness of their memory abilities, which research has suggested is less accurate than younger adults, and thus it would be expected that older witnesses would rate their memories with lower confidence scores.

Personality significantly impacted confidence based on the findings of the current thesis. This supported the experimental hypothesis; there will be a significant difference in confidence ratings and personality (H3). This was particularly notable for the personality traits extraversion and agreeableness. Participants with higher levels of these traits were more likely to have higher confidence ratings. Higher levels of agreeableness were also found to have higher levels of accuracy. Therefore, this suggested that participants with higher levels of agreeableness were more accurate and more confident regarding their memory recall. Contradictory to these findings, Sukenik, Reizer and Koslovsky (2018) suggested that agreeableness, which is usually associated as a positive personality trait, may have negative outcomes on overconfidence. However, Sukenik, Reizer and Koslovsky (2018) did not account for the confidence of recalling a criminal event and only focused on the confidence of responses to general knowledge questionnaires. Additionally, the current thesis found that participants with higher levels of extraversion were more confident but participants with lower levels of extraversion were more accurate. This suggested that extraversion could result in over or under confidence judgements of memory recall without the adjacent memory accuracy. This contradicted the findings of Areh and Umek (2007) who suggested that extraversion, accuracy and confidence were positively correlated. However, the current thesis supported the findings of Sanford and Fisk (2009), who concluded that introverts were more accurate, but less confidence and that extroverts were more confident but less accurate. Emotional Arousal Theory (Zillmann, 2008) could

also provide insight into why those with higher levels of extraversion were also more confident in their memory. Emotional Arousal Theory suggests that those with lower levels of extraversion tend to have a lower basal rate of arousal compared to those with higher levels of extraversion. This can impact on a person's ability to perform in stressful situations. It has been suggested by Zillmann (2008) that those with lower levels of extraversion exceed their optimal level of arousal quicker than those with higher levels of extraversion. This means that in stressful situations individuals with lower levels of extraversion could be negatively affected by having poorer memory recall. Therefore, with individuals who have higher levels of extraversion being more likely to have a higher threshold of optimal arousal, their memory recall is likely to be more accurate and consolidated which results in these individuals having higher levels of confidence.

There were no differences between the clarity of the incident and confidence and perpetrator gender and confidence. Both of these findings refuted the experimental hypothesis: there will be a significant difference between confidence ratings and the and the relationship between the clarity of the incident and the perpetrator gender (H4), thus the null hypothesis was retained. It was predicted that the clarity of the event and perpetrator gender may have impacted the confidence of participants because it attracted their attention to both individuals involved in the video footage. Additionally, those in the ambiguous conditions were more accurate than participants in the clear conditions, though this was not reflected in their confidence ratings. This could have been due to the lack of clarity potentially leading to participants to underestimate their confidence in their memory recall accuracy. This proposition is potentially supported by the findings of Thorley and Rushton-Woods (2013) who concluded that when participants witnessed ambiguous scenarios they were less certain of where the blame should be attributed, therefore they were more likely to be influenced by another witness. Furthermore, Palmer, Brewer, Weber and Nagesh (2013) found that ambiguity resulted in witnesses being overconfident, without the supporting memory recall accuracy. Therefore, it could be suggested that the uncertainty of where blame should be attributed reduced participants' confidence in their own memory recall. Therefore, this could have influenced the findings of the current thesis and resulted in no confidence differences.

16.3 Punitive judgement findings

16.3.1 Punitive judgements and gender

Punitive judgements were analysed by exploring the impact of participant gender, to see whether this influenced interpretations and judgements of the incidents. Findings revealed that females had a higher perceived severity rating of the incident compared with males. This supported the experimental hypothesis; there will be significant relationships for the responses for punitive judgements and gender (H6). This suggested that regardless of viewing either the male victim or the female victim, females had overall higher severity ratings of the incident. As suggested by Nicksa (2014) females may be more naturally protecting of others and appear to put others before themselves due to society's expectation. Therefore, it is difficult to conclude whether this finding is due to demand characteristics of what females believe society expects of them, or whether females are naturally more empathic towards others and thus perceive incidents as having higher severity. It could also be suggested that this finding could be due to females being physically smaller than males (Cismaru, Jenson & Lavack, 2010). Therefore, they were able to put themselves in the victim's shoes and due to their own physical vulnerability were more likely to experience empathy for the victim. This finding could have serious repercussions as this initial appraisal of an incident could determine whether a witness would report this further to the police.

The perception of whether psychological or emotional distress could have been caused from the incident was also analysed. Findings highlighted that females were more likely to state that psychological or emotional distress could have been caused compared with males. This finding follows on from the previous finding, as females were found to rate the incident as having higher levels of severity and therefore could be more likely to identify that psychological or emotional distress may have been caused. This finding supported the research conducted by Stuijzand et al. (2016) who suggested that females participants showed more empathy with others compared to males, this was most notable when reacting to other females but also showed increased empathy towards males in comparison to males participants. Therefore, it could be suggested that females were more likely to understand the potential risk of experiencing psychological distress from the incident and were therefore more likely to identify this as a potential consequence for the individuals in the footage.

Additionally, females were more likely to state they would call the police compared with males. This directly supported the findings of Cismaru, Jenson and Lavack (2010) who found that females, as well as elderly people, were more likely to call the police if they witnessed a crime. It can be suggested that females are more likely to call the police due to their smaller builds resulting in them having a reduced likelihood of personally intervening with an incident. Males were more likely to intervene in situations that could place them in danger (Cismaru, Jenson & Lavack, 2010). This finding also reflected some of the conclusions of Jones and Ruthig (2015) who found that females were more likely to help another person in need. However, Jones and Ruthig (2015) also stated that males made more effort to be controlled and responsible for those in who needed help, suggesting that males may take it on themselves to intervene and be responsible for dealing with an incident. This was demonstrated by Cismaru, Jenson and Lavack (2010), who showed that males were more likely to personally intervene during an incident. Therefore, this finding could further support the notion that females are more likely to call the police because they feel less able to personally intervene with a physical altercation due to their personal abilities. Males on the other hand may be less likely to call the police because they are more inclined to personally intervene in an incident and may call the police as a last resort instead or when they are no longer able to cope with the situation. This could be linked to the Gender Socialisation Theory, where males and females act in a way which they feel is most appropriate for their gender (Brody, 1997). It could be suggested that males may be more likely to feel a societal pressure to physically intervene with an altercation, whereas females may be more likely to accept their lack of physical strength and ability to intervene in an incident the same way a male would. It may be that in studies where participants answer questionnaires, this could result in participants being more likely to adhere to stereotypical viewpoints in an effort to observe the most favourable societal perception of their gender.

Examining the perceptions of domestic violence raised some interesting findings. When asking participants whether they believed the actions witnessed constituted domestic violence, females were more likely to state the actions were domestic violence compared with males. However, it must be noted that the majority of both males and females were most likely to state that the actions constituted domestic violence, with 'no' being the least common response for both groups. Nevertheless, there was disparity between the groups with around 70% of females saying 'yes' to domestic violence occurring and only 58% of males. This difference may have been as a result of

males being less likely to identify the male as a victim, whereas females may have more familiarity with this notion due to the statistics of domestic violence prevalence in females (Refuge, n.d.) and due to the extensive help and media awareness highlighting female victimisation (Citizens Advice, n.d.; Refuge, n.d., Women's Aid, n.d.). Therefore, it could be suggested that the understanding of domestic violence is understood more so by females than males. This could suggest that males may be less likely to identify another male or themselves as a victim of domestic violence, whereas females could be more likely to identify themselves or another female as a victim. This identifies practical implications where male victims of domestic violence are not perceived equally to female victims. This could result in biased witness testimonies that are influenced by the witness's perceptions and attitudes towards domestic violence and victims of this crime. Ultimately, this implication could lead to injustice for male victims of domestic violence. For example, if a female is the victim a domestic violence incident in public, it is likely that if witnessed, the witness will identify these actions as criminal or 'wrong' and will usually do one of the following; a) call the police if the incident is serious enough, b) intervene and help protect the victim, or c) report the incident to the police once they are away from the incident (Felson, Messner, Hoskin & Deane, 2006). This then aids the female in getting protection or stops the abuse from continuing at that time. If the police attend the scene then this could result in an arrest. However, police officers can be reluctant to make arrests in domestic violence instances, as even they can perceive this type of crime as a private crime that should be resolved without an arrest being made unless necessary (Myhill, 2019). In the research conducted by Myhill (2019) findings revealed that arrests were only made in occasions where there was evidence that a serious crime had taken place. This immediately puts victims of domestic violence at more risk of being a repeat victim of this crime as in many cases they will either live with the perpetrator or have frequent contact. Though the legal proceedings for female victims of domestic violence still fails many victims, the reality for male victims of domestic violence could result in more chances of failure. This indicated that males could be less likely to be identified as a victim of domestic violence. If a witness is unable to recognise that the actions or behaviours against that individual are criminal or 'wrong', then the following will be less likely to occur; a) authorities are less likely to be made aware of the incident (it may only be in extremely serious crimes that emergency services are alerted), b) those present at the scene will refrain from intervening, and c) authorities may not be alerted to an incident occurring even after the incident has finished. It can be difficult for female victims of domestic violence

to receive justice from criminal convictions, despite society being predisposed to identifying females as the victim, but the report of multiple instances can be advantageous in building up a case in court (Ventura & Davis, 2005). However, if male victims of domestic violence are being observed but not reported then this provides even less evidence for these victims to build up a case that could allow them to receive the justice they deserve.

When exploring the interpretation and judgement of the certainty of delivering a guilty verdict, the findings revealed that there were no differences between males and females. This suggested that although in the previously discussed findings females appeared to have harsher punitive judgements (more likely to identify actions as domestic violence and more likely to call the police), this was not reflected in the perceived guilt of the perpetrator. It could be suggested that despite the previous findings regarding gender and punitive judgements, both males and females were as likely to deliver a guilty verdict. This could imply that males and females may interpret and think about the information differently but are able to deliver the same outcomes. It was suggested by Silfver and Helkama (2007) that morality is interpreted differently by males and females. Additionally, Silfver and Helkama (2007) stated that females were more likely to be influenced by emotion and therefore this could alter their perception of an incident, whereas males were considered to be more objective.

This links to the research conducted by Kring and Gordon (1998) who concluded that females were generally more expressive than males when reacting to both positive and negative emotions – though this did not mean that females reported experiencing more emotions than males. This study found that females were more facially expressive of emotions and this was thought to be due to females being more likely to externalise emotion, whereas males are more likely to internalise which results in gender differences in the portrayal of emotion. This therefore suggests that – in the present thesis – females might have felt differently about the actions and behaviours acted out on the victim which may have led to them providing evidence to help explain some of the observed gender differences in their responses to punitive judgements. Gender Socialisation Theory (Brody, 1997) suggests that these gender differences may not be only due to the inherent physiological way of portraying emotion; these gender differences could be linked to how males and females are socialised (Brody, 1997). Brody (1997) suggests that these exaggerated gender differences could be a result of dissimilar gender roles, status, and power imbalances. Societal processes may predispose males and females to process emotions differently. This could also provide support to state why males and

females may perceive themselves as victims of a crime, as they may adapt their beliefs and attitudes to adhere to societal norms but internally may experience the feelings differently to how society expects them to act. However, Davis (1999) stated gender differences may be due to females experiencing a wider range of emotions with greater intensity. Davis (1999) suggested this could be linked to how males and females are raised, as adults are more affectionate and demonstrative with females than males. Thus, the combination of biological predisposition and socialisation differences between males and females may facilitate these emotional differences between the genders. Further research should aim to explore this in much greater detail, as the current thesis has limited examples that can demonstrate this difference. It would be beneficial to incorporate the emotional experience of participants when witnessing different types of crime and to explore how these may impact and influence their interpretation of an incident.

In some cases, it has been suggested that female hormones could impact on the processing of emotions (Bull, 2012), with reduced levels of oestrogen which can lead to an increase in the perception of negative emotions. This is because the oestrogen levels affect the efficiency of neurotransmitters in the amygdala, hippocampus and prefrontal lobes, which is important as these areas are linked to the perception and experience of emotions (Bull, 2012). This implies that females who are asked to present their testimony of a crime may have their statements treated differently to males. This could provide an explanation as to why females were not more likely to offer a guilty verdict. It could be suggested that females may be aware of being perceived as overly emotional and therefore alter their outcomes to be more reserved and thus resulting in them having more credibility (Salerno, Phalen, Reyes & Schweitzer, 2018). Furthermore, oestrogen can impact upon emotional processing, enhance the coding of emotion, and affect emotional arousal, as well as change the intensity of emotions (Bull, 2012). However, the externalisation of emotions, as previously stated, may not always work in favour of females. For example, Salerno, Phalen, Reyes and Schweitzer (2018) found that female attorneys who expressed their emotions were seen as being less effective. This was in relation to attorneys presenting their closing arguments, where the argument would either be presented in a neutral or angry tone. The findings showed that when male attorneys expressed anger in their closing statement, this was used as a reason why participants would want to hire a male attorney. However, when a female attorney expressed anger in their closing statement, participants perceived the anger negatively and used this as a reason not to hire a female attorney. This suggests

that females may not be able to express emotion in a courtroom in the same way males can, as by doing so they lose their persuasive power. Therefore, it could further be suggested that female witnesses of crimes may lose their credibility by displaying emotion and, as Salerno, Phalen, Reyes and Schweitzer (2018) suggested, it may backfire and reduce their credibility. From the current thesis, it was evident that females generally perceived the incidents more negatively than males; however, there may be negative repercussions if this information is presented to a male police officer who may interpret the information less severely and determine the progression of the reporting of the incident.

Though there were no gender differences in delivering a guilty verdict, these findings were both in line with gender stereotypes and therefore could have resulted in a self-fulfilling prophecy (Madon, Jussim, Guyll, Nofziger & Salib, 2018). Though, when examining the current thesis's findings regarding gender and the certainty of delivering a guilty verdict it is unlikely these gender stereotypes were influential in this finding. However, it could be suggested that participant morality influenced some of the previous punitive judgement findings and therefore impacted the type of answers provided. However, it does seem that males are perceived differently to females and that this unequal perception may result in biased witness testimonies and accounts of events.

Overall, findings showed that gender impacted on some punitive judgements. This was particularly notable for the perceived severity of the incident, whether psychological or emotional distress could have been caused, calling the police, and whether the actions constituted domestic violence, where females were found to have more severe punitive judgements compared with males. The only punitive judgement that revealed no gender differences was the certainty of delivering a guilty verdict. This suggested that although both males and females gave the same verdicts on guilt, the initial reporting and interpretation differed significantly.

16.3.2 Punitive judgements and personality

Personality was investigated to establish whether this impacted on punitive judgements. It was found that certain personality traits were associated with particular punitive judgement responses. Findings supported the experimental hypothesis; there will be significant relationships for the responses for punitive judgements and personality (H6). The data suggested that individuals with increased levels of openness were more likely to state the female would experience psychological

damage compared with the male. However, it was expected that increased levels of openness would increase the likelihood of participants stating the male was more likely to experience psychological or emotional distress, due to openness being associated with open-mindedness and the ability to possess more unconventional attitudes (Butrus & Witenberg, 2013); however, this was not the case. Increased levels of openness increased the likelihood of participants stating the female was more likely to experience psychological damage and demonstrated that this personality trait was more able to identify this negative consequence that the victim may have experienced. Therefore, increased levels of openness allowed participants to incorporate additional consequences of domestic violence and those with increased levels of openness appeared to have a greater understanding of how the incident as a whole may impact a person. This was implied by Gerson and Neilson (2014) who indicated that empathy was positively correlated with openness. Furthermore, participants with lower levels of neuroticism were more inclined to state that neither the male nor female were likely to experience psychological damage. This echoed some of the findings of McDougall and Pfeifer (2012) who stated that higher levels of neuroticism negatively impacted the recalling of an event by a reduction in accuracy. Additionally, Wenzel, von Versen, Hirschmüller and Kubiak (2015) implied that those with lower levels of neuroticism tended to be more calm, even-tempered, and less reactive to stress. It could therefore be suggested with these findings that participants with lower levels of neuroticism were more likely to state that neither individuals would experience psychological distress due to these participants being less reactive to the stressful situation and therefore less likely to identify the negative consequences. This could have further negative repercussions regarding the reporting and interpretation of crimes. Previous research has shown a correlation between increased levels of neuroticism and anxiety (Hoferichter & Raufelder, 2015). Individuals with higher levels of neuroticism and anxiety can be at greater risk of experiencing mental disorders, in particular mood disorders such as anxiety, and can be more likely to experience feelings of anger, fear, worry, and guilt which could mean that they are able to relate more readily to others experiencing these feelings compared with individuals with lower levels of neuroticism (Lönqvist, Verkasalo, Mäkinen & Henriksson, 2009). As individuals with lower levels of neuroticism are less likely to experience the same intense feelings of worry, fear, and guilt then it could mean that these individuals are less likely to empathise with individuals facing these feelings. Therefore, when witnessing an event of domestic violence, they may place themselves in that situation but due to their lower levels of neuroticism

would not expect to feel the same intense negative feelings in the same way as an individual with higher levels and therefore would not be able to accurately identify what the victim of that crime may be experiencing.

Personality was examined to establish if there was an impact on the likelihood of participants saying they would call the police if they witnessed the incident in real-life. Findings suggested that lower levels of conscientiousness were associated with participants being less likely to say they would call the police if they witnessed the incident in real-life. It was concluded by Walters (2018) that individuals with lower levels of conscientiousness tend to be more laid back and less goal-orientated, but also, they may be more likely to engage in impulsive and irresponsible behaviour. Therefore, in relation to this finding it could be suggested that participants with lower levels of conscientiousness may potentially have more laid-back attitudes and an increased chance of impulsive behaviour. This could explain why these participants were less likely to call the police. It could be due to these individuals not identifying the incident as criminal and therefore would have no reason to contact the police. Furthermore, this thesis provides evidence to imply that crimes may be perceived and interpreted differently based on certain personality traits. However, this should be done tentatively based on the current findings and further research should be conducted to explore this.

16.3.3 Punitive judgements and clarity

The clarity of the incident was examined to incorporate ambiguous and clear conditions. The findings revealed that the clarity of the incident had some impact on the punitive judgements of participants. These findings supported the experimental hypothesis: there will be significant relationships for the responses for punitive judgements and clarity (H7). The perceived severity did not differ between the two conditions, nor did the ability to state whether a crime had been committed. This demonstrated that participants had equal punitive judgements regarding the severity and the criminality of the incident, regardless of the incidents clarity. However, clarity was shown to impact on whether participants believed physical injury could have been experienced. Findings revealed that participants in the clear condition were more likely to say 'yes' to physical injury being caused compared with participants in the ambiguous condition. It was suggested this could have been due to the uncertainty around where blame should be attributed, as suggested by Thorley and Rushton-

Woods (2013). However, this does not explain why there were no differences on the perceived criminality and clarity. Therefore, it may be suggested that the victims' passiveness during the clear conditions led to participants being more likely to side with the victims. This linked to the findings of Roebbers (2002), who found that participants had less empathy to victims of bullying who retaliated, therefore echoing similar patterns in behaviour. It has become noticeable that victim passiveness during an incident may increase the likelihood of a victim receiving help and being identified as victims of crime by bystanders. This links to the theory known as the Bystander Effect (Fischer, Krueger, Greitemeyer, Vogrincic & Kastenmüller, 2011). This is where witnesses of a crime are less likely to offer help to the victim when there are others present. This theory also suggests that the more people that are present the less likely it is for one of them to help a victim. One of the main reasons for the Bystander Effect is due to the diffusion of responsibility. This is where witnesses believe that others will ring the police or intervene in an incident – making it not their responsibility (Fischer, Krueger, Greitemeyer, Vogrincic & Kastenmüller, 2011). Previous research showed that the presence of passive bystanders reduces the likelihood of intervention during critical situations (Fischer, Krueger, Greitemeyer, Vogrincic & Kastenmüller, 2011). Latané and Darley (1970) identified a process which led to increases in bystander intervention. Firstly, bystanders need to notice the critical situation, and understand that the situation is an emergency. They then need to develop a feeling of responsibility, believe that they have the ability to succeed in helping the situation, and lastly make a conscious decision to intervene. However, psychological processes may inhibit the completion of this process and reduce the likelihood of bystander intervention. One psychological process is the diffusion of responsibility which is impacted by the number of bystanders around a critical situation. The more bystanders there are the less personal responsibility a bystander will feel. This was further shown when examining the type of sentence participants would advocate for the perpetrator. It was concluded that although those in the ambiguous and the clear conditions were both more likely to suggest a suspended prison sentence, it was those in the clear conditions who were more likely to suggest harsher punishments, such as a short determinate prison sentence or a long determinate prison sentence, compared with those in the ambiguous conditions. Therefore, suggesting that the clarity of an incident may have some impact on punitive judgements, but this was not necessarily consistent throughout all punitive judgements.

16.3.4 Punitive judgements and perpetrator gender

The gender of the perpetrator was found to significantly impact on punitive judgements. These findings provided support for the experimental hypothesis: there will be significant relationships in the responses for punitive judgements and perpetrator gender (H7). The following findings of male perpetrators were all in comparison to female perpetrators. Male perpetrators were more likely to receive higher severity ratings; the male perpetrator's actions were more likely to be identified as a criminal offence; the male perpetrator was more likely to cause psychological or emotional distress; participants were more likely to state they would call the police for the incidents with the male perpetrator; the male perpetrator was more likely to have their actions identified as domestic violence; and the male perpetrator was more likely to receive harsher punishments for their actions. In conclusion, it can be suggested from these findings that males were more likely to receive harsher punitive judgements compared with females.

As previously suggested by Swan, Gambone, Caldwell, Sullivan and Snow (2008), this gender difference could have been as a result of females being generally physically smaller than males (this was the case in the video footage participants witnessed), and therefore, participants may feel like the female had less physical ability to protect herself and this resulted in harsher punitive attitudes towards the male perpetrator. This is known as 'Sexual Dimorphism', where the genetics of an individual can impact on the formation of a human and therefore impact upon the size of a full-grown adult (Rigby & Kulathinal, 2015). As Ubelaker and DeGaglia (2017) stated the biological sex of a person can estimate the features of the skeleton – though this can also be impacted by genetics and environmental factors. Ubelaker and DeGaglia (2017) also noted that height and weight were some of the most significant differences between sexes that were most obvious. Additionally, these findings provide further support for the research conducted by Osborne and Davies (2014), who found that ethnic stereotyping distorted eyewitness testimony due to witness expectations of certain ethnic minorities. Osborne and Davies (2014) suggested that gender should be incorporated to examine whether this led to stereotypical expectations of males and females impacted eyewitness interpretations. From the current thesis's findings, it could be suggested that gender stereotyping has led to harsher punitive judgements for male perpetrators, even when female perpetrators conduct the

same actions. This raises issues regarding a witness's biases and the extent to which they can impact on a witness's interpretations and judgements of crimes.

16.4 Accuracy, confidence, and punitive judgements

When examining the interactions between accuracy and punitive judgements the following findings concluded that accuracy did, in most cases, impact on punitive judgements. This supported the experimental hypothesis; there will be significant relationships between accuracy, confidence and the harshness of participant punitive judgements (H8). When participants were asked to identify whether a crime had been committed, those who had higher levels of accuracy were more likely to say that a crime had been committed. This could have been explained by the research conducted by Thorley and Rushton-Woods (2013) and Mojtahedi, Ioannou and Hammond (2018), who suggested that when participants were uncertain of where to attribute blame they would be influenced by others and have reduced memory recall accuracy – this is known as Attribution Theory (Thorley & Rushton-Woods, 2013). It could be suggested from the current findings that if participants were unsure about whether a crime was committed, this altered their perception of the incident and reduced their memory recall accuracy. This finding is in line with previous research, as other studies have found a positive correlation between confidence and accuracy (Brewer & Wells, 2006; Cowan, Read & Lindsay, 2014; Sarwar, Allwood & Innes-Ker, 2014). Therefore, if participants are unsure about a question it would be expected that they would be less confident in their response. Additionally, accuracy could have been reduced due to a lack of stimulation from the incident. It could be implied that if participants did not believe that a crime was taking place then their optimal level of emotional arousal was not activated, as they did not perceive the event as something worth encoding and remembering, as previously suggested by Abercrombie, Speck and Monticelli, (2006) in accordance with the Emotional Arousal Theory. In addition, participants who were more accurate were also more confident in their responses, showing a positive correlation between accuracy and confidence, this supported previous findings (Cowan, Read & Lindsay, 2014; Sarwar, Allwood & Innes-Ker, 2014; Sauer, Brewer, Zweck & Weber, 2010; Smalarz & Wells, 2015). In the current thesis, it was suggested that participants were able to accurately rate their memory recall. Furthermore, punitive judgements were in line with accuracy and confidence ratings, showing that participants who were

more confident, were more accurate, and had more objective punitive judgements when judging whether a crime was committed. This links to 'Self-Certainty Theory' (Bradfield, Wells & Olson, 2002). This theory states that when a witness has to provide a confidence rating of their memory they will essentially indicate their belief in the validity of their own memory. This is because confidence can also be described as a judgement of the validity of a belief about oneself. The confidence rating that is asserted regarding a specific memory creates a level of self-certainty to this belief. For example, if a witness has high levels of confidence about a memory, a witness may then in turn be more likely to believe the memory is correct. Thus, self-certainty is strongly related to self-beliefs. The theory of self-certainty is also linked to broader aspects of a person, and may be influenced by self-conceptions, self-beliefs, and self-esteem. Furthermore, eyewitness confidence may also be impacted by social influences, especially those which cause a witness to challenge how they are seen by others and how they see themselves - for example, if making a particular statement or viewpoint would result them to being seen in a positive or negative way.

