CRIMINAL SOCIAL IDENTITY IN A SAMPLE OF INCARCERATED JUVENILE OFFENDERS IN PAKISTAN

SONIA SHAGUFTA, BA, MSc

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

February 2015

TABLE OF CONTENT

ACKNOWLEGDEMENTS

ABSTRACT

Due to the absence of a reliable and valid measure of criminal social identity to be used with juvenile offenders in Pakistan, the focus of the first empirical chapter was to translate the self-report Measure of Criminal Social Identity (MCSI) into Urdu with the aim of testing the construct validity, dimensionality, incremental validity, and composite reliability of the measure in a sample of juvenile delinquents incarcerated in Pakistan ($N = 415$). Confirmatory factor analysis revealed that the best fitting model was a three-factor model (cognitive centrality, in-group affect, and in-group ties). The Urdu version of MCSI was then used in the subsequent chapters to examine criminal social identity as a risk factor for delinquency and a protector factor for suicide thinking.

The second empirical chapter investigated the number and nature of latent classes of juvenile delinquency and their relationship with the criminal social identity by using latent class analysis and regression analysis. Results indicated a three class solution: 'minor delinquents' 'moderate delinquents' and 'major delinquents'. Juvenile offenders who reported having an increased number of criminal friends were more likely to belong to the 'major delinquency class' whilst those reporting higher in-group ties and lower in-group affect were more likely to belong to the 'moderate delinquency' class compared to 'minor delinquency class'.

Previous empirical research has focused only on how criminal social identity predicts and helps us to understand criminal behaviour. The aim of the third empirical chapter was to investigate criminal social identity (CS) as protective factor against suicide ideation. Therefore, a structural model was estimated to investigate the relationship between the three factors of CSI and suicide ideation, while controlling for age, offender type, period of confinement, and drug addiction. Results indicated that of the variables included in the model, the only significant (negative) predictor of suicide ideation was in-group ties. Thus, in-group ties may act as a protective factor against the development of suicide ideation in incarcerated offender.

Key words: criminal social identity, risk factor, protective factor, centrality, in-group affect, in-group ties, suicide thoughts.

LIST OF ABBREVAITIONS

A	In-group affect
AKUH	Agha khan university hospital
AIC	Akaike Information Criterion
AM	Alternative model
a	Cronbach's Alpha
B	Unstandardized Regression Weight
BIC	Bayesian Information Criterion
β	Standardized Regression Weight
C	Centrality
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CF	Criminal Friends
CI	Confidence Interval
CID	Criminal Identity Total
CFI	Criminal Friend Index
CSI	Criminal social identity
DSH	Deliberate self-haram
DSM	Diagnostic Statistical Manual of Mental Disorder

df	Degree of Freedom
F1	Factor 1
F2	Factor 2
F3	Factor 3
F4	Factor 4
FA	Factor Analysis
FIT	Family interaction theory
GHQ-28	General Health Questionnaire 28
KPK	Khyber Pakhtunkhwa
LCA	Latent Class Analysis
LRT	Lo-Mendell- Rubin's Adjusted likelihood Ratio Test
LR χ^2	Likelihood Ratio Chi-Square
M	Mean
MCAA	Measure of Criminal Attitudes and Associates
MCSI	Measure of Criminal Social Identity
MG	Model generating
MAR	Missing At Random
MCAR	Missing Completely At Random
MI	Multiple Imputation

ML	Maximum likelihood
MLR	Robust Maximum Likelihood
NGOs	Non-governmental organization
NLSY	US National Longitudinal Survey of Youth
OR	Odd Ratios
PA	Path Analysis
PC	Period of confinement
PBT	Problem-behaviour theory
PCT	Peer cluster theory
p	Probability
ρc	Reliability of the factor structure
r	Correlation Coefficient
RFI	Relative Fit Index
RMSEA	Root-Mean-Square Error of Approximation
RMSR	Root Mean-Square Residual
SC	Strictly confirmatory
SCT	Social control theory
SCLT	Social cognitive learning theory
SD	Standard Deviation

SDM   Social developmental model

SDT   Self-derogation theory

SE   Standard Error

SEM   Social ecology model

SEM   Structural Equation Modelling

SIT   Social Identity Theory

SLT   Social learning theory

SPC   Social peer culture

SRMSR   Standardized Root Mean-Square Residual

SSABIC   Sample Size Adjusted BIC

T   In-group Ties

TLI   Tucker Lewis Index

TPB   Theory of planned behaviour

TRA   Theory of reasoned action

Viol   violent offence

χ^2 Chi- Square

LIST OF TABLES

LIST OF FIGURES

COPYRIGHT STATEMENT

i. The author of this thesis (including any appendices and/or schedules to this thesis) owns any copyright in it (the "copyright for any administrative, promotional educational and/or teaching purpose.

ii. Copies of this thesis, either in full or in extract, 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 the intellectual property rights except for the Copyright (the "intellectual Property Right") and any reproductions of copyright work, for example graph and tables ("Reproduction"), which may be described in this thesis, may not owned by the author and may be owned by third parties. Such Intellectual Property Rights and Reproduction cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property Right and/or Reproduction.

Sonia Shagufta

PUBLICATIONS ARISING FROM THE THESIS

Shagufta, S., Boduszek, D., Dhingra, K**.,** & Palmer-Kola, D. (2015 – in press). Criminal Social Identity and Suicide Ideation among Pakistani Young Offenders. *International Journal of Prisoner Health* (ISSN 1744-9200)

Shagufta, S., Boduszek, D., Dhingra, K., & Palmer-Kola, D. (2015 – in press). Latent Classes of Delinquent Behaviour Associated With Criminal Social Identity among Juvenile Offenders in Pakistan. *Journal of Forensic Practice* (ISSN 2050-8794)

CHAPTER 1

Theoretical introduction

1.1 Introduction

It is suggested that persistent Criminal Social Identity (CSI) increases the likelihood of development of a criminal thinking style that subsequently increases the risk of engaging in criminal behaviour (Boduszek, Adamson, Shevlin, & Hyland, 2012a; Boduszek & Hyland, 2011). Previously, many studies have been conducted to understand delinquent behaviour in Pakistan (Khurshid, & Urooj, 2012; Mahmood & Cheema, 2004; Paracha, Jehanzeb, Mehmood, & Yoshie, 2009; Siddiqui, 2003; Tariq, 1986). However, no systematic research has investigated the role of CSI in understanding the commission of delinquent behaviour. The first reason for the limited research regarding CSI in Pakistan is the relatively novelty of the concept of CSI among Pakistani researchers as Boduszek and Hyland (2012) argued: research has omitted the examination of criminal social identity. The second reason is the absence of a validated Urdu measure of CSI in order to assess juvenile offenders in Pakistan. Therefore, there is a crucial need to investigate the role of CSI in the development of criminal behaviour among Pakistani juvenile offenders, as well as, to validate an Urdu version of the measure of criminal social identity (MCSI), developed by Boduszek and colleague (2012).

Over the past decades, there has been a surge in delinquency accompanied by large increases in the rate of juvenile substance use and in juvenile suicide (Loeber, 1990). Some juveniles with no previous history of delinquent behaviour initiate delinquent acts due to association with deviant peers during adolescence (Loeber, Farrington, & Petechuk, 2003).

Peer influence is also considered as a strong predictor of adolescent substance abuse behaviour (Barnes, Farrell, & Banerjee, 1994; Hawkins, Catalano, & Miller, 1992; Newcomb & Bentler, 1989; Norem-Hebeisen, Johnson, Anderson, & Johnson, 1984).

Research also suggests that the role of parental supervision in terms of monitoring the type of friends with whom adolescents are associated is significant, independent of the level of parental attachment (Boduszek, Adamson, Shevlin, Hyland & Dhingra (2014b). Inadequate parental monitoring increases the likelihood of adolescents associating with substance-using peers that in turn encourage substance use (Patterson, DeBaryshe, & Ramsey, 1989); even after taking into account the influence of parental support and monitoring (Barnes & Farrell, 1992).

