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Personality Correlates of Co-witness Suggestibility.

Abstract

The present study examined the relationship between co-witness suggestibility and individual differences in interpersonal characteristics. Participants (N=473) took part in an eyewitness simulation, five independent conditions were used to control for misinformation size. Using confederates, the researchers exposed participants to misinformation about the witnessed event, prior to collecting their statements. The participants then completed the Fundamental Interpersonal Relations Orientation-Behaviour assessment (FIRO-B; Schutz, 1958), a measure of expressed and wanted *control, affection*, and *inclusion*. Results suggested that the wanted control dimension was an accurate predictor of co-witness suggestibility. Eyewitnesses who scored highly on Wanted Control, were significantly more likely to accept misinformation from co-witnesses; and were more likely to lose confidence in their own judgements, after a group discussion. In addition, the results suggest that the unanimity of misinformation, but not the size, had a significant influence on co-witness suggestibility.

Keyword

Eyewitness suggestibility; Conformity; Interpersonal characteristics; FIRO-B; Individual differences; Misinformation effect.

Introduction

Co-witness influence on memory reports.

The malleability of human memory can leave eyewitnesses heavily vulnerable to having their recollection of an event contaminated by misleading post-event information (Frenda, Nichols, & Loftus, 2011; Loftus, 2005; Skagerberg & Wright, 2008). This can be problematic, as numerous studies have demonstrated that inaccurate post-event information can influence

eyewitnesses into producing confabulated statements, a phenomenon referred to as *the misinformation effect* (Carlucci, Kieckhaefer, Schwartz, Villalba, & Wright, 2010; Garry, French, Kinzett, & Mori, 2008; Paterson & Kemp, 2006). Eyewitnesses can encounter post-event information through multiple different sources including investigators, co-witnesses and media outlets (Gabbert, Memon, & Allan, 2003; Wright, Memon, Skagerberg, & Gabbert, 2009); however, research suggests that post-event information is most influential when encountered through discussions with other co-witnesses (Paterson & Kemp, 2006). Numerous studies have demonstrated that eyewitnesses are susceptible to reporting misleading information that is presented to them by co-witnesses (see Thorley, 2015; Williamson, Weber, & Robertson, 2013); a behaviour that is more commonly known as *memory conformity* (Thorley, 2015; Wright, Self, & Justice, 2000). Previous studies on co-witness influence have typically demonstrated the effects of memory conformity by using confederates (actors disguised as participants/co-witnesses) to present participants with misinformation about a previously witnessed event. Later, when interviewing the participants, it has been consistently found that a large proportion of the participants would incorporate the confederate's misinformation into their own memory reports (see Paterson & Kemp, 2006; Paterson, Kemp, & Forgas, 2009; Roediger, Meade, & Bergman, 2001).

Memory conformity can occur as a result of informational influence (Blank, 2009; Wright et al., 2009), the process of conforming to others to obtain the correct answer (Wright, London, & Waechter, 2009). Eyewitnesses will be aware of the implications that their statements will have on an investigation. As a result, many witnesses will be motivated to provide an accurate report. However, a heightened need for being correct can persuade an eyewitness to report newly learnt misinformation, if they perceive the source to be accurate (French, Garry, & Mori, 2011; Williamson et al., 2013). Normative influence, the pressure to conform as a means for social approval, can also be used to explain general memory

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conformity (Wright, London, & Waechter, 2009). Wright et al. (2009) found that during a series collaborative memory recall trials, many participants had chosen to conform to their partners' erroneous reports to avoid receiving any negative evaluation from them. However, in relation to eyewitness evidence, if police investigators are trained to collect statements privately, a witness's statement would bear no social repercussions and thus, the level of normative influence would be significantly reduced.

Co-witness influence on eyewitness confidence.

Exposure to co-witness misinformation can also influence the level of confidence a witness will have in their statement, which can consequently have an impact on their willingness to give evidence in court (Allwood, Knutsson, & Granhag, 2005; Luus & Wells, 1994; Semmler, Brewer, & Wells, 2004; Skagerberg & Wright, 2009). Exposure to co-witness misinformation can have varying effects on an eyewitness's confidence depending on their initial interpretation of the event, and whether they conform to the misinformation in their final report. In cases where the witness conforms to misinformation that contradicts with their original recollection, research suggests that many witnesses would lose confidence in their reconstructed reports. Gabbert et al. (2003) compared the self-reported confidence scores of participants who had been exposed to misinformation from co-witnesses with participants from a control group (no misinformation was presented). Their study found that younger participants (18-30 years) were less confident in their statements, when recalling unwitnessed information. However, older eyewitnesses (60-80 years) exhibited the same level of confidence in their statements when recalling both witnessed and unwitnessed information, suggesting that the effects of co-witness discussions on eyewitness confidence may be mediated by the individual's age.

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In cases where the witness encounters contradicting information but refrains from conforming to the misinformation, research suggests that exposure to the disconfirmatory information would reduce the witness's confidence in their memory report. Luus and Wells (1994) presented participants with feedback regarding their co-witness's responses during a line-up identification task. The study found that confidence deflation occurred when the participants were told that their co-witness's response contradicted theirs. However, although the study suggests that exposure to conflicting information can reduce a witness's confidence in their original recollection, other studies which have recreated the experimental paradigm have failed to find such a relationship between co-witness misinformation and confidence deflation (see Allwood et al., 2005; Skagerberg & Wright, 2009).

In cases where the witness already holds incorrect recollection of the event prior to discussing the event with co-witnesses, research suggests that exposure to similar misinformation could cause the witness to gain more confidence in their erroneous memory report (Allwood et al., 2006; Semmler et al., 2004). Allwood et al. (2006) presented participants with post-identification feedback in the form of a written statement from a previous participant. The study found that participants who were exposed to a confirmatory feedback were more likely to report higher levels of confidence, relative to participants who had not received any feedback.

Individual differences in co-witness influence

Through reviewing the existing literature on co-witness influence, it is apparent that some individuals seem to be more vulnerable to co-witness influence than others (Gabbert et al., 2003; Goodwin, Kukucka, & Hawks, 2012; Levett, 2011; Paterson et al., 2009). Researchers have previously suggested that an individual's vulnerability to co-witness influence (*co-witness suggestibility*) may be related to individual differences in personality (Doughty,

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Paterson, MacCann, & Monds, 2017; Loftus, 2005; Wright et al., 2009). In her review of the misinformation effect, Loftus identified several personality traits that had been repeatedly associated with misinformation acceptance. In particular, the paper identified high levels of empathy, self-monitoring, absorption, and disassociation as key predictors of misinformation acceptance. (see Loftus 2005, for review).