Additionally, participants who believed that psychological or emotional distress could have been caused during the incident, also had higher levels of accuracy. This provided evidence to suggest that participants with higher levels of accuracy were also better at judging the potential impact the incident may have on the individuals involved. This showed an understanding of the entire incident and not just aspects pertaining to the physical actions of the incident. This implied that participants were able to predict the potential negative impact on the individuals. It was also found that higher accuracy resulted in participants being more likely to call the police. It was suggested by Wells, Memon and Penrod (2006) that police officers can still be influenced by the confidence of witnesses, these current findings provide some evidence to support this as confidence was positively correlated with memory recall accuracy. As the current findings revealed confidence was positively correlated with accuracy this provided evidence to suggest that participants are able to correctly identify their accuracy via their confidence. This supported the experimental hypothesis; there will be a positive correlation between confidence and memory accuracy (H5).

Findings explored the impact of accuracy on the perceived guilt of the perpetrator. It demonstrated that participants with higher levels of accuracy were more likely to perceive the perpetrator as guilty of committing a crime. This evidence suggested that the perception of guilt was concluded by how well the incident was encoded and subsequently remembered to determine

whether a guilty verdict should be delivered. It could be implied that participants who had better memory recall accuracy were able to accurately remember the incident and later when they were asked about the guilt of the perpetrator could make an objective decision, whereas participants who stated the perpetrator was not guilty or that they did not know if they were guilty were equally inaccurate. This suggested that perceived guilt may be a result of how well a memory is initially encoded. This research also provides supporting evidence to the research conducted by Dobolyi and Dodson (2018) who suggested that witnesses could be objective about the events they were recalling if the memory was initially encoded accurately. Therefore, from the current findings it could be implied that witnesses who are more accurate are also able to provide fairer punitive judgements of crimes. However, in real-life scenarios it is difficult to determine what information is accurate or inaccurate, and therefore investigations may rely on other evidence such as DNA evidence or CCTV footage to establish a witness's reliability. Though once this has been established it could be implied that they punitive judgements may be more accurate and objective by providing a fairer account of the incident.

Lastly, the findings revealed that participants who were more accurate in their memory recall were more likely to identify the actions constituted domestic violence, equally participant confidence was also positively correlated with accuracy. It was suggested by Brady (2018) stated that being able to identify certain crimes can be very difficult, even with training. In this study Brady (2018) focused on whether paramedics were able to identify child sexual abuse after receiving training; however, many paramedics lacked the confidence to be able to correctly identify these crimes. Though the current thesis found that accuracy and confidence were positively correlated for identifying domestic violence, it could be suggested that if participants were not asked about domestic violence that they would not have identified these actions as pertaining to this type of crime. Therefore, it could be suggested that crimes that the general public are not familiar with or widely exposed to, such as domestic violence, sexual assault crimes, and child sexual offences, could be difficult for witnesses to accurately identify as a crime (Holland, Rabelo & Cortina, 2016). Furthermore, the severity of the crimes may also encourage witnesses to err on the side of caution when reporting these as crimes, due to the serious nature of the crimes and the subsequent legal proceedings that follow once making these accusations (Chong & Connolly, 2015).

16.5 Accuracy and the relationship between individual differences, clarity, and perpetrator gender

16.5.1 Accuracy and the relationship between individual differences and clarity

The impacts of individual differences on accuracy when accounting for the clarity of the crime were examined. Findings revealed that when participants viewed the ambiguous conditions, age and agreeableness were the best predictors of accuracy. It was determined that age was negatively correlated with accuracy and agreeableness was positively correlated, making these participants more accurate at recalling the ambiguous conditions. This could be due to those with higher levels of agreeableness more likely to be sympathetic, altruistic, and trusting (Furnham & Cheng, 2015), this could result in these participants taking more time to reflect on what they witnessed and aim to provide the most accurate memory recall they can. This links to the Theory of Agreeableness suggested by McCrae and Costa (1992), where these individuals can put others before themselves and therefore could be better witnesses as they are less concerned about the inconvenience this may cause themselves and are more focused on the impact the incident has had on the victim. However, Lowe, Edmundson and Widiger (2009) suggested that agreeableness could reach a point where it can become destructive – this is known as pathological agreeableness. Lowe, Edmundson and Widiger (2009) suggested that if agreeableness levels are too high a person may become overly compliant and find it difficult to express any disagreement; a person may become too altruistic so they volunteer themselves for unpleasant things, and a person may become reliant upon other individuals to seek advice from to make decisions about everyday tasks. In more extreme cases of agreeableness, it could be suggested that this increased level may negatively impact a witness and result in a convoluted statement which may not be reflective of the actual memory of the witness. The findings of the current thesis support the notion that agreeableness is linked to being sympathetic towards others, by highly agreeable individuals providing a more accurate and fair account of what they witnessed without being affected by other external factors of the incident. Additionally, this finding further supported previous research that has found age and accuracy were negatively correlated (Pansky et al., 2009; West & Stone, 2014; Wong, Cramer & Gallo, 2012).

The clear conditions provided different findings. Here, it was concluded that extraversion was negatively correlated with accuracy and confidence was positively correlated. This suggested that participants with lower levels of extraversion and higher levels of confidence had the highest levels of accuracy when witnessing and recalling the clear conditions. This linked to the Arousal Theory of Introversion-Extraversion (Bullock & Gilliland, 1993). This theory posits that extroverts have better cognitive performance than introverts. This is suggested to be due to extroverts having lower levels of arousal and being better at coping with compensatory stimulation compared with introverts. Bullock and Gilliland (1993) found that introverts experienced higher levels of arousal and neural excitement during experimental tasks. The study also implied that the increased level of arousal observed in introverts could result in poorer cognitive performance in tasks where additional stimulation becomes problematic for introverts to deal with and to continue to have high cognitive performance.

The finding of the current thesis supported the findings of previous research that showed introverts had higher memory recall accuracy (De Carolis & Ferracuti, 2010; Sanford & Fisk, 2009). Though the current thesis did not categorise participants as being extroverted or introverted, similarities can still be drawn between the two. However, the findings regarding confidence refuted previous literature. Previous literature has supported the notion that higher levels of extraversion have resulted in higher confidence levels, despite not necessarily having increased memory accuracy (Richards & Gross, 2006). The findings of the current thesis could have been due to participants completing the study by themselves and therefore benefiting participants with lower levels of extraversion. Gudjonsson, Sigurdsson, Bragason, Einarsson and Valdimarsdottir (2004) found that introverted witnesses may perform worse when being questioned due to the situation in which interviews take place and the stress this can induce on introverted witnesses. Therefore, witnesses with lower levels of extraversion may be less likely to rate their confidence highly in their memory recall during police interviews. Therefore, this should be considered; however, these findings provide evidence to suggest that those with lower levels of extraversion not only have higher accuracy but are also able to correctly rate their confidence. Though this may not be replicated in police interviews due to the nature and stress of being questioned about a crime.

16.5.2 Accuracy and the relationship between individual differences and perpetrator gender

The gender of the perpetrator was shown to impact on the accuracy of participants. Findings showed how participants with increased confidence and lower levels of extraversion, who witnessed the male perpetrator attacking the female victim had higher memory recall accuracy. This revealed similar findings to participants in the clear scenario, where findings also showed that higher levels of confidence and lower levels of extraversion resulted in more accurate memory recall. This could have been due to the video footage being in line with participant expectations, as Osborne and Davies (2014) suggested that memory recall could be compromised when incidents were not in line with witness expectations. Additionally, this also reinforces that lower levels of extraversion may be linked to increased memory recall and that these participants are able to accurately rate their confidence. Additionally, the methodology of the study may have benefitted participants with lower levels of extraversion, and therefore provided an opportunity for these participants to perform to their best. This supported the research conducted by Offir, Bezalel and Barth (2007), who found that introverts benefitted by learning in their own home environment and had a better ability to learn without student-related factors, whereas extroverts found this more difficult. This could suggest that by having participants conduct the experiments in their own environments this could have benefitted participants with lower levels of extraversion and inhibited those with higher levels of extraversion.

Participants witnessing the female perpetrator attacking the male victim were also found to have their memory recall accuracy impacted by their individual differences. Age was shown to be negatively correlated with increased memory accuracy; showing that younger participants had better memory recall than older participants. Additionally, agreeableness was positively correlated with increased accuracy. This was similar to the findings of Biggs, Clark and Mitroff (2017), who found that when participants were asked to perform different search tasks, where they would be required to find an item, those with higher levels of agreeableness had significantly higher search accuracy. This could have been due to these individuals being more cooperative and sympathetic towards others, which allowed them to perform the task more effectively than individuals with lower levels of agreeableness. These findings support some of the previous findings of memory research that show age is negatively correlated with memory recall accuracy (West & Stone, 2014; Wong, Cramer & Gallo, 2012). Though previous literature has suggested that poorer memory recall in older adults may

be linked to poorer attention during the encoding stage, it could also be suggested that the perpetrator gender may have impacted on this – as no differences were shown between age and perpetrator gender when there was a male perpetrator. Therefore, it could be suggested that the unusualness of having a female perpetrator attacking a male victim did not adhere to older participants' expectations, and thus resulted in less accurate memory recall (Osborne & Davies, 2014). Furthermore, higher levels of agreeableness also was shown to impact memory accuracy. This could have been due to these individuals having better interpersonal relationships and result in more favourable behaviours towards others (Yao & Moskowitz, 2015). It is also worth noting that younger participants with higher levels of agreeableness had better memory recall accuracy in the ambiguous conditions and the female perpetrator conditions. It could be suggested that the ambiguous conditions provided more issues for participants to accurately interpret the incident, as it was unclear where blame should be attributed compared to the clear conditions. Additionally, the presence of a female perpetrator and a male victim was not necessarily in line with the participants' expectations. Therefore, it could be suggested that when witnessing ambiguous incidents that are more problematic to interpret, younger witnesses with higher levels of agreeableness may have better memory recall accuracy. On the contrary, in the clear conditions, participants may find it easier to identify where blame should be attributed in regard to the perpetrator and victim. In the male perpetrator conditions, which may be more in line with participant expectations, it could be suggested that those with higher confidence levels and lower levels of extraversion provide more accurate memory recall.

16.6 Confidence and the relationship between individual differences, clarity, and perpetrator gender

16.6.1 Confidence and the relationship between individual differences and clarity

When examining the ambiguous conditions and how participants confidence was impacted by individual differences, findings showed that none of the individual differences were significant predictors. This showed that when it came to the confidence of ambiguous conditions, there were no clear indicators to predict this. This could be due to the ambiguity of the video footage, and therefore

regardless of witness personality traits, accuracy, or age none were able to establish a relationship between the confidence levels.

However, findings were very different for the clear conditions. Findings revealed that age, openness, conscientiousness, and accuracy were all significant predictors of confidence. Age was shown to be negatively correlated and openness, conscientiousness, and accuracy were all positively correlated with confidence. Previous research has indicated that accuracy and confidence have been positively correlated (Cowan, Read & Lindsay, 2014; Sarwar, Allwood & Innes-Ker, 2014), but this thesis was one of few to incorporate how other factors may impact upon confidence, not just accuracy alone. Openness has been linked to having increased intelligence, with an open-mindedness to experiences, this could have explained why these participants were more confidence (DeYoung, Grazioplene & Peterson, 2012). Additionally, increased levels of conscientiousness has been linked to being dependable, focused, and with a desire to act dutifully (Luchetti, Terracciano, Stephan & Sutin, 2016). Therefore, the increased confidence observed in these participants could have been as a result of the following; a) participants were younger and therefore had better memory encoding, b) this was reflected in their increased levels of accuracy, c) increased levels of openness meant that they were more open-minded to the incident they were watching and had reduced expectations of the actions in the footage, and d) increased conscientiousness meant that participants wanted to perform the task well and due to their focus resulted in an increased rating in their confidence.

Overall, individual differences appeared to be good predictors of confidence when participants witnessed the clear conditions, but this did not appear to be the case with participants witnessed the ambiguous conditions. It could be suggested that the clarity of the incident impacted on confidence in this way due to participants having greater difficulty interpreting the ambiguous incidents and being less confident in where to attribute blame, resulting in them having reduced levels of confidence as their interpretation of the incident may be compromised. This provided evidence to suggest that during incidents that are difficult to interpret, it could be implied that confidence cannot be accurately predicted, and this raises issues regarding confidence levels of witnesses for these incidents, such as overconfidence not necessarily reflecting accuracy and vice versa.

16.6.2 Confidence and the relationship between individual differences and perpetrator gender

Findings indicated that participants witnessing the male perpetrator conditions had increased levels of confidence that were positively correlated with the following; accuracy, openness, and conscientiousness. This suggested that these participants had traits that advantaged them by their increased likelihood of wanting to perform dutifully (Lewis et al., 2016) and openness to new experiences (Súilleabháin, Howard & Hughes, 2018), as these participants could be better at adapting to different conditions. This was also shown in the female perpetrator conditions as openness was positively correlated with confidence. Therefore, those who have higher levels of openness could be more likely to have objective interpretations of incidents.

16.7 Punitive judgements and the relationship between individual differences, clarity, and perpetrator gender

16.7.1 Punitive judgements and the relationship between individual differences and clarity

The clarity of the video footage was shown to impact upon punitive judgements based on some individual differences. This supported the experimental hypothesis; there will be significant relationships between the responses of punitive judgements and the clarity of the incident. When examining participant perceptions of whether they believed psychological or emotional distress could have been caused, this punitive judgement was negatively correlated with confidence and positively correlated with agreeableness. This suggested that participants with lower levels of confidence and higher levels of agreeableness were more likely to state that psychological or emotional distress was not likely to have been experienced during the incident. Steiner, Allemann and McCullough (2012) suggested that those who had higher levels of agreeableness were more sympathetic and considerate of others due to being more forgiving. This was reflected in the current thesis, as it could be suggested that participants with higher levels of agreeableness were more likely to say that psychological or emotional distress was not experienced, due to having lower levels of confidence. Therefore, it could be implied that these participants were less likely to attribute blame and criminality

to an incident, if they lacked confidence in their perception of the incident. This suggested that these participants could be fairer to both parties involved in the incident.

The clear condition revealed that males with lower levels of confidence were more likely to say that psychological or emotional distress was not experienced. It was previously reported by Bloise and Johnson (2007) that females were better at recalling emotional information. Additionally, Swan, Gambone, Caldwell, Sullivan and Snow (2008) suggested that female perpetrators were more likely to use psychological abuse towards male victims, and Simmons, Lehman and Collier-Tenison (2008) implied that females could be more likely to experience psychological distress, in response to experiencing physical distress. Therefore, this research implied that females may be better at using psychological abuse, more likely to experience psychological distress, and therefore could be better at identifying others who may be likely to experience psychological or emotional distress. This could explain why males are more likely to say 'no' to psychological or emotional distress being caused due to males having different experiences of psychological and emotional abuse compared with females. With males being less likely to consider psychological/emotional abuse this could result in a reduction of reporting of abusive behaviours or identifying actions, and attitudes that may increase the likelihood of this type of abuse. This could imply that males may exhibit behaviours and attitudes that are more likely to cause psychological/emotional distress due to being less able to identify this type of abuse compared with females and being less likely to determine these behaviours as abusive. This could lead to males being less likely to report psychological/emotional abuse and could reduce the credibility of a victim.

Attitudes towards calling the police also yielded different responses based on clarity. It was concluded that females with lower levels of confidence were less likely to call the police and lower levels of accuracy and confidence were more likely to result in participants not knowing whether the police should be called for the ambiguous conditions. This suggests that the ambiguity of an incident reduces participants' confidence and therefore results in them being less likely to call the police. This was supported by participants who said they did not know whether to call the police also having reduced memory recall accuracy. In addition to this, previous literature has demonstrated that females may be less confident in their own abilities to interpret new information (Atherton, 2015), and therefore may be more likely to change their responses of previously asked questions due to a lack of confidence (Cross, Brown, Morgan & Laland, 2017) and reduced female confidence has previously

resulted in poorer task performance (Estes & Felker, 2012). Therefore, this suggests that when females are less confident in their memory recall, they are less likely to report the incident due to potentially exhibiting a poorer performance in their accounts of the incident under such circumstances. It is possible that reporting uncertain incidents to the police, could be deemed as too stressful or perceived to negatively impact self-esteem to such an extent that females may avoid going through this for incidents they perceive as being minor.

Likewise, females witnessing the clear conditions were more likely to not call the police if they had lower levels of confidence. Additionally, lower levels of conscientiousness and confidence resulted in participants being more likely to state that they did not know whether to call the police. This reinforces the previous findings that suggest females only report crimes if they are confident in their memory recall (Cross, Brown, Morgan & Laland, 2017; Estes & Felker, 2012). This could be an important issue regarding the reporting of domestic violence as witnesses who appear less confident in their responses can also be deemed as less accurate than those who are more confident (Tenney, MacCoun, Spellman & Hastie, 2007). This could pose a potential risk to victims of domestic violence as the unfamiliarity witnesses may have with the crime could negatively impact upon their confidence and thus reduce their credibility. Furthermore, as domestic violence is already an underreported crime (Emery, 2010), this may contribute to the lack of reporting and subsequent convictions. As statistics show (Office for National Statistics, 2017), females are more likely to be a victim of domestic violence and therefore, when unconfident female victims provide a witness statement their lack of confidence may result in their credibility being reduced and thus negatively impact on the likelihood of a conviction being obtained. This finding supported the conclusions of Di Domenico, Quitasol and Fournier (2015) who found that higher levels of conscientiousness resulted in increased academic performance. It was suggested this finding could have been due to highly conscientious participants being more organised and having an increased desire to carry out tasks to a high standard. Therefore, in the current thesis's finding, those with lower levels of conscientiousness and lower levels of confidence may be less likely to know whether to call the police, emulated the findings of Di Domenico, Quitasol and Fournier (2015) by showing a reduction in performance.

Males were found to be less likely to identify the actions witnessed as domestic violence for the ambiguous conditions. Equally males with lower levels of confidence were more likely to say they did not know if the actions constituted domestic violence. This could suggest that males were more

likely to have a stereotypical view of domestic violence, known as Perceptual Set, where a person has a predisposition to perceive certain features of a stimulus and ignore other aspects (Bugelski & Alampay, 1961), and when their expectations were not met (by having an ambiguous condition or female perpetrator), this decreased their ability to identify whether domestic violence had occurred and therefore resulted in them being less confident. This further supports the findings of Osborne and Davies (2014) and MacLin and MacLin (2004) by suggesting that witness expectations impact on the perceptions of an incident.

Lastly, lower levels of confidence and accuracy resulted in participants being more likely to state that the actions did not constitute domestic violence, when witnessing the clear conditions. This further supports previous findings that confidence may be able to predict accuracy, as participants are able to accurately judge their memory recall (Brewer & Wells, 2006; Cowan, Read & Lindsay, 2014; Sarwar, Allwood & Innes-Ker, 2014).

16.7.2 Punitive judgements and the relationship between individual differences and perpetrator gender

The current findings suggest that punitive judgements may be impacted by some individual differences and perpetrator gender. It was demonstrated that participants with lower levels of extraversion who viewed the male perpetrator conditions, were more likely to state that psychological or emotional distress was not caused. However, females were more likely to say that psychological or emotional distress was not caused when they viewed the female perpetrator conditions. This indicated that females were biased towards other females, which supported the research of Chu and Grünh (2017) who also found that participants placed different moral expectations on perpetrators, especially if they were of the same gender. In addition, increased levels of openness and lower levels of neuroticism were more likely to say 'yes' to psychological or emotional distress being experienced when there was a female perpetrator.

Opinions on whether the police should have been called yielded interesting findings. When witnessing the male perpetrator conditions, confidence was negatively associated with calling the police. This suggested that a lack of confidence meant that participants were less likely to call the police. However, when witnessing the female perpetrator, it was found that females were more likely

to say 'no' to calling the police or that they did not know whether the police should have been called. This further emulated the findings of Chu and Grünh (2017). In addition, lower levels of confidence, accuracy, and conscientiousness were all associated with participants being less likely to call the police when there was a female perpetrator. This suggested that participants performed poorer when judging punitive judgements of the female perpetrator.

Lastly, the interpretation of whether the actions constituted domestic violence showed that confidence was negatively associated with stating that they did not know, for both male and female perpetrators. However, females were more likely to state that they did not know whether the actions constituted domestic violence for the male perpetrator, whereas when there was a female perpetrator, females were more likely to state that the incident was not domestic violence. This suggested that females were unlikely to identify other females as perpetrators of domestic violence. However, females were unsure of whether the actions would be considered as domestic violence for the male perpetrator, which suggested that females were less able to identify domestic violence compared with males. This resonated with the findings of Manton (2015) who identified that victims of domestic violence cannot be expected to identify their abuse themselves. It was emphasised that society should try and identify these behaviours when possible. However, this research focused only on female victims and in itself failed to recognise male victims of domestic violence. Therefore, the findings of the current thesis highlight the potential differences in treatment of victims and perpetrators based on their gender.

16.7.3 Summary

This thesis aimed to explore whether individual differences and physical factors relating to a crime scene, such as clarity and perpetrator gender, impacted on a witness's accuracy, confidence, and punitive judgements. This was done by using a mock video of domestic violence with a total of four video conditions. The same actions were depicted throughout all four videos with clarity (ambiguous and clear), perpetrator gender (male and female), and victim gender (female and male) being manipulated in each of the conditions. The actions acted out were derived from definitions of physical domestic violence. In the clear conditions the victims did not retaliate and in the ambiguous conditions the victims did not instigate the incidents, but they retaliated to the actions of the

perpetrators. The conditions comprised of the following gender combinations; a male perpetrator attacking a female victim and a female perpetrator attacking a male victim. All video conditions were in the style of CCTV footage to appear as authentic as possible and due to participants only witnessing one video condition, there was less chance of participants being able to identify that the incident was staged. Participants were required to answer several questionnaires measuring their memory recall accuracy, their confidence in their responses, and lastly their punitive attitudes and judgements of the incident. This methodology allowed for the thesis to examine the impact of combining individual differences (gender, age, personality) and crime scene factors (clarity and perpetrator gender) and their impact on accuracy, confidence, and punitive judgements as participants participated in all measured variables. This is one of the first studies to examine eyewitness testimony in this way. By using this method, the research has provided a more in-depth analysis of how multiple variables impact upon eyewitness testimony. As previously noted, literature has largely focused on one or two variables and their impact on memory, which has provided insight into how these variables can influence memory, but these studies have failed to understand the impact of multiple variables in combination. Including multiple variables within the analyses allowed for a more precise understanding of how various individual differences could interact with a range of eyewitness behaviours. The single paradigm is able to provide a unique perspective on eyewitness testimony and how this may be affected by a range of different factors. This thesis enabled a large amount of data to be collected and analysed in a multitude of ways. Accuracy, confidence, and punitive judgements were analysed individually as well as in combination with individual differences and crime scene factors to understand the impact across all of these variables.

The applied methodology has similarities with previous studies who also examined eyewitness testimony (Areh, 2011; Leippe, Eisenstadt & Rauch, 2009; Mojtahedi, Ioannou & Hammond, 2018; Shapiro, 2009). In these studies, and similarly to the current thesis, video footage was shown to participants of mock crimes and questionnaires were used to collect details regarding accuracy, confidence, and punitive judgements. This procedure was adopted to remove the influence of interviewing techniques and co-witness effects. By removing these factors, this enabled the examination and analysis of witness interpretation and judgements of domestic violence incidents. Additionally, this thesis took inspiration from Osborne and Davies (2014) who examined how stereotypes may bias memory recall due to witness expectation. It was suggested that types of crimes

may elicit certain expectations about a perpetrator's appearance; however, this study primarily focused on ethnicity and the expectations of ethnic minorities and crimes. It was recommended that crime expectations and gender should be explored to investigate whether witness expectations could be observed as well. This suggested that stereotypes could be influential in the interpretation of a crimes.

16.8 The real-life applicability of the study

Though empirical research cannot necessarily recreate real-life crime scene factors, this research provides insight into the comparison of crimes using different perpetrators and clarity of domestic violence. It is acknowledged that witnessing video footage of simulated crimes cannot replicate all factors involved in real-life criminal incidents. The type of comparisons drawn in this thesis cannot be naturally conducted on real-life crimes as the disparity between incidents can be confounded by a multitude of factors, as crimes occur under many different circumstances.

This thesis used mock crime footage of domestic violence, as previous research has also used simulated crimes to examine eyewitness testimony (Areh, 2011; Leippe, Eisenstadt & Rauch, 2009; Mori & Kishikawa, 2014; Paterson, Eijkemans & Kemp, 2015; Shaprio, 2009; Valentine & Maras, 2011). However, in the current thesis, the video footage was recreated to emulate CCTV footage and therefore participants may not have been aware that they were witnessing a simulated crime, until they were told so afterwards in the debrief. This type of video footage can be shown to jurors during court proceedings and would be a viable form of evidence (Walker & Tough, 2015). Additionally, the severity of the video footage needs to be considered as this had to adhere to The British Psychological Society (2018) code of ethics guidelines and therefore could not be too distressing for participants to watch. Though it is acknowledged that real-life crimes are not filtered and moderated and could potentially display distressing actions that may cause witnesses emotional distress, however it would not have been ethical to induce this stress on participants during this empirical research (The British Psychological Society, 2018).