Moreover, Boduszek and Hyland (2011) proposed that the degree of identification and approval of criminal peers is an important predictor investigating the effect that criminal peers might have on the individual, and this effect may further contribute to continuous and persistent antisocial behaviour. Further, they argued that individuals become criminals due to the salience of CSI which originates from negative social comparison processes carried out by individuals who have failed in their pro-social roles and display non-conforming behaviour; provoked by contextual factors such as the presence of criminal friends.

In Pakistan, to date, research has tended to focus only on parental conflicts and parents' attitude towards their children, media influence (Mahmood, & Cheema, 2004), family size, role of self-esteem (Bano, Shah, Asghar, Alam, & Khan, 2009), family functioning, psychological characteristics (Khurshid & Urooj, 2012; Siddiqui, 2003), personality traits, (Tariq,1986), illiteracy, poverty, and peer association (Paracha et al., 2009) to understand delinquent behaviour. None of these studies has given attention to the role of CSI in determining criminal behaviour among incarcerated juvenile offenders. Therefore, the present research is the first systematic attempt to understand the CSI among juvenile offenders in Pakistan.

As CSI is generally considered to be a risk factor (Boduszek et al., 2012a; Boduszek, Adamson, Shevlin, Hyland, & Bourke, 2013a; Boduszek, Hyland, Bourke, Shevlin, & Adamson, 2013b) for criminal behaviour and most empirical research testing the merits of CSI theory has focused only on how CSI predicts and offers an explanation for various aspects of criminality, including criminal thinking (Boduszek et al., 2012), criminal attitude (Boduszek, McLaughlin, & Hyland, 2011), violent or non-violent offending (Boduszek et al., 2013b), criminal association (Boduszek et al., 2013a) and recidivism, a further objective of the present thesis is to determine whether CSI might also have some positive aspects. Therefore, the first chapter of this Thesis further proceeds to review the literature concerning the prevalence and correlates of suicide among the incarcerated population and the role of social belongingness (criminal social identity) as a protective factor for suicide among juvenile offenders.

Keeping in view the importance of CSI, in the development of criminal behaviour, it is imperative to review the relevant theoretical framework to understand CSI. Therefore, first, chapter 1 describes the theory of CSI, and then review the literature to understand the role of CSI as risk factor for criminal behaviour. Further, the present chapter proceeds to review the literature concerning different risk factors that are related to juvenile delinquency.

1.1.1 Criminal Social Identity

Boduszek (2012) suggested that, in addition to an individual's personal self-concept which is known as unique identity, there are also social aspects of the self that a criminal shares with other criminals this is referred to as criminal social identity by Boduszek and Hyland, 2011, 2012b. Research suggests the importance of CSI in the emergence of criminal behaviour (Boduszek et al., 2011).

1.1.2 Three Components of Criminal Social Identity

The theory of CSI developed by Boduszek and Hyland (2011) on the basis of Cameron's (2004) conceptual and empirical work contends that three related components make up an individual's criminal' identity: cognitive centrality, in-group affect, and in-group ties. The first factor was termed *cognitive centrality* reflecting the cognitive importance of belonging to a particular group. The concept of cognitive centrality is related to the concept of self-categorization, which was suggested in the Cameron (2004), Ellemers et al (1999) and Jackson (2002) studies. Boduszek and Colleague (2012) argued that the distinction between cognitive centrality and self-categorization is important and stated, that

> *the notion of the cognitive centrality refers to the prominence of the group within the overall structure of the self-concept, whereas self-categorization refers to whether or not a particular group is actually self-defining, and/or the momentary 'switching on' of an identification given its contextual salience. (p. 316)*

The second component of CSI is *in-group affect*, which describes the emotional valence of belonging to a given group. This factor is associated with the emotional feature of social identity which has also been described by previous scholars (Ellemers, Kortekaas, & Ouwererk, 1999; Hinkle, Taylor, Fox-Cardamone, & Crook, 1989; Jackson, 2002). The third component of CSI is *in-group ties.* This concept is related to the psychological and emotional bonding of criminals with other criminals in the same group (Boduszek et al., 2012b). This concept has also been illustrated by previous researchers (Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002; Karasawa, 1991).

Moreover, from the emotional aspect related to one's social identity, the construct of in-group affect and in-group ties are similar but otherwise these are different as discussed by Cameron (2004).

1.2.3 Theory of Criminal Social Identity

Criminal Social identity is an application of Social Identity Theory (SIT; Tajfel and Turner 1979) to a specific social group (Boduszek. Adamson, Shevlin, Mallett, & Hyland, 2013c). Consequently, it is important to understand the theoretical and practical implications of CSI (Boduszek et al., 2012a). Although the theoretical concept of social identity is well-established and has remained as a great source of interest to researchers in the field of social and criminal psychology (Boduszek & Hyland, 2011a). However, the concept of CSI is comparatively new in the field of criminal psychology. Tajfel (1987) explained the concept of social identity

> '*is a part of individual's self-concept that originates from the knowledge*
>
> *of his/her membership with particular group, along with the values,*
>
> *significance, and emotions related to that membership*' (p. 63).

The core concept of social identity is that, it is the extent to which individuals' identify themselves within the particular social group that determines their inclination to behave in terms of their membership of that particular group. Additionally, it is a process by which an individual locates him/or herself, or another person, within a system of self-categorizations, and use to define him or herself and others (Hogg, 1996).

Tajfel's definition indicates that social identity is a multidimensional construct. Drawing on the above theoretical perspective of social identity, Boduszek and Hyland (2011) described the most fundamental aspect of CSI:

"the unique identity that is sometime labelled as self-concept, there are also some social aspects of the self that criminals share with others criminal. The self is defined depends on their criminal association; the part who they are and how they think of themselves is determined by collective identity that is the criminal social self" (P.316).

The development of CSI was examined by Boduszek and Hyland (2011) from the psychosocial perspective in order to explain the individual's social self, defined by his/her membership of anti-social or criminal groups such as gangs or small non-organised groups. The core concept of CSI was examined by explaining the meaning and role of social identity as explained by SIT (Tajfel and Turner, 1979) and Self-Categorization Theory (SCT-Turner, Hogg, Oaks, Reicher and Wetherell, 1987). Furthermore, the above concepts were utilized to demonstrate the multidimensionality of CSI. The Social Cognitive Theory of Self (Anderson et al., 2002) and cognitive centrality (Cameron, 2004) play an important role in the development of criminal social identity. Boduszek and Hyland (2012b) proposed that representations of known criminals (criminal friends) are deposited in the individual's memory structure, and are made accessible at certain times due to 'pertinent situational cues'. The development of criminal social identity is influenced by these representations of known criminals and this concept is in line with the notion of multiple social identities which postulates that with the change of the individual's social context, there is an analogous social identity change. It happens as outcomes of the stimulation of situation-specific schemas (Boduszek & Hyland, 2011).

1.2.3 The Role of Social Identity and Self-Categorization theory

SIT (Tajfel and Turner 1979) and SCT (Turner et al., 1987) explain how social comparisons occupy an essential place and focus upon the individual cognitive process of categorization. SIT emphasizes the emergence of cognitive and behavioural outcomes of human interaction and represents a shift from in-group relations, social change, and so forth, to intra-group processes, and the social-cognitive basis of group membership.

SIT postulates that people make social comparisons between in-group and out-group members, or between self and in-group members and other out-group members, in order to construct a sense of what they are and how they are evaluated. This theory emphasises the self-categorization process *("...cognitive grouping of oneself and some class of stimuli as the same...in contrast to some other class of stimuli"*; Turner et al., 1987, p. 44), which deals with in-group comparison and out-group comparisons (Hogg, 2000). Therefore, it is the perceived similarities and differentiation that result in identification and psychological group development.

1.2.4 Role of Attitudes in the Development of Social Identity

It is argued that social identity is based on the need to belong, which is fundamental human motivation (Baumeister & Leary, 1995). Individual perceptions of and attitudes towards in-group and out-group members are influenced by the individual's need to identify with and belong to groups that are relatively superior as a means of enhancing their level of self-esteem (Boduszek & Hyland 2011).