Some more general personality assessments have also been able to determine an individual's vulnerability to co-witness influence. Using the Ten-Item Personality Questionnaire (TIPI; Gosling, Rentfrow, & Swan, 2003), Doughty et al. (2017) found that participants who scored lower on measures of openness, extraversion and neuroticism were significantly more susceptible to memory conformity, relative to higher scoring participants. Furthermore, Liebman et al., (2002) displayed a range of personality inventories (NEO OI-Revised; the Multidimensional Personality Questionnaire; Locus of Control; and Memory Efficacy) which could reliably predict the suggestibility of eyewitnesses to misleading questions. More specifically, the study found that eyewitnesses with a high external locus of control, low memory efficacy and high levels of neuroticism were significantly more vulnerable to interrogative suggestibility. Although much of the aforementioned studies were based on an eyewitness's suggestibility to misleading interviews rather than to co-witnesses, comparative research suggests that the effects of interrogative suggestibility are co-morbid with co-witness suggestibility (Jack, Zydervelt, & Zajac, 2014; Thorley, 2013).

Predicting co-witness suggestibility

Whilst observations on general personality differences can allow researchers to identify the fundamental predictors of co-witness suggestibility, the present study proposed that co-witness suggestibility could be predicted more accurately by observing the interpersonal characteristics of eyewitnesses. This is because the informational and normative pressures of

conformity are heavily mediated by the interpersonal characteristics of the targeted individual (Cialdini & Goldstein, 2004; Glomb & Liao, 2003; Heerdink, van Kleef, Homan, & Fischer, 2013); due to the exchanging of information between individuals being a highly social interaction (Gabbert, Memon, Allan, & Wright, 2004) and the act of conformity being an interpersonal behaviour (Bass, 1960). The relationship between interpersonal characteristics and co-witness suggestibility was demonstrated by Wright and colleagues, who found that individuals with higher levels of social anxiety were more vulnerable to being influenced by a co-witness during memory recall, due to a greater fear of negative evaluation (Wright et al., 2009). The findings fundamentally suggest that the individual differences in co-witness suggestibility may be accurately accounted for by the witness's interpersonal characteristics. However, to date there is a serious lack of research investigating the interpersonal correlates of co-witness suggestibility.

The ability to identify vulnerable eyewitnesses can bare significant benefits within a legal context. Through identifying witnesses who would be at a higher risk of reporting unwitnessed information, jurors and legal professionals would be able to assess the reliability of their statements more accurately; which in turn, may help reduce the risks of false convictions. In addition, through identifying the underlying causes for co-witness suggestibility, investigators may be able to work on implementing interventions to prevent vulnerable eyewitnesses from reporting unwitnessed information.

One tool which has repeatedly been used to identify potential interpersonal correlates of conforming behaviour is the Fundamental Interpersonal Relations Orientation-Behaviour assessment (FIRO-B; Schutz, 1958) (see Huertas & Powell, 1986; Willcoxson & Chatam, 2006). The self-assessment inventory measures the interpersonal characteristics of an individual through three interpersonal dimensions: Control, inclusion and affection. All three dimensions are measured through both expressed and wanted needs, creating a total of six

interpersonal scales. The control dimension reflects the degree to which an individual asserts control over the actions of others (expressed), and the degree to which an individual wants their actions to be controlled by others (wanted). The inclusion dimension reflects the degree to which an individual involves other people into their activities (expressed), and the degree to which they want to be included in the in the activities of others (wanted). Finally, the affection dimension reflects the level of emotional attachment that individuals place onto others (expressed), and the level of emotional attachment that individuals desire from others (wanted).

Although the FIRO-B was initially developed as a clinical tool, it has been widely adopted by many researchers to accurately predict a magnitude of interpersonal behaviours such as loneliness (Jones, Freemon. & Goswick, 1981), partner control (Naydenova, 2007), and even domestic abuse (Poorman & Seelau, 2001). Despite receiving some criticisms for its supposed lack of construct validity (Mahoney & Stasson, 2005; Ryan, Maguire, & Ryan, 1970), many research studies have demonstrated the reliability of the FIRO-B scales in consistently measuring the six interpersonal characteristics (Gluck, 1983; Kramer, 1967; Poorman & Seelau, 2001). Furthermore, Kramer (1967) compared the scores from all six scales with a self-reported rating of each corresponding trait. Rank order correlations indicated that five out of the six scales were significantly correlated with the self-reported ratings (excluding expressed inclusion), supporting the construct validity of the FIRO-B assessment.

Previous research using the FIRO-B assessment have produced evidence suggesting a possible relationship between some of the scales and susceptibility to peer influence. The FIRO-B questionnaire was used by Huertas and Powell (1986) to successfully predict conforming behaviour within a different sample demographic. Using the inventory, the researchers examined the relationships between interpersonal characteristics and

suggestibility, in teams of participants during a group task. The results found significant positive correlations between conformity and the following interpersonal characteristics: expressed affection (r=.28), wanted affection (r=.27), expressed control (r=.32), and wanted control (r=.25). Although the findings offer some insight on the interpersonal causes for suggestibility, many of the correlations observed may not be applicable to eyewitnesses. This is because the main aim of Heurtas and Powell's study was to identify the effects of conformity to group leaders, with each group having a group leader appointed. In addition, participants within the study were asked to report their answers in front of their team members. Therefore, the relationship between wanted affection and expressed control with conformity may have been caused by an individual's willingness to conform to the group to obtain the desired position of leadership (Huertas & Powell, 1986). To gain a more reliable understanding of the interpersonal correlates of co-witness suggestibility, a more direct observation is needed. However, to date, no study has attempted to directly examine the relationship between interpersonal characteristics and co-witness suggestibility.

Misinformation size and co-witness influence

Finally, it is worth mentioning the significant role misinformation size (the number of individuals presenting the misinformation) plays in mediating memory conformity during co-witness discussions. Numerous research studies have identified a positive relationship between the size of the group providing the misinformation and the risk of memory conformity (Asch 1955; Bond, 2005; Latane, 1981; Thorley & Dewhurst, 2009; Vrij, Pannell, & Ost, 2005). In relation to co-witness influence, Walther et al., (2002) found that within simple memory recall tasks, participant eyewitnesses were more susceptible to co-witness influence, when the misinformation was presented by larger groups of co-witnesses (ten versus five).