Research has demonstrated how increased levels of stress have negatively impacted on memory recall accuracy and therefore it is likely that when witnessing a real-life crime, a witness's memory would be more likely to have increased inaccuracies (Wolf, 2017). This links to the Emotional

Arousal Theory and suggests that if witnesses experience a high level of arousal, which could be induced by stress, then they can breach their optimum level of arousal and have their memory inhibited (Bull, 2012; Zillmann, 2008). Therefore, in the current thesis participants would have been aware that there was no imminent danger or threat of violence and thus, this would not elicit the same level of stress on a witness that a real-life criminal incident may have, and this could result in their memory being more inhibited. However, as previously stated, to inflict the same amount of stress involved in a real-life crime would not only have been difficult to emulate, but also highly unethical. However, this was not considered as a drawback of the thesis as the punitive attitudes and judgements of participants were addressed and understood and therefore the lack of induced emotional arousal would not have impacted on this factor.

Though it can be beneficial to use real-life crime footage the current thesis decided that this was not the most appropriate method. This was due to the experiment requiring four videos that could be directly compared. If the videos were not standardised with only the independent variables being manipulated throughout the videos, this would not have allowed for the research comparisons to have been drawn as using real-life footage would have contained extraneous variables that would have confounded the experiment. As previously stated, the depiction of a real-life crime may have been more distressing to witness and therefore could have questioned the ethics of the experiment. Lastly, there are a multitude of experiments, similar to the one conducted in this thesis, that have used mock crime footage and have yielded successful results (Anastasi & Rhodes, 2005; Areh, 2011; Carol & Compo, 2018; Liebman et al., 2002; Memon, Hope & Bull, 2003; Shapiro, 2009; Zhou, Pu, Young & Tse, 2014). Therefore, due to the extensive amount of previous research that has implemented mock crime video footage and has used this as a method to manipulate independent variables, it was deemed that this method was appropriate for the current thesis and the only way to allow for the direct comparisons to be drawn between the videos.

16.9 Practical implications

The current research has practical implications for understanding the perceptions and attitudes of eyewitnesses, and the factors that might influence these. In turn, the relative impacts of

these on likely eyewitness accuracy and confidence have been highlighted. This has a range of investigative implications, for example; with regards to the interviewing of eyewitnesses.

This thesis identified how specific personality traits may impact on punitive judgements and ultimately have an impact on the recalling and reporting of an incident. For example, it was concluded from these findings that females were significantly more likely to, in general, perceive the incident more negatively. This ranged from; having increased severity ratings of the incident, being more able to identify that psychological or emotional damage could have been experienced by the victim, more likely to recognise the incident was a form of domestic violence and were more likely to call the police. This provides evidence to show that females are more perceptive to the negative consequences of a criminal incident. Although in police investigations there can be no screening conducted to encourage males to report witness statements, there could be further implications for females who report witness statements to male police officers. It could be suggested, from this finding, that when male police officers record the details of an incident from a female witness this may be treated differently. For example, the female witness could provide a witness statement, but this may not be looked into further due to a male police officer determining that the case is not worth further investigation. This could result in cases being reported but not looked into to the desired extent due to male police officers' interpretation of the severity of the incident. It would be proposed that before a case is discounted for further investigation that it is agreed by a mixed gender panel to ensure that the majority of cases are receiving the time and resource that they need. In crimes such as domestic violence, this could reduce the number of times a victim who suffer repeat abuse from their perpetrator and raises further awareness of the crime to encourage the identification and reporting of such a serious and private crime.

Further to the previous discussion, the gender of the perpetrator was found to have a significant impact on some punitive judgements. The current thesis found that when the incident comprised of a male perpetrator with a female victim, punitive judgements were significantly harsher. Results revealed the following when the footage depicted a male perpetrator; the incident was scored with higher severity, the incident was more likely to be identified as a crime, the victim was more likely to experience psychological or emotional damage, the witness was more likely to call the police, the incident was more likely to be recognised as domestic violence, and the perpetrator was more likely to be given a harsher sentence. These findings showed that in general male perpetrators were

perceived more negatively than female perpetrators. This raises serious practical implications for males who are victims of female perpetrators. This could potentially suggest that males may be experiencing domestic violence, even in public settings, and are not identified as victims. In practice, this means that there will naturally be an underreporting of males victims by witnesses as they are less able to identify the male as a victim. This reduction in reporting could result in that individual being more likely to experience further victimisation with increasing levels of violence as these actions and behaviours are not being challenged even by other members of the public. These findings have indicated that female victims of domestic violence are starting to become identifiable by members of the public, which is an achievement for this largely invisible crime. This demonstrates how media awareness has been able to successfully break down some of the barriers previously experienced by these victims (Lloyd & Ramon, 2017). Though it must be acknowledged that this crime continues to be underreported (Office of National Statistics, 2017). Therefore, to raise awareness of male victims of domestic violence, it would be highly beneficial to use social media as a platform to promote equality for all victims of domestic violence. Though it is crucial to raise awareness of male victims of domestic violence to the general public, it is more imperative to ensure that police officers are aligned to what constitutes domestic violence, how to identify indicators of this crime for male and female victims/perpetrators, and to have a consolidated knowledge on how to deal with this crime to protect all victims.

The current thesis demonstrated how increased age could negatively impact on accuracy and confidence. These findings showed how as age increased accuracy and confidence decreased. This finding was in line with previous literature (Anastasi, 2012; Ros & Latorre, 2010; Wong, Cramer & Gallo, 2012). However, the current thesis's finding provided evidence to suggest that the age of a witness should be taken into account during interviewing processes and court proceedings. This is to increase the reliability of evidence however, it must be noted that in the current thesis, older participants were able to identify that they had decreased levels of memory recall accuracy by rating their memory with lower confidence levels. This showed that individuals can successfully identify their own memory ability and a simple Likert scoring system can identify these differences (Anastasi & Rhodes, 2005). It would be suggested from this thesis that implementing a confidence rating of memory accuracy would be advantageous to aid in the identification of inaccurate or less accurate eyewitness testimonies.

It has been shown that interpretations and judgements of crimes, especially those that are non-congruent with witness expectations, may distort their accuracy and confidence, which could impact punitive judgements or may influence punitive attitudes. Therefore, it may be beneficial to implement some simple questions about an eyewitnesses' prejudices and understanding of certain crimes. This could help highlight how prejudices may influence a persons' interpretation of an event and cause them to recall an incident in line with these biases. Ultimately, this could encourage further questioning and greater examination of the type of person the witness is and how their attitudes may have influenced their encoding and subsequent recall of the incident. Findings have also provided evidence to suggest that there are issues with how society perceives male victims and female perpetrators of domestic violence. This implies that there needs to be a greater and wider understanding of domestic violence in all forms to help identify victims and perpetrators. As previously stated, research has provided evidence to show that racial (Osborne & Davies, 2014) and gender (Hester & Lilley, 2016) stereotyping can impact on how witnesses may perceive and interpret an incident. Therefore, it may be advantageous to understand whether a witness has any biases or prejudices, similar to the screening jurors undergo before sitting on a trial (Schuller, Kazoleas & Kawakami, 2009), this would involve a simple questionnaire that can highlight where an individual may have prejudices. For this to be of any use, witnesses must be encouraged to answer honestly without any further negative consequences being brought against them as a direct result from stating their prejudices. This could prove advantageous to understand and incorporate a witnesses biases and prejudices when examining the reliability of their witness statement. By taking these prejudices into account, it allows witness statements to come under greater scrutiny and descriptions of stereotypical behaviour of certain demographics can be questioned in greater detail or checked for corroboration with other witnesses. This ensures that only factual aspects of an incident are incorporated in any further investigations or presented at court proceedings. The findings of the current thesis suggest that physical aspects of crimes and a witnesses' societal expectations of these crimes should be considered when evaluating the validity of eyewitness testimonies.

Further, if eyewitnesses are considered as key evidence to the understanding and prosecution or acquittal of a crime, they may be used in court proceedings. This means that subsequently the testimonies of witnesses may be presented to juries in court. Therefore, any distortions of eyewitness testimonies, either from individual differences or expectations of crimes may

result in unfair convictions of innocent suspects or result in guilty perpetrators walking free. Further, inflated or unjustified confidence of eyewitnesses may influence how eyewitnesses present themselves in such situations; this might impact upon juror perceptions of their credibility and reliability. What this emphasises, then, is the importance of ensuring eyewitness testimonies are as accurate as possible. This could be done by taking into account some of a persons' individual differences. For example, those with lower levels of neuroticism were less able to identify that psychological or emotional damage could have been experienced by either the victim or the perpetrator. This was thought to be due to these individuals having less intense emotional experiences and therefore, being less able to empathise with how this may impact on others (Lönnqvist, Verkasalo, Mäkinen & Henriksson, 2009). Therefore, it could be valuable to vet individuals with lower levels of neuroticism via personality tests, as these individuals may underestimate the potential negative consequences of experiencing crime. This could negatively impact upon the reliability of their witness statements and may unnecessarily reduce the credibility of a victim and diminish the likelihood of them receiving adequate justice for their victimisation.

This thesis has emphasised that a greater awareness of domestic violence needs to be promoted publicly. This could be achieved via various mediums such as, social media platforms including, Facebook, Twitter, Instagram, and YouTube where information can be freely created and shared, online news articles, which could help raise awareness and be shared on the previously mentioned social media platforms, workshops could be setup in universities and colleges to teach individuals about unacceptable behaviour and what to do if they experience or witness domestic violence and to encourage frank conversations about the topic to facilitate understanding, and the dissemination of this thesis could aid in redefining the attitudes, judgements, and stigmas of domestic violence.

16.10 Limitations and future research

16.10.1 Limitations

The current thesis could be argued to have lacked ecological validity to an extent, as the incident that participants witnessed depicted a mock scenario of domestic violence. Although the

video footage was inspired by real-life incidents of domestic violence and CCTV footage, this research cannot necessarily account for how participants may interpret and judge domestic violence in real-life scenarios where the witness is present at the scene of the crime. Additionally, the actions that may be depicted in real-life domestic violence crimes may drastically differ from the incidents depicted in the videos and could be more distressing. This is because the current thesis only depicted reasonable violence that was deemed necessary for the thesis to be conducted, in accordance with The British Psychological Society Ethics (2018), whereas real-life incidents could display different behaviours which may be more serious and pose a greater risk of harm to the victim as well as the witness – therefore further impacting the memory recall and interpretation of the incident. This could be as a result of optimal levels of arousal being overactivated and breaching the optimal arousal level (Skues, Williams, Oldmeadow & Wise, 2016). It has been suggested that distressing incidents can cause severe emotional and psychological distress to a witness, and as a method to cope with the distressing information being processed the witness will not attend to every action and detail of an incident as intently (Jeong & Biocca, 2012).

The video footage that was used as the stimuli in the thesis, did not have sound accompanying the visual footage. Though these stimuli strongly correlated to CCTV footage, which can be used in court proceedings (Walker & Tough, 2015), it lacked ecological validity when assessing the extrapolation of this research to real-life domestic violence incidents. As real-life incidents will be accompanied by audio, which may aid in the witnesses appraisal of the incident and could further impact on the jury decision process if the witness relays this information to a court, but for the purpose of this thesis it was regarded as imperative to remove the narrative to allow for the video footage to be assessed and interpreted primarily on the actions of the incident. Though it must be noted that this may not relate to real-life domestic violence incidents unless the incident it witnessed at a great distance or the witness has a hearing impairment.

The footage was disseminated to participants via an online link and therefore this also could have negatively impacted the ecological validity. The environment that the incident was witnessed in and then recalled in does not directly relate to the environments that domestic violence is naturally observed in (Olusegun, 2014). This may relate more to watching violent movies and other online media that participants may have previous exposure to and therefore may be more familiar with viewing violent footage via this method (Bushman & Anderson, 2009). However, it should be noted

that if a more realistic and naturalist environment was to be used to assess witness perceptions of domestic violence, this should be conducted with great care and consideration for the wellbeing of participants. Therefore, the current thesis, though it may have lacked ecological validity in some respects, but overall reduced the risk of psychologically distressing participants to ensure their safety and wellbeing throughout this research. Online research may also have methodological disadvantages. It was suggested by Wright (2017) that online research may result in sampling biases, as there are certain types of people who are more likely to participate in online research which could therefore lead to a biased sample. Furthermore, certain demographics may have limited access to the internet, which again could lead to sampling issues. For example, older people may not have the access to the internet or the knowledge of how to participate in such research. Lastly, as there was no interviewer present during the experiment participants could not easily clarify either what the research required them to do or the meaning of a question in a questionnaire. These were open to the interpretation of the participant and may not necessarily align with the researchers' intended outcomes.

It is possible that demand characteristics may have impacted the recalling of the incidents – whether participants purposely stated that the female perpetrator was perceived as being less criminal or were more likely to identify the incident as criminal due to being questioned about it. The response from participants may have been different if they were being questioned about a real-life crime. Firstly, as previously stated, the stressful experience of witnessing a crime would be more likely to mean that witnesses would have their optimal level of arousal breached and thus their memory recall compromised (Bull, 2012; Zillmann, 2008). Secondly, it is also likely that participants may have answered differently due to their responses having no legal implications, whereas in real-life crimes their statements could result in an arrest or release of a suspect. This means that the Self-Certainty Theory (Bradfield, Wells & Olson, 2002) may play more of an active role when recalling memories that are linked to real-life crimes, as the witness needs to be certain in their memory as inaccuracies could result in negative consequences (Bradfield, Wells & Olson, 2002). In real-life cases witnesses may be more likely to doubt themselves and their memory due to the fact that the consequences of an inaccurate memory could affect another individual and have legal implications. Though it is still likely that the participants self-certainty will have influenced how they responded to

the questions and rated their confidence – this may be more exaggerated when recalling details, actions, and behaviours of real-life crimes.

It could be suggested that the use of a different personality measure may provide more fruitful findings, as the current thesis found only some of the personality traits showed a significant interaction with the test variables. As very few personality measures have been implemented in this way, it could be useful to adopt several other measures to further explore this area. Though consideration should be given to the length of time the personality measures take to be implemented as this could negatively impact on other aspects of the thesis.

The current research focused solely on heterosexual couples and therefore cannot account for the influences that individual differences and crime-related variations may have on the accuracy, confidence, and punitive judgements of non-heterosexual domestic violence. It was decided that only heterosexual couples would be used in the video stimuli to avoid overcomplicating the thesis.

16.10.2 Future Research

It would be recommended for future research to incorporate other individual differences that were not accounted for in this thesis, for instance ethnicity, educational attainment, social class and previous experience of domestic violence. This would provide a greater understanding of how combinations of individual differences may impact on the interpretations and judgements of domestic violence, especially when witnessing different types of domestic violence with non-heterosexual couples. This could potentially raise awareness for how the public should be educated regarding domestic violence and how eyewitnesses of non-heterosexual domestic violence may be reported in comparison to heterosexual domestic violence. As there is less prevalence of non-heterosexual couples in society it could be suggested that stereotypical views of these non-heterosexual couples may be relied on and therefore result in distorted interpretations and judgements of these domestic violence incidents (Seelau & Seelau, 2005). Therefore, future research would benefit from investigating the interpretation of domestic violence on other sexualities – as there is even less understanding of domestic violence in non-heterosexual relationships (Balsam & Szymanski, 2005). This would provide a more comprehensive picture of how eyewitness testimony may differ when witnessing different forms of domestic violence. Furthermore, it would be valuable if future research

examined other forms of domestic violence, as the current thesis only focused on physical abuse. This again, would add to the general understanding of domestic violence by witnesses. In addition, it would be beneficial to account for the participants' previous exposure to domestic violence. This could be a crucial aspect as victims of domestic violence may attend housing services for domestic violence victims and stay in safe homes with other victims (Diemer, Humphreys & Crinall, 2017). This could suggest that victims of domestic violence may also be more likely to witness domestic violence due to meeting friends and acquaintances through safe housing. Therefore, this could suggest that victims of domestic violence are more likely to witness other domestic violence incidents by having an increased exposure to this victim group. This could imply that it may be more beneficial to understand how victims of domestic violence interpret and judge mock crime footage of domestic violence due to having an increased likelihood of witnessing this type of crime and therefore more likely to have their accounts reported to the police and presented in court proceedings.

Furthermore, it is also recommended that future research should account for other types of crimes that are perceived as typically having male perpetrators, e.g. sexual assaults or rape crimes (Saucier, Strain, Hockett & McManus, 2015) or crimes that are perceived as having female perpetrators, e.g. shoplifting . This would provide further insight into how these individuals are perceived by witnesses and the reliability of eyewitness accounts for domestic violence.

Research could explore the use of emotional measures by using devices to measure pupil dilation, heart rate, facial expressions, and brain activity. This would further the understanding of the instinctual attitudes and feelings towards the depiction of crimes, without only relying on self-report questionnaires which could result in demand characteristics (Nichols & Maner, 2008). Using the self-report and measuring physiological responses to stimuli simultaneously provide an even greater insight to how attitudes and feelings align with physiological reactions.

Real-life footage of domestic violence could be used to further increase the ecological validity of the thesis however, this would have reduced the ability to directly compare different scenarios of domestic violence. This could also have been more distressing for participants to witness. However, it would be beneficial to use real-life footage of domestic violence to further explore how participants interpret and judge these incidents. This could provide a more realistic understanding of domestic violence by potentially resulting in different responses from participants given the realism of the footage. It may be advantageous to state to participants initially that the actions in the following video

footage are not staged and are from real-life CCTV footage. Thus, encouraging participants to take the incident more seriously and judge it as they would if they witnessed the incident in real-life.

It would also be recommended that future research continues to explore eyewitness testimony by incorporating individual differences and factors pertaining to the incident to establish a model that can help predict a witness's accuracy, confidence, and punitive judgements. This will aid in jury decision-making and police investigations with regards to determining the likely reliability and validity of witness information. This thesis provides initial insight to how individual differences and crime scene factors can impact upon a witnesses accuracy, confidence, and punitive judgements, which may ultimately affect the reliability and validity of eyewitness testimonies.

16.11 Conclusion

To conclude, this thesis has found that individual differences and crime scene factors do impact on witness memory, confidence, and punitive judgements. Though this thesis may be perceived as lacking ecological validity, the methodology employed allowed for a single paradigm to be implemented to explore attitudes towards the interpretations of domestic violence to provide insights into how the same event can be perceived differently depending upon a witnesses' individual factors and the characteristics of the incident. This approach allowed for the witness to interpret the incident in ideal conditions with extraneous and confounding factors removed to understand what differences occur in witnesses regardless of other factors. This thesis has highlighted a societal attitude of the perception of male and female perpetrators of domestic violence – suggesting that females are less likely to be perceived as perpetrators. Additionally, eyewitness testimonies can be heavily influenced by individual differences, as individuals may accurately recall the actions and behaviours of a crime but may not identify the incident as criminal. Therefore, this thesis suggests that there should be a greater focus on individual factors when interviewing witnesses as these may be equally likely to impact and influence eyewitness statements. This was demonstrated in this thesis, as it was shown that male perpetrators were perceived more severely than female perpetrators – showing an unfair bias towards male perpetrators of domestic violence. Female victims were viewed more favourably than male victims of domestic violence, suggesting that females are more likely to have their victimisation reported and subsequently go through court proceedings. This unequal

perception of victimisation could result in male victims being less likely to voice their abuse and go further undetected. Female witnesses were generally more able to identify the crime as a form of domestic violence and were more likely to identify the male as a victim, compared with male witnesses. These findings indicated that female witnesses appear to have a greater understanding of victimisation and have more measured punitive judgements. Therefore, the findings of this thesis have demonstrated the importance of accounting for certain individual differences and their potential consequences on eyewitness testimony for criminal justice processes.

This thesis has highlighted some of the limitations of eyewitness testimony. Although eyewitness testimony can generally provide insight into the behaviours and actions of an event, the observed fallibility of eyewitness testimony questions the reliability of using such evidence and how much weight should be given to witnesses. It is inevitable that memory will almost certainly contain flaws to some extent and memories will always be subjected to personal biases, but the question remains to what extent. Research has demonstrated the shortcomings of eyewitness testimony and the current thesis has shown that individual differences can impact how an event is interpreted and recalled. However, in real-life interviews where the event being recalled is unknown to the interviewer, deciphering which aspects of the witness statement are likely to be inaccurate can prove difficult to distinguish. Although suggestions can be made from the current thesis, understanding where witness statements may lack accuracy or may be more likely to be subjective due to personal biases is more difficult to determine. Research can establish these limitations of eyewitness testimony but to overcome these issues entirely in practice remains challenging.

Eyewitness testimony is still extensively used in legal proceedings despite its demonstrated unreliability at times (Houston, Hope, Memon & Read, 2013; Loftus, 2013; Magnussen, Melinder, Stridbeck & Raja, 2010; Pawlenko, Safer, Wise & Holfeld, 2013, Valentine & Maras, 2011; Skagerberg & Wright, 2009). Atkinson and Shiffrin (1968) showed, with the Multi-Store Model, how only some memories would make it into a person's long-term memory and that without rehearsal memories would disintegrate and be forgotten. Crimes may be more likely to be rehearsed by witnesses, either due to the unusualness of the situation or because of the subsequent proceedings that witnesses know will occur, e.g. police interviews. However, Brown (1958) suggested the Memory Decay Theory as an explanation for why some memories were forgotten. Brown (1958) proposed that the passage of time could also contribute towards the disintegration and decay of memories. In

addition to memory decay, memories of crimes may also be unreliable due to the potential threat that is present at the time. The Emotional Arousal Theory (Zillmann, 2008) indicated that the presence of a threat to either cause harm or death could result in optimal arousal levels becoming exceeded and cause witnesses to have less reliable eyewitness accounts. This impact on arousal levels could similarly be dependent upon the attention of the witness. If the witness did not have their attention diverted to the incident then it is unlikely they were able to attend to the crime fully. Thus, this could result in unreliable eyewitness testimony. Witnesses to crimes usually report the incident to the police because they have identified an event as criminal (Fischer, Krueger, Greitemeyer, Vogrincic & Kastenmüller, 2011). However, these attitudes and judgements of crimes could be a product of the societal stereotypes that the individual lives within – as suggested in the Social Learning Theory (Bandura, Adams & Beyer, 1977). This means that certain expectations may be placed on individuals and those witnessing the crimes may align their interpretation of the crime to something that adheres to their societal norms. The Gender Socialisation Theory demonstrated this by proposing that certain behaviours can be viewed as being stereotypically male or female which can impact how individuals who exhibit non-stereotypical behaviours are interpreted (Brody, 1997). This suggests that eyewitness testimony could be open to these biases and its reliability could be negatively impacted. An implication of this could result in blame being attributed disproportionately, according to the Attribution Theory (Costa & Neves, 2017), and skew how the crime is reported and the consequences for both victims and perpetrators. Thus, this suggests that eyewitness testimony can be unreliable and subject to individual differences.

The current thesis has demonstrated how eyewitness testimony can be unreliable. It has been emphasised that eyewitness testimony may become distorted by; the type of event witnessed, individual characteristics of the witness, and the societal background of the witness which can contribute to the interpretation of an event. These factors, in combination, indicate that eyewitness testimony can be unreliable due to the various elements involved when witnessing a crime. Thus, showing the complexity of establishing unreliable eyewitness testimonies.

References

Abercrombie, H.C., Speck, N.S., & Monticelli, R.M. (2006). Endogenous cortisol elevations are related to memory facilitation only in individuals who are emotionally aroused. *Psychoneuroendocrinology*, 31 (2), 187-196. doi: 10.1016/j.psyneuen.2005.06.008.

Adams-White, J.E., Wheatcroft, J.M., & Jump, M. (2018). Measuring decision accuracy and confidence of mock air defence operators. *Journal of Applied Research in Memory and Cognition*, 7 (1), 60-69. doi: 10.1016/j.jarmac.2018.01.005.

Adi-Japha, E., & Karni, A. H. (2016). Time for considering constraints on procedural memory consolidation processes: Comment on Pan and Rickard (2015) with specific reference to developmental changes. *Psychological Bulletin*, 142(5), 568-571. doi: 10.1037/bul0000048.

Aizpurua, A., Garcia-Bajos, E., & Migules, M. (2011). False recognition and source attribution for actions of an emotional event in older and younger adults. *Experimental Aging Research: An International Journal Devoted to the Scientific Study of the Aging Process*, 37 (3), 310-329. doi: 10.1080/0361073X.2011.568829.

Alegría-Flores, K., Raker, K., Pleasants, R.K., Weaver, M.A., & Weinberger, M. (2017). Preventing interpersonal violence on college campuses: The effect of one act training on bystander intervention. *Journal of Interpersonal Violence*, 32 (7), 1103-1126. doi: 10.1177/0886260515587666.

Alhabib, S., Nur, U., & Jones, R. (2010). Domestic violence against women: Systematic review of prevalence studies. *Journal of Family Violence*, 25 (4), 369-382. doi: 10.1007/s10896-009-9298-4.

Alitavoli, R. & Kaveh, E. (2018). The U.S. media's effect on public's crime expectations: A cycle of cultivation and agenda-setting theory. *Societies*, 8 (3), 58. doi: 10.3390/soc8030058.

Allen, M.S. & Walter, E.E. (2016). Personality and body image: A systematic review. *Body Image, 19*, 79-88. doi: 10.1016/j.bodyim.2016.08.012.

Altmann, E. M., & Gray, W. D. (2002). Forgetting to remember: The functional relationship of decay and interference. *Psychological Science, 13*(1), 27-33. doi: 0.1111/1467-9280.00405.

Aluja, A., García, O., Rossier, J., & García, L.F. (2005). Comparison of the NEO-FFI, the NEO-FFI-R and an alternative short version of the NEO-PI-R (NEO-60) in Swiss and Spanish samples. *Personality and Individual Differences, 38*(3), 591-604. doi: 10.1016/j.paid.2004.05.014.

Anastasi, J.S. & Rhodes, M.G. (2005). An own-age bias in face recognition for children and older adults. *Psychonomic Bulletin and Review, 12* (6), 1043-1047. doi: 10.3758/BF03206441.