In addition, the distinction between personal and social identity was illustrated by Turner (1982) and that was the beginning of social categorization theory (SCT). According to that distinction, personal identity was explained as self-definition of a

unique individual in terms of interpersonal or intra-group differentiations. Thus, personal identity refers to differentiation between the individual and other in-group members for example "I" or "me" versus "you", whereas social identity refers to the individual's self-definition as being similar to in-group members and different to out-group members like "we" or "us" versus "they" or "them" (Boduszek & Hyland 2011). Therefore, antecedents and consequences of both personal and social identity are specified by SCT and thus offer an explanation for both personal identity and social identity (Bodusek & Hyland, 2011).

SCT emphasizes that identity salience depends on the combined function of an individual's inclination to adopt a particular identity and the degree to which that identity is accommodated within the social frame work as a significant self-definition. The individual's inclination to adopt a specific identity is governed by the individual universal principles, current objectives, previous experiences, changing motives and so forth (Brewer, 1991). For example, if an individual has previous experience of being ignored as a member of the particular group and wants to escape from further mistreatment, the individual willingness to be identified as a group member is likely to decrease his or her inclination to classify himself/herself in terms of corresponding social identity. However, if an individual's aim is to draw the attention of the public towards that mistreatment, the inclination for such self-definition should increase. Moreover, an individual's inclination to adopt a specific identity is influenced by the comparative strength of that individual's needs for assimilation or differentiation. For example, adolescents may join a local criminal group in a large anonymous neighbourhood in order to attain a noticeable identity, whereas within the criminal group, the individual as a new member may wish to embrace and blend in with the other group members in order not to become an outsider (Boduszek, & Hyland, 2010).

The salience of personal identity is constructed in the same manner as social identity is constructed; however, there is distinction between personal identity and social identity salience (Boduszek & Hyland, 2011). Personal identity accentuates the perception of *individual differences* and *intra-individual similarity*, whereas social identity improves the individual's self-perception as similar or identical to other members of the in-group and different from members of the out-group (Boduszek & Hyland, 2011).

Additionally, the mechanism of depersonalization is related to salient social identity that is responsible for group behaviour, whereas the mechanism of personalization is associated with salient personal identity. Boduszek and Hyland (2011) suggested that the shift from personal identity to social identity can be labelled as the process of depersonalization. However it should not be confused with the loss of identity (a state that has been referred as de-individualization; see also Zimbardo, 1970). The individual's self-concept is not only depersonalized by this process, but it also transforms the individual's self-concept, all aspects of her/his attitude, feelings and behaviour towards in-group model and changes what the individual thinks, feels and does (Hogg 2001). Subsequently, the phenomenon of group behaviour is motivated by depersonalization of self, perceptually differentiates groups and serves particular perceptions, attitudes, feelings and behaviours to the group members that are 'stereotypical' and 'group normative' (Boduszek & Hyland, 2011; Hogg, 1996).

1.2.5 The Development of CSI

Erikson's (1963; 1968) and Marcia's (1967) psychosocial theory of development stated that the most important process of identity development takes place during adolescence. At this time, the individual explores her/his independence and develops a sense of self.

This period is critical because the individual re-evaluates everything about self that was established in childhood. At this period, the individual struggles to discover self-concept and self-worth in search of identity. The role of family and friends is important in identity formation and those individuals who successfully achieve their identity serve well in society; conversely, those individuals who remain unsuccessful, experience role confusion or identity crises. The above theories were used by Boduszek and Hyland (2011a) to explain CSI. They proposed that individual criminal identity arises out of the identity crisis or role confusion that takes place during adolescence when the role of peer relationship is central. Individuals explore different roles and identities to deal with psychosocial crises and eventually emerge with either a pro-social or an anti-social identity. It is suggested that during adolescence, the need for social comparison increases (Boduszek & Hyland, 2011). In addition, the school setting is important in terms of strong social support specifically in relation to academic achievement (Boduszek & Hyland, 2011; Goethals and Darley, 1987). The role of categorization is involved in such comparisons, "as the two are strongly linked and have implications for one's self-concept" (Boduszek & Hyland, 2011, p. 607)

The way in which adolescents who engage in these comparisons, achieve their group identity can be explained by the *metacontrast principle* of self-categorization (Boduszek & Hyland, 2011). SCT theory postulates that self-categorization is important in terms of the development of personal and social identity (Boduszek & Hyland, 2011). Self-categorization as process is a cognitive basis for group behaviour and emphasizes both similarities and differences among stimuli (physical, social, or aspects of the self) within the same group, and differences among stimuli that belong to other group. Therefore, self-categorization provides individuals with a particular perception to define

themselves both in terms of in-group and out-group (Boduszek & Hyland, 2011; Turner et al., 1987).

Furthermore, perceived relative resemblances and distinctions are the basis for identification and psychological group development (Boduszek & Hyland, 2011). The individual's membership of a group is called 'psychological' when the individual's social identity with a group membership is incorporated into their self-concept and that becomes salient without physical presence (Boduszek & Hyland, 2011). As a result of social comparison, the two groups are differentiated within the higher level of category of person's identity: the conforming/successful and non-conforming/unsuccessful (Boduszek & Hyland, 2011).

It is suggested that under certain circumstances, successful individuals, when their social identity is salient, tend to identify themselves as members of that particular group and this process is affected by the higher status and increasingly impermeable boundaries of the group (Ellemers, 1993), which provides a socially protected purpose (Boduszek & Hyland, 2011). However, the group identification of failure and non-conforming individuals is influenced by low level status, high stability and perceived impermeability of group boundaries (Ellemers, 1993; Boduszek & Hyland, 2011). Over time, group boundaries are likely to become stronger and more consistent when categorization and labelling is followed by rejection between groups (Boduszek & Hyland, 2011). Consequently, higher levels of out-group discrimination would be exhibited by the failing and non-conforming individuals. For the group, the identification of failing and non-conforming individuals fulfils the emotional function of providing its members with an alternative social identity and increased self-esteem, as hypothesized by SIT (Boduszek & Hyland, 2011).

In relation to higher level identity, individuals who have failed in their pro-social roles exhibit non-conforming behaviour on the personal level and experience a sense of discrepancy in terms of their actual and ideal selves which is associated with depression or a sense of agitation (Boduszek & Hyland, 2011; Higgons, 1987). The above concept is consistent with the Agnew's (1992) Strain Theory which postulates that anger and frustration are the results of an individual's failure to obtain important goals (Boduszek & Hyland, 2011).

In addition, external family factors such as parental rejection, lack of attention and inappropriate parental rearing (Boduszek & Hyland, 2011; Shaw & Scott, 1991; Simons, Whitbeck, Conger, & Conger, 1991) may aggravate the individual's unconstructed feeling of self-derogation, anger and hostility (Salovey & Rodin, 1984; Boduszek & Hyland, 2011). The development of empathy and guilt may also be prevented by the providing parental affection (Baumeister, Stillwell, & Heatherton, 1994; Boduszek & Hyland, 2011), whereas individuals' emotional, psychological, and physical alienation from their parents negatively influences the bond of social control (Hirschi, 1983) and decreases their motivation to engage fully in pro-social activities (Boduszek & Hyland, 2011). It is suggested that those peer groups that are not involved in pro-social activities and exhibit non-conforming behaviour are referred to as deviants (Boduszek & Hyland, 2011; Downs & Rose, 1991). Therefore, members of a non-conforming group are rejected by conforming group members and thus manifest more psychological problems than members of conforming or successful groups and tend to experience lower levels of self-esteem (Boduszek & Hyland, 2011).