Walther et al., (2002) also found that the risk of memory conformity was significantly reduced if other dissenters (co-witnesses who rejected the majority groups misinformation) were present, suggesting that the unanimity of misinformation may also be a significant mediator of co-witness influence. Theories on informational influence support this claim, many researchers have argued that for misinformation to have a significant influence on the target, it must also be unanimously held by the group (see Asch, 1955; Baron, Vandello & Brunsman, 1996). Moreover, Asch (1951) proposed that the presence of a dissenter would break the chain of consensus, and consequently, reduce level of influence a group would have on the targeted individual.

Liebman et al., (2002) proposed that the relationship between personality differences and eyewitness suggestibility was heavily dependent on the experimental paradigm. Moreover, the it can be suggested that some personality differences may only be able to predict co-witness suggestibility under certain circumstances (i.e. only when the misinformation is presented unanimously or by a large majority). However, despite evidence suggesting that misinformation size can have a mediating effect on co-witness suggestibility, very little research has attempted to control for this variable when attempting to identify the personality correlates of eyewitness suggestibility (See Doughty et al., 2017; Liebman et al., 2002). Therefore, the present study suggested that the relationship between personality differences and co-witness suggestibility should be repeatedly measured under different experimental conditions, to allow the researchers to make more accurate inferences from the results.

The Current Study

Although previous research has attempted to identify the relationship between general personality traits and co-witness suggestibility, the current researchers argue that a systematic observation on interpersonal characteristics will provide more reliable predictors of co-

witness suggestibility. Furthermore, to date, most research studies on co-witness influence have only considered a singular measure for co-witness influence, memory conformity. Whilst observation on memory conformity can allow researchers to clearly determine whether an individual has been influenced by their co-witnesses, such an approach would assume that any participant who did not conform to the misinformation will not have been. However, research has found that eyewitnesses who do not conform to their co-witnesses may still be influenced by the misinformation through a loss of confidence in their reports (Allwood et al., 2005; Luus & Well, 1994). Based on this evidence, it can be argued that by solely relying on a dichotomous measure for co-witness influence, such as memory conformity, researchers may underestimate the true prevalence of co-witness influence.

The first aim of this study was to explore the association between interpersonal characteristics and susceptibility to co-witness influence (co-witness suggestibility), whilst controlling for age, gender, and group characteristics (misinformation size and unanimity). The FIRO-B assessment was selected as an appropriate tool for measuring the interpersonal characteristics of the participants due to its extensive use in previous research for identifying interpersonal predictors of group behaviour (see Jones et al., 1981; Naydenova, 2007; Poorman & Seelau, 2001). To date, no research study has attempted to investigate the relationship between interpersonal characteristics and co-witness influence, making it difficult to confidently determine the direction of the relationships, if any. However, based on the available findings from general research on group conformity, the first hypothesis of the study predicted that participants who scored high on wanted control would be more vulnerable to co-witness influence (H1).

The second aim of the present study was to investigate the effects of misinformation size and unanimity of misinformation on co-witness influence. The findings of previous research suggest that both misinformation size and unanimity of misinformation may have a

mediating effect on an individual's vulnerability to co-witness influence, yet very few studies have attempted to control for these variables. Therefore, the researchers controlled for this effect, through conducting the trials under multiple different conditions where the number of confederate's present was manipulated. Based on previous research on misinformation size and social influence (see Thorley & Dewhurst, 2009; Vrij et al., 2004), the following hypotheses were made: Participants would be more susceptible to co-witness influence, when the misinformation was presented unanimously (H2); and participants would be more susceptible to co-witness influence, when the misinformation was presented by a larger group of co-witnesses (H3).

Methodology

Participants

The sample consisted of 473 participants from the United Kingdom. 224 were male (*M* age= 29.3; range= 16-70; *SD* = 11.91) and 249 were female (*M* age= 28.58; range= 15-80; *SD* = 11.77). Preliminary tests were undertaken to ensure that no participants had any serious visual impairments that would affect their ability to watch the crime footage on a computer screen. The request for participation was advertised through online media, as well as the circulation of flyers and posters within multiple cities. After gaining confirmation for participation, participants were randomly assigned to one of five experimental conditions, whilst ensuring a relatively even distribution of male and female participants within each experimental group. Additional descriptive tests were conducted to ensure that there was a relatively equal distribution of age within all conditions (See Table 1).

The experiments were conducted over the duration of a year, and were sequentially carried out in order of condition. The differences in experiment dates had a mediating effect on the availability of participants for each condition, with some of the participants who were

allocated a later date dropping out. Resultantly, there were some disparities in sample size between each condition. Despite this level of variance, all experimental conditions were still of sufficient size for statistical comparisons to be made (in accordance with Stevens, 2009).

Measures and Materials

Visual Stimulus.

The study used a real-life closed-circuit television (CCTV) footage of a bar fight erupting between two individuals. The footage lasted approximately one minute and thirty seconds and did not have an audio output. The footage depicts two men in distinctively different clothing (one man is wearing a yellow t-shirt whilst the other is wearing a dark green t-shirt) engaging in a conversation within a bar. Shortly after, one of the men (in the dark green t-shirt) attacks the other (in the yellow t-shirt), causing a fight to start between both men. The fighting lasts for forty seconds before the two men are separated by multiple bystanders. The main point of interest within the footage was the indication that the man in the dark green t-shirt had thrown the first punch.

Fundamental Interpersonal Relations Orientation-Behaviour (FIRO-B; Schutz, 1958).
The FIRO-B assessment was used as a measure for the participant's interpersonal characteristics. The self-report assessment comprises of six scales (wanted control, expressed control; wanted inclusion, expressed inclusion, wanted affection, and expressed affection) which are measured through 54 mixed items (nine items per scale). The items are presented as statements about the individual's interpersonal needs (e.g. "*people control my actions*"), the participant then scores their level of agreement with each statement through a six-point scale (six indicating maximum agreement). Each item is scored dichotomously (zero or one mark awarded) depending on the participant's level of agreement with the statement. The

scoring criteria is set out by the FIRO-B Manual and varies between each item. The scores are then totalled to produce six overall scores, ranging between zero and nine (with nine indicating the strongest presence of the interpersonal characteristic), for each scale.