Areh, I. (2008). Connection between Eysenck's personality traits and memory recall. *Horizons of Psychology, 17* (3), 75-92. Retrieved from http://psiholoska-obzorja.si/arhiv_clanki/2008_3/areh.pdf.

Areh, I. (2011). Gender-related differences in eyewitness testimony. *Personality and Individual Differences, 50* (5), 559-563. doi: 10.1016/j.paid.2010.11.027.

Areh, I. & Umek, P. (2007). Predicting quality of memory recall by personality traits. *Studia Psychologica, 49* (1), 19-26. Retrieved from <http://search.proquest.com.libaccess.hud.ac.uk/docview/226905417?pq-origsite=summon>.

Arnold, M.M. (2013). Monitoring and meta-metacognition in the own-race bias. *Acta Psychologica, 144* (2), 380-389. doi: 10.1016/j.actpsy.2013.07.007.

Atherton, M. (2015). Measuring confidence levels of male and female students in open access enabling courses. *Issues in Educational Research, 25* (2), 81-98. Retrieved from <https://search.informit.com.au/documentSummary;dn=376539213601437;res=IELHSS>.

Atkinson, R.C. & Shiffrin, R.M. (1968). Human memory: A proposed system and its control processes. *Psychology of Learning and Motivation*, 1 (2), 89-195. doi: 10.1016/S0079-7421(08)60422-3.

Balmer, M.L., Ma, E.H., Bantug, G.R., Grählert, J., Pfister, S., Glatter, T. ... Hess, C. (2016). Memory CD8+ T cells require increased concentrations of acetate induced by stress for optimal function. *Immunity*, 44 (6), 1312-1324. doi: 10.1016/j.immuni.2016.03.016.

Balsam, K.F. & Szymanski, D.M. (2005). Relationship quality and domestic violence in women's same-sex relationships: The role of minority stress. *Psychology of Women Quarterly*, 29 (3), 258-269. doi: 10.1111/j.1471-6402.2005.00220.x.

Bandura, A., Adams, N. E., & Beyer, J. (1977). Cognitive processes mediating behavioral change. *Journal of Personality and Social Psychology*, 35(3), 125-139. doi: 10.1037/0022-3514.35.3.125.

Bäumli, K. -. H., Pastötter, B., & Hanslmayr, S. (2010). Binding and inhibition in episodic memory - cognitive, emotional, and neural processes. *Neuroscience & Biobehavioral Reviews*, 34(7), 1047-1054. doi: 10.1016/j.neubiorev.2009.04.005.

BBC. (2016). *Ched Evans: Footballer Found Not Guilty of Hotel Rape*. Retrieved from <https://www.bbc.co.uk/news/uk-wales-37659009>.

Beech, J. R. (1984). The effects of visual and spatial interference on spatial working memory. *Journal of General Psychology*, 110, 141-149. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/1290507159?pq-origsite=summon&imgSeq=1>.

Bell, R., Röer, J. P., & Buchner, A. (2013). Adaptive memory: The survival-processing memory advantage is not due to negativity or mortality salience. *Memory & Cognition*, 41(4), 490-502. doi: 10.3758/s13421-012-0290-5.

Berry, S. & Pakes, A. (2007). The pure characteristics demand model. *International Economic Review*, 48 (4), 1193-1225. Retrieved from https://www-jstor-org.libaccess.hud.ac.uk/stable/4542009?pq-origsite=summon&seq=1#metadata_info_tab_contents.

Biggs, A.T., Clark, K., & Mitroff, S.R. (2017). Who should be searching? Differences in personality can affect visual search accuracy. *Personality and Individual Differences*, 116 (1), 252-258. doi: 10.1016/j.paid.2017.04.045.

Billoux, S., Arbus, C., Telmon, N., & Voltzenlogel, V. (2016). Autobiographical memory impairment in female victims of intimate partner violence. *Journal of Family Violence*, 31 (7), 897-902. doi: 10.1007/s10896-016-9838-7.

Blakemore, J.E.O. & Hill, C.A. (2008). The child gender socialization scale: A measure to compare traditional and feminist parents. *Sex Roles*, 58 (3-4), 192-207. doi: 10.1007/s11199-007-9333-y.

Blaise, S.M. & Johnson, M.K. (2007). Memory for emotional and neutral information: Gender and individual differences in emotional sensitivity. *Memory*, 15 (2), 192-204. doi: 10.1080/09658210701204456.

Bluck, S., & Alea, N. (2009). Thinking and talking about the past: Why remember. *Applied Cognitive Psychology*, 23(8), 1089-1104. doi: 10.1002/acp.1612.

Bolitho, J. (2017). Inside the restorative justice black box: The role of memory reconsolidation in transforming the emotional impact of violent crime on victims. *International Review of Victimology*, 23 (3), 233-255. doi: 10.1177/0269758017714549.

Bostock, J., Plumpton, M., & Pratt, R. (2009). Domestic violence against women: Understanding social processes and women's experiences. *Journal of Community and Applied Social Psychology*, 19 (2), 95-110. doi: 10.1002/casp.985.

Bowden, S.C., Saklofske, D.H., van de Vijver, F.J.R., Sudarshan, N.J., & Eysenck, S.G.B. (2016). Cross-cultural measurement invariance of the Eysenck Personality Questionnaire across 33 countries. *Personality and Individual Differences, 103*, 53-60. doi: 10.1016/j.paid.2016.04.028.

Bowen, J., Teri, L., Kukull, W., McCormick, W., McCurry, S. M., & Larson, E. B. (1997). Progression to dementia in patients with isolated memory loss. *The Lancet, 349*(9054), 763-765. doi: 10.1016/S0140-6736(96)08256-6.

Boyd, R. & Brown, T. (2005). Pilot study of Myers Briggs Type Indicator personality profiling in emergency department senior medical staff. *Emergency Medicine Australasia, 17* (3), 200-203. doi: 10.1111/j.1742-6723.2005.00723.x.

Boyle, GJ. (2008). *Critique of the five-factor model of personality*. Retrieved from [https://www.researchgate.net/publication/27826750 Critique of the five-factor model of personality](https://www.researchgate.net/publication/27826750_Critique_of_the_five-factor_model_of_personality)

Bradbury-Jones, C., Taylor, J., Kroll, T., & Duncan, F. (2014). Domestic abuse awareness and recognition among primary healthcare professionals and abused women: a qualitative investigation. *Journal of Clinical Nursing, 23* (21-22), 3057-3068. doi: 10.1111/jocn.12534.

Bradfield, A.L., Wells, G.L., & Olson, E.A. (2002). The damaging effect of confirming feedback on the relation between eyewitness certainty and identification accuracy. *Journal of Applied Psychology, 87* (1), 112-120. doi: 10.1037/0021-9010.87.1.112.

Brady, M. (2018). UK paramedics confidence in identifying child sexual abuse: A mixed-methods investigation. *Journal of Child Sexual Abuse, 27* (4), 439-458. doi: 10.1080/10538712.2018.1477223.

Bresin, K., & Robinson, M. D. (2015). You are what you see and choose: Agreeableness and situation selection. *Journal of Personality, 83*(4), 452-463. doi: 10.1111/jopy.12121.

Brewer, N. & Burke, A. (2002). Effects of testimonial inconsistencies and eyewitness confidence on mock-juror judgments. *Law and Human Behavior*, 26 (3), 353-364. Retrieved from <https://www-jstor-org.libaccess.hud.ac.uk/stable/pdf/1394613.pdf?refreqid=excelsior%3Aff1be83ef2a75a6af6f4b3ae1d5f7eb0>.

Brewer, N. & Weber, N. (2008). Eyewitness confidence and latency: Indices of memory processes not just markers of accuracy. *Applied Cognitive Psychology*, 22, 827-840. doi: 10.1002/acp.1486.

Brewer, N. & Wells, G.L. (2006). The confidence-accuracy relationship in eyewitness identification: Effects of lineup instructions, foil similarity, and target-absent base rates. *Journal of Experimental Psychology: Applied*, 12 (1), 11-30. doi: 10.1037/1076-898X.12.1.11.

Brewer, W. F., & Sampaio, C. (2012). The metamemory approach to confidence: A test using semantic memory. *Journal of Memory and Language*, 67(1), 59-77. doi: 10.1016/j.jml.2012.04.002.

Brody, L.R. (1997). Gender and emotion: Beyond stereotypes. *Journal of Social Issues*, 53 (2), 369-393. doi: 10.1111/j.1540-4560.1997.tb02448.x.

Brown, E., Deffenacher, K., & Sturgill, W. (1977). Memory for faces and the circumstances of encounter. *Journal of Applied Psychology*, 62(3), 311/318. doi: 10.1037/0021-9010.62.3.311.

Brown, F. L., Graaf, M. A., Annan, J., & Betancourt, T. S. (2017). Annual Research Review: Breaking cycles of violence – a systematic review and common practice elements analysis of psychosocial interventions for children and youth affected by armed conflict. *Special Issue: Annual Research Review: Child psychology and psychiatry – using science to make a difference*, 58(4), 507-524. doi: 10.1111/jcpp.12671.

Brown, F.W. & Reilly, M.D. (2009). The Myers-Briggs type indicator and transformational leadership. *Journal of Management Development*, 28 (10), 916-932. doi: 10.1108/02621710911000677.

Brown, J. (1958). Some tests of the Decay Theory of immediate memory. *Quarterly Journal of Experimental Psychology*, 10(1), 12-21. doi: 10.1080/17470215808416249.

Bruer, K.C., Harvey, M.B., Adams, A.S., & Price, H.L. (2017). Judicial discussion of eyewitness identification evidence. *Canadian Journal of Behavioural Science*, 49 (4), 209-220. doi: 10.1037/cbs0000084.

Bruggen, M., & Grubb, A. (2014). A review of the literature relating to rape victim blaming: An analysis of the impact of observer and victim characteristics on attribution of blame in rape cases. *Aggression and Violent Behavior*, 19(5), 523-531. doi: 10.1016/j.avb.2014.07.008.

Bugajska, A., Mermillod, M., & Bonin, P. (2015). Does the thought of death contribute to the memory benefit of encoding with a survival scenario? *Memory*, 23 (2), 213-232. doi: 10.1080/09658211.2014.881881.

Bugelski, B.R. & Alampay, D.A. (1961). The role of frequency in developing perceptual sets. *Canadian Journal of Psychology*, 15 (4), 205-209. Retrieved from <https://search.proquest.com/openview/19fc615ed32b728785bf985a4704c3a1/1?pq-origsite=gscholar&cbl=1816500>.

Bull, L. (2012). Production system rules as protein complexes from genetic regulatory networks: An initial study. *Evolutionary Intelligence*, 5, 59-67. doi: 10.1007/s12065-012-0078-3.

Bullock, W.A. & Gilliland, K. (1993). Eysenck's arousal theory of introversion extraversion: A converging measures investigation. *Journal of Personality and Social Psychology*, 64 (1), 113-123. doi: 10.1037/0022-3514.64.1.113.

Buratti, S., Allwood, C.M., & Kleitman, S. (2013). First- and second-order metacognitive judgments of semantic memory reports: The influence of personality traits and cognitive styles. *Metacognition and Learning*, 8 (1), 79-102. doi: 10.1007/s11409-013-9096-5.

Burns, D. J., Hart, J., Kramer, M. E., & Burns, A. D. (2014). Dying to remember, remembering to survive: Mortality salience and survival processing. *Memory*, 22(1), 36-50. doi: 10.1080/09658211.2013.788660.

Bushman, B.J. & Anderson, C.A. (2009). Comfortably numb: Desensitizing effects of violent media on helping others. *Psychological Science*, 20 (3), 273-277. doi: 10.1111/j.1467-9280.2009.02287.x.

Butrus, N. & Witenberg, R.T. (2013). Some personality predictors of tolerance to human diversity: The roles of openness, agreeableness, and empathy. *Australian Psychologist*, 48 (4), 290-298. doi: 10.1111/j.1742-9544.2012.00081.x.

Capraro, R.M. & Capraro, M.M. (2002). Myers-Briggs Type Indicator score reliability across studies: A meta-analytic reliability generalization study. *Educational and Psychological Measurement*, 62 (4), 590-602. Retrieved from <http://journals.sagepub.com.libaccess.hud.ac.uk/doi/pdf/10.1177/0013164402062004004>.

Carlson, B.E. & Worden, A.P. (2005). Attitudes and beliefs about domestic violence: Results of a public opinion survey. *Journal of Interpersonal Violence*, 20 (10), 1197-1218. doi: 10.1177/0886260505278530.

Carol, R.N. & Compo, N.S. (2018). The effect of encoding duration on implicit and explicit eyewitness memory. *Consciousness and Cognition*, 61, 117-128. doi: 10.1016/j.concog.2018.02.004.

Carter, M. J. (2014). Gender Socialization and Identity Theory. *Social Sciences*, 3(2), 242-263. doi: 10.3390/socsci3020242.

Caruso, J.C., Witkiewitz, K., Belcourt-Dittloff, A., & Gottlieb, J.D. (2001). Reliability of scores from the Eysenck Personality Questionnaire: A reliability generalization study. *Educational and Psychological Measurement, 61* (4), 675-689. doi: 10.1177/00131640121971437.

Casey, E.A. & Ohler, K. (2012). Being a positive bystander: Male antiviolence allies' experiences of "stepping up". *Journal of Interpersonal Violence, 27* (1), 62-83. doi: 10.1177/0886260511416479.

Centofanti, A.T. & Reece, J. (2006). The cognitive interview and its effect on misleading postevent information. *Psychology, Crime and Law, 12* (6), 669-683. doi: 10.1080/10683160600558394.

Chan, S.W.Y., Goodwin, G.M., & Harmer, C.J. (2007). Highly neurotic never-depressed students have negative biases in information processing. *Psychological Medicine, 37* (9), 1281-1291. doi: 10.1017/S0033291707000669.

Chanmugam, A. (2014). Got One another's backs: Mother-teen relationships in families escaping intimate partner violence. *Journal of Human Behavior in the Social Environment, 24*(7), 811-827. doi: 10.1080/10911359.2014.884961.

Chapleau, K.M. & Oswald, D.L. (2013). Status, threat, and stereotypes: Understanding the function of rape myth acceptance. *Social Justice Research, 26* (1), 18-41. doi: 10.1007/s11211-013-0177-z.

Chong, K. & Connolly, D.A. (2015). Testifying through the ages: An examination of current psychological issues on the use of testimonial supports by child, adolescent, and adult witnesses in Canada. *Canadian Psychology, 56* (1), 108-117. doi: 10.1037/a0037742.

Chrobak, Q.M., Rindal, E.J., & Zaragoza, M.S. (2015). The impact of multifaceted questions on eyewitness accuracy following forced fabrication interviews. *The Journal of General Psychology, 142* (3), 150-166. doi: 10.1080/00221309.2015.1060188.

Chu, Q. & Grühn, D. (2017). Moral judgements and social stereotypes: Do the age and gender of the perpetrator and the victim matter. *Social Psychological and Personality Science, 9* (4), 426-434. doi: 10.1177/1948550617711226.

Cismaru, M., Jensen, G., & Lavack, A.M. (2010). If the noise coming from next door were loud music, you'd do something about it: Using mass media campaigns encouraging bystander intervention to stop partner violence. *Journal of Advertising, 39* (4), 69-82. doi: <https://search-proquest-com.libaccess.hud.ac.uk/docview/860002486?pg-origsite=summon>.

Citizens Advice. (n.d.). *Domestic violence and abuse*. Retrieved from <https://www.citizensadvice.org.uk/family/gender-violence/domestic-violence-and-abuse/>.

Clark, S.E., Howell, R.T., & Davey, S.L. (2008). Regularities in eyewitness identification. *Law and Human Behavior, 32* (3), 187-218. doi: 10.1007/s10979-006-9082-4.

Clayton, N.S., Salwiczek, L.H., & Dickinson, A. (2007). Episodic memory. *Current Biology, 17* (6), 189-191. doi: 10.1016/j.cub.2007.01.011.

Conway, M. A. (2013). On being a memory expert witness: Three cases. *Memory, 21*, 566-575. doi: 10.1080/09658211.2013.794241.

Corr, P.J. (2010). The psychoticism–psychopathy continuum: A neuropsychological model of core deficits. *Personality and Individual Differences, 48* (6), 695-703. doi: 10.1016/j.paid.2009.12.023.

Costa, S., & Neves, P. (2017). It is your fault! How blame attributions of breach predict employees' reactions. *Journal of Managerial Psychology*, 32(7), 470-483. doi: 10.1108/JMP-01-2017-0023.

Côté-Lussier, C. (2016). The functional relation between social inequality, criminal stereotypes, and public attitudes toward punishment of crime. *Psychology, Public Policy, and Law*, 22 (1), 46-57. doi: 10.1037/law0000073.

Cowan, S., Read, J.D., & Lindsay, D.S. (2014). Predicting and postdicting eyewitness accuracy and confidence. *Journal of Applied Research in Memory and Cognition*, 3 (1), 21-30. doi: 10.1016/j.jarmac.2014.01.002.

Cramer, R. J., Chandler, J. F., & Wakeman, E. E. (2010). Blame attribution as a moderator of perceptions of sexual orientation—based hate crimes. *Journal of Interpersonal Violence*, 25(5), 848-862. doi: 10.1177/0886260509336962.

Cramer, R.J., Brodsky, S.L., & DeCoster, J. (2009). Expert witness confidence and juror personality: Their impact on credibility and persuasion in the courtroom. *Journal of the American Academy of Psychiatry and the Law*, 37 (1), 63-74. Retrieved from <http://jaapl.org/content/37/1/63#sec-21>.

Cross, C.P., Brown, G.R., Morgan, T.J.H., & Laland, K.N. (2017). Sex differences in confidence influence patterns of conformity. *British Journal of Psychology*, 108 (4), 655-667. doi: 10.1111/bjop.12232.

Crowe, M. L., Lynam, D. R., & Miller, J. D. (2018). Uncovering the structure of agreeableness from self-report measures. *Journal of Personality*, 86(5), 771-787. doi: 10.1111/jopy.12358.

Cyr, A. -. A., & Anderson, N. D. (2013). Updating misconceptions: Effects of age and confidence. *Psychonomic Bulletin & Review*, 20, 574-580. doi: 10.3758/s13423-012-0357-0.

Dahl, M., Allwood, C.M., & Hagberg, B. (2009). The realism in older people's confidence judgments of answers to general knowledge questions. *Psychology and Aging, 24* (1), 234-238. doi: 10.1037/a0014048.

Dambrun, M. (2007). Understanding the relationship between racial prejudice and support for the death penalty: The racist punitive bias hypothesis. *Social Justice Research, 20* (2), 228-249. doi: 10.1007/s11211-007-0040-1.

Dando, C., Wilcock, R., Milne, R., & Henry, L. (2009). A modified cognitive interview procedure for frontline police investigators. *Applied Cognitive Psychology, 23* (5), 698-716. doi: 10.1002/acp.1501.

Dassonneville, R. & McAllister, I. (2018). Gender, political knowledge, and descriptive representation: The impact of long-term socialization. *American Journal of Political Science, 62* (2), 249-265. doi: 10.1111/ajps.12353.

Davachi, L., Maril, A., & Wagner, A. D. (2001). When keeping in mind supports later bringing to mind: Neural markers of phonological rehearsal predict subsequent remembering. *Journal of Cognitive Neuroscience, 13*(8), 1059-1070. doi: 10.1162/089892901753294356.

Davidson, H. A., Dixon, R. A., & Hultsch, D. F. (1991). Memory anxiety and memory performance in adulthood. *Applied Cognitive Psychology, 5*(5), 423-433. doi: 10.1002/acp.2350050504.

Davis, D., Loftus, E.F., Vanous, S., & Cucciare, M. (2008). 'Unconscious transference' can be an instance of 'change blindness'. *Applied Cognitive Psychology, 22* (5), 605-623. doi: 10.1002/acp.1395.

Davis, P.J. (1999). Gender differences in autobiographical memory for childhood emotional experiences. *Journal of Personality and Social Psychology*, 76 (3), 498-510. doi: 10.1037/0022-3514.76.3.498.

De Carolis, A. & Ferracuti, S. (2010). Extraversion and accuracy of aspects of memory for pain in the cold-water pressor test. *Perceptual and Motor Skills*, 111 (1), 91-104. doi: 10.2466/02.09.15.20.PMS.111.4.91-104.

De Jong, M., Wagenaar, W.A., Wolters, G.R., & Verstijnen, I.M. (2005). Familiar face recognition as a function of distance and illumination: a practical tool for use in the courtroom. *Psychology, Crime and Law*, 11 (1), 87-97. doi: 10.1080/10683160410001715123.

Deffenbacher, K. A., Leu, J. R., & Brown, E. L. (1981). Memory for faces: Testing method, encoding strategy, and confidence. *American Journal of Psychology*, 94(1), 13-26. doi: 10.2307/1422340.

Deffenbacher, K.A., Bornstein, B.H., & Penrod, S.D. (2006). Mugshot exposure effects: Retroactive interference, mugshot commitment, source confusion, and unconscious transference. *Law and Human Behavior*, 30 (3), 287-307. doi: 10.1007/s10979-006-9008-1.

Deffenbacher, K.A., Bornstein, B.H., Penrod, S.D., & McGorty, E.K. (2004). A meta-analytic review of the effects of high stress on eyewitness memory. *Law and Human Behavior*, 28 (6), 687-706. doi: 10.1007/s10979-004-0565-x.

Delduca, C.M., Jones, S.H., & Barnard, P. (2010). A preliminary investigation of the effect of hypomanic personality on the specificity and speed of autobiographical memory recall. *Memory*, 18 (1), 12-26. doi: 10.1080/09658210903387513.

Delleman, B. & Fernandes, M. (2015). Individual differences in anxiety influence verbal memory accuracy and confidence. *Journal of Individual Differences, 36* (2), 73-79. doi: 10.1027/1614-0001/a000158.

Denkova, E., Dolcos, S., & Dolcos, F. (2012). Reliving emotional personal memories: Affective biases linked to personality and sex-related differences. *Emotion, 12* (3), 515-528. doi: 10.1037/a0026809.

DeYoung, C.G., Grazioplene, R.G., & Peterson, J.B. (2012). From madness to genius: The openness/intellect trait domain as a paradoxical simplex. *Journal of Research in Personality, 46* (1), 63-78. doi: 10.1016/j.jrp.2011.12.003.

DeYoung, C.G., Quilty, L.C., Peterson, J.B., & Gray, J.R. (2014). Openness to experience, intellect, and cognitive ability. *Journal of Personality Assessment, 96* (1), 46-52. doi: 10.1080/00223891.2013.806327.

Di Domenico, S.I., Quitalol, M.N., & Fournier, M.A. (2015). Ratings of conscientiousness from physical appearance predict undergraduate academic performance. *Journal of Nonverbal Behavior, 39* (4), 339-353. doi: 10.1007/s10919-015-0213-9.

Diemer, K., Humphreys, C., & Crinall, K. (2017). Safe at home? Housing decisions for women leaving family violence. *Australian Journal of Social Issues, 52* (1), 32-47. Retrieved from <https://onlinelibrary-wiley-com.libaccess.hud.ac.uk/doi/full/10.1002/ajs4.5>.

Dinos, S., Burrowes, N., Hammond, K., & Cunliffe, C. (2015). A systematic review of juries' assessment of rape victims: Do rape myths impact on juror decision-making. *International Journal of Law, Crime and Justice, 43* (1), 36-49. doi: 10.1016/j.ijlcj.2014.07.001.

Dixon, T.L. & Maddox, K.B. (2006). Skin tone, crime news, and social reality judgments: Priming the stereotype of the dark and dangerous black criminal. *Journal of Applied Social Psychology, 35* (8), 1555-1570. doi: 10.1111/j.1559-1816.2005.tb02184.x.

Dobolyi, D.G. & Dodson, C.S. (2018). Actual vs. perceived eyewitness accuracy and confidence and the featural justification effect. *Journal of Experimental Psychology: Applied, 7*. doi: 10.1037/xap0000182.

Dodson, C.S. & Dobolyi, D.G. (2016). Confidence and eyewitness identifications: The cross-race effect, decision time and accuracy. *Applied Cognitive Psychology, 30* (1), 113-125. doi: 10.1002/acp.3178.

Doughty, N., Paterson, H.M., MacCann, C., & Monds, L.A. (2017). Personality and memory conformity. *Journal of Individual Differences, 38* (1), 12-20. doi: 0.1027/1614-0001/a000217.

Duckworth, T.S., Kreiner, D.S., Stark-Wroblewski, K., & Marsh, P.A. (2011). Effects of experiencing the eyewitness identification procedure on juror decisions. *Journal of Police and Criminal Psychology, 26* (1), 11-19. doi: 10.1007/s11896-010-9071-x.

Duff, M. C., Gupta, R., Hengst, J. A., Tranel, D., & Cohen, N. J. (2011). The use of definite references signals declarative memory: Evidence from patients with hippocampal amnesia. *Psychological Science, 22*(5), 666-673. doi: 10.1177/0956797611404897.

Dumitru, D., Chraif, M., & Anitei, M. (2014). Motivation and cognitive tasks. Correlative study between genders. *Procedia - Social and Behavioral Sciences, 127*, 828-833. doi: 10.1016/j.sbspro.2014.03.363.

Edwards, K.M., Turchik, J.A., Dardis, C.M., Reynolds, N., & Gidycz, C.A. (2011). Rape myths: History, individual and institutional-level presence, and implications for change. *Sex Roles*, 65 (11-12), 761-773. Retrieved from <https://link-springer-com.libaccess.hud.ac.uk/article/10.1007%2Fs11199-011-9943-2>.