Development of criminal social identity is influenced by peer rejection and it is suggested that early childhood peer rejection is an important predecessor of later association with deviant peers (Coie, Lochman, Terry, & Hyman, 1992; Dishion *et al.,*

1991; Loeber & Hay, 1997; Simons *et al.,* 1991). Specifically, the risk of establishing association with deviant peers during adolescence is higher among those children who experienced early peer rejection or problematic peer relations in their middle childhood (Boduszek & Hyland, 2011). Thus violent tendencies, low self-esteem, increased risk of dropping out school or school activities and development of criminal behaviour are among the consequences of early peer rejection (Boduszek & Hyland, 2011; Juvonen, 1991; Parker & Asher, 1987). Peer rejection either real or perceived, is then an additional source of self-categorization; however, rejection can be the cause, or product of, self-categorization (Boduszek & Hyland, 2011). Thus, negative identity, as a result of being 'self-discrepant' and 'inconsistent', relates not only to those individuals who are not consistent with society's rules and are unsuccessful in terms of social attitude and behaviour, but also applies to group members as a whole, who also face the dilemma of lower social status in society than the group of successful and conforming individuals (Boduszek & Hyland, 2011).

Non-conforming and less successful individuals, in the process of higher self-identification with others and as a subgroup, adopt the scheme of *social creativity* and achieve an increased level of self-esteem (Boduszek & Hyland, 2011; Lemyre & Smith, 1985; Oakes & Turner, 1980) through their distinctiveness, characterized by rejection of pro-social norms. Therefore, unsuccessful and non-conforming individuals, as a group, redefined as unconstructive, negative and derogated what is considered constructive, positive and valued in society (Boduszek & Hyland, 2011; Cohen, 1955). However, they would perceive non-conforming behaviour associated with criminal identity such as aggressiveness or any aspects of antisocial conduct, as desirable and acceptable traits (Boduszek & Hyland, 2011).

Criminal identification leads to agreement among those individuals who as a group reject the social norms and this has the effect of reduction in uncertainty and is a source of self-enhancement (Kaplan, Martin, & Johnson, 1986; Boduszek & Hyland, 2011). These group individuals tend to engage in criminal behaviour in spite of their sense of self-derogation; in contrast, successful individuals make strong psychological bonds with their families and show low self-esteem after involvement with criminal behaviour (Boduszek & Hyland, 2011; McCharthy & Hoge, 1984).

Criminal identity and criminal self-image develop from the process of rejection by those companions who are not related to their antisocial norms. According to Boduszek and Hyland (2011),

"Once CSI with reversed (criminal) norms becomes established, members of the criminal group then achieve a sense of self-consistency through a manifestation of their new identity in terms of criminal behaviours" (p. 608).

Therefore, due to the salience of criminal social identity, the members of that group would exhibit behaviours that are exemplary of the criminal group model. They would tend to participate with other in-group members to express their conformity (Boduszek & Hyland, 2011; Turner, 1982; Thornberry, Krohn, Lizotte, & Chard-Wierschem, 1993). In addition, the in-group criminals would positively encourage and reinforce the individual's demonstration of over-conformity to criminal standards and conducts, that consequently would lead to an increase of criminal behaviour or alteration of pro-social behaviour into anti-social one (Boduszek & Hyland, 2011). Thus, the individual's involvements in anti-social attitudes or criminal commitment are not directly persuaded by other criminals of that group because it takes place through the processes of identification and self-categorization (Boduszek & Hyland, 2011). However, it is a way suggested that a sense of belonging is an important characteristic of criminal groups,

which is an inter-group rather than inter-personal feature, and external aspects are more important in the cohesiveness of the group than internal aspects (Boduszek & Hyland, 2011; Klein and Crawford, 1968; Pabon, Rodrigue, & Gurin, 1992). Therefore, it is suggested that criminal group members display lack of affection and intimacy with regards to their relationships.

1.2.6 Cognitive aspect in the development of Criminal Social Identity

Boduszek and Hyland, 2011 proposed that the cognitive process involved in the development of criminal identity can be explained in the perspective of Interpersonal Social Cognitive Theory of Self proposed by Andersen Chen and Miranda (2002). Andersen and colleagues (2002) suggested that mental representations of significant others are stored in the memory (Boduszek & Hyland, 2011). The representation of significant others is connected to an individual's own self-identity and "significant others" as a person or people who has/have great and deep emotional influence on individual's life, including a member of family-of-origin and or person/people encountered outside of the family relations (Boduszek & Hyland, 2011). Thus, significant others are effective in shaping individuals' *self-definition*, *self-regulatory processes* and *personality* in term of expressing their relations to others. Particularly, a major source of an individual's interpersonal pattern which characterises the individual is a repertoire of selves, stemming from the significant others in his or her life. As the representation of the significant others is stored in the memory, it is assumed that knowledge of self is associated with the knowledge of significant others in the individual's memory, and each linkage represents not only a unique aspect of the self-other relationship but also the self as self has readiness to experience, or to become

consistent with the significant others, in other relevant social contexts (Boduszek & Hyland, 2011).

Additionally, transference (assumptions and experiences associated with past or present significant others reappear in the relations with others) reflect the basic social cognitive processes. The activation of the individual's mental representation of the significant others, when the individual encounters with a new person, leads the individual to interpret and remember the new person and respond behaviourally, emotionally and motivationally to that new person in a way driven by activated representation (Boduszek & Hyland, 2011).

The present theory proposes that mental representation is important because it describes emotion, motivation and behaviour in terms of significant others which are connected to person's self-identity and are stored in working memory (Boduszek & Hyland, 2011). The existence of such associations assumes that they influence the feature of individual identity which is related to the significant others. It is postulated the subset of this *self-knowledge* exists in an individual's working memory made accessible at certain time due to relevant contextual cues (Boduszek & Hyland, 2011). Andersen and colleague (2002) suggested that '*when significant others representation is activated by contextual cues, the working self- concept shifts towards the self-one with the significant others*' (p. 161).

1.3 Juvenile Delinquency

Juvenile delinquency refers to youths between 11 to 18 years having contact with police and court officials for law-violating behaviour (Loeber & Dishion, 1983; Loeber & Farrington, 2000).

The large and rather scattered body of research has identified different variables that place individual at risk factors for delinquency (Chain, 1980). Individual delinquent behaviour during adolescence and adulthood can be predicted from both family characteristics and environmental characteristics (e.g. Farrington, 1992; Huesmann, Eron, Lefkowitz, & Walder, 1984; McCord, 1991; Moffitt, 1993; Tremblay et al., 1992). It is suggested that ineffective and poor parental supervision is a key risk factor among family characteristics, whereas association with delinquent peers is a common risk factor among environmental characteristics (Farrington 1997). When both parents and peers are supportive, adolescents perform best (Brown, Mounts, Lamborn, & Steinberg, 1993; Brown & Huang, 1995; Kandel, 1986; Kandel & Andrews, 1987; Ryan & Lynch, 1989; Steinberg, Elmen, & Mounts, 1989). However, studies suggest that peer influence is four times more potent than parental influence on substance use (Bogenschneider, 1998). Similarly, studies have consistently reported that rates of delinquency and substance use are all higher within adolescents than among adults (Farrington, 1992; Steinberg & Morris, 2001), and during adolescence, serious delinquency reaches a peak and is more frequent among males than females (Elliott, 1994; Farrington, Gallagher, Morley, Ledger, & West, 1986; Loeber, Van Kammern, & Fletcher, 1996; Moffitt 1993).

1.3.1 Theories Related to Delinquency

It has been suggested that each theory of delinquency has focused on a limited set of factors; therefore, there is no adequate theory of delinquency (Farrington et al., 1990; Tonry, Ohlin, & Farrington, 1991; Farrington, 1987). Recently, a number of developmental theories and models have been suggested, based on the knowledge accumulated by longitudinal, cross-sectional and experimental studies of antisocial behaviour (Farrington, 1987).