The six FIRO-B scales were constructed using the Guttman scaling design, which suggests that the scales would bare high levels of reproducibility (Babbie, 2013). Schutz (1978) demonstrated the reliability of the assessment through testing the reproducibility of the scales. As predicted, the results reported suitable reproducibility coefficients for all scales, ranging between .93 and .94. The FIRO-B has also been shown to have adequate test-retest reliability (Gluck, 1983; Hutcherson, 1965; Schutz, 1978). Schutz (1978) found that after a one-month duration, the test-retest coefficients were as follows: .82 for expressed inclusion, .75 for wanted inclusion, .80 for expressed affection, .73 for wanted affection, .74 for expressed control, and .71 for wanted control. In light of the aforementioned research literature surrounding the validity of the FIRO-B assessment, the present researchers argued that despite some of the criticisms received, the assessment remains as a reliable predictor for interpersonal characteristics. Based on the primary aim of the present study focusing on the interpersonal correlates of co-witness influence, it was settled that the FIRO-B assessment would be suited as the most appropriate scale for the present study.

Using the present study's data, preliminary tests were conducted by the researchers to assess the internal validity of the assessment. A one-way multivariate analysis of variance (MANOVA) was conducted on the mean scores of the FIRO-B scales within each experimental condition. The analysis found that with the exception of the wanted affection scale, the other five scales remained consistent between all experimental conditions, $F_{(24, 1616.42)} = 2.21$, $p < .05$; Wilk's $\Lambda = .89$, partial $\eta2 = .03$; suggesting that five out of the six scales possessed good internal validity.

Design and Procedure

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A mixed design was employed, with participants being randomly allocated to one of five independent conditions. The group conditions were used to manipulate the independent variables of misinformation size (size of the group presenting the misinformation) and unanimity of misinformation, through altering the number of participants and confederates (misinformation source) present during the trials. As Table 1 illustrates, the misinformation was guaranteed to be presented unanimously in conditions four and five due to the participant being placed into a confederate-only group. Whereas in conditions two and three, the presence of multiple true participants meant that the participants were likely to encounter other dissenters, breaking the chain of unanimity. However, a caveat of the present study's design is that participants within conditions two and three may have still been subjected to misinformation from a unanimous group, if the remaining participants had all erroneously provided misleading responses. In spite of this risk, the researchers argued that statistically, it would have been highly likely for at least one dissenter to be present within the majority of the trials in conditions two and three.

INSERT TABLE 1

The FIRO-B scores for each six scales were used as predictor variables of co-witness suggestibility. Co-witness suggestibility was measured through two dependent variables, the response given by the participants when asked to identify which man had thrown the first hit (*memory report*), and the level of confidence the participants placed in their response (*eyewitness confidence*).

Due to the ethical considerations of exposing participants to violent footage, participants were informed that they would be viewing a CCTV footage that contained violence, in order to gain consent from them. Details with regards to the aims of the experiment were kept to a minimum. Participants watched the footage simultaneously in their

groups, on a monitor screen. The footage lasted one minute and thirty seconds, and depicted a man in a dark green top starting a fight with another man in a yellow top by punching him.

After the footage had finished, participants were allocated one minute to discuss in their groups, who they believed had thrown the first hit. Confederates were used to expose the participants to co-witness misinformation by suggesting that the wrong man (in the yellow t-shirt) had started the fight. The group discussions were capped at one minute to ensure that no participant could question the confederates for a significantly longer period than another participant from a separate trial. The experimenter left the room during the group discussion to prevent their presence from influencing the participant's behaviour. Participants in the control groups were not permitted to discuss the footage with co-witnesses, instead, they were asked to sit silently until they were called to leave the room for questioning.

The next phase was the eyewitness statement process, participants were then taken into a private room individually and asked to identify who they believed had thrown the first hit, alternatively, they were given the option to state that they were uncertain. The interviewer advised all participants to only report information that they remembered seeing. All participants produced one of three responses, when asked to identify which man had thrown the first hit. Eyewitnesses who blamed the man in the yellow top (misinformation) were scored as being *incorrect*, participants who blamed the man in the dark green top were scored as being *correct*, and participants who stated that they were uncertain were scored as being *unsure*. In addition to making their response, participants were also asked to indicate how confident they were in their judgment. Keeping in line with previous research on eyewitness confidence (see Mudd & Govern, 2004), confidence judgements were measured using a five-point scale (five meaning maximum confidence). Participants who answered "unsure" were not asked to give a confidence rating due to their inability to identify an offender.

Finally, the participants were instructed to complete a copy of the FIRO-B assessment privately. After the experiment had finished, all participants were debriefed and thanked for their participation.

Results

The main results are presented in two sections. First, evidence for the relationship between interpersonal characteristics and group characteristics (unanimity of misinformation and misinformation size) with co-witness suggestibility is given through analyses of eyewitness memory reports (first dependent variable). The second section of the results investigates the relationship between interpersonal characteristics and group characteristics with co-witness suggestibility through analyses of eyewitness confidence (second dependent variable). Means and standard deviations for all variables are presented in Table 2, and the correlations between predictor variables are presented in Table 3.

INSERT TABLE 2

INSERT TABLE 3

Predicting eyewitness suggestibility, through response accuracy.

Control Group

The results from the control group (condition one) offer an indication of how well participants performed on the eyewitness task, when no misinformation was presented. Although most participants were able to produce a correct response (42.7%), a large proportion of the participants blamed the wrong man for throwing the first hit (33.9%), and an additional 23.4% of the participants stated that they were uncertain (See Table 2); suggesting that the task difficulty was moderately high. The study purposely used an

ambiguous task due to research suggesting that informational influence is more effective in the presence of uncertainty (Walther et al., 2002).

The results from participants in the control condition were analysed to ensure that the FIRO-B scales had no inherent relationship with general response accuracy. A series of multinomial logistic regressions were used to analyse the relationship between FIRO-B scores and eyewitness memory reports when no group discussion was permitted. The analysis found that the model fit was not significant, χ^2 (12, *N*=171) = 8.32, p > .05. The results indicated that there was no relationship between the FIRO-B scales and report accuracy, in participants who did not partake in a co-witness discussion. Therefore, any relationships observed between the FIRO-B scales and report accuracy within the experimental conditions could be attributed to co-witness discussions.

Investigating the relationship between FIRO-B scores and group charactersitcs, with eyewitness memory reports.