Emery, C.R. (2010). Examining an extension of Johnson's hypothesis: Is male perpetrated intimate partner violence more underreported than female violence. *Journal of Family Violence*, 25 (2), 173-181. doi: 10.1007/s10896-009-9281-0.

Entilli, L. & Cipolletta, S. (2017). When the woman gets violent: the construction of domestic abuse experience from heterosexual men's perspective. *Journal of Clinical Nursing*, 26 (15-16), 2328-2341. doi: 10.1111/jocn.13500.

Erickson, W.B., Lampinen, J.M., & Moore, K.N. (2016). Eyewitness identifications by older and younger adults: A meta-analysis and discussion. *Journal of Police and Criminal Psychology*, 31 (2), 108-121. doi: 10.1007/s11896-015-9176-3.

Eriksson, L. & Mazerolle, P. (2015). A cycle of violence? Examining family-of-origin violence, attitudes, and Intimate Partner Violence perpetration. *Journal of Interpersonal Violence*, 30 (6), 945-964. doi: 10.1177/0886260514539759.

Escorial, S. & Navas, M.J. (2007). Analysis of the gender variable in the Eysenck Personality Questionnaire—Revised scales using differential item functioning techniques. *Educational and Psychological Measurement*, 67 (6), 990-1001. doi: 10.1177/0013164406299108.

Estes, Z. & Felker, S. (2012). Confidence mediates the sex difference in mental rotation performance. *Archives of Sexual Behavior*, 41 (3), 557-570. doi: 10.1007/s10508-011-9875-5.

Farrell, S., Oberauer, K., Greaves, M., Pasiecznik, K., Lewandowsky, S., & Jarrold, C. (2016). A test of interference versus decay in working memory: Varying distraction within lists in a complex span task. *Journal of Memory and Language, 90*, 66-87. doi: 10.1016/j.jml.2016.03.010.

Fawcett, J.M., Russell, E.J., Peace, K.A., & Christie, J. (2013). Of guns and geese: A meta-analytic review of the 'weapon focus' literature. *Psychology, Crime and Law, 19* (1), 35-66. doi: 10.1080/1068316X.2011.599325.

Felson, R.B., Messner, S.F., Hoskin, A.W., & Deane, G. (2006). Reasons for reporting and not reporting domestic violence to the police. *Criminology, 40* (3), 617-648. doi: 10.1111/j.1745-9125.2002.tb00968.x.

Fenton, R.A. & Mott, H.L. (2017). The bystander approach to violence prevention: Considerations for implementation in Europe. *Psychology of Violence, 7* (3), 450-458. doi: 10.1037/vio0000104.

Finn, A. S., Kalra, P. B., Goetz, C., Leonard, J. A., Sheridan, M. A., & Gabrieli, J. D. E. (2016). Developmental dissociation between the maturation of procedural memory and declarative memory. *Journal of Experimental Child Psychology, 142*, 212-220. doi: 10.1016/j.jecp.2015.09.027.

Fischer, P., Krueger, J.I., Greitemeyer, T., Vogrincic, C., & Kastenmüller, A. (2011). The bystander-effect: A meta-analytic review on bystander intervention in dangerous and non-dangerous emergencies. *Psychological Bulletin, 137* (4), 517-537. doi: 10.1037/a0023304.

Flowe, H.D., Colloff, M.F., Karoğlu, N., Zelek, K., Ryder, H., Humphries, J.E., & Takarangi, K.T. (2017). The effects of alcohol intoxication on accuracy and the confidence–accuracy relationship in photographic simultaneous line-ups. *Journal of Occupational and Organizational Psychology, 31* (4), 379-391. doi: 10.1002/acp.3332.

Forrest, K.D., Woody, W.D., Brady, S.E., Batterman, K.C., Stastny, B.J., & Bruns, J.A. (2012). False-evidence ploys and interrogations: Mock jurors' perceptions of false-evidence ploy type, deception, coercion, and justification. *Behavioral Sciences and the Law*, 30 (3), 342-364. doi: 0.1002/bsl.1999.

Fossati, P., Hevenor, S.J., Lepage, M., Graham, S.J., Grady, C., Keightley, M.L. ... Mayberg, H. (2004). Distributed self in episodic memory: Neural correlates of successful retrieval of self-encoded positive and negative personality traits. *NeuroImage*, 22 (4), 1596-1604. doi: 10.1016/j.neuroimage.2004.03.034.

Friehe, T., & Miceli, T. J. (2017). On punishment severity and crime rates. *American Law and Economics Review*, 19(2), 464-485. doi: 10.1093/aler/ahx017.

Frieze, H. I. (2005). Female violence against intimate partners: An introduction. *Psychology of Women Quarterly*, 29 (3), 229-237. doi: 10.1111/j.1471-6402.2005.00217.x.

Frumkin, L. (2007). Influences of accent and ethnic background on perceptions of eyewitness testimony. *Psychology, Crime and Law*, 13 (3), 317-331. doi: 10.1080/10683160600822246.

Fuentes, A. & Desrocher, M. (2013). The effects of gender on the retrieval of episodic and semantic components of autobiographical memory. *Memory*, 21 (6), 619-632. doi: 10.1080/09658211.2012.744423.

Furnham, A. & Cheng, H. (2015). Early indicators of adult trait agreeableness. *Personality and Individual Differences*, 73, 67-71. doi: 10.1016/j.paid.2014.09.025.

Furnham, A. & Cheng, H. (2017). Factors affecting adult trait Neuroticism in a nationally representative sample. *Psychiatry Research*, 256, 253-257. doi: 10.1016/j.psychres.2017.06.030.

Gadd, D. (2012). Domestic abuse prevention after Raoul Moat. *Critical Social Policy*, 32 (4), 495-516. doi: 10.1177/0261018312439361.

Gao, Y., Raine, A., Venables, P., Dawson, M. E., & Mednick, S. A. (2010). Association of poor childhood fear conditioning and adult crime. *The American Journal of Psychiatry*, 167(1), 56-60. doi: 10.1176/appi.ajp.2009.09040499.

Garcia, D., Rosenberg, P., & Sikström, S. (2016). Personality Descriptions and Personality Measures. *Personality and Individual Differences*, 101, 479-480. doi: 10.1016/j.paid.2016.05.143.

Geiger, M., Olderbak, S., Sauter, R., & Wilhelm, O. (2018). The “g” in faking: Doublethink the validity of personality self-report measures for applicant selection. *Frontiers in Psychology*, 9. doi: 10.3389/fpsyg.2018.02153.

Gerber, M.M. & Jackson, J. (2016). Authority and punishment: On the ideological basis of punitive attitudes towards criminals. *Psychiatry, Psychology and Law*, 23 (1), 113-134. doi: 10.1080/13218719.2015.1034060.

Gershman, S. J., & Niv, Y. (2012). Exploring a latent cause theory of classical conditioning. *Learning & Behavior*, 40, 255-268. doi: 10.3758/s13420-012-0080-8.

Gerson, M.W. & Neilson, L. (2014). The importance of identity development, principled moral reasoning, and empathy as predictors of openness to diversity in emerging adults. *Sage Open*, 4 (4), 1-11. doi: 10.1177/2158244014553584.

Gignac, G.E. & Szodorai, E.T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74-78. doi: 10.1016/j.paid.2016.06.069.

González-Vallejo, C. & Bonham, A. (2007). Aligning confidence with accuracy: Revisiting the role of feedback. *Acta Psychologica*, 125 (2), 221-239. doi: 10.1016/j.actpsy.2006.07.010.

Gooding, D.C., Padrutt, E.R., & Plum, M.J. (2017). The predictive value of the NEO-FFI items: Parsing the nature of Social Anhedonia using the Revised Social Anhedonia Scale and the ACIPS. *Frontiers in Psychology, 8* (147), 1-9. doi: 10.3389/fpsyg.2017.00147.

Goodman-Delahunty, J. & Crehan, A.C. (2016). Enhancing police responses to domestic violence incidents: Reports from client advocates in New South Wales. *Violence Against Women, 22* (8), 1007-1026. doi: 10.1177/1077801215613854.

GOV.UK. (n.d.). *Domestic Violence and Abuse*. Retrieved from <https://www.gov.uk/guidance/domestic-violence-and-abuse>.

Grandi, F., & Sánchez de León, J. M. R. (2020). Memory for future actions: The effects of prospective memory on an explicit and implicit memory task. *Psicothema, 32*(1), 54-59. doi: 10.7334/psicothema2019.172.

Graziano, W. G., & Tobin, R. M. (2002). Agreeableness: Dimension of personality or social desirability artifact. *Journal of Personality, 70*(5), 695-728. doi: 10.1111/1467-6494.05021.

Green, M. (n.d). *Errors in eyewitness identification procedures*. Retrieved from <http://www.visualexpert.com/Resources/mistakenid.html>.

Gross, T.F. (2009). Own-ethnicity bias in the recognition of black, East Asian, Hispanic, and white faces. *Journal Basic and Applied Social Psychology, 31* (2), 128-135. doi: 10.1080/01973530902880381.

Grubb, A., & Turner, E. (2012). Attribution of blame in rape cases: A review of the impact of rape myth acceptance, gender role conformity and substance use on victim blaming. *Aggression and Violent Behavior, 17*(5), 443-452. doi: 10.1016/j.avb.2012.06.002.

Grysmán, A. (2014). The roles of gender and temporal distance in the recall of dissonant self-related memories. *Consciousness and Cognition*, 29, 10-22. doi: 10.1016/j.concog.2014.07.003.

Grysmán, A. (2017). Gender differences in episodic encoding of autobiographical memory. *Journal of Applied Research in Memory and Cognition*, 6 (1), 51-59. doi: 10.1016/j.jarmac.2016.07.012.

Gudjonsson, G.H., Sigurdsson, J.F., Bragason, O.O., Einarsson, E., & Valdimarsdottir, E.B. (2004). Compliance and personality: The vulnerability of the unstable introvert. *European Journal of Personality*, 18 (5), 435-443. doi: 10.1002/per.514 .

Gunter, B., Furnham, A., & Pappa, E. (2005). Effects of television violence on memory for violent and nonviolent advertising. *Journal of Applied Social Psychology*, 35 (8), 1680-1697. doi: 10.1111/j.1559-1816.2005.tb02190.x.

Gurney, D.J., Ellis, L.R., & Vardon-Hynard, E. (2016). The saliency of gestural misinformation in the perception of a violent crime. *Psychology, Crime and Law*, 22 (7), 651-665. doi: 10.1080/1068316X.2016.1174860.

Gurven, M., von Rueden, C., Massenkoff, M., Kaplan, H., & Vie, M.L. (2013). How universal is the Big Five? Testing the Five-Factor Model of personality variation among forager–farmers in the Bolivian Amazon. *Journal of Personality and Social Psychology*, 104 (2), 354-370. doi: 10.1037/a0030841.

Hahn, C.A., O'Toole, A.J., & Phillips, P.J. (2016). Dissecting the time course of person recognition in natural viewing environments. *British Journal of Psychology*, 107 (1), 117-134. doi: 10.1111/bjop.12125.

Haidt, J. & Graham, J. (2007). When morality opposes justice: Conservatives have moral intuitions that Liberals may not recognize. *Social Justice Research, 20* (1), 98-116. doi: 10.1007/s11211-007-0034-z.

Hall, J.A., Gunnery, S.D., Letzring, T.F.D., Carney, D.R., & Colvin, C.R. (2017). Accuracy of judging affect and accuracy of judging personality: How and when are they related. *Journal of Personality, 85* (5), 583-592. doi: 10.1111/jopy.12262.

Hamed, S. M. & Akbari, O. (2015). An investigation of the extraverts-introverts speaking anxiety in English classes. *Studies in English Language Teaching, 3*(3), 284-293. doi: 10.22158/selt.v3n3p284.

Harper, C.A., Bartels, R.M., & Hogue, T.E. (2016). Reducing stigma and punitive attitudes toward paedophiles through narrative humanization. *Sexual Abuse, 30* (5), 533-555. doi: 10.1177/1079063216681561.

Harrison, V. & Hole, G.J. (2009). Evidence for a contact-based explanation of the own-age bias in face recognition. *Psychonomic Bulletin and Review, 16* (2), 264-269. doi: 10.3758/PBR.16.2.264.

Helle, A.C. & Mullins-Sweatt, S.N. (2019). Maladaptive Personality trait models: Validating the Five-Factor Model maladaptive trait measures with the Personality Inventory for DSM-5 and NEO Personality Inventory. *Assessment, 26* (3), 375-385. doi: 10.1177/1073191117709071.

Hendy, N.T. (2017). Forced-choice personality measures and academic dishonesty: A comparative study. *Journal of Academic Ethics, 15* (4), 293-306. doi: 10.1007/s10805-017-9280-3.

Herlitz, A., Nilsson, L.G., & Bäckman, L. (1997). Gender differences in episodic memory. *Memory and Cognition, 25*(6), 801-811. doi: 10.3758/BF03211324.

Hester, M. & Lilley, S.-J. (2016). Rape investigation and attrition in acquaintance, domestic violence and historical rape cases. *Journal of Investigative Psychology and Offender Profiling*, 14 (2), 175-188. doi: 10.1002/jip.1469.

Hill, K.E., Samuel, D.B., & Foti, D. (2016). Contextualizing individual differences in error monitoring: Links with impulsivity, negative affect, and conscientiousness. *Psychophysiology*, 53 (8), 1143-1153. doi: 10.1111/psyp.12671.

Hills, P.J. & Lewis, M.B. (2011). Rapid communication: The own-age face recognition bias in children and adults. *Quarterly Journal of Experimental Psychology*, 64 (1), 17-23. doi: 10.1080/17470218.2010.537926.

Hoferichter, F. & Raufelder, D. (2015). Examining the role of social relationships in the association between neuroticism and test anxiety results from a study with German secondary school students. *An International Journal of Experimental Educational Psychology*, 35 (7), 851-868. doi: 10.1080/01443410.2013.849326.

Hofmans, J., Kuppens, P., & Allik, J. (2008). Is short in length short in content? An examination of the domain representation of the Ten Item Personality Inventory scales in Dutch language. *Personality and Individual Differences*, 45 (8), 750-755. doi: 10.1016/j.paid.2008.08.004.

Holland, K.J., Rabelo, V.C., & Cortina, L. (2016). See something, do something: Predicting sexual assault bystander intentions in the U.S. military. *American Journal of Community Psychology*, 58 (1-2), 3-15. doi: 10.1002/ajcp.12077.

Hope, L. & Wright, D. (2007). Beyond unusual? Examining the role of attention in the weapon focus effect. *Applied Cognitive Psychology*, 21 (7), 951-061. doi: 10.1002/acp.1307.

Hope, L., Gabbert, F., Fisher, R.P., & Jamieson, K. (2014). Protecting and enhancing eyewitness memory: The impact of an initial recall attempt on performance in an investigative interview. *Applied Cognitive Psychology, 28*(3), 304-313. doi: 10.1002/acp.2984 .

Horowitz, F. D. (1992). John B. Watson's legacy: Learning and environment. *Developmental Psychology, 28*(3), 360-367. doi: 10.1037/0012-1649.28.3.360.

Hoscheidt, S.M., LaBar, K.S., Ryan, L., Jacobs, W.J., & Nadel, L. (2014). Encoding negative events under stress: High subjective arousal is related to accurate emotional memory despite misinformation exposure. *Neurobiology of Learning and Memory, 112*, 237-247. doi: 10.1016/j.nlm.2013.09.008237.

House of Commons Library (2013). *Domestic violence statistics*. Retrieved from <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN00950>

Houston, K.A., Hope, L., Memon, A., & Read, J.D. (2013). Expert testimony on eyewitness evidence: In search of common sense. *Behavioral Sciences and the Law, 31* (5), 637-651. doi: 10.1002/bsl.2080.

Hull, D.M., Beaujean, A., Worrell, F.C., & Verdisco, A.E. (2010). An item-level examination of the factorial validity of NEO Five-Factor Inventory scores. *educational and Psychological Measurement, 70* (6), 1021-1041. doi: 10.1177/0013164410378091.

Ito, H., Barzykowski, K., Grzesik, M., Gülgöz, S., Gürdere, C., Janssen, S. M. J., . . . Mori, K. (2019). Eyewitness memory distortion following co-witness discussion: A replication of garry, french, kinzett, and mori (2008) in ten countries. *Journal of Applied Research in Memory and Cognition, 8*(1), 68-77. doi:10.1016/j.jarmac.2018.09.004.

Jahanfar, S. & Malekzadegan, Z. (2007). The prevalence of domestic violence among pregnant women who were attended in Iran University of medical science hospitals. *Journal of Family Violence*, 22 (8), 643-648. doi: 10.1007/s10896-007-9084-0.

Jamel, J. (2014). An exploration of rapists' motivations as illustrated by their crime scene actions: Is the gender of the victim an influential factor. *Journal of Investigative Psychology*, 11 (3), 276-298. doi: 10.1002/jip.1422.

Jensen-Campbell, L.A., Gleason, K.A., Adams, R., & Malcolm, K.T. (2003). Interpersonal conflict, agreeableness, and personality development. *Journal of Personality*, 71 (6), 1059-1086. doi: 10.1111/1467-6494.7106007.

Jeong, E.J. & Biocca, F.A. (2012). Are there optimal levels of arousal to memory? Effects of arousal, centrality, and familiarity on brand memory in video games. *Computers in Human Behavior*, 28 (2), 285-291. doi: 10.1016/j.chb.2011.09.011.

Jeong, Y.R., Christiansen, N.D., Robie, C., Kung, M.-C., & Kinney, T.B. (2017). Comparing applicants and incumbents: Effects of response distortion on mean scores and validity of personality measures. *International Journal of Selection and Assessment*, 25 (3), 311-315. doi: 10.1111/ijsa.12182.

Johnson, T.L. & Jefferson, S.C. (2018). Destination memory accuracy and confidence in younger and older adults. *An International Journal Devoted to the Scientific Study of the Aging Process*, 44 (1), 62-81. doi: 10.1080/0361073X.2017.1398515.

Jones, K.M. & Ruthig, J.C. (2015). The impact of positive thinking, gender, and empathy on social attributions for cancer outcomes. *Current Psychology*, 34 (4), 762-771. doi: 10.1007/s12144-014-9288-4.

Jost, J.T. & Banaji, M.R. (1994). The role of stereotyping in system-justification and the production of false consciousness. *British Journal of Social Psychology*, 33 (1), 1-27. doi: 10.1111/j.2044-8309.1994.tb01008.x.

Jost, J.T., Banaji, M.R., & Nosek, B.A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology*, 25 (6), 881-919. Retrieved from https://www-jstor-org.libaccess.hud.ac.uk/stable/3792282?pq-origsite=summon&seq=1#metadata_info_tab_contents.

Jou, J. (2008). Recall latencies, confidence, and output positions of true and false memories: Implications for recall and metamemory theories. *Journal of Memory and Language*, 58 (4), 1049-1064. doi: 10.1016/j.jml.2007.12.003.

Kaplan, R.L., Van Damme, I., Levine, L.J., & Loftus, E.F. (2016). Emotion and false memory. *Emotion Review*, 8 (1), 8-13. doi: 10.1177/1754073915601228.

Kassin, S. M. (2017). The killing of Kitty Genovese: What else does this case tell us. *Perspectives on Psychological Science*, 12(3), 374-381. doi: 10.1177/1745691616679465.

Kassin, S.M., Tubb, A.V., Hosch, H.M., & Memon, A. (2001). On the "general acceptance" of eyewitness testimony research: A new survey of the experts. *American Psychologist*, 56 (5), 405-416. doi: 10.1037/0003-066X.56.5.405.

Kaukinen, C.E., Meyer, S., & Akers, C. (2013). Status compatibility and help-seeking behaviors among female intimate partner violence victims. *Journal of Interpersonal Violence*, 28 (3), 577-601. doi: 10.1177/0886260512455516.

Kebbell, M.R., Wagstaff, G.F., & Covey, J.A. (1996). The influence of item difficulty on the relationship between eyewitness confidence and accuracy. *British Journal of Psychology*, 87 (4), 653-662. doi: 10.1111/j.2044-8295.1996.tb02614.x.

Keller, L.B., Oswald, M.E., Stucki, I., & Gollwitzer, M. (2010). A closer look at an eye for an eye: Laypersons' punishment decisions are primarily driven by retributive motives. *Social Justice Research, 23* (2-3), 99-116. doi: 10.1007/s11211-010-0113-4.

Kikuchi, H., Fujii, T., Abe, N., Suzuki, M., Takagi, M., Mugikura, S. ... Mori, E. (2010). Memory repression: Brain mechanisms underlying dissociative amnesia. *Journal of Cognitive Neuroscience, 22* (3), 602-613. doi: 10.1162/jocn.2009.21212.

Kizilbash, A. H., Vanderploeg, R. D., & Curtiss, G. (2002). The effects of depression and anxiety on memory performance. *Archives of Clinical Neuropsychology, 17*(1), 57-67. doi: 10.1093/arclin/17.1.57.

Kopylov, I. & Miller, J. (2018). Subjective beliefs and confidence when facts are forgotten. *Journal of Risk and Uncertainty, 57* (3), 281-299. doi: 10.1007/s11166-018-9295-1.

Koriat, A., & Sorka, H. (2015). The construction of categorization judgments: Using subjective confidence and response latency to test a distributed model. *Cognition, 134*, 21-38. doi: 10.1016/j.cognition.2014.09.009.

Körner, A., Czajkowska, Z., Albani, C., Drapeau, M., Geyer, M., & Braehler, E. (2015). Efficient and valid assessment of personality traits: population norms of a brief version of the NEO Five-Factor Inventory (NEO-FFI). *Archives of Psychiatry and Psychotherapy, 1*, 21-32. doi: 10.12740/APP/36086.

Kotov, R., Gamez, W., Schmidt, F., & Watson, D. (2010). Linking "big" personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychological Bulletin, 136* (5), 768-821. doi: 10.1037/a0020327.

Kring, A.M. & Gordon, A.H. (1998). Sex differences in emotion: Expression, experience, and physiology. *Journal of Personality and Social Psychology*, 74 (3), 686-703. doi: 10.1037/0022-3514.74.3.686.

Kuipers, B.S., Higgs, M.J., Tolkacheva, N.V., & de Witte, M.C. (2009). The influence of Myers-Briggs Type Indicator profiles on team development processes: An empirical study in the manufacturing industry. *Small Group Research*, 40 (4), 436-464. doi: 10.1177/1046496409333938.

Kumari, V., Ffytche, D. H., Das, M., Wilson, G. D., & Goswami, S. (2007). Neuroticism and brain responses to anticipatory fear. *Behavioral Neuroscience*, 121(4), 643-652. doi: 10.1037/0735-7044.121.4.643.

Kunst, M.J.J. & van Bon-Martens, M.J.H. (2011). Examining the link between domestic violence victimization and loneliness in a Dutch community sample: A comparison between victims and nonvictims by Type D personality. *Journal of Family Violence*, 26 (5), 403-410. doi: 10.1007/s10896-011-9374-4.

Kurdi, B., Diaz, A.J., Wilmuth, C.A., Friedman, M.C., & Banaji, M.R. (2018). Variations in the relationship between memory confidence and memory accuracy: The effects of spontaneous accessibility, list length, modality, and complexity. *Psychology of Consciousness: Theory, Research, and Practice*, 5 (1), 3-28. doi: 10.1037/cns0000117.

Lampinen, J.M., Erickson, W.B., Moore, K.N., & Hittson, A. (2014). Effects of distance on face recognition: Implications for eyewitness identification. *Psychonomic Bulletin and Review*, 21 (6), 1489-1494. doi: 10.3758/s13423-014-0641-2.

Lander, K. & Poyarekar, S. (2015). Famous face recognition, face matching, and extraversion. *Quarterly Journal of Experimental Psychology*, 68 (9), 1769-1776. doi: 10.1080/17470218.2014.988737.

Langhinrichsen-Rohling, J. (2012). Gender and stalking: Current intersections and future directions. *Sex Roles, 66*(5-6), 418-426. doi: 10.1007/s11199-011-0093-3.

Latané, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?*. New York, NY: Appleton-Century-Croft.

Launay, C. & Py, J. (2015). Methods and aims of investigative interviewing of adult witnesses: An analysis of professional practices. *Pratiques Psychologiques, 21* (1), 55-70. doi: 10.1016/j.prps.2014.11.001.

Lawrence, C. & Hodgkins, E. (2009). Personality influences on interpretations of aggressive behavior: The role of provocation sensitivity and trait aggression. *Personality and Individual Differences, 46* (3), 319-324. doi: 10.1016/j.paid.2008.10.022.

Lawson, K.M., Crouter, A.C., & McHale, S.M. (2015). Links between family gender socialization experiences in childhood and gendered occupational attainment in young adulthood. *Journal of Vocational Behavior, 90* (0), 26-35. doi: 10.1016/j.jvb.2015.07.003.

Lawton, C.A. & Hatcher, D.W. (2005). Gender differences in integration of images in visuospatial memory. *Sex Roles, 53* (9-10), 717-725. doi: 10.1007/s11199-005-7736-1.

Leding, J.K. (2019). Adaptive memory: Animacy, threat, and attention in free recall. *Memory & Cognition, 47* (3), 383-394. doi: 10.3758/s13421-018-0873-x.

Lee, S.-Y. & Min, J. (2016). The profiles of creative potential and personality characteristics of adult professionals. *Creativity Research Journal, 28* (3), 298-309. doi: 10.1080/10400419.2016.1195634.

Leippe, M.R., Eisenstadt, D., & Rauch, S.M. (2009). Cueing confidence in eyewitness identifications: Influence of biased lineup instructions and pre-identification memory feedback under varying lineup conditions. *Law and Human Behavior, 33* (3), 194-212. doi: 10.1007/s10979-008-9135-y.