1.3.1.1 Gottfredson and Hirschi's (1990) general theory of crime

Gottfredson and Hirschi's (1990) theory is held up as the first type of developmental theory of delinquency, and it proposes that people have different capacities to resist temptation. It explains that why not all boys who face the same opportunity for deviant behaviour become delinquent. Self- control is the central concept of the theory. According to the theory, poor self-control is the product of poor and inappropriate child-rearing practices. The theory proposes that those individuals who have strong self-control they resists criminal opportunities more often than those who have weak self-control. The theory further suggests that those individuals who have strong self-control resist criminal opportunities more often than those who have weak self-control.

1.3.1.2 Developmental pathways model by Loeber (1988, 1990, and 1991)

Loeber's Developmental pathways model (1988, 1990, and 1991) is the second type of theory suggesting different paths leading to different types of criminal behaviour in adolescence and adulthood. He identified three types of adult offenders: versatile, exclusive property offenders and exclusive substance abusers. He further suggested that these offenders can be differentiated based on the type of behavioural problems they

faced in their childhood; the onset age of these behavioural problems; the progression rate towards criminal behaviour and the probability of desisting from criminal behaviour. Moffitt (1993) and Patterson et al. (1989) suggested similar models. These developmental path models emphasize different risk factors, at different ages, depending upon which developmental path a child assumed to be following.

1.3.1.3 Cumulative risk model (Coie and Jacobs, 1993; Yoshikawa, 1994)

The third type of theoretical framework focused on the cumulative risk factors model for diverse disorders is the Cumulative risk model (Coie and Jacobs, 1993; Yoshikawa, 1994). Based on the findings of longitudinal studies (emphasizing more than one risk factor), this model suggests complex interaction among early risk factors, among later disorders and between risk factors and disorders.

According to this model, careful study is essential to understand and prevent criminal behaviour in terms of determining the role of external forces that are important in promoting the individual's willingness to break the law. The above theorists suggested that multiple factors such as social class, broken homes, age, race, and urban or rural location are responsible for an individual's criminal behaviour. Sociologist theorists are criticized by other theorists, in that they are reluctant to acknowledge biological factors and individual traits in explaining crime. However, theorists who excessively emphasize environmental factors are also criticized by many criminologists.

1.3.1.4 Social learning perspective to understand criminal behaviour

Sociological learning theories dominated criminology by the middle of the twentieth century and remain dominant to date. These theories emphasize the importance of environmental factors (to which individuals are exposed) in understanding criminal behaviour rather than individual differences. These theories stated that multiple social

factors such as family, school, peer groups and community are conducive to crime and increase the likelihood of crime. These theories have little or no emphasis on the individual differences concerning criminal behaviour (Cullen & Agnew 1999).

1.4 The Role of Criminal Friends in the Emergence of Criminal Behaviour

Several models have been demonstrated the tendency of adolescent to associate with delinquent and substance-using peers and the influence on their subsequent involvement in criminal behaviour (Dishion, Patterson, & Griesler, 1994; Dishion, Andrews, & Crosby, 1995; Simons, Whitbeck, Conger, & Conger, 1991). These models suggest that an adolescent's association with deviant peers is associated with a wide range of risk factors such as socioeconomic disadvantage, early childhood peer relationship problems, school problems, and early onset antisocial behaviours, inappropriate parenting style, inadequate parental supervision and monitoring (Shaw and Scott 1991; Simons et al. 1991; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Dishion et al., 1995; Fergusson, Lynskey, & Horwood, 1996; Patterson, Reid, & Dishion, 1992; Simons *et al.,* 1991; Snyder, Dishion, & Patterson, 1986; Stoolmiller,1994).

One of the most consistent findings in the literature involves the relationship between an individual's delinquent friends and the individual's own delinquency (Akers et al., 1979; Elliott, Huizinga, & Ageton, 1985; Elliott, Huizinga, & Menard, 1989; Menard & Elliott, 1994; Elliott & Menard, 1996; Jensen, 1972; Kandel, 1978; Krohn, 1974; Matsueda and Anderson, 1998; Matsueda and Heimer, 1987; Menard and Morse, 1984). It is suggested by the evidence that those individuals who socialize and establish association with deviant friends are more likely to be involved in criminal acts (Boduszek et al., 2013a; Fergusson & Horwood, 1999; Moffitt, 1993).

To understand the role of peers in the emergence of criminal behaviour, one needs to explore the belief system and attitudes, which lead to the development of criminal behaviour. These cognitive processes (belief system and attitude) have been found in both young and adult criminals and such thinking patterns have been observed by criminal psychologists after engaging in criminal behaviour rather than existing prior to

committing criminal acts. These thinking patterns are not only predict criminal behaviour but also play a prominent role in the development of anti-social behaviour.

1.4.1 Criminal Attitude and Criminal Association

Over the past two decades, substantial research has been conducted to illuminate the correlates and predictors of criminal attitude. Considerable evidence has supported the importance of social environment, particularly association with the criminal friends, in the development of criminal behaviour.

Although research has provided evidence that criminal attitudes are strong predictors of criminal behaviour, further research is required to understand the variables that can predict its emergence (Boduszek, Adamson, Shevlin, Hyland, & Dhingra, 2014). Evidence suggests that the risk of future involvement in criminal behaviour is higher among those individuals who have been socialized in criminal surroundings and adopt attitudes and beliefs related to criminal behaviour (Boduszek et al., 2013a; Holsinger & Holsinger, 2005).

Similarly, Losel (2002) reported that through association with the criminal group, individuals develop attitude, principle and self-related cognition that predispose them towards committing criminal acts. Further findings reported by Andrew and Kandel (1979), Mills, Anderson, & Kroner (2004) and Mills, Kroner, and Forth (2002) have suggested an association between the normative influence of criminal friends and criminal attitudes and they further explained that when the interaction between these two variables becomes strong, the individual's relationship to criminality also becomes strong (also see Boduszek et al., 2013a).

Additionally, Parent, Dunworth, McDonald, and Rhodes (1997) found in their research that those individuals who entered prison or detention centre with slightly

deviant attitudes, acquired more deviant attitudes while serving their sentence as result of constant interaction with the other offenders (Boduszek et al., 2013a).

Boduszek and Hyland (2011), suggested that 'criminals share social aspects of the self with other criminals and the self in this sense can be defined as depending on their criminal association, and part of who they are and how they define themselves is determined by a collective identity that can be considered the criminal self' (p. 604).

Hogg and Smith (2007) emphasized the importance of the psychology of the group and inter-group relations when approaching attitudinal researches, specifically from the perspective of social identity theory (Boduszek & Hyland, 2012; Boduszek et al., 2013a). They suggested that social identity affects individual attitudes (thinking style) by explaining that self-categorization transforms self-conception to match the identity described by the category, and to conform to the category prototype, it transforms one's perceptions, attitude, feelings, and conduct. Therefore, the role of self-categorization is significantly important in shaping and changing the individual's own identity and attitude. It depersonalizes attitudes to conform to the in-group prototype, which represents *genuine attitude change* rather than *superficial behavioural compliance* (Boduszek et al., 2013a).

Furthermore, it is stated that individuals who are oriented toward criminal behaviour and have internalized criminal concepts of that behaviour, are more likely to be involved in criminal acts (Boduszek et al., 2013a). Walters (2006) defined criminal thinking as thought content and processes that are conducive to initiate and maintain the behaviour of habitual law-breaking.

Much research in the field of criminal and social psychology has demonstrated the importance of criminal thinking style (criminal attitude) in the prediction of criminal behaviour. Criminal thinking as a cognitive process contributes to the initiation and

extension of persistent anti-social acts (Walter, 2006). Sutherland's Differential Association Theory proposes that the criminal attitude is a product of relationship with criminal peers (Boduszek & Hyland, 2012).