First, the study wanted to establish whether there were any relationships between the interpersonal characteristics of an eyewitness and their susceptibility to memory conformity, whilst controlling for age and gender. In addition, the researchers wanted to determine whether the size and unanimity of the misinformation had a mediating effect on the risk of co-witness influence. To investigate these relationships, multinomial logistic regression was used to analyse the effects of the FIRO-B scores and group conditions on the participant's memory reports. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Due to the dependent variable consisting of three outcomes, two regressions were conducted: one with the incorrect response (yellow top; misinformation) as the reference category, and one with the correct response (dark green top) as the reference category. The analysis found that the model fit was

significant, χ² (24, *N*=473) = 85.28, p < .001, indicating that both full models predicted

significantly better, or more accurately, than the null model.

The first column in Table 4 has the outcome of "correct response" compared to

"incorrect response" (reference category). In relation to the experimental conditions, the

results suggested that participants who were exposed to misinformation from a unanimous

majority group (conditions 4, OR= .09; and 5, OR= .04), compared to participants from the

control condition, were significantly more likely to report the misinformation (incorrect

response). The measures of association were very large, in accordance to Cohen (1988). The

effect size, calculated using Cohen's d, was -1.33 and - 1.77, respectively. The data suggested

that exposure to misinformation that was not unanimous (conditions 2 and 3) did not seem to

have any effect on the participants' reports. In relation to the FIRO-B scales, the results

suggested that participants who scored higher on the wanted control scale (OR=.89) were

significantly more likely to report the misinformation (incorrect response). However, the

measure of association was very small, in accordance to Cohen (1988). The effect size,

calculated using Cohen's d, was -.06. The data suggested that the remaining FIRO-B scales

could not reliably predict the eyewitness's memory report.

The second Column in Table 4 has the outcome of "unsure" compared to "incorrect

response" (Reference category). In relation to the experimental conditions, the results

suggested that participants who were exposed to misinformation from a unanimous majority

group (conditions 4, OR= .27; and 5, OR= .17), compared to participants from the control

condition, were significantly more likely to report the misinformation (incorrect response).

The measures of association were medium to large, in accordance to Cohen (1988). The

effect size, calculated using Cohen's d, was -.72 and - .98, respectively. The data suggested

that exposure to misinformation that was not unanimous (conditions 2 and 3) did not seem to

have any effect on the participants' responses. The data also suggested that none of the FIRO-B scales could reliably predict the eyewitness's memory reports.

The third Column in Table 4 has the outcome of "unsure" compared to "correct response" (Reference category). The results suggest that the experimental condition was not a reliable predictor of eyewitness response accuracy. Participants who scored higher on expressed inclusion (OR=.85) were significantly more likely to produce a correct response. However, the measure of association was very small, in accordance to Cohen (1988). The effect size, calculated using Cohen's d, was -.09. The data suggested that none of the other scales could reliably predict the eyewitness's memory reports.

INSERT TABLE 4

The researchers then calculated and compared the percentage of correct, incorrect and unsure memory reports (dependent variable) from participants in conditions four and five (independent variable), to determine whether the change in misinformation size influenced response accuracy. This analysis was subjected to a 2 X 3 chi-square test of independence. The analysis found no significant association between the misinformation size and eyewitness memory reports, $\chi2$ (2, $N = 76$) = .93, p >.05.

Predicting eyewitness suggestibility, through eyewitness confidence.

For the second part of the results, the confidence judgements of participants who answered correctly and incorrectly were analysed to determine whether exposure to co-witness misinformation influenced the level of confidence that participants placed in their responses. Moreover, the researchers wanted to determine whether the relationship between co-witness misinformation and eyewitness confidence was mediated by either the group characteristics or the interpersonal characteristics of the individual. No significant correlations were observed between the FIRO-B scores and eyewitness confidence, within the control

condition. Therefore, any observed relationships between the variables within the experimental conditions could be attributed as an effect of the co-witness discussion.

Eyewitness confidence in correct responses.

Hierarchical multiple regression was performed to investigate the ability of the FIRO-B scales and the group condition as predictors of eyewitness confidence (dependent variable), in participants who did not conform to the confederates. The variables of participant and gender were also controlled for. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

In the first step of hierarchical multiple regression, the first predictor (group condition) was entered, as well as the controlled variables (age and gender). This model was not statistically significant $F (3, 108) = .81; p > .05$ and explained 2.2% of variance in confidence scores (see Table 5), suggesting that none of the variables were related to confidence scores. After entry of FIRO-B scores at Step 2, the total variance explained by the model as a whole was 19% ($F (9, 102) = 2.66; p < .01$). The introduction of the FIRO-B scores explained an additional 17% of variance in confidence (R^2 Change $= .17; F (6, 102) = 3.52; p < .005$). In the final adjusted model, one out of six predictor variables were statistically significant (wanted control; $r=-.36$), with a Beta value of ($\beta = -.27, p < .05$). The measure of association was medium, in accordance to Cohen (1988). The effect size, calculated using Cohen's d, was -.56.

INSERT TABLE 5

Eyewitness confidence in incorrect responses.

A similar hierarchical multiple regression analysis was then conducted on participants who produced incorrect responses, to investigate the ability of the FIRO-B scales and group

condition as predictors of eyewitness statement confidence, in participants who reported the misinformation in their memory reports.

In the first step of hierarchical multiple regression, the first predictor (group condition) was entered, as well as the controlled variables (age and gender). This model was not statistically significant $F (3, 138) = 2.21$; $p > .05$ and explained less than 4.6% of variance in confidence scores (see Table 8), suggesting that none of the variables were related to confidence scores. After entry of FIRO-B scores at Step 2, the total variance explained by the model as a whole was 11.7% ($F (9, 132) = 1.94$; $p > .05$). The introduction of interpersonal characteristic scores explained an additional 7% of variance in confidence (R^2 Change $= .07$; $F (6, 132) = 1.77$; $p > .05$). In the final adjusted model, one out of six predictor variables were statistically significant (wanted control; r=-.24), with a Beta value of ($\beta = -.24$, $p < .05$). The measure of association was small, in accordance to Cohen (1988). The effect size, calculated using Cohen's d, was -.49.

INSERT TABLE 6

Discussion

FIRO-B and Co-witness Suggestibility

The first aim of this study was to explore the associations between interpersonal characteristics and susceptibility to co-witness influence, whilst controlling for age, gender, and group characteristics. The FIRO-B scales of wanted and expressed control, affection, and inclusion were examined to determine their abilities in predicting memory conformity and eyewitness confidence (measures of co-witness suggestibility). Only two, out of the six,

Personality and Co-Witness Suggestibility

FIRO-B scales were significantly related to co-witness suggestibility; wanted control and express inclusion.

FIRO-B scales and memory conformity.