Levitt, H.M., Swanger, T., & Butler, J.B. (2008). Male perpetrators' perspectives on intimate partner violence, religion, and masculinity. *Sex Roles, 58* (5-6), 435-448. doi: 10.1007/s11199-007-9349-3.

Lewis, G.J., Cox, S.R., Booth, T., Maniega, S.M., Royle, N.A., Hernández, M.V. ... Deary, I.J. (2016). Trait conscientiousness and the personality meta-trait stability are associated with regional white matter microstructure. *Social Cognitive and Affective Neuroscience, 11* (8), 1255-1261. doi: 10.1093/scan/nsw037.

Lieberman, J.D. (2011). The utility of scientific jury selection: Still murky after 30 years. *Current Directions in Psychological Science, 20* (1), 48-52. doi: 10.1177/0963721410396628.

Liebman, J.I., McKinley-Pace, M.J., Leonard, A.M., Sheesley, L.A., Gallant, C.L., Renkey, M.E., & Lehman, E.B. (2002). Cognitive and psychosocial correlates of adults' eyewitness accuracy and suggestibility. *Personality and Individual Differences, 33* (1), 49-66. doi: 10.1016/S0191-8869(01)00135-0.

Lindsay, R.C.L., Semmler, C., Weber, N., Brewer, N., & Lindsay, M.R. (2008). How variations in distance affect eyewitness reports and identification accuracy. *Law and Human Behavior, 32* (6), 526-535. doi: 10.1007/s10979-008-9128-x.

Littman, R., & Paluck, E. L. (2015). The cycle of violence: Understanding individual participation in collective violence. *Advances in Political Psychology, 36*(1), 79-99. doi: 10.1111/pops.12239.

Living Without Abuse. (n.d.). *Understanding Abuse*. Retrieved from <https://www.lwa.org.uk/understanding-abuse.htm>.

Lloyd, J.B. (2012). The Myers-Briggs Type Indicator and mainstream psychology: Analysis and evaluation of an unresolved hostility. *Journal of Beliefs & Values*, 33 (1), 23-34. doi: 10.1080/13617672.2012.650028.

Lloyd, M. & Ramon, S. (2017). Smoke and Mirrors: U.K. Newspaper Representations of Intimate Partner Domestic Violence. *Violence Against Women*, 23 (1), 114-139. doi: 10.1177/1077801216634468.

Loftus, E.F. (2013). Eyewitness testimony in the Lockerbie bombing case. *Memory*, 21 (5), 584-590. doi: 10.1080/09658211.2013.774417.

Loftus, E.F. & Palmer, J.C. (1974). Reconstruction of automobile destruction: An example of the interaction between language and memory. *Journal of Verbal Learning and Verbal Behavior*, 13 (5), 585-589. doi: <http://psychyogi.org/loftus-and-palmer-1974-eyewitness-testimony/>.

Logan, T.K., Shannon, L., & Walker, R. (2006). Police attitudes toward domestic violence offenders. *Journal of Interpersonal Violence*, 21 (10), 1365-1374. doi: 10.1177/0886260506291653.

Lönnqvist, J.-E., Verkasalo, M., Mäkinen, S., & Henriksson, M. (2009). High neuroticism at age 20 predicts history of mental disorders and low self-esteem at age 35. *Journal of Clinical Psychology*, 65 (7), 781-790. doi: 10.1002/jclp.20571.

Lowe, J.R., Edmundson, M., & Widiger, T.A. (2009). Assessment of dependency, agreeableness, and their relationship. *Psychological Assessment*, 21 (4), 543-553. doi: 10.1037/a0016899.

Luchetti, M., Terracciano, A., Stephan, Y., & Sutin, A.R. (2016). Personality and cognitive decline in older adults: Data from a longitudinal sample and meta-analysis. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences*, 71 (4), 591-601. doi: 10.1093/geronb/gbu184.

Ludwin-Peery, E. & Tingley, D. (2014). Ethical situations and their effects on judgments of punishment. *Ethics and Behavior*, 24 (3), 253-262. doi: 10.1080/10508422.2013.845534.

Luke, T.J., Crozier, W.E., & Strange, D. (2017). Memory errors in police interviews: The bait question as a source of misinformation. *Journal of Applied Research in Memory and Cognition*, 6 (3), 260-273. doi: 10.1016/j.jarmac.2017.01.011.

Lurigio, A. J. (2015). Crime narratives, dramatizations, and the legacy of the Kitty Genovese murder: A half century of half truths. *Criminal Justice and Behavior*, 42(7), 782-789. doi: 10.1177/0093854814562954.

Lyndon, A. E., White, J. W., & Kadlec, K. M. (2007). Manipulation and force as sexual coercion tactics: Conceptual and empirical differences. *Aggressive Behavior*, 33(4), 291-303. doi: 10.1002/ab.20200.

Machado, A., Santos, A., Graham-Kevan, N., & Matos, M. (2017). Exploring help seeking experiences of male victims of Female perpetrators of IPV. *Journal of Family Violence*, 32 (5), 513-523. doi: 10.1007/s10896-016-9853-8.

MacLin, O.H. & MacLin, K.M. (2004). The effect of criminality on face attractiveness, typicality, memorability and recognition. *North American Journal of Psychology*, 6 (1), 145-154. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/197991781?pq-origsite=summon>.

MacQueen, S. & Norris, P.A. (2016). Police awareness and involvement in cases of domestic and partner abuse. *Policing and Society: An International Journal of Research and Policy*, 26 (1), 55-76. doi: 10.1080/10439463.2014.922084.

Madoc-Jones, I. & Roscoe, K. (2010). Women's safety service within the Integrated Domestic Abuse Programme: perceptions of service users. *Child and Family Social Work*, 15 (2), 155-164. doi: 10.1111/j.1365-2206.2009.00647.x.

Madon, S., Jussim, L., Guyll, M., Nofziger, H., & Salib, E.R. (2018). The accumulation of stereotype-based self-fulfilling prophecies. *Journal of Personality and Social Psychology*, 115 (5), 825-844. doi: 10.1037/pspi0000142.

Maeder, E.M. & Laub, C.E. (2012). Changing minds: The effect of course and teaching approach on attitudes toward the legal system. *Criminal Justice Studies: A Critical Journal of Crime, Law and Society*, 25 (1), 17-31. doi: 10.1080/1478601X.2012.657900.

Maeder, E.M., Ewanation, L.A., & Monnink, J. (2017). Jurors' perceptions of evidence: The relative influence of DNA and eyewitness testimony when presented by opposing parties. *Journal of Police and Criminal Psychology*, 32 (1), 33-42. doi: 10.1007/s11896-016-9194-9.

Magalhães, E., Salgueira, A., Gonzalez, A.-J., Costa, J.J., Costa, M.J., Costa, P., & Pedroso de Lima, M. (2014). NEO-FFI: Psychometric properties of a short personality inventory in Portuguese context. *Psicologia: Reflexão e Crítica*, 27 (4), 642-657. doi: 10.1590/1678-7153.201427405.

Magnussen, S., Melinder, A., Stridbeck, U., & Raja, A.Q. (2010). Beliefs about factors affecting the reliability of eyewitness testimony: A comparison of judges, jurors and the general public. *Applied Cognitive Psychology*, 24(1), 122-133. doi: 10.1002/acp.1550.

ManKind Initiative. (2018). *Male Victims of Domestic and Partner Abuse 35 Key Facts*. Retrieved from <https://www.mankind.org.uk/wp-content/uploads/2018/04/35-Key-Facts-Male-Victims-March-2018-1.pdf>.

Mansour, J.K., Beaudry, J.L., Bertrand, M.I., Kalmet, N., Melsom, E.I., & Lindsay, R.C.L. (2012). Impact of disguise on identification decisions and confidence with simultaneous and sequential lineups. *Law and Human Behavior*, 36(6), 513-526. doi: 10.1037/h0093937.

Manton, A. (2015). Identifying domestic violence victims—It's our job. *Journal of Emergency Nursing*, 41 (1), 3-4. doi: 10.1016/j.jen.2014.11.004.

Martin-Luengo, B. & Luna, K. (2010). New advances in the study of the confidence-accuracy relationship in the memory for events. *European Journal of Psychology Applied to Legal Context*, 2 (1), 55-71. Retrieved from <https://doaj.org/article/ac6c1a27cdde4cf892916b3cbdb32def>.

Martire, K.A. & Kemp, R.I. (2009). The impact of eyewitness expert evidence and judicial instruction on juror ability to evaluate eyewitness testimony. *Law and Human Behavior*, 33 (3), 225-236. doi: 10.1007/s10979-008-9134-z.

Matsumoto, D. & Hwang, H.C. (2015). Emotional reactions to crime across cultures. *International Journal of Psychology*, 50 (5), 327-335. doi: 10.1002/ijop.12103.

Mattare, M. (2015). Revisiting understanding entrepreneurs using the Myers-Briggs Type Indicator. *Journal of Marketing Development and Competitiveness*, 9 (2), 114-119. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/1761486780?pq-origsite=summon>.

May, C. P., Hasher, L., & Foong, N. (2005). Implicit memory, age, and time of day: Paradoxical priming effects. *Psychological Science*, 16(2), 96-100. doi: 10.1111/j.0956-7976.2005.00788.x.

McAdam, M. (2013). Who's who at the border? A rights-based approach to identifying human trafficking at international borders. *Anti - Trafficking Review*, 33(2). Retrieved from <https://antitraffickingreview.org/index.php/atrjournal>.

McDaniel, M.J., Beier, M.E., Perkins, A.W., Goggin, S., & Frankel, B. (2009). An assessment of the fakeability of self-report and implicit personality measures. *Journal of Research in Personality*, 43 (4), 682-685. doi: 10.1016/j.jrp.2009.01.011.

McDonald, J.D. (2008). Measuring personality constructs: The advantages and disadvantages of self- reports, informant reports and behavioural assessments. *Enquire*, 1 (1), 75-94. Retrieved from <https://www.nottingham.ac.uk/sociology/documents/enquire/volume-1-issue-1-dodorico-mcdonald.pdf>.

McDougall, S. & Pfeifer, G. (2012). Personality differences in mental imagery and the effects on verbal memory. *British Journal of Psychology*, 103, 556-573. doi: 10.1111/j.2044-8295.2011.02094.x.

McGaugh, J.L. (2006). Make mild moments memorable: Add a little arousal. *Trends in Cognitive Sciences*, 10 (8), 345-347. doi: 10.1016/j.tics.2006.06.001.

McKee, N.T. & Feather, I.R. (2008). Values and prejudice: Predictors of attitudes towards Australian Aborigines. *Australian Journal of Psychology*, 60 (2), 80-90. doi: 10.1080/00049530701449513.

McWilliams, K., Goodman, G.S., Lyons, K.E., Newton, J., & Avila-Mora, E. (2014). Memory for child sexual abuse information: Simulated memory error and individual differences. *Memory and Cognition*, 42 (1), 151-163. doi: 10.3758/s13421-013-0345-2.

Meissner, C.A. & Brigham, J.C. (2001). Thirty years of investigating the own-race bias in memory for faces: A meta-analytic review. *Psychology, Public Policy, and Law*, 7 (1), 3-35. doi: 10.1037//1076-8971.7.1.3.

Memon, A., Hope, L., & Bull, R. (2003). Exposure duration: Effects on eyewitness accuracy and confidence. *British Journal of Psychology*, 94, 339-254. doi: 10.1348/000712603767876262.

Memon, A., Mastroberardino, S., & Fraser, J. (2008). Münsterberg's legacy: What does eyewitness research tell us about the reliability of eyewitness testimony. *Applied Cognitive Psychology*, 22 (6), 841-851. doi: 10.1002/acp.1487.

Mental Health Foundation. (n.d.). *Mental health statistics: The most common mental health problems*. Retrieved from <https://www.mentalhealth.org.uk/statistics/mental-health-statistics-most-common-mental-health-problems>.

Meyer, S. (2018). Motivating perpetrators of domestic and family violence to engage in behaviour change: The role of fatherhood. *Child & Family Social Work*, 23(1), 97-104. doi: 10.1111/cfs.12388.

Mickes, L., Hwe, V., Wais, P.E., & Wixted, J.T. (2011). Strong memories are hard to scale. *Journal of Experimental Psychology: General*, 140 (2), 239-257. doi: 10.1037/a0023007.

Mind. (2017). Mental health facts and statistics. Retrieved from <https://www.mind.org.uk/information-support/types-of-mental-health-problems/statistics-and-facts-about-mental-health/how-common-are-mental-health-problems/#.XWPxwi2ZNp->.

Ministry of Justice (2015). *Associations between being male or female and being sentenced to prison in England and Wales in 2015*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/571737/associations-between-sex-and-sentencing-to-prison.pdf

Mitchell, D. B. (2006). Nonconscious Priming After 17 Years: Invulnerable Implicit Memory. *Psychological Science*, *17*(11), 925-929. doi: 10.1111/j.1467-9280.2006.01805.x.

Mojtahedi, D., Ioannou, M., & Hammond, L. (2018). The dangers of co-witness familiarity: Investigating the effects of co-witness relationships on blame conformity. *Journal of Police and Criminal Psychology*, *02*, 1-11. doi: 10.1007/s11896-018-9254-4.

Mooi, B., Comijs, H.C., De Fruyt, F., De Ritter, D., & Hoekstra, H.A. (2011). A NEO-PI-R short form for older adults. *International Journal of Methods in Psychiatric Research*, *20* (3), 135-144. doi: 10.1002/mpr.342.

Mori, K. & Kishikawa, T. (2014). Co-witness auditory memory conformity following discussion: A misinformation paradigm. *Perceptual and Motor Skills*, *118* (2), 533-547. doi: 10.2466/24.22.PMS.118k22w4.

Mulay, B.S. (2006). Optimizing the effectiveness of your personal leadership style using the Myers-Briggs Type Indicator. *Developmental Biology*, *295* (1), 321. doi: 10.1016/j.ydbio.2006.04.016.

Myers, I.B. (1962). *The Myers-Briggs Type Indicator: Manual (1962)*. doi: 10.1037/14404-000.

Myhill, A. (2019). Renegotiating domestic violence: Police attitudes and decisions concerning arrest. *An International Journal of Research and Policy*, *29* (1), 52-68. doi: 10.1080/10439463.2017.1356299.

Nanova, P., Lyamova, L., Hadjigeorgieva, M., Kolev, V., & Yordanova, J. (2008). Gender-specific development of auditory information processing in children: An ERP study. *Clinical Neurophysiology*, *119* (9), 1992-2003. doi: 10.1016/j.clinph.2008.05.002.

Naughton, C.M., O'Donnell, A.T., & Muldoon, O.T. (2017). Exposure to domestic violence and abuse: Evidence of distinct physical and psychological dimensions. *Journal of Interpersonal Violence*, 5, 1-22. doi: 10.1177/0886260517706763.

Neuschatz, J.S., Lawson, D.S., Fairless, A.H., Powers, R.A., Neuschatz, J.S., Goodsell, C.A., & Toglia, M.P. (2007). The mitigating effects of suspicion on post-identification feedback and on retrospective eyewitness memory. *Law and Human Behavior*, 31 (3), 231-247. doi: 10.1007/s 10979-006-9047-7.

Nichols, A.L. & Maner, J.K. (2008). The good-subject effect: Investigating participant demand characteristics. *The Journal of General Psychology*, 135 (2), 151-166. doi: 10.3200/GENP.135.2.151-166.

Nicksa, S.C. (2014). Bystander's willingness to report theft, physical assault, and sexual assault: The impact of gender, anonymity, and relationship with the offender. *Journal of Interpersonal Violence*, 29 (2), 217-236. doi: 10.1177/0886260513505146.

Nielson, K.A. & Powless, M. (2007). Positive and negative sources of emotional arousal enhance long-term word-list retention when induced as long as 30 min after learning. *Neurobiology of Learning and Memory*, 88 (1), 40-47. doi: 10.1016/j.nlm.2007.03.005.

Noyes, E. & Jenkins, R. (2017). Camera-to-subject distance affects face configuration and perceived identity. *Cognition*, 165, 97-104. doi: 10.1016/j.cognition.2017.05.012.

O'Neill Shermer, L., Rose, K.C., & Hoffman, A. (2011). Perceptions and credibility: Understanding the nuances of eyewitness testimony. *Journal of Contemporary Criminal Justice*, 27 (2), 183-203. doi: 10.1177/1043986211405886.

Oberauer, K., Lewandowsky, S., Awh, E., Brown, G. D. A., & Conway, A. (2018). Benchmarks for models of short-term and working memory. *Psychological Bulletin*, *144*(9), 885-958. doi: 10.1037/bul0000153.

Office for National Statistics (2017). *Domestic Abuse in England and Wales: Year Ending March 2017*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/bulletins/domesticabuseinenglandandwales/yearendingmarch2017>

Office for National Statistics. (2018). Crime in England and Wales: Year ending September 2018. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/bulletins/crimeinenglandandwales/yearendingseptember2018#latest-figures>.

Office for National Statistics. (2018). *Sexual offences in England and Wales: Year ending March 2017*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/sexualoffencesinenglandandwales/yearendingmarch2017>.

Offir, B., Bezalel, R., & Barth, I. (2007). Introverts, extroverts, and achievement in a distance learning environment. *American Journal of Distance Education*, *21* (1), 3-19. doi: 10.1080/08923640701298613.

Okada, M. & Oltmanns, T.F. (2009). Comparison of three self-report measures of personality pathology. *Journal of Psychopathology and Behavioral Assessment*, *31* (4), 358-367. doi: 10.1007/s10862-009-9130-8.

Osborne, D. & Davies, P.G. (2014). Crime type, perceived stereotypicality, and memory biases: A contextual model of eyewitness identification. *Applied Cognitive Psychology*, *28* (3), 392-402. doi: 10.1002/acp.3009.

Oswald, M.E. & Stucki, I. (2010). Automatic judgment and reasoning about punishment. *Social Justice Research, 23* (4), 290-307. doi: 10.1007/s11211-010-0120-5.

Overbeck, J.L. (2005). Beyond admissibility: A practical look at the use of eyewitness expert testimony in the federal courts. *New York University Law Review, 80* (6), 1895-1920. Retrieved from <https://heinonline-org.libaccess.hud.ac.uk/HOL/Page?iname=&public=false&handle=hein.journals/nylr80&page=1895&collection=journals>.

Pajón, L. & Walsh, D. (2017). Examining the effects of violence and personality on eyewitness memory. *Psychiatry, Psychology and Law, 24* (6), 923-935. doi: 10.1080/13218719.2017.1327313.

Palmer, J.E., Nicksa, S.C., & McMahon, S. (2017). Does who you know affect how you act? The impact of relationships on bystander intervention in interpersonal violence situations. *Journal of Interpersonal Violence, 17*(33), 2623-2642. doi: 10.1177/0886260516628292.

Palmer, M.A., Brewer, N., Weber, N., & Nagesh, A. (2013). The confidence-accuracy relationship for eyewitness identification decisions: Effects of exposure duration, retention interval, and divided attention. *Journal of Experimental Psychology: Applied, 19* (1), 55-71. doi: 10.1037/a0031602.

Pansky, A., Goldsmith, M., Koriat, A., & Pearlman-Avni, S. (2009). Memory accuracy in old age: Cognitive, metacognitive, and neurocognitive determinants. *European Journal of Cognitive Psychology, 21* (2-3), 303-329. doi: 10.1080/09541440802281183.

Paterson, H.M., Eijkemans, H., & Kemp, R.I. (2015). Investigating the impact of delayed administration on the efficacy of the self-administered interview. *Psychiatry, Psychology and Law, 22* (2), 307-317. doi: 10.1080/13218719.2014.947670.

Pauls, F., Petermann, F., & Lepach, A.C. (2013). Gender differences in episodic memory and visual working memory including the effects of age. *Memory, 21* (7), 857-874. doi: 10.1080/09658211.2013.765892.

Pawlenko, N.B., Safer, M.A., Wise, R.A., & Holfeld, B. (2013). A teaching aid for improving jurors' assessments of eyewitness accuracy. *Applied Cognitive Psychology, 27* (2), 190-197. doi: 10.1002/acp.2895.

Payne, A. A., & Salotti, S. (2007). A comparative analysis of social learning and social control theories in the prediction of college crime. *Deviant Behavior, 28*(6), 553-573. doi: 10.1080/01639620701357933.

Peace, K.A. & Constantin, K.M. (2016). Misremembering events: Emotional valence, psychopathic traits, and the misinformation effect. *Journal of Police and Criminal Psychology, 31* (3), 189-199. doi: 10.1007/s11896-015-9178-1.

Peduzzi, P., Concato, J., Kemper, E., Holford, T.R., & Feinstein, A.R. (1996). A simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology, 49* (12), 1373-1379. doi: 10.1016/S0895-4356(96)00236-3.

Perera, H.N., McIlveen, P., Burton, L.J., & Corser, D.M. (2015). Beyond congruence measures for the evaluation of personality factor structure replicability: An exploratory structural equation modeling approach. *Personality and Individual Differences, 84*, 23-29. doi: 10.1016/j.paid.2015.01.004.

Peterman, L.M. & Dixon, C.G. (2003). Domestic violence between same-sex partners: Implications for counseling. *Journal of Counseling and Development, 81* (1), 40-47. doi: 10.1002/j.1556-6678.2003.tb00223.x.

Peth, J., Vossel, G., & Gamer, M. (2012). Emotional arousal modulates the encoding of crime-related details and corresponding physiological responses in the concealed information test. *Psychophysiology*, *49* (3), 381-390. doi: 10.1111/j.1469-8986.2011.01313.x.

Petrocelli, J.V. & Dowd, K. (2009). Ease of counterfactual thought generation moderates the relationship between need for cognition and punitive responses to crime. *Personality and Social Psychology Bulletin*, *35* (9), 1179-1192. doi: 10.1177/0146167209337164.

Petrosky, E.M. (2008). Teaching inference in personality test interpretation: Verbal abstract reasoning and the tat. *Psychological Reports*, *102* (1), 83-94. doi: 10.2466/pr0.102.1.83-94.

Picconi, L., Jackson, C.J., Balsamo, M., Tommasi, M., & Saggino, A. (2018). Factor structure and measurement invariance across groups of the Italian Eysenck Personality Questionnaire - Short form (EPP-S). *Personality and Individual Differences*, *123* (1), 76-80. doi: 10.1016/j.paid.2017.11.013.

Pickel, K.L. (2009). The weapon focus effect on memory for female versus male perpetrators. *Memory*, *17* (6), 664-678. doi: 10.1080/09658210903029412.

Pottage, C.L. & Schaefer, A. (2012). Visual attention and emotional memory: Recall of aversive pictures is partially mediated by concurrent task performance. *Emotion*, *12* (1), 33-38. doi: 10.1037/a0024574.

Price, H.L., Lee, Z., & Read, D. (2009). Memory for committing a crime: Effects of arousal, proximity, and gender. *The American Journal of Psychology*, *122* (1), 75-88. Retrieved from <http://www.jstor.org.libaccess.hud.ac.uk/stable/27784376>.

Pulver, C.A. & Kelly, K.R. (2008). Incremental validity of the Myers-Briggs Type Indicator in predicting academic major selection of undecided university students. *Journal of Career Assessment*, *16* (4), 441-455. doi: 10.1177/1069072708318902.

Puschmann, A., Brechmann, A., & Thiel, C. M. (2013). Learning-dependent plasticity in human auditory cortex during appetitive operant conditioning. *Human Brain Mapping, 34*(11), 2841-2851. doi: 10.1002/hbm.22107.

Rader, N. E., & Haynes, S. H. (2011). Gendered fear of crime socialization: An extension of Akers's social learning theory. *Feminist Criminology, 6*(4), 291-307. doi: 10.1177/1557085111408278.

Rafienia, P., Azadfallah, P., Fatji-Ashtiani, A., & Rasoulzadeh-Tabatabaie, K. (2008). The role of extraversion, neuroticism and positive and negative mood in emotional information processing. *Personality and Individual Differences, 44* (2), 392-402. doi: 10.1016/j.paid.2007.08.018.

Raine, A., Venables, P. H., & Williams, M. (1996). Better autonomic conditioning and faster electrodermal half-recovery time at age 15 years as possible protective factors against crime at age 29 years. *Developmental Psychology, 32*(4), 624-630. doi: 10.1037/0012-1649.32.4.624.

Rape Crisis. (n.d.). *About sexual violence*. Retrieved from <https://rapecrisis.org.uk/get-informed/about-sexual-violence/myths-vs-realities/>.

Rashid, G.J. & Duys, D.K. (2015). Counselor cognitive complexity: Correlating and comparing the Myers–Briggs Type Indicator with the role category questionnaire. *Journal of Employment Counseling, 52* (2), 77-86. doi: 10.1002/joec.12006.

Rechdan, J., Hope, L., Sauer, J. D., Sauerland, M., Ost, J., & Merckelbach, H. (2008). The effects of co-witness discussion on confidence and precision in eyewitness memory reports. *Memory, 26*(7), 904-912. doi: 10.1080/09658211.2018.1448872.

Refuge. (n.d.). *The facts*. Retrieved from <https://www.refuge.org.uk/our-work/forms-of-violence-and-abuse/domestic-violence/domestic-violence-the-facts/>.

Reinitz, M.T. & Loftus, G.R. (2017). Conjunction faces alter confidence-accuracy relations for old faces. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 43 (6), 837-850. doi: 10.1037/xlm0000342.

Reinitz, M.T., Séguin, J.A., Peria, W., & Loftus, G.R. (2012). Confidence-accuracy relations for faces and scenes: Roles of features and familiarity. *Psychonomic Bulletin & Review*, 19 (6), 1085-1093. Retrieved from <https://link-springer-com.libaccess.hud.ac.uk/article/10.3758%2Fs13423-012-0308-9>.