The most influential and important model of criminal thinking style which was proposed by Walters (1990, 1995a, 1995b, 2002, 2003, 2006b) was also based on the work of Yochelson and Samenow. He proposed that crime is a way of life which is related to a system of beliefs and criminal attitudes that consist of *implicit justification* and *rationalization* for criminal acts. Although he did not entirely agree with Yochelson and Samenow's findings, he incorporated most of the components of their theory and proposed that not only these thinking factors (*mollificatio*n, *cutoff*, *entitlement*, *power orientation*, *sentimentality*, *superoptimism*, *cognitive indolence* and *discontinuity*) are discrete cognitive patterns noticeable among incarcerated population but also these factors are statically related. According to this factorial model, the individuals' decisions that are self-indulgent, rash and are contrary to society norms are facilitated by their criminal thinking styles. Therefore, Walter's (2006) model of criminal thinking style emphasized that the patterns of criminal thinking style are *disorganised*, *illogical* and *subjective* and provide needs for immediate satisfaction (Boduszek et al., 2013a).

Milles and Kroner (1999) proposed a four-dimension model of criminal thinking style: *Violence*, *Entitlement*, *Antisocial Intent*, and *Associates*. They proposed that the role of violent behaviour is central in determining individuals who are at high risk of offending (Boduszek et al., 2013a). It was also indicated by additional research that an individual's capability of tolerance towards violence is a more significant predictor of that individual's own engagement in violent behaviour than any other *sociological* and *economic* variable measured (Boduszek et al., 2013a; Mills, Kroner & Weeks, 1998).

Many theories of criminal thinking emphasize an attitude of entitlement as a reason of an individual's involvement in criminal act (Boduszek et al., 2013a). Walters and White (1989) explained entitlement as a cognition that tells them "*they have a right to take whatever they want from whoever has what they desire*" (p. 4). Additionally, research indicates that age of first arrest and age of first imprisonment are mostly highly associated with the entitlement factor (Boduszek et al., 2013a; Walter, 1995a; Walters 1995b). Thus this research provides additional evidence for the role of the cognitive processes in the development of criminal behaviour (Boduszek et al., 2013a).

Boduszek at al. (2013a) investigated the direct relationship between criminal identity and criminal thinking style and reported that criminal thinking style is significantly influenced by in-group affect and in-group ties (two factors of criminal social identity). These findings are consistent with the contribution of Social Identity Theory (Tajfel and Turner, 1979) and social psychological research that has supported the association between identity and thinking style (Hogg and Smith, 2007; Hogg, 2001).

Recently, the first piece of empirical work that significantly supported the association between criminal attitude and criminal friends through criminal social identity was demonstrated by Boduszek and colleague (2013f). The study suggested that two psycho-social components are important: association with criminal friends and the development of identity consistent with such friends in order to develop criminal behaviour. The results of this study suggested that an individual who spent significant amounts of time with criminal friends and is influenced by their attitudes towards crimes developed emotional aspects of identification with criminal friends. Thus, consistent with SIT, identification with criminal friends is the key factor in the development of anti-social and distorted behaviour.

1.4.2 Theoretical Approaches to Understanding Peer Delinquency and Criminal Behaviour

In the following section, a comprehensive review of theories of delinquency is presented to facilitate the understanding of the role of criminal friends in the development of criminal behaviour.

1.4.2.1 Sutherland's Differential Association Theory (1939)

Sutherland's Differential Association Theory argued that individuals become delinquent due to their interaction with criminal others. Therefore, such associations may be used as indicators of the basic causes of criminal behaviour (Cullen & Agnew 1999; Boduszek et al., 2011; Sutherland & Cressey, 1978; Sutherland, Cressey & Luckenbill, 1992). This theory further argued that an excessively favourable definition of law-breaking is responsible for criminal behaviour (Cullen & Agnew 1999).

Differential Association theory is usually tested by examining the association between delinquency and the delinquent's peers. It is suggested that delinquent friends are the major source of involvement in criminal behaviour. Studies such as those of examined adolescents over time and suggested that association with delinquent peers has a causal effect on delinquency and peer delinquency increases the likelihood of criminal behaviour. Although data from different studies provided some support for the present theory. Differential Association theory is criticized for insufficient definitions of favourable and unfavourable attitudes to crime (Cullen & Agnew 1999).

Another criticism is that Differential Association theory fails to explain the process by which crime is learned and simply states that individuals learn criminal behaviour through developing a definition favourable to crime by association with criminal others (Boduszek & Hyland 2012; Cullen & Agnew 1999).

Later on Aker (1966) comprehensively described the process by which individuals learn to be involved in criminal behaviour (Cullen & Agnew 1999).

1.4.2.2 Neutralization Theory (Sykes & Matza, 1957)

Sykes and Matza (1957) postulated that individual learn both the techniques of committing crime and ways to rationalize and justify their criminal acts. They further argued that crime is influenced by multiple factors such as social class, race and broken homes and these factors ultimately influence the individual to associate with others who present definitions favourable to crime. An individual exposed to definitions favourable to crime in his early life more frequently, for a long period of time, and from sources he likes and respects, is more likely to engage in criminal behaviour (Boduszek, 2012, 2013; Cullen & Agnew 1999). Most criminals try to neutralize their criminal acts by perceiving themselves as conventional rather than criminal. Delinquents believe that delinquency is bad, but they justify their delinquent acts by employing neutralization techniques. Those criminals who accept more neutralization usually engage in more frequent delinquent acts because such rationalization protects them from self-blame and help them to inflict their blame on others, afters committing criminal acts. Consequently, by learning these neutralization techniques they become more delinquent. Sykes and Matza explained five methods, offenders commonly used to justify or excuse their criminal behaviour. These five techniques are: *the denial of responsibility*, *the denial of injury*, *the denial of victim*, *the* condemnation of the condemners, and *the appeal to higher loyalties.*

1.4.2.2.1 The denial of responsibility

Individuals justify their criminal acts by denying responsibility and claiming that the criminal act was accidental. They may assert that the criminal act was due to the external forces and beyond of their control, for reasons such as unloving parents, bad companions and slum neighbourhood. Thus through denial of responsibility, individuals deflect the self-blame onto others.

1.4.2.2.2 The denial of injury

The second technique of neutralization focuses on the harm and injury involved in the delinquent act. The individual uses this technique to neutralize the guilt, by rationalising that his criminal act did not really cause any great harm. Thus the individual, by denial of injury, breaks the link between his criminal act and its consequences.

1.4.2.2.3 The denial of victim

The individual, despite accepting his responsibility for his deviant action, and admitting that his deviant action involved injury and/or hurt, insists that the injury was not wrong in the light of the circumstances, to neutralize the moral indignation of himself self and others. He claims that the injury was not really an injury or similarly neutralizes his act by considering that his act was deserved in term of retaliation and punishment (Boduszek 2012, 2013; Cullen & Agnew 1999). Thus, the delinquent transform himself into a position of avenger and the victim is altered into a *wrong-doer*, for example vandalism as revenge on an unfair teacher, or theft from the store owner, all might be hurts inflicted on a transgressor, in the eyes of the offender (Boduszek 2012, 2013; Cullen & Agnew 1999).

1.4.2.2.4 The condemnation of the condemners

Delinquents use this technique to shift the focus of attention, from his own criminal act, towards the motives and behaviour of those who disapprove of his violence. For example, an individual justifies his blame stating that the police are corrupt, the teacher always shows favouritism, or that society is the real criminal. However, the individual tries to resolve the conflict between his own deviant desires and the reactions of others by attacking the others, and in this way tries to neutralize his act by suppressing the immorality of his own behaviour (Boduszek 2012, 2013; Cullen & Agnew 1999).

1.4.2.2.5 *The appeal to higher loyalties*

By the logic of the last technique, an individual who commits illegitimate acts justifies his actions by turning off his inner protest against that act. He neutralizes his act in terms of sacrificing the demands of the larger society for the demands of smaller societies such as siblings, peers, and the gang. Thus delinquent neutralizes his criminal act by employing these statements for example, "I didn't do it for myself", "I couldn't let my friend down" (Boduszek 2012, 2013; Cullen & Agnew 1999).

1.4.2.3 Differential Association Theory (Akers, 1985)

Differential Association Theory (Akers, 1985) postulates that individual learn criminal behaviour through criminal associations. This theory has been found to be well-fitting in the field of criminology because it adequately explains the process of decision-making involved in the establishment of *cognitive, behavioura*l and *motivational* techniques that are important in the commitment of criminal acts (Akers et al., 1979; Cullen & Agnew 1999). Akers suggested four techniques: *differential association*, *definition*, *differential reinforcement* and *imitation* to explain individual involvement in criminal behaviour.