Based on the findings of Huertas and Powell (1986), the present study first predicted that participants who scored high on the wanted control scale would be more vulnerable to co-witness influence (H2). The results indicated that after encountering co-witness misinformation, participants who scored higher on the wanted control scale were more likely to report the misinformation in their statements. Contrastingly, no such relationship between wanted control scores and incorrect responses existed within the control condition, suggesting that individuals who scored higher on the wanted control scale were more likely to be influenced by their co-witnesses into producing an erroneous response; supporting the first hypothesis.

Although the present study was the first to use the FIRO-B assessment in predicting co-witness suggestibility, previous studies have identified strong relationships between eyewitness suggestibility and other personality traits related to wanted control. Within a similar experiment to the present study, Liebman and colleagues found that participants with a high external locus of control were more vulnerable to being misled by their co-witnesses (Liebman et al., 2002). Concurrently, individuals who score high on the wanted control scale are likely to exhibit a significantly high external locus of control (Stimpson, and Maughan, 1978). Based on the co-existing relationship between these two traits, the present researchers postulated that eyewitnesses with high wanted control may have been more susceptible to accepting misinformation from co-witnesses, due to their persistent reliance on external forces in determining their decisions. Also, Doughty et al. (2017) found that introverted participants were more susceptible to including misinformation from co-witnesses into their memory reports. Although the FIRO-B assessment does not directly measure an individual's

level of introversion, individuals with high wanted control display similar personality traits to introverts. Namely, both introverts and individuals with a high level of wanted control tend to be submissive in nature (Gilbert & Allan, 1994; Schutz, 1958). Individuals with submissive personalities are more likely to exhibit perceptions of inferior social rank and are therefore, more likely to conform to those that they perceive as being more powerful (Gilbert, 1993). Thus, the relationship between wanted control and co-witness suggestibility can also be attributed to the submissive personality of these eyewitness.

Although previous research can offer some explanation for the relationship between wanted control and co-witness suggestibility, it must be acknowledged that the effect size of this relationship was weak. Given the very small effect size measured between wanted control and co-witness suggestibility, the researchers argued that the implications of the observed relationship should be interpreted cautiously.

The results also suggested that eyewitnesses with higher needs for expressed inclusion were more likely to be correct in their reports, than to be unsure, after exposure to co-witness misinformation. However, once again, the effect size for this relationship was very small and the relationship was not found when comparing uncertain responses to incorrect responses. Therefore, the present study proposes that this unexpected finding may have been a statistical artefact.

Firo-B and eyewitness confidence.

The analysis of eyewitness confidence identified a negative relationship between wanted control scores and eyewitness confidence, in eyewitnesses who produced both incorrect and correct responses. However, this relationship was not present for participants within the control condition, suggesting that exposure to co-witness discussions had a negative impact on the confidence of eyewitnesses with high wanted control scores. The results suggest that eyewitnesses with high wanted control scores were more influenced by disconfirming

statements than by conforming statements. Again, this behaviour can be attributed to the submissive nature of participants with high wanted control scores. Witnesses with submissive personalities tend to exhibit low levels of self-esteem (Gilbert & Allan, 1994; Pulford & Sohal, 2006). Consequently, individuals with low self-esteem would have more difficulty in gaining confidence through confirmatory feedback (McFarlin & Blascovich, 1981); but would still be more vulnerable to losing confidence from disconfirmatory feedback, compared to individuals with higher self-esteem (Young, 2000). However, the researchers suggest that further, more direct, research is needed to support the proposed relationship between wanted control and confirmatory/disconfirmatory feedback.

Group characteristic and co-witness influence.

The effects of group characteristics on memory conformity.

The second aim of the present study was to investigate the effects of misinformation size and unanimity of misinformation on co-witness influence. The researchers first predicted (H2) that participants would be more susceptible to co-witness influence, when the misinformation was presented unanimously. The first analysis found that exposure to misinformation that was not unanimously held by all co-witnesses (conditions 2 and 3) did not seem to have any significant effect on memory conformity. However, the rates of incorrect responses were significantly higher, when participants were exposed to misinformation from a unanimous majority (conditions four and five), supporting the second hypothesis. The results suggested that misinformation was only influential when unanimously held by all co-witnesses.

The findings lie in agreement with that of Walther et al. (2002). Similarly, Walther and colleagues found that the risk of co-witness influence was significantly reduced when multiple dissenters were present within an eyewitness group. The relationship between the unanimity of misinformation and co-witness influence can be explained through the process of information influence. For informational influence to be effective, the target must believe

that the information source is more likely to be correct than them (French et al., 2011; Williamson et al., 2013). However, the presence of a dissenter would provide the individual with an independent view of the event, which could evoke an increase in doubt over the accuracy of the misinformation source and increase the individual's confidence in their original report (Festinger, 1954; Walther et al., 2002). The implications of these findings suggest that the true risk of co-witness influence within real investigations may be lower than anticipated by research studies that only measured co-witness suggestibility to unanimous groups.

Finally, the researcher predicted (H3) that participants would also be more susceptible to co-witness influence, when the misinformation was presented by a larger group of co-witnesses. Additional tests were conducted to compare the response accuracy between participants in conditions four and five, to determine whether the size of the misinformation source (two versus five) influenced co-witness suggestibility. The results found no significant differences in the rates of incorrect responses between the two conditions, suggesting that a misinformation size of two was as influential as a misinformation size of five. Resultantly, the third hypothesis was not supported by the present findings. However, the researchers attributed the insignificant relationship between misinformation size and co-witness influence on the study's choice of confederate sizes. The current study involved groups of one, two, or five confederates, whereas most of the previous research on misinformation size and social influence have looked at confederate groups of one to three (see Asch, 1955; Campbell & Fairey, 1989; Gerard, Wilhelmy, & Conolley, 1968; Rosenberg, 1961; Stang, 1976). Although there was no significant difference between misinformation from two and five confederates, both groups produced significantly more incorrect responses than single confederates. Asch (1952) suggested that after the addition of a third information source, the respondent would view the group as one collective source of information; subsequently, any

additional group members would have very little effect on the level of social influence. Therefore, it can be suggested that there may be an initial relationship between misinformation size and co-witness influence that plateaus after a majority size of two is reached. Nonetheless, the analyses of the group conditions indicate that the unanimity of misinformation is significantly more important than the size, in influencing eyewitnesses.

The effects of group characterstics on eyewitness confidence.