Rhodes, M.G. & Anastasi, J.S. (2012). The own-age bias in face recognition: A meta-analytic and theoretical review. *Psychological Bulletin*, 138 (1), 146-174. doi: 10.1037/a0025750.

Richards, J.M. & Gross, J.J. (2006). Personality and emotional memory: How regulating emotion impairs memory for emotional events. *Journal of Research in Personality*, 40 (5), 631-651. doi: 10.1016/j.jrp.2005.07.002.

Ricker, T. J., Vergauwe, E., & Cowan, N. (2016). Decay Theory of immediate memory: From Brown (1958) to today (2014). *Quarterly Journal of Experimental Psychology*, 69(10), 1969-1995. doi: 10.1080/17470218.2014.914546.

Rigby, N. & Kulathinal, R.J. (2015). Genetic architecture of sexual dimorphism in humans. *Journal of Cellular Physiology*, 230 (10), 2304-2310. doi: 10.1002/jcp.24979.

Roebbers, C.M. (2002). Confidence judgments in children's and adult's event recall and suggestibility. *Developmental Psychology*, 36 (8), 1052-1067. doi: 10.1037/0012-1649.38.6.1052.

Ros, L. & Latorre, J.M. (2010). Gender and age differences in the recall of affective autobiographical memories using the autobiographical memory test. *Personality and Individual Differences*, 49 (8), 950-954. doi: 10.1016/j.paid.2010.08.002.

Ross, D.R., Ceci, S.J., Dunning, D., & Togli, M.P. (1994). Unconscious transference and mistaken identity: When a witness misidentifies a familiar but innocent person. *Journal of Applied Psychology, 79* (6), 918-930. doi: 10.1037/0021-9010.79.6.918.

Rouhanian, A. (2017). A call for change: The detrimental impacts of Crawford v. Washington on domestic violence and rape prosecutions. *Boston College Journal of Law and Social Justice, 37* (1), 1-72. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/1903811547?pq-origsite=summon>.

Rowe, G., Valderrama, S., Hasher, L., & Lenartowicz, A. (2006). Attentional disregulation: A benefit for implicit memory. *Psychology and Aging, 21*(4), 826-830. doi: 10.1037/0882-7974.21.4.826.

Rubin, D. C. (2006). The Basic-Systems Model of episodic memory. *Perspectives on Psychological Science, 1*(4), 277-311. doi: 10.1111/j.1745-6916.2006.00017.x.

Rundu, K. & Kask, K. (2012). The effects of presentation methods and semantic information on multi-ethnicity face recognition. *European Journal of Psychology Applied to Legal Context, 4*(1), 43-57. doi: <https://doaj.org/article/a06a6b6f1f6a4a3a9024d3f68534d739>.

Rushton, S., Morgan, J., & Richard, M. (2007). Teacher's Myers-Briggs personality profiles: Identifying effective teacher personality traits. *Teaching and Teacher Education, 23* (4), 432-441. doi: 10.1016/j.tate.2006.12.011.

Rusting, C.L. (1999). Interactive effects of personality and mood on emotion-congruent memory and judgment. *Journal of Personality and Social Psychology, 77* (5), 1073-1086. doi: 10.1037/0022-3514.77.5.1073.

Rutherford, A. (2011). Sexual violence against women: Putting rape research in context. *Psychology of Women Quarterly, 35* (2), 342-347. doi: 10.1177/0361684311404307.

Rye, B. J., Greatrix, S. A., & Enright, C. S. (2006). The case of the guilty victim: The effects of gender of victim and gender of perpetrator on attributions of blame and responsibility. *Sex Roles, 54*, 639-649. doi: 10.1007/s11199-006-9034-y.

Safer, M.A. & Keuler, D.J. (2002). Individual differences in misremembering pre-psychotherapy distress: Personality and memory distortion. *Emotion, 2* (2), 162-178. doi: 10.1037/1528-3542.2.2.162.

Safer, M.A., Murphy, R.P., Wise, R.A., Bussey, L., & Holfeld, B. (2016). Educating jurors about eyewitness testimony in criminal cases with circumstantial and forensic evidence. *International Journal of Law and Psychiatry, 47*, 86-92. doi: 10.1016/j.ijlp.2016.02.041.

Salerno, J.M. & Bottoms, B.L. (2009). Emotional evidence and jurors' judgments: The promise of neuroscience for informing psychology and law. *Behavioral Sciences and the Law, 27* (2), 273-296. doi: 10.1002/bsl.861.

Salerno, J.M., Bottoms, B.L., & Peter-Hagene, L.C. (2017). Individual versus group decision making: Jurors' reliance on central and peripheral information to evaluate expert testimony. *PLoS ONE, 12* (9), 1932-6203. doi: 10.1371/journal.pone.0183580.

Salerno, J.M., Phalen, H.J., Reyes, R.N., & Schweitzer, N.J. (2018). Closing with emotion: The differential impact of male versus female attorneys expressing anger in court. *Law and Human Behavior, 42* (4), 385-401. doi: 10.1037/lhb0000292.

Salter, D.W., Evans, N.J., & Forney, D.S. (2006). A longitudinal study of learning style preferences on the Myers-Briggs Type Indicator and learning style inventory. *Journal of College Student Development, 47* (2), 173-184. doi: 10.1353/csd.2006.0022.

Sanford, L.C. & Fisk, J.E. (2009). How does the extraversion personality trait influence false recall with the Deese–Roediger–McDermott (DRM) paradigm? *Journal of Research in Personality*, 43 (6), 972-977. doi: 10.1016/j.jrp.2009.05.011.

Sarwar, F., Allwood, C.M., & Innes-Ker, Å. (2014). Effects of different types of forensic information on eyewitness' memory and confidence accuracy. *European Journal of Psychology Applied to Legal Context*, 6 (1), 17-27. Retrieved from <https://doaj.org/article/47720fd5f10945a4842db027fe4792a1>.

Sato, T. (2005). The Eysenck Personality Questionnaire brief version: Factor structure and reliability. *The Journal of Psychology*, 139 (6), 545-552. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/213831522/fulltext/7010EB97EA29414APQ/1?accountid=11526>.

Saucier, D. A., Strain, M. L., Hockett, J. M., & McManus, J. L. (2015). Stereotypic beliefs about masculine honor are associated with perceptions of rape and women who have been raped. *Social Psychology*, 46(4), 228-241. doi: 10.1027/1864-9335/a000240.

Sauer, J., Brewer, N., Zweck, T., & Weber, N. (2010). The effect of retention interval on the confidence-accuracy relationship for eyewitness identification. *Law and Human Behavior*, 34 (4), 337-347. doi: 10.1007/s10979-009-9192-x.

Sauerland, M., Holub, F.E., & Sporer, S.L. (2008). Person descriptions and person identifications: Verbal overshadowing or recognition criterion shift. *European Journal of Cognitive Psychology*, 20 (3), 497-528. doi: 10.1080/09541440701728417.

Saunders, J. (2009). Memory impairment in the weapon focus effect. *Memory and Cognition*, 37 (3), 326-335. doi: 10.3758/MC.37.3.326.

Saunders, J. & Jess, A. (2010). The effects of age on remembering and knowing misinformation. *Memory*, 18 (1), 1-11. doi: 10.1080/09658210903376268.

Schmechel, R.S., O'Toole, T.P., Easterly, C., & Loftus, E.F. (2006). Beyond the ken testing jurors' understanding of eyewitness reliability evidence. *Jurimetrics*, 46 (2), 177-214. Retrieved from https://heinonline-org.libaccess.hud.ac.uk/HOL/Page?collection=journals&handle=hein.journals/juraba46&id=185&men_tab=srchresults.

Schuller, R.A., Kazoleas, V., & Kawakami, K. (2009). The impact of prejudice screening procedures on racial bias in the courtroom. *Law and Human Behavior*, 33 (4), 320-328. doi: 10.1007/s10979-008-9153-9.

Scott, D. A. I., & Mikell, T. (2019). 'Gender' and general strain theory: investigating the impact of gender socialization on young women's criminal outcomes. *Journal of Crime and Justice*, 42(4), 393-413. doi: 10.1080/0735648X.2018.1559754.

Seelau, S.M. & Seelau, E.P. (2005). Gender-role stereotypes and perceptions of heterosexual, gay and lesbian domestic violence. *Journal of Family Violence*, 20 (6), 363-364. Retrieved from <https://link-springer-com.libaccess.hud.ac.uk/article/10.1007%2Fs10896-005-7798-4#citeas>.

Shah, S., Rajani, K., Kataria, L., Trivedi, A., & Patel, S. (2012). Perception and prevalence of domestic violence in the study population. *Industrial Psychiatry Journal*, 21 (2), 137-143. doi: 10.4103/0972-6748.119624.

Shapiro, L.R. (2009). Eyewitness testimony for a simulated juvenile crime by male and female criminals with consistent or inconsistent gender-role characteristics. *Journal of Applied Developmental Psychology*, 30 (6), 649-666. doi: 10.1016/j.appdev.2009.07.007.

Sheahan, C.L., Pozzulo, J.D., Reed, J.E., & Pica, E. (2018). The role of familiarity with the defendant, type of descriptor discrepancy, and eyewitness age on mock jurors' perceptions of eyewitness testimony. *Journal of Police and Criminal Psychology*, 33 (1), 35-44. doi: 10.1007/s11896-017-9232-2.

Sherman, M. D., Sautter, F., Jackson, M. H., Lyons, J. A., & Han, X. (2006). Domestic Violence in Veterans with Posttraumatic Stress Disorder Who Seek Couples Therapy. *Journal of Marital and Family Therapy*, 32(4), 479-490. doi: 10.1111/j.1752-0606.2006.tb01622.x.

Shipway, L. (2006). Part 29a: Domestic abuse and violence. *Practice Nurse*, 31 (5), 59-62. Retrieved from <http://search.proquest.com.libaccess.hud.ac.uk/docview/230428136?pg-origsite=summon>.

Siers, B.P. & Christiansen, N.D. (2013). On the validity of implicit association measures of personality traits. *Personality and Individual Differences*, 54 (3), 361-366. doi: 10.1016/j.paid.2012.10.004.

Silfver, M. & Helkama, K. (2007). Empathy, guilt, and gender: A comparison of two measures of guilt. *Scandinavian Journal of Psychology*, 48 (3), 239-246. doi: 10.1111/j.1467-9450.2007.00578.x.

Simmons, C.A., Lehmann, P., & Collier-Tenison, S. (2008). Linking male use of the sex industry to controlling behaviors in violent relationships: An exploratory analysis. *Violence Against Women*, 14 (4), 406-417. doi: 10.1177/1077801208315066.

Simons, D.J. & Chabris, C.F. (2011). What people believe about how memory works: A representative survey of the U.S. population. *PLoS ONE*, 6 (8). doi: 10.1371/journal.pone.0022757.

Skagerberg, E.M. & Wright, D.B. (2009). The prevalence of co-witnesses and co-witness discussions in real eyewitnesses. *Psychology, Crime and Law*, 14 (6), 513-521. doi: 10.1080/10683160801948980.

Skues, J., Williams, B., Oldmeadow, J., & Wise, L. (2016). The effects of boredom, loneliness, and distress tolerance on problem internet use among university students. *International Journal of Mental Health and Addiction*, 14 (2), 167-18-. doi: 10.1007/s11469-015-9568-8.

Smalarz, L. & Wells, G.L. (2015). Contamination of eyewitness self-reports and the mistaken-identification problem. *Current Directions in Psychological Science*, 24 (2), 120-124. doi: 10.1177/0963721414554394.

Smillie, L.D., Bhairo, Y., Gray, J., Gunasinghe, C., Elkin, A., McGuffin, P., & Farmer, A. (2009). Personality and the bipolar spectrum: normative and classification data for the Eysenck Personality Questionnaire–Revised. *Comprehensive Psychiatry*, 50 (1), 48-53. doi: 0.1016/j.comppsy.2008.05.010.

Smith, R.E., Persyn, D., & Butler, P. (2011). Prospective memory, personality, and working memory: A formal modeling approach. *Journal of Psychology*, 219 (2), 108-116. doi: 10.1027/2151-2604/a000055.

Smith, V.L., Kassim, S.M., & Ellsworth, P.C. (1989). Eyewitness accuracy and confidence: Within- versus between-subjects correlations. *Journal of Applied Psychology*, 74 (2), 256-359. doi: 10.1037/0021-9010.74.2.356.

Snook, B. & Keating, K. (2011). A field study of adult witness interviewing practices in a Canadian police organization. *Legal and Criminological Psychology*, 16 (1), 160-172. doi: 10.1348/135532510X497258.

Sokol, N., Bussey, K., & Rapee, R.M. (2015). The effect of victims' responses to overt bullying on same-sex peer bystander reactions. *Journal of School Psychology, 53* (3), 375-391. doi: 10.1016/j.jsp.2015.07.002.

Stebly, N.K. & Dysart, J.E. (2016). Repeated eyewitness identification procedures with the same suspect. *Journal of Applied Research in Memory and Cognition, 5* (3), 284-289. doi: 10.1016/j.jarmac.2016.06.010.

Steiner, M., Allemand, M., & McCullough, M.E. (2012). Do agreeableness and neuroticism explain age differences in the tendency to forgive others. *Personality and Social Psychology Bulletin, 38* (4), 441-453. doi: 10.1177/0146167211427923.

Stevenage, S.V., Howland, A., & Tippelt, A. (2011). Interference in eyewitness and earwitness recognition. *Applied Cognitive Psychology, 25* (1), 112-118. doi: 10.1002/acp.1649.

Stiles-Shields, C. & Carroll, R.A. (2015). Same-sex domestic violence: Prevalence, unique aspects, and clinical implications. *Journal of Sex and Marital Therapy, 41* (6), 636-648. doi: 10.1080/0092623X.2014.958792.

Stuijzand, S., De Wied, M., Kempes, M., Van de Graaff, J., Branje, S., & Meeus, W. (2016). Gender differences in empathic sadness towards persons of the same- versus other-sex during adolescence. *Sex Roles, 75* (9-10), 434-446. doi: 10.1007/s11199-016-0649-3.

Suarez, E. & Gadalla, T.M. (2010). Stop blaming the victim: A meta-analysis on rape myths. *Journal of Interpersonal Violence, 25* (11), 2010-2035. doi: 10.1177/0886260509354503.

Súilleabháin, P.S.Ó., Howard, S., & Hughes, B.M. (2018). Openness to experience and adapting to change: Cardiovascular stress habituation to change in acute stress exposure. *Psychophysiology, 55* (5). doi: 10.1111/psyp.13023.

Sukenik, S., Reizer, A., & Koslovsky, M. (2018). Direct and indirect effects of agreeableness on overconfidence. *Journal of Individual Differences, 39* (3), 174-181. doi: 10.1027/1614-0001/a000261.

Support Line. (n.d.). *Problems: Rape and Sexual Assault*. Retrieved from http://www.supportline.org.uk/problems/rape_sexual-assault.php.

Swan, S.C., Gambone, L.J., Caldwell, J.E., Sullivan, T.P., & Snow, D.L. (2008). A review of research on women's use of violence with male intimate partners. *Violence and Victims, 23* (3), 301-314. doi: 10.1891/0886-6708.23.3.301.

Tabachnick, B.G. & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson/Allyn and Bacon.

Taghizadegan, R. & Otto, M.-F. (2016). The praxeology of coercion: A new theory of violence cycles. *Quarterly Journal of Austrian Economics, 19* (4), 330-344. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/1891260548/fulltext/FA1BF3A96A744FC9PQ/1?accountid=11526>.

Talarico, J.M., Berntsen, D., & Rubin, D.C. (2009). Positive emotions enhance recall of peripheral details. *Cognition and Emotion, 23* (2), 380-398. doi: 10.1080/02699930801993999.

Tekin, E. & Roediger, H.L. (2017). The range of confidence scales does not affect the relationship between confidence and accuracy in recognition memory. *Cognitive Research: Principles and Implications, 2* (49), 0-0. doi: 10.1186/s41235-017-0086-z.

Tenney, E.R., MacCoun, R.J., Spellman, B.A., & Hastie, R. (2007). Calibration trumps confidence as a basis for witness credibility. *Psychological Science, 18* (1), 46-50. doi: 10.1111/j.1467-9280.2007.01847.x.

The British Psychological Society. (2017). *Ethics guidelines for internet-mediated research*. Retrieved from <https://www.bps.org.uk/news-and-policy/ethics-guidelines-internet-mediated-research-2017>

The British Psychological Society. (2018). *Code of Ethics and Conduct* . Retrieved from <https://www.bps.org.uk/news-and-policy/bps-code-ethics-and-conduct>.

The Innocence Project. (2015). *Eyewitness Misidentification*. Retrieved from <http://www.innocenceproject.org/causes-wrongful-conviction/eyewitness-misidentification>.

The Innocence Project. (n.d.). *The Cases: Ronald Cotton*. Retrieved from <https://www.innocenceproject.org/cases/ronald-cotton/>.

Thorley, C. (2015). Blame conformity: Innocent bystanders can be blamed for a crime as a result of misinformation from a young, but not elderly, adult co-witness. *PLoS ONE*, *10*(7), doi: 10.1371/journal.pone.0134739.

Thorley, C. & Rushton-Woods, J. (2013). Blame conformity: Leading eyewitness statements can influence attributions of blame for an accident. *Applied Cognitive Psychology*, *27* (3), 291-296. doi: 10.1002/acp.2906.

Tiwari, G.K. (2010). Research in eyewitness memory: Issues and challenges. *Jigyasa*, *3* (4), 66-71. Retrieved from https://www.researchgate.net/profile/Gyanesh_Tiwari/publication/262068313_Research_in_eyewitness_memory_Issues_and_challenges/links/0c960536926f480537000000/Research-in-eyewitness-memory-Issues-and-challenges.pdf.

Tobacyk, J.J., Livingston, M.M., & Robbins, J.E. (2008). Relationships between Myers-Briggs Type Indicator measure of psychological type and Neo measure of Big Five personality factors in Polish university students: A preliminary cross-cultural comparison. *Psychological Reports, 103* (2), 588-590. doi: 10.2466/pr0.103.2.588-590.

Toffalini, E., Mirandola, C., Drabik, M.J., Melinder, A., & Cornoldi, C. (2014). Emotional negative events do not protect against false memories in young adults with depressive–anxious personality traits. *Personality and Individual Differences, 66* (0), 14-18. doi: 10.1016/j.paid.2014.02.042.

Touryan, S.R., Marian, D.E., & Shimamura, A.P. (2007). Effect of negative emotional pictures on associative memory for peripheral information. *Memory, 15* (2), 154-166. doi: 10.1080/09658210601151310.

Turchik, J.A., Probst, D.R., Irvin, C.R., Chau, M., & Gidycz, C.A. (2009). Prediction of sexual assault experiences in college women based on rape scripts: A prospective analysis. *Journal of Consulting and Clinical Psychology, 77* (2), 361-366. doi: 10.1037/a0015157.

Ubelaker, D.H. & DeGaglia, C.M. (2017). Population variation in skeletal sexual dimorphism. *Forensic Science International, 278* (7), 407-407. doi: 10.1016/j.forsciint.2017.06.012.

Valentine, T. & Maras, K. (2011). The effect of cross-examination on the accuracy of adult eyewitness testimony. *Applied Cognitive Psychology, 25* (4), 554-561. doi: 10.1002/acp.1768.

Vartanian, L. R., & Powlishta, K. K. (2001). Demand characteristics and self-report measures of imaginary audience sensitivity: Implications for interpreting age differences in adolescent egocentrism. *The Journal of Genetic Psychology Research and Theory on Human Development, 162*(2), 187-200. doi: 10.1080/00221320109597960.

Ventura, L.A. & Davis, G. (2005). Domestic violence: Court case conviction and recidivism. *Violence Against Women*, 11 (2), 255-277. doi: 10.1177/1077801204271722.

Voolma, H. (2018). "I must be silent because of residency": Barriers to escaping domestic violence in the context of insecure immigration status in England and Sweden. *Violence Against Women*, 24(15), 1830-1850. doi: 10.1177/1077801218755974.

Vranić, A. & Tonković, M. (2017). A room with an overview: The effects of schematic processing, mood and exposure duration on memory accuracy. *Current Psychology*, 36 (2), 358-365. Retrieved from <https://link-springer-com.libaccess.hud.ac.uk/article/10.1007/s12144-016-9425-3>.

Vredeveldt, A. & Sauer, J.D. (2015). Effects of eye-closure on confidence-accuracy relations in eyewitness testimony. *Journal of Applied Research in Memory and Cognition*, 4 (1), 51-58. doi: 10.1016/j.jarmac.2014.12.006.

Wade, K.A., Green, S.L., & Nash, R.A. (2010). Can fabricated evidence induce false eyewitness testimony. *Applied Cognitive Psychology*, 24 (7), 899-908. doi: 10.1002/acp.1607.

Wade, K.A., Nash, R.A., & Lindsay, D.S. (2018). Reasons to doubt the reliability of eyewitness memory: Commentary on Wixted, Mickes, and Fisher (2018). *Perspectives on Psychological Science*, 13 (3), 339-342. doi: 10.1177/1745691618758261.

Wagstaff, G.F., MacVeigh, J., Boston, R., & Scott, L. (2003). Can laboratory findings on eyewitness testimony be generalized to the real world? An archival analysis of the influence of violence, weapon presence, and age on eyewitness accuracy. *The Journal of Psychology*, 137 (1), 17-28. Retrieved from <https://search-proquest-com.libaccess.hud.ac.uk/docview/213825665/fulltext/224CA53654DE4E77PQ/1?accountid=11526>.

Walfield, S.M. (2018). "Men cannot Be raped": Correlates of male rape myth acceptance. *Journal of Interpersonal Violence*, 0 (0), 0-0. doi: 10.1177/0886260518817777.

Walker, H. & Tough, A. (2015). Facial Comparison from CCTV footage: The competence and confidence of the jury. *Science and Justice*, 55 (6), 487-498. doi: 10.1016/j.scijus.2015.04.010.

Walters, G.D. (2008). Self-report measures of psychopathy, antisocial personality, and criminal lifestyle: Testing and validating a two-dimensional model. *Criminal Justice and Behavior*, 35 (12), 1459-1483. doi: 10.1177/0093854808320922.

Walters, G.D. (2018). Personality and crime: Mediating the agreeableness–offending and conscientiousness–offending relationships with proactive and reactive criminal thinking. *Personality and Individual Differences*, 129(15), 166-170. doi: 10.1016/j.paid.2018.03.035.

Wan, L., Crookes, K., Dawel, A., Pidcock, M., & Hall, A. (2017). Face-blind for other-race faces: Individual differences in other-race recognition impairments. *Journal of Experimental Psychology: General*, 146 (1), 102-122. doi: 10.1037/xge0000249.

Wang, Q. (2013). Gender and emotion in everyday event memory. *Memory*, 21 (4), 503-511. doi: 10.1080/09658211.2012.743568.

Watt, B., Howells, K., & Delfabbro, P. (2004). Juvenile recidivism: Criminal propensity, social control and social learning theories. *Psychiatry, Psychology and Law*, 11(1), 141-153. doi: 10.1375/pplt.2004.11.1.141.

Weber, N., Woodard, L., & Williamson, P. (2013). Decision strategies and the confidence–accuracy relationship in face recognition. *Journal of Behavioral Decision Making*, 26 (2), 152-163. doi: 10.1002/bdm.1750.

Wells, G.L., Memon, A., & Penrod, S.D. (2006). Eyewitness evidence improving its probative value. *Psychological Science in the Public Interest*, 7 (2), 45-75. doi: 10.1111/j.1529-1006.2006.00027.x.

Wenzel, M., von Versen, C., Hirschmüller, S., & Kubiak, T. (2015). Curb your neuroticism – Mindfulness mediates the link between neuroticism and subjective well-being. *Personality and Individual Differences, 80*, 68-75. doi: 10.1016/j.paid.2015.02.020.

West, R.L. & Stone, K.R. (2014). Age differences in eyewitness memory for a realistic event. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 69* (3), 338-347. doi: 10.1093/geronb/gbt014.

Westera, N.J., Powell, M.B., & Milne, B. (2015). Lost in the detail: Prosecutors' perceptions of the utility of video recorded police interviews as rape complainant evidence. *Australian and New Zealand Journal of Criminology, 50*(2), 252-268. doi: 10.1177/0004865815620705.

Wheatcroft, J.M., Wagstaff, G.F., & Kebbell, M.R. (2004). The influence of courtroom questioning style on actual and perceived eyewitness confidence and accuracy. *Legal and Criminological Psychology, 9*, 83-101. Retrieved from <https://onlinelibrary-wiley-com.libaccess.hud.ac.uk/doi/epdf/10.1348/135532504322776870>.

Wheatcroft, J.M., Wagstaff, G.F., & Manarin, B. (2015). The influence of delay and item difficulty on eyewitness confidence and accuracy. *International Journal of Humanities and Social Science Research, 1*, 1-9. Retrieved from <http://eprints.glos.ac.uk/6223/>.

White Ribbon. (n.d.). *What is the cycle of violence?*. Retrieved from <https://www.whiteribbon.org.au/understand-domestic-violence/what-is-domestic-violence/cycle-of-violence/>

Wiese, H. (2012). The role of age and ethnic group in face recognition memory: ERP evidence from a combined own-age and own-race bias study. *Biological Psychology, 89* (1), 137-147. doi: 10.1016/j.biopsycho.2011.10.002.

Wiese, H. (2013). Ageing faces in ageing minds: A review on the own-age bias in face recognition. *Visual Cognition*, 21 (9-10), 1337-1363. doi: 10.1080/13506285.2013.823139.