1.4.2.3.1 Differential Association

Differential association refers to the process by which an individual is exposed to the different circumstances that are favourable or unfavourable to legal or antisocial behaviour. Differential association has both an interactional dimension and a normative dimension. Interactional dimension refers to the direct association with others who engage in criminal behaviour. The normative dimension refers to different patterns of norms and values to which the individual is exposed through this association. The group to which the individual is exposed and from whom he or she learns criminal behaviour are both primary and secondary. Primary groups include family and friends, whereas secondary groups include those in the neighbourhood, churches, and school. These have varying degrees of effect on the individual's propensity to criminal and delinquent behaviour.

1.4.2.3.2 Definition

Definition refers to the individual's own attitude or meanings attached to the given behaviour and are consisted of individual's own values, belief, and orientation that help individual to make differentiation between good and evil, legal or illegal, moral or immoral (Cullen & Agnew 1999). According to this, definitions can be both general and specific. General belief includes religious, moral and other conventional values and norms that are favourable to society values and norms and unfavourable to committing criminal acts. Specific definitions refer to an individual's particular acts or series of acts (Cullen & Agnew 1999). Thus the individual may believe that stealing is morally bad and that he should obey the laws against stealing, but at the same time, he violates the law against drug-taking and smoking marijuana, and perceives his act little wrong by rationalizing that it is not that much bad to smoke marijuana. The Differential

Association theory further postulates that those individuals who have strong attitudes and beliefs disapproving of anti-social acts are less likely to be involved in criminal behaviour (Cullen & Agnew 1999). Conversely, the more one's own attitude approves of anti-social behaviour, the greater the chance of becoming involved in criminal behaviour. Neutralization definitions favour the commission of criminal behaviour by justifying or excusing it.

1.4.2.3.3 Differential reinforcement

Differential reinforcement refers to the idea that people commence antisocial behaviour by *differential association* with criminal friends and then they learn through *differential reinforcement* how to attain rewards and avoid punishment as the actual or anticipated consequences of particular criminal acts (Cullen & Agnew 1999).

1.4.2.3.4 Imitation

Imitation refers to the engagement in specific behaviour after observing similar behaviour in others. Differential Association theory suggests that individuals learn criminal behaviour by imitation.

Differential association (interaction and identity with different group) occurs first. Then these groups provide a social environment in which the individual learns definitions through imitation and thus he learns use of and abstinence from any substance. Therefore, these definitions are learned by imitating other group members with whom the individual is associated. Furthermore, the individual's behaviour is reinforced by those other members of the group and once learning take place, these definitions serve as *discriminative stimuli* for use of or abstinence from substances (Akers et al., 1997; Cullen & Agnew 1999).

Therefore, deviant behaviour can be expected to the extent that has been differentially reinforced over conforming or of other deviant behaviour and is defined as desirable or neutralized. Thus, the extent to which a given pattern is sustained by the combination or reinforcing effect of the substance with social reinforcement; exposure to the model; definition through association with drug-using peers; and by the degree to which it is not discouraged through bad effects of the substance or disapproval by peers, parents and the law can determine the progression from more frequent use into abuse (Akers et al., 1997).

1.4.3 Spending Time with Delinquents and Criminal Behaviour

Spending time with delinquents is another important risk factor for delinquency. It is proposed that adolescents, who have delinquent friends, spend a great deal of time with delinquent friends, are more attached to them and have increased risk of engaging in delinquency (Haynie, 2002; Haynie, 2005). Research has suggested that during adolescence, adolescents spend much time with their friends and attribute great importance towards them. People are more likely to be influenced by their friends during adolescence than at any other time in their lives (Boduszek et al., 2013a; Brown et al., 1993). This research has emphasized that spending time with delinquent friends is conducive to delinquency (Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996). Moreover, when individuals spend more time with delinquent peers, they are more reinforced by the group. Thus attachment to peer delinquents is important and enhances the value of reinforcement by the group, consequently increasing the likelihood of imitating the group behaviour (Haynie & Osgood 2005).

Collectively, the above evidence suggests that juvenile involvement with deviant peers encourages the development of delinquent behaviour in adolescence and

subsequently they have greater vulnerability for initiating substance use (Bogenschneider et al., 1998; Loeber et al., 1991; McCord 1990). Therefore, in the next section, the role of personality development, and deviant peer influences will be reviewed to explain substance-using behaviour among adolescents.

1.5 Substance Use Behaviour

According to research findings, deviant peers has been linked to both substance use (Ary et al.,1999; Dishion, Capaldi, Spracklen, & Li, 1995; Dishion & Loeber, 1985; Duncan, Duncan, Biglan, & Ary, 1998; Elliott, Huizinga, & Morse, 1985; Erickson, Crosnoe, & Dornbusch, 2000; Fergusson & Horwood, 1997; Moffitt, 1993) and increased involvement in criminal behaviour (Farrington, 1995; Fergusson & Horwood, 1996; Hoge, Andrews, & Leschied, 1994; Moffitt, 1993; Woodward, Fergusson, & Horwood, 2002).

Association with delinquent peers has socializing effects on adolescents and numbers of mechanisms are involved in these processes such as imitation, social learning, peer group influence, and social facilitation in terms of encouraging their involvement in criminal behaviour and substance abuse (Deater-Deckard, 2001; Dishion et al., 1994; Farrington, 1995; Moffitt, 1993; Loeber et al., 1991). The probability of initiation into substance abuse during adolescence and pre-adolescence is significantly influenced by role models such as parents, older siblings, and members of reference groups. Evidence by longitudinal studies has suggested that those adolescent who are more likely to be involved in use of marijuana and/or hard drug during late adolescence tend to be more rebellious and deviance-prone, more alienated from parents, more critical of society, less traditional and conservative regarding values, less determined and persistent, less motivated toward achievement, less trustworthy and responsible, less tender and considerate of others, and less self-controlled (Farrington, Loeber, Yin, & Anderson, 2002; Loeber et al., 1991). Moreover, many researchers differentiate early initiates from later initiates on the basis of these personality characteristics and predict the degree of an individual's drug involvement (Jessor & Jessor, 1975; Siegel, 1983; Smith and Fogg, 1978).

To test the adolescents' deviance, drug and alcohol use, a study was conducted by administering a self-report questionnaire among 3,065 male and female adolescents in Midwestern state attending grade 7 through 12. The researchers hypothesized that adolescents' marijuana and alcohol use and abuse are related to each of the major sets of variables such as differential association, definition, differential reinforcement and imitation and to all of them combined. The results showed strong support for the social learning theory in term of adolescents' alcohol and drug use behaviour. Additionally, strong relationships were found for the use of both alcohol and marijuana and the social learning variables of differential association, definition, differential reinforcement and imitation (Akers at al., 1979; Cullen & Agnew, 1999).

It is suggested that the child begins to make friendships during primary school grades, and it is likely that the child tends to converge as a member of a group; he shares with other members the perception, experiences, values, beliefs, and life-orienting conclusions that in turn influences the child's personality development. It has been reported that those children who have similar attitudes, values and other personal characteristics embrace each other, and these similarities not only bring them together but also strengthen their association (Boduszek et al., 2013a; Fergusson & Woodward & Horwood, 1999).

Children reject the demands and expectations of their adults due to these personality characteristics, and exhibit rejection by smoking cigarettes, breaking school rules, disparaging achievement and involvement in early childhood deviance (Lettieri, 1980). Such children tend to gravitate toward each other and form friendship groups and some of them are precocious in term of substances use and their ability to access those substances (Chein, 1980; Lettieri, 1980).

Therefore, the interactive process begins in early preadolescence and is influenced by early childhood experiences, reinforced through interaction with like-minded children and their attitudes towards use of substances, and the availability of substances (Fergusson & Woodward, 1999; Lettieri, 1980). This interactive process also helps to predict substance users from personality characteristics and children's attitudes can be measured prior to their initiation into substance use.