Interestingly, neither misinformation size nor the unanimity of misinformation had a mediating effect on the confidence judgements of participants. The mean confidence scores in both correct and incorrect responses remained relatively constant across all experimental conditions. The results suggest that the effects of encountering misinformation on eyewitness confidence may be predominately mediated by internal factors, such as the individual's personality (Bothwell, Brigham, & Pigott, 1987), rather than by external factors.

Limitations and directions for future research

The study is the first in the literature to examine the interpersonal correlates of co-witness suggestibility, but indubitably, there are limitations. The FIRO-B questionnaire has come under criticism for its supposed lack of construct validity (Ryan et al., 1970). More specifically, Mahoney and Stasson (2005) underlined the assessments inability to distinctly differentiate between the Affection and Inclusion dimensions. Failure to distinguish between the two dimensions suggests that the FIRO-B assessment may have failed to accurately measure the characteristics of affection and inclusion; however, a test of mullticollinearity on the present data indicated that the two different dimensions did not measure the same variable. Furnham (1990) investigated the feasibility of faking the FIRO-B assessment to gain a desirable personality score. The results found that participants could manipulate their answers to score high on desirable personality traits and score low on undesirable personality

traits. The findings indicate that some participants within the present study may have answered the assessment untruthfully due to an inherent social desirability effect. Criticisms of the FIRO-B assessment suggest that a more validated assessment may help produce a more accurate measurement for the relationship between salient personality traits and co-witness suggestibility.

The relationship between Wanted Control and co-witness suggestibility suggests that self-confidence and perceived social rank may be key mediators for this form of informational influence (Deutsch & Gerard, 1955; Di Vesta, 1959; Gilbert, 1993; Kaplan & Miller, 1987). It can be inferred that by observing these characteristics directly, researchers may be able to develop a more reliable measure for predicting co-witness suggestibility. The Rosenberg Self-esteem Scale (Rosenberg, 1965) has been validated as a reliable measure (McKay, Boduszek, & Harvey, 2014). A fruitful direction for future research in continuation of the present findings will therefore be to utilise such scales in conjunction with the Wanted Control dimension, to compose a more appropriate assessment for measuring co-witness suggestibility.

In relation to the experimental design, there were some limitations with the way that the unanimity of misinformation was manipulated. The inclusion of multiple participants, against one confederate, were used in conditions two and three to break the unanimity of the misinformation. However, based on the response rates in the control condition (i.e. 33.9% producing a false response), it is likely that some of the participants in the group discussions will have also reported misinformation. Therefore, there will have been a small possibility that participants in these conditions may have still been exposed to misinformation from a unanimous group of co-witnesses. Future research could manipulate the unanimity of misinformation more reliably by adopting the experimental design used by Walther et al.,

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(2002). In their study, Walther and colleagues manipulated the unanimity of misinformation by using confederate dissenters (confederates used to purposely suggest correct information).

Conclusion

The FIRO-B assessment, in its entirety, was not an accurate predictor for co-witness suggestibility, with only one of the dimensions demonstrating consistent, accuracy. Nevertheless, alone, the Wanted Control dimension was accurate in predicting co-witness suggestibility through memory conformity and eyewitness confidence. The researchers attributed this relationship to the submissive nature of eyewitnesses with higher needs of wanted control rendering them more susceptible to informational influence. The findings demonstrate that co-witness suggestibility can be predicted for through interpersonal characteristics; however, the researchers propose that a more accurate measure of interpersonal characteristics could allow researchers to make more reliable predictions of an eyewitness's vulnerability to co-witness influence.

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Table 1.

Participant information for each experimental condition.

Condition	*N*	Group size	True participants	Confederates	Age	
					M	*S.D*
1 (Control)	171	1	1	0	31.22	13.48
2	56	3	2	1	26.48	9.09
3	170	6	5	1	28.32	11.17
4	38	3	1	2	21.84	3.87
5	38	6	1	5	31.97	12.13

Table 2.

Means and standard deviations of FIRO-B scales for all conditions

	N (%)	M Confidence (Std. Dev)	WC M	WC S.D	EC M	EC S.D	WA M	WA S.D	EA M	EA S.D	WI M	WI S.D	EI M	EI S.D
Condition 1	**171**	**2.95 (1.1)**	**4.71**	**2.58**	**3.2**	**2.69**	**4.91**	**2.78**	**4.2**	**2.11**	**4.82**	**3.06**	**4.86**	**2.19**
Correct	73 (42.7%)	2.9 (1.19)	4.56	2.71	3.52	2.83	4.59	2.71	3.92	1.99	4.97	3.24	5	2.18
Incorrect	58 (33.9%)	3 (1.08)	4.89	2.25	2.86	2.38	5.17	2.87	4.52	2.02	4.69	2.84	4.95	1.99
Unsure	40 (23.4%)	a	4.7	2.85	3.13	2.9	5.1	2.8	4.28	2.43	4.73	3.11	4.48	2.47
Condition 2	**56**	**3.3 (1.03)**	**4.09**	**2.6**	**2.25**	**2.61**	**5.77**	**2.48**	**4.16**	**2.33**	**5.13**	**3.09**	**4.96**	**2.22**
Correct	26 (46.4%)	3.5 (1.03)	4.04	2.54	2.38	2.62	5.58	2.76	4.23	1.88	5.04	3.09	5.31	2.35
Incorrect	20 (35.7%)	3.05 (1)	4.1	2.88	2.8	2.95	5.65	2.48	4.3	2.85	5.3	3.03	4.95	2.14
Unsure	10 (17.9%)	a	4.2	2.44	.8	1.03	6.5	1.65	3.7	2.41	5	3.5	4.1	2.02
Condition 3	**170**	**3.19 (1.13)**	**4.8**	**2.68**	**3.16**	**3.83**	**5.45**	**2.54**	**4.09**	**2.28**	**4.92**	**3.01**	**4.91**	**2.36**
Correct	80 (47.1%)	3.4 (1.11)	4.24	2.7	3.52	2.83	5.86	2.4	4.29	2.17	5.25	2.91	5.15	2.57
Incorrect	61 (35.9%)	2.92 (1.11)	5.61	2.64	2.61	2.8	5.26	2.5	3.72	2.48	4.64	3.01	4.75	2.05
Unsure	29 (17.1%)	a	4.66	2.41	2.64	2.66	4.61	2.82	4.31	2.12	4.62	3.28	4.58	2.37
Condition 4	**38**	**3.36 (.82)**	**4.29**	**2.43**	**3.95**	**2.52**	**5.55**	**1.88**	**4.76**	**1.92**	**5.92**	**2.17**	**5.55**	**2.27**
Correct	4 (10.5%)	3.25 (.5)	3.25	1.5	7	2.16	5.75	2.06	3.25	.96	6.5	2.38	5.25	2.63
Incorrect	29 (76.3%)	3.38 (.86)	4.83	2.11	3.17	2.05	5.48	2.03	5	2.07	5.79	2.29	5.62	2.31
Unsure	5 (13.2%)	a	2	3.46	6	2.65	5.8	.84	4.6	.89	6.2	1.48	5.4	2.3
Condition 5	**38**	**3.41 (1.05)**	**4.18**	**2.14**	**3.55**	**2.18**	**4.76**	**2.2**	**4.3**	**2.17**	**5.55**	**1.88**	**5.76**	**1.68**
Correct	2 (5.3%)	3 (1.41)	4.56	2.71	5.5	2.12	4.5	.71	6	1.41	6.5	.71	6.5	.7
Incorrect	32 (84.2%)	3.44 (1.04)	4.09	2.2	3.47	2.14	4.75	2.27	5.28	1.73	5.63	2	5.81	1.64
Unsure	4 (10.5%)	a	5.25	2.06	3.25	2.63	5	2.45	5.75	.5	4.5	.58	5	2.45