Wiese, H. & Schweinberger, S.R. (2018). Inequality between biases in face memory: Event-related potentials reveal dissociable neural correlates of own-race and own-gender biases. *Cortex*, 101, 119-135. doi: 10.1016/j.cortex.2018.01.016.

Wiese, H., Komes, J., & Schweinberger, S.R. (2013). Ageing faces in ageing minds: A review on the own-age bias in face recognition. *Visual Cognition*, 21 (9-10), 1337-1363. doi: 10.1080/13506285.2013.823139.

Wixted, J.T., Read, J.D., & Lindsay, D.S. (2016). The effect of retention interval on the eyewitness identification confidence–accuracy relationship. *Journal of Applied Research in Memory and Cognition*, 5 (2), 192-203. doi: 10.1016/j.jarmac.2016.04.006.

Wolf, O.T. (2017). Stress and memory retrieval: Mechanisms and consequences. *Current Opinion in Behavioral Sciences*, 14 (0), 40-46. doi: 10.1016/j.cobeha.2016.12.001.

Wolitzky-Taylor, K.B., Resnick, H.S., McCauley, J.L., Amstadter, A.B., Kilpatrick, D.G., & Ruggiero, K.J. (2010). Is reporting of rape on the rise? A comparison of women with reported versus unreported rape experiences in the national women's study-replication. *Journal of Interpersonal Violence*, 26 (4), 807-832. doi: 10.1177/0886260510365869.

Wolters, G. & Goudsmit, J.J. (2005). Flashbulb and event memory of September 11, 2001: Consistency, confidence and age effects. *Psychological Reports*, 96 (3), 605-619. doi: 10.2466/pr0.96.3.605-619.

Women's Aid. (n.d.). *What is Domestic Abuse*. Retrieved from <https://www.womensaid.org.uk/information-support/what-is-domestic-abuse/>.

Wong, J.T., Cramer, S.J., & Gallo, D.A. (2012). Age-related reduction of the confidence–accuracy relationship in episodic memory: Effects of recollection quality and retrieval monitoring. *Psychology and Aging, 27* (4), 1053-1065. doi: 10.1037/a0027686.

Wong, T.M.L. & Van de Schoot, R. (2011). The effect of offenders' sex on reporting crimes to the police. *Journal of Interpersonal Violence, 27* (7), 1276-1292. doi: 10.1177/0886260511425245.

Woody, W.D.W. & Greene, E. (2012). Jurors' use of standards of proof in decisions about punitive damages. *Behavioral Sciences and the Law, 30* (6), 856-872. doi: 10.1002/bsl.2027.

Wright, D.B. & Sladden, B. (2003). An own gender bias and the importance of hair in face recognition. *Acta Psychologica, 114* (1), 101-114. doi: 10.1016/S0001-6918(03)00052-0.

Wright, D.B. & Stroud, J.N. (2002). Age differences in lineup identification accuracy: People are better with their own age. *Law and Human Behavior, 26* (6), 641-654. Retrieved from https://www-jstor-org.libaccess.hud.ac.uk/stable/1394621?pq-origsite=summon&seq=1#page_scan_tab_contents.

Wright, D.B., Memon, A., Skagerberg, E.M., & Gabbert, F. (2009). When eyewitnesses talk. *Current Directions in Psychological Science, 18* (3), 174-178. doi: 10.1111/j.1467-8721.2009.01631.x.

Wright, E. M., & Fagan, A. A. (2013). The Cycle of Violence in context: Exploring the moderating roles of neighbourhood disadvantage and cultural norms. *Criminology, 51*(2), 217-249. doi: 10.1111/1745-9125.12003.

Wright, K.B. (2017). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10* (3). doi: 0.1111/j.1083-6101.2005.tb00259.x.

Wühr, P. & Schwarz, S. (2016). Die Hard in Notting Hill: Gender differences in recalling contents from action and romantic movies. *Applied Cognitive Psychology, 30* (4), 491-503. doi: 10.1002/acp.3238.

Wylie, L.E., Bergt, S., Haby, J., Brank, E.M., & Bornstein, B.H. (2015). Age and lineup type differences in the own-race bias. *Psychology, Crime and Law, 21* (5), 490-506. doi: 10.1080/1068316X.2014.989173.

Yamawaki, N., Ochoa-Shipp, M., Pulsipher, C., Harlos, A., & Swindler, S. (2012). Perceptions of domestic violence: The effects of domestic violence myths, victim's relationship with her abuser, and the decision to return to her abuser. *Journal of Interpersonal Violence, 27* (16), 3195-3212. doi: 10.1177/0886260512441253.

Yao, Q. & Moskowitz, D.S. (2015). Trait agreeableness and social status moderate behavioral responsiveness to communal behavior. *Journal of Personality, 83* (2), 191-201. doi: 10.1111/jopy.12094.

Yarmey, A.D. (1993). Adult age and gender differences in eyewitness recall in field settings. *Journal of Applied Social Psychology, 23* (23), 1921-1932. doi: 10.1111/j.1559-1816.1993.tb01073.x.

Zhou, G., Pu, X., Young, S.G., & Tse, C.S. (2014). Effects of divided attention and social categorization on the own-race bias in face recognition. *Visual Cognition, 22* (9-10), 1296-1310. doi: 10.1080/13506285.2014.998324.

Zhu, B., Chen, C., Loftus, E.F., Lin, C., He, Q., Chen, C. ... Dong, Q. (2010). Individual differences in false memory from misinformation: Personality characteristics and their interactions with cognitive abilities. *Personality and Individual Differences, 48* (8), 889-894. doi: 10.1016/j.paid.2010.02.016.

Zhu, Y., Zhao, Y., Ybarra, O., Stephan, W. G., & Yang, Q. (2015). Enhanced memory for both threat and neutral information under conditions of intergroup threat. *Personality and Social Psychology, 6*, 17-59. doi: 10.3389/fpsyg.2015.01759.

Zillmann, D. (2008). Emotional arousal theory. *The International Encyclopedia of Communication, 1* (1), 0-0. doi: 10.1002/9781405186407.wbiece022.

Appendices

Appendix 1. Participant Information Sheet

Investigative Psychology
Department of Behavioural and Social Sciences
University of Huddersfield
Queensgate
Huddersfield
HD1 3DH



You are invited to participate in this research project. Before you decide to take part in this research it is important that you understand what the research project requires of you. Please do not hesitate to ask if there is anything that is not clear or if you would like more information, this can be done via email.

The study will require you to watch a short video clip, read some information linked to the footage and view some pictures. There will be two questionnaires and a small task to complete. The experiment will be administered online through email or social media. The experiment should take no longer than 15-20 minutes, but feel free to take your time.

NB – Please note that if you have been personally involved in a violent crime you may not wish to participate in this experiment.

You have the right to withdraw at any time during the next 7 days after completing the experiment. If you decide you do not want your data to be used in the analysis, then you should email the researcher with your unique code and your data will be destroyed. You will be given up to 7 days after your participation in the experiment to withdraw the data, after the 7 days the unique codes will be destroyed and therefore your data will be unidentifiable. You will be fully debriefed at the end of the experiment explaining why the research was being conducted.

The data gathered will be used in project submissions and publications, but all participants will remain anonymous and unidentifiable. All the data collected will be stored on password protected computers and kept securely.

It is unlikely but possible that the experiment may bring up some distressing issues; if this occurs you have the right to stop the experiment at any point. If this happens you may wish to contact one of the following helplines:

The Samaritans, tel: 08457 90 90 90

Support Line, tel: 020 8554 9004

Or alternatively visit the website www.getselfhelp.co.uk with advice on self-help and contact details relating to specific issues.

Furthermore, if you are a student at the University of Huddersfield and are seeking wellbeing advice, please book an appointment with the Wellbeing Services: Tel 01484 471001 or email them at studentwellbeing@hud.ac.uk

Or feel free to attend the Wellbeing drop-in available Monday to Friday at 11:00am, at the iPoint reception desk, Level 4, Student Central.

Researcher

Emily Parrish

Emily.Parrish@hud.ac.uk

Project Supervisors

Dr. Laura Hammond and Dr Maria Ioannou.

If you wish to contact either of them, their contact details are provided below.

Dr Laura Hammond: L.Hammond@hud.ac.uk, tel: 01484 471174

Dr Maria Ioannou: M.ioannou@hud.ac.uk, tel: 01484 471174

Thank you for your time.

Appendix 2. Participant Consent Form

Please read and complete the following statements with an 'X' to confirm that you agree to each of the following:

I confirm that I have read and understood the information sheet explaining the study and I am able to ask any questions before the study begins by contacting the researcher, listed by email.

I understand that my participation is voluntary and that I am able to withdraw from the study at any time, without having to give a reason and without being disadvantaged in anyway.

I understand that all the information provided by myself will be treated within strict confidentiality guidelines and the raw data will only be accessed by the researchers and supervisors working on the project. I understand that my name will not be linked with any of the research materials or data or in the final research paper.

I understand any data provided will be stored in a safe and confidential manner.

I agreed to having my data used in publications and project submissions and I am aware that I will be anonymous throughout any publication.

I confirm I am over 18 years old.

I agree to take part in this research project.

NB – This consent form will be kept separate from other research documents (including any data) and will be held in a secure and confidential location.

Unique code

Please provide the last 3 letters of your surname and your year of birth (e.g. ith1991). This will be the unique code you provide if you wish for your data to be removed.

Appendix 3. Questionnaire 1 – Participant Demographics

What is your gender? _____

Age: _____

What is your occupation? _____

What is the highest level of education you have completed?

- No qualifications
- Higher education and professional/vocational equivalents
- GCSE/O Level Grade A*-C
- A-Level
- University Bachelor's degree
- Post-graduate education (Masters, PhD, MPhil etc.)

What is your ethnic group?

A White British

- English/Welsh/Scottish/Northern Irish/British
- Irish
- Gypsy or Irish Traveller
- Any other White background write in

B British Mixed/multiple ethnic groups

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed/multiple ethnic background write in

C Asian British

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background write in

D Black British/African/Caribbean

- African
- Caribbean
- Any other Black/African/Caribbean background write in

E Other ethnic group

- Arab
- Any other ethnic group write in

You now need to watch the video footage you have been given. You are required to only watch the footage once. When the video has finished please continue the next sections. Please do not skip ahead and complete the questions and tasks in the order they are presented.

Please click the link to access the video footage.

Appendix 4. Filler Task

1. On the London Underground map, what colour is the Circle Line?

2. Which two London football teams feature in the 'Dockers Derby'?

3. David Mitchell and Robert Webb appear as Mark Corrigan and Jeremy Usborne in which British comedy series?

4. Which spirit is the main ingredient in the liqueur Kahlua?

5. The Live 8 concert of 2005 took place in which London park?

6. Who succeeded Margaret Thatcher as Prime Minister of the United Kingdom?

7. What is the geometric name of an angle which is less than 90 degrees?

8. Which river runs through Newcastle city centre?

9. Which rap legend is known as Hova?

10. Which 2013 film saw Leonardo DiCaprio play Jordan Belfort?

11. Which former American sportsman is best known by his initials MJ?

12. Which is the smallest planet in the solar system?

13. Which chemical element is known by its symbol H?

14. In which city was the Titanic built?

15. Russia is the largest country in the world measured by land mass, what is the next largest?

16. What is the capital city of Kenya?

17. Who was the Greek god of the Sea?

18. Which is the only country to have taken part in every football World Cup final?

19. At 119 miles long, what is the name of Scotland's longest river?

20. William Shakespeare was born in which English market town?

Appendix 5. Questionnaire 2 – Events of the Incident

1. How many people were in the video clip you witnessed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

2. What was the man wearing?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

3. What was the woman wearing?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

4. What colour was the woman's top?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

5. What colour was the man's top?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

6. What colour was the woman's hair?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

7. What colour was the man's hair?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

8. What was the ethnicity of the woman?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

9. What was the ethnicity of the man?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

10. Did the woman have any visible tattoos?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

11. Did the man have any visible tattoos?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

12. Was the woman wearing any footwear?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

13. If so, what type of footwear?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

14. Was the man wearing any footwear?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

15. If so, what type of footwear?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

16. When did the incident occur?

Day

Night

Don't know

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

17. Was the environment where the incident occurred public or private?

Public

Private

Don't know

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

18. Could you briefly describe what happened in the CCTV footage you witnessed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

Appendix 6. Questionnaire 3 – Punitive Judgements

19. Which statement best describes what you witnessed in the video footage?

- I witnessed the man instigate a fight with the woman
- I witnessed the woman instigate a fight with the man
- Both the man and the woman were responsible for the fight
- I do not believe either were involved in a fight

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

20. On a scale of 1 to 10, with 10 being extremely serious and 1 being not serious at all, how serious do you believe the event was that you witnessed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

21. In seconds, how long did the altercation between the two individuals last?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

22. Who was responsible for starting the incident?

- Man
- Woman
- Both the man and the woman were responsible for what took place
- Neither the man or the woman were responsible for what took place

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

23. Who was the victim in the incident?

- Man
- Woman
- Both the man and the woman were victims in the incident
- Neither the man or the woman were victims in the incident

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

24. From what you witnessed do you believe a crime was committed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

25. If yes, what type of crime do you believe was committed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

26. How responsible was the man, for the incident, with 10 being completely responsible and 1 being not responsible at all?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

27. Why?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

28. How responsible was the woman, for the incident, with 10 being completely responsible and 1 being not responsible at all?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

29. Why?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

30. From what you witnessed in the video was the behaviour severe enough to injure either of the individuals?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

31. Was one of the individuals more likely to be harmed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

32. Who?

- Man
- Woman
- Both as likely to be harmed
- Neither were likely to be harmed

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

33. Do you believe either individual could have been psychologically or emotionally damaged by the incident you witnessed?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

34. Who do you believe was likely to experience the psychological or emotional damage from the incident witnessed?

- Man
- Woman
- Both
- Neither

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

35. If you witnessed this event in real-life would you call the police?

- Yes
- No
- Don't know

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

36. Please provide a reason for your answer.

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

37. Do you believe the man/women was guilty of committing a crime?

Yes

No

Don't know

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

38. Why?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

39. Do you believe the actions you witnessed constitutes as domestic violence?

Yes

No

Don't know

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

40. If the incident you witnessed ended up in court how certain would you be delivering a guilty verdict, with 10 being very certain and 1 being very uncertain?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

41. Please provide a reason for your answer.

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

42. Assume the event you witnessed ended up in court, with the man/women as the defendant and the woman as the victim, how strong do you believe this case is on a scale of 1 to 10, with 10 being very strong and 1 being not strong at all?

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

43. Assume the event you witnessed ended up in court, with the man as the defendant and the woman as the victim, the man is then found guilty of committing a crime. What type of sentencing would you advocate for them?

No sentence

Community service

Pay a fine

A suspended prison sentence (this sentence is carried out in the community and the person has to meet certain conditions, like having to stay away from a certain place or person or doing unpaid work).

Short determinate prison sentence (less than 3 months)

Long determinate prison sentence (more than 12 months)

On a scale of 1 to 10, with 10 being extremely confident and 1 being extremely unconfident, how confident are you of your answer?

Appendix 7. Questionnaire 4 – NEO-FFI

The questionnaire contains 60 statements. Read each statement carefully. For each statement fill in the response that best represents your opinion. Make sure your answer is in the correct box. Fill in only one response for each statement.

1. I am not a worrier.

Strongly Disagree Disagree Neutral Agree Strongly Agree

2. I like to have a lot of people around me.

Strongly Disagree Disagree Neutral Agree Strongly Agree

3. I don't like to waste my time daydreaming.

Strongly Disagree Disagree Neutral Agree Strongly Agree

4. I try to be courteous to everyone I meet.

Strongly Disagree Disagree Neutral Agree Strongly Agree

5. I keep my belongings neat and clean.

Strongly Disagree Disagree Neutral Agree Strongly Agree

6. I often feel inferior to others.

Strongly Disagree Disagree Neutral Agree Strongly Agree

7. I laugh easily.

Strongly Disagree Disagree Neutral Agree Strongly Agree

8. Once I find the right way to do something, I stick to it.

Strongly Disagree Disagree Neutral Agree Strongly Agree

9. I often get into arguments with my family and co-workers.

Strongly Disagree Disagree Neutral Agree Strongly Agree

10. I'm pretty good about pacing myself so as to get things done on time.

Strongly Disagree Disagree Neutral Agree Strongly Agree

11. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.

Strongly Disagree Disagree Neutral Agree Strongly Agree

12. I don't consider myself especially "light-hearted".

Strongly Disagree Disagree Neutral Agree Strongly Agree

13. I am intrigued by the patterns I find in art and nature.

Strongly Disagree Disagree Neutral Agree Strongly Agree

14. Some people think I'm selfish and egoistical.

Strongly Disagree Disagree Neutral Agree Strongly Agree

15. I am not a very methodical person.

Strongly Disagree Disagree Neutral Agree Strongly Agree

16. I rarely feel lonely or blue.

Strongly Disagree Disagree Neutral Agree Strongly Agree

17. I really enjoy talking to people.

Strongly Disagree Disagree Neutral Agree Strongly Agree

18. I believe letting students hear controversial speakers can only confuse and mislead them.

Strongly Disagree Disagree Neutral Agree Strongly Agree

19. I would rather cooperate with others than compete with them.

Strongly Disagree Disagree Neutral Agree Strongly Agree

20. I try to perform all the tasks assigned to me conscientiously.

Strongly Disagree Disagree Neutral Agree Strongly Agree

21. I often feel tense and jittery.

Strongly Disagree Disagree Neutral Agree Strongly Agree

22. I like to be where the action is.

Strongly Disagree Disagree Neutral Agree Strongly Agree

23. Poetry has little or no effect on me.

Strongly Disagree Disagree Neutral Agree Strongly Agree

24. I tend to be cynical and sceptical of others' intentions.

Strongly Disagree Disagree Neutral Agree Strongly Agree

25. I have a clear set of goals and work toward them in an orderly fashion.

Strongly Disagree Disagree Neutral Agree Strongly Agree

26. Sometimes I feel completely worthless.

Strongly Disagree Disagree Neutral Agree Strongly Agree

27. I usually prefer to do things alone.

Strongly Disagree Disagree Neutral Agree Strongly Agree

28. I often try new and foreign foods.

Strongly Disagree Disagree Neutral Agree Strongly Agree

29. I believe that most people will take advantage of you if you let them.

Strongly Disagree Disagree Neutral Agree Strongly Agree

30. I waste a lot of time before settling down to work.

Strongly Disagree Disagree Neutral Agree Strongly Agree

31. I rarely feel fearful or anxious.

Strongly Disagree Disagree Neutral Agree Strongly Agree

32. I often feel as if I'm bursting with energy.

Strongly Disagree Disagree Neutral Agree Strongly Agree

33. I seldom notice the moods or feelings that different environments produce.

Strongly Disagree Disagree Neutral Agree Strongly Agree

34. Most people I know like me.

Strongly Disagree Disagree Neutral Agree Strongly Agree

35. I work hard to accomplish my goals.

Strongly Disagree Disagree Neutral Agree Strongly Agree

36. I often get angry at the way people treat me.

Strongly Disagree Disagree Neutral Agree Strongly Agree

37. I am a cheerful, high-spirited person.

Strongly Disagree Disagree Neutral Agree Strongly Agree

38. I believe we should look to our religious authorities for decisions on moral issues.

Strongly Disagree Disagree Neutral Agree Strongly Agree

39. Some people think of me as cold and calculating.

Strongly Disagree Disagree Neutral Agree Strongly Agree

40. When I make a commitment, I can always be counted on to follow through.

Strongly Disagree Disagree Neutral Agree Strongly Agree

41. Too often, when things go wrong, I get discouraged and feel like giving up.

Strongly Disagree Disagree Neutral Agree Strongly Agree

42. I am not a cheerful optimist.

Strongly Disagree Disagree Neutral Agree Strongly Agree

43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.

Strongly Disagree Disagree Neutral Agree Strongly Agree

44. I'm hard-headed and tough-minded in my attitudes.

Strongly Disagree Disagree Neutral Agree Strongly Agree

45. Sometimes I'm not as dependable or reliable as I should be.

Strongly Disagree Disagree Neutral Agree Strongly Agree

46. I am seldom sad or depressed.

Strongly Disagree Disagree Neutral Agree Strongly Agree

47. My life is fast paced.

Strongly Disagree Disagree Neutral Agree Strongly Agree

48. I have little interest in speculating on the nature of the universe or the human condition.

Strongly Disagree Disagree Neutral Agree Strongly Agree

49. I generally try to be thoughtful and considerate.

Strongly Disagree Disagree Neutral Agree Strongly Agree

50. I am a productive person who always gets the job done.

Strongly Disagree Disagree Neutral Agree Strongly Agree

51. I often feel helpless and want someone else to solve my problems.

Strongly Disagree Disagree Neutral Agree Strongly Agree

52. I am very active person.

Strongly Disagree Disagree Neutral Agree Strongly Agree

53. I have a lot of intellectual curiosity.

Strongly Disagree Disagree Neutral Agree Strongly Agree

54. If I don't like people, I let them know it.

Strongly Disagree Disagree Neutral Agree Strongly Agree

55. I never seem to be able to get organised.

Strongly Disagree Disagree Neutral Agree Strongly Agree

56. At times I have been so ashamed I just wanted to hide.

Strongly Disagree Disagree Neutral Agree Strongly Agree

57. I would rather go my own way than be a leader of others.

Strongly Disagree Disagree Neutral Agree Strongly Agree

58. I often enjoy playing with theories or abstract ideas.

Strongly Disagree Disagree Neutral Agree Strongly Agree

59. If necessary, I am willing to manipulate people to get what I want.

Strongly Disagree Disagree Neutral Agree Strongly Agree

60. I strive for excellence in everything I do.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Appendix 8. Debrief

Thank you for your participation in this research project.



The purpose of this research was to determine what individual differences impacted upon a person's eyewitness account. The current thesis considered the witnesses' ethnicity, age, gender and personality. There has been a lack of research in the literature focusing on, in particular, the influence of personality factors and how witnesses recall information. This could potentially be an integral aspect of eyewitness accounts that is currently being overlooked and unaccounted for.

Furthermore, this study focused on the perception of gender and criminality in victims and perpetrators. This was to understand whether criminality of a perpetrator diminished or increased depending upon their gender and the gender of their victim. Little research has directly examined the effects of victim/perpetrator genders and their impact on eyewitness recall. For example, the current research wanted to explore whether witnesses perceived a male attacking a female victim the same way as a female attacking a male victim. The video footage depicted a domestic violence scene between a man and a woman, the reason this was not revealed during the experiment was to ensure that your interpretation of the incident was not distorted by having already been informed that the crime being witnessed was domestic violence. This was also to understand how domestic violence is interpreted by society and whether we are able to identify domestic violence when it is a crime that is not usually seen in public.

Additionally, the clarity of the crime was distorted. Some participants will have viewed a scene which clearly depicted a perpetrator attacking a victim, where the victim did not fight back. In the other condition, the victim fought back at the perpetrator, distorting the crime and making it more ambiguous. This was to understand how witnesses interpreted the event when the incident was more ambiguous, and to see where the blame was put between the two people involved.

Your confidence for each question was rated as research has suggested that confidence does not link to the accuracy of a witness account. Therefore, this could be a crucial and important aspect, as in court cases, witnesses presented to the jury are often asked their confidence in recalling an event. Furthermore, research has also suggested that jurors believe confidence is an accurate way of measuring the accuracy of an eyewitness account.

Should you wish to withdraw your data, please provide your unique code. You will have up to 7 days after completing the study to withdraw your data and please do so by emailing the researcher, after the 7 days of completion of the study the unique codes will be destroyed and thus, your data will no

longer be identifiable and therefore cannot be withdrawn. However, your data will remain anonymous and will not be traceable to yourself.

Furthermore, if you have any questions about the research and would like to get in touch, please do not hesitate to contact the project team.

Emily Parrish: Emily.Parrish@hud.ac.uk

Dr Laura Hammond: L.Hammond@hud.ac.uk, tel: 01484 471174

Dr Maria Ioannou: M.ioannou@hud.ac.uk, tel: 01484 471174

If you feel you have been affected by this study, please contact either of the following:

The Samaritans, tel: 08457 90 90 90

Support Line, tel: 020 8554 9004

Or visit the website www.getselfhelp.co.uk with advice on self-help and contact details relating to specific issues.

And for any of you wanting to know the answers to Task 1, which was a general knowledge quiz used as a distraction task, the answers were as follows:

On the London Underground map, what colour is the Circle Line?

Yellow

Which two London football teams feature in the 'Dockers Derby'?

Millwall and West Ham United

David Mitchell and Robert Webb appear as Mark Corrigan and Jeremy Usborne in which British comedy series?

Peep Show

Which spirit is the main ingredient in the liqueur Kahlua?

Rum

The Live 8 concert of 2005 took place in which London park?

Hyde Park

Who succeeded Margaret Thatcher as Prime Minister of the United Kingdom?

John Major

What is the geometric name of an angle which is less than 90 degrees?

Acute

Which river runs through Newcastle city centre?

River Tyne

Which rap legend is known as Hova?

Jay-Z

Which 2013 film saw Leonardo DiCaprio play Jordan Belfort?

Wolf of Wall Street

Which former American sportsman is best known by his initials MJ?

Michael Jordan

Which is the smallest planet in the solar system?

Mercury

Which chemical element is known by its symbol H?

Hydrogen

In which city was the Titanic built?

Belfast

Russia is the largest country in the world measured by land mass, what is the next largest?

Canada

What is the capital city of Kenya?

Nairobi

Who was the Greek god of the Sea?

Poseidon

Which is the only country to have taken part in every football World Cup final?

Brazil

At 119 miles long, what is the name of Scotland's longest river?

River Tay

William Shakespeare was born in which English market town?

Stratford-upon-Avon