Note. a= No confidence scores was recorded for participants who answered "unsure" due to their inability to attribute blame.

Table 3

Descriptive statistics, and correlations for all continuous variables (N = 473).

Variables	C [a]	Age	WC	EC	WA	EA	WI	EI
Confidence [a]	1	.05	-.14**	.09*	.01	-.04	.01	.004
Age	.05	1	-.12**	.01	.04	.01	-.03	-.08*
Wanted Control	-.14**	-.12**	1	-.26***	-.09*	.07	-.1*	.06
Expressed Control	.09*	.01	-.26***	1	.07	.05	.19***	.11**
Wanted Affection	.01	.04	-.09*	.07	1	.39***	.42***	.29***
Expressed Affection	-.04	.01	.07	.05	.39***	1	.18***	.28***
Wanted Inclusion	.01	-.03	-.1*	.19***	.42***	.18***	1	.59***
Expressed Inclusion	.004	-.08*	.06	.11**	.29***	.28***	.59***	1
Means	3.12	28.92	4.59	3.16	5.25	4.3	5.04	5.02
Standard Deviations	1.19	11.83	2.58	3.11	2.57	2.17	2.91	2.24
Range	1-5	15-80	0-9	0-9	0-9	0-9	0-9	0-9

Note. . a= missing data for "unsure" participants were replaced by confidence average score. Statistical significance Statistical significance:

*p < .05; **p < .01; ***p < .001

Table 4.

Multinomial logistic regression predicting eyewitness response accuracy.

Variable	Correct response (*N*=185)		Unsure[a] (*N*=88)		Unsure[b] (*N*=88)	
	SE	OR (95% CI)	SE	OR (95% CI)	SE	OR (95% CI)
Age	.01	.99 (.97/1.01)	.01	1.01(.99/1.03)	.01	1.02(1/1.04)
Gender						
Male	.23	1 (.64/1.56)	.27	1.33 (.78/2.27)	.27	1.33 (.78/2.27)
Female		1		1		1
Condition						
1		1		1		1
2	.36	.98 (.49/2)	.45	.77 (.32/1.33)	.44	.79 (.33/1.85)
3	.25	1.05 (.64/1.72)	.31	.72 (.39/1.33)	.3	.69 (.38/1.24)
4	.58	.09 (.03/.27)***	.55	.27 (.09/.8)*	.72	3.21 (.78/13.12)
5	.76	.04 (.01/.19)***	.56	.17 (.05/.53)***	.9	3.94 (.68/22.97)
Wanted Control	.05	.89 (.81/98)*	.06	.95 (.85/1.05)	.06	1.06 (.95/1.18)
Expressed Control	.04	1.05 (.97/1.14)	.05	1.05 (.95/1.15)	.04	1 (.91/1.09)
Wanted Inclusion	.05	1.01 (.91/1.11)	.06	1.03 (.92/ 1.16)	.06	1.03 (.91/1.16)
Expressed Inclusion	.07	1.06 (.93/1.2)	.08	.9 (.78/1.04)	.07	.85 (.73/.99)*
Wanted Affection	.05	.98 (.88/1.08)	.06	.99 (.87/ 1.12)	.06	1.01 (.89/1.15)
Expressed Affection	.06	.99 (.88/1.11)	.07	1.05(.92/1.2)	.07	1.06 (.93/1.21)

Note. a= Reference group: 'incorrect response' (n=200); b= Reference group: 'correct response' (n=185).   OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval. * p<.05. ** p<0.005. *** p<0.001

Table 5.

Hierarchical Regression Model of eyewitness confidence for correct responses.

	R	R^2	R^2 Change	B	SE	β	t
Step 1	.15	.02					
Age				.01	.01	.13	1.35
Gender				.04	.2	.02	.22
Condition				-.13	.18	-.07	-.73
Step 2	.44	.19	.17**				
Age				.01	.01	.05	.55
Gender				.17	.2	.08	.85
Condition				-2.3	.18	-.12	-.29
Wanted Control				-.11	.04	-.27*	-2.58
Expressed Control				.08	.04	.22	2
Wanted Affection				.03	.05	.07	.62
Expressed Affection				-.02	.05	-.04	-.42
Wanted Inclusion				-.03	.05	-.09	-.64
Expressed Inclusion				.06	.06	.15	1.14

Note. Statistical significance: *p < .05; **p < .01; ***p < .001

Table 6

Hierarchical Regression Model of eyewitness confidence for incorrect responses.

	R	R²	R² Change	B	SE	β	t
Step 1	.21	.05					
Age				.01	.01	.05	.64
Gender				-.19	.18	-.09	-1.09
Condition				.19	.09	.18*	2.16
Step 2	.34	.12	.07				
Age				.001	.01	-.002	-.02
Gender				-.15	.18	-.07	-.83
Condition				.16	.09	.15	1.66
Wanted Control				-.1	.04	-.24**	-2.65
Expressed Control				.04	.04	.09	1.04
Wanted Affection				-.05	.04	-.12	-1.2
Expressed Affection				-.003	.04	-.01	-.08
Wanted Inclusion				-.02	.04	-.05	-.43
Expressed Inclusion				-.001	.05	.001	.01

Note. Statistical significance: *p < .05; **p < .01; ***p < .001