During adolescence period, adolescents' substance use problems become more apparent, and are suggested to be the strongest predictor of delinquency (Loeber, 1990). Loeber proposed a question that why not all delinquents become drug addicts, and not all young boys who grow up even in the most economically deprived families, become delinquent? The child who succeeds in his initial self-autonomy and is brought up in an appropriate family environment, or who encounters sensitive and encouraging teachers in his early school years, passes more successfully through the developmental hurdles such as those that Erikson (1950) has described as identity crises to establish his/her basic trust (Loeber 1990). Thus, children develop competencies and confidence, to become independent and establish relationships with wise and compassionate adults who can help them through crises (Fergusson, Swain-Campbell, & Horwood, 2002; Farrington, 1987).

By definition, a juvenile drug-user is called delinquent (Lettieri, 1980). Some drug users are delinquent before their initiation into drugs, and others became delinquent due to their drug using habit. These two groups are known as delinquent and non-delinquent users (Loeber, 1990). In addition, they are different in terms of certain aspects of their personalities. However, it is suggested that all addicted juveniles are severely disturbed (Gerard & Kornetsky 1955). Psychiatric research assessing the personality of juvenile opiate addicts reported that adolescents who become addicted have major personality

disorders (Gerard & Kornetsky 1955). It is also suggested that despite individual differences, juvenile addicts commonly share a certain set of symptoms. They are incapable of establishing prolonged, close and friendly association with either adults or with peers. They easily become frustrated and anxious (Dishion et al., 1991; Fergusson et al., 1999; Loeber, 1990).

It is proposed that individuals acquire such personality problems in their family settings. Mostly addicts come from economically deprived families and specifically from families in which parents are separated or divorced, are overtly hostile, have disturbed relations and show lack of understanding. These adolescent addict are harshly treated by their adults during their childhood (Dishion et al., 1991; Fergusson et al., 1999; Lettieri, 1980; Loeber, 1990). Thus those adolescent, who belong to broken homes and are deprived of familial support during adolescence, are more likely to be involved in criminal behaviour and less likely to have the strength to stay away from the delinquent subculture by which they are surrounded.

1.5.1 Substance Use Behaviour among Adolescents

Before explaining substance use behaviour among adolescents, it is important to explain that substance use behaviour is different from drug addiction. The word 'addiction' is derived from the Latent word "addicere" meaning 'bind a person to one thing or another' (Nelson, Pearson, Sayers & Glynn, 1982). An individual involved with the use of drugs who feels it difficult to resist these urges is may be said to be in state of addiction. However, it is important to note that drug use does not always leads to drug addiction.

It is suggested that any adolescent drug-user, before becoming dependent on tobacco, alcohol or any illicit substance, has passed through a stage of initiation of

substance use. During that stage, they are not committed to continuous use and the substance has not yet become a regular part of their lives (Clayton, 1981; Flay, d'Avernas, Best, Kersell, & Ryan, 1983; Hu,Flay, Hedeker, Siddiqui, & Day, 1995). However, not all adolescents pass through this early stage of substance use.

Social scientists have tried to investigate why some adolescents use and others do not use substances (Lettieri, 1980; Loeber, 1990; Petriatis, Flay & Miller, 1995). Hawkins, Catalano, and Miller (1992), by thoroughly reviewing the research, concluded that drug availability; certain psychological characteristics; persistent problem behaviour like aggressive behaviour in males, conduct problems and hyperactivity in childhood and adolescence; parental use of illegal drugs, inadequate family settings; family conflicts; low family bonding, academic failure; early peer rejection; norms and attitude favourable towards drugs; social influence to use drugs and early initiation of drug use are the potential causes for individual substance use behaviour.

1.5.2 Theories of Adolescence Substance Use

With so many causes it is difficult to form a clear picture about individual initiation of substance use; however, reviewing theories of adolescent substance use would help to understand that behaviour. Therefore, in the following section, theories will be reviewed in order to facilitate our understanding of adolescents engaging in substance use behaviour.

1.5.2.2 Social learning theories of substance use

Social learning theorists have shifted their attention from the *substance-specific beliefs* of adolescents towards the possible causes of those beliefs as well as focusing on interpersonal and social influences (Petraitis et al., 1995). Sociologist (see above, 1.4.2.1) identified one of those causes and suggested that delinquent behaviour such as

substance use and crime are socially learned in small, informal groups. Subsequently, Akers (1977) and Bandura (1977, 1986) built upon Sutherland's (1939) assertion that role models, including both parents and friends are important in terms of influencing adolescents' beliefs about and attitudes towards delinquent behaviour (Petraitis et al., 1995).

1.5.2.2.1 Social learning theory (SLT) by Akers (1977)

Social learning theory assumes that *definitions* (previously explained in details) are the strongest predictors of adolescent substance use behaviour. SLT disagrees that an adolescent's substance use behaviour originates in the adolescent's own substance-specific cognition and instead emphasized that substance use originates in the substance-specific attitude and behaviour of people who serve as an adolescent's role models.

1.5.2.2.2 Social cognitive-learning theory by Bandura (1986)

Bandura (1986) argued that role models such as friends, teachers and parents play an important role in adolescents' acquit ion of beliefs about substance use. He further argued that adolescents' *substance specific beliefs* are directly shaped by their exposure to those friends and parents who use substances. Thus, adolescents' beliefs about substances are shaped by observing their parents, who use alcohol to become relax or by observing their friends, who smoke marijuana to make their social interaction smooth (Petraitis et al., 1995).

Both SLT and SCLT are supported by empirical evidence which suggests that adolescents' use of alcohol and illicit drug behaviour is influenced by their role models. Studies showed that those adolescents whose friends talked to them about using illicit drugs (Kandel, Kessler, & Margulies, 1978), and have friends who have positive

attitudes towards marijuana use, are more likely to be involved in using marijuana (Bailey & Hubbard, 1990; Kandel et al., 1978). Moreover, those adolescents whose friends use cigarettes, alcohol, marijuana, and narcotics (Huba, Wingard, & Bentler, 1980b; Kandel et al., 1978), and have friends who offer them cigarettes, marijuana, alcohol and pills, are at high risk of using these substances (Huba, at al., 1981b; Kandel et al., 1978). Furthermore, Akers et al., (1979) have found that adolescents' perceptions of their significant adults and friends, significantly predict half of the variance in alcohol use and two thirds of the variance in marijuana use (see also Petraitis et al., 1995).

1.5.2.3 Social attachment theories of Substance use

Elliott's Social control theory (SCT) (1995, 1989) and Hawkins and Weis's (1985) social developmental model (SDM) argue that the primary cause of adolescents' using substances can be attributed to their emotional attachment to friends who use substances. According to these two theories, week conventional bonds to society and institutions, emotional attachment to substance-using friends, and lack of control are significant contributory factors of adolescents' substance-using behaviour (Petraitis et al., 1995).

These theories are based on classic sociological theories of control (Hirschi & Stark, 1969; Reckless, 1961; Shoemaker, 2009), which argue that adolescents who have deviant impulses, can be controlled by strengthening their bonds to conventional societies, families, schools and religion (Petraitis et al., 1995). However, for some adolescents who have weak conventional bonds, such controlling influences are missing. 'Weak conventional bonds' refers to the lack of commitment to conventional society, its values and its institutions and socialization forces, especially school and

religion. Thus, those adolescents who are not involved with are uncommitted to or alienated from conventional values and standards of conventional behaviour, consequently attach to substance-using peers, and are more likely engage in substance use behaviour than those adolescents who are more committed to conventional society and internalized conventional behaviour that serve to control their behaviour.

'Weak conventional bonds' also refers to weak attachment to conventional role models, including parents, peers and teachers. Thus conventional role models such as parents and teachers play an important role in preventing adolescents from using substances by encouraging adolescents' conventional behaviour and by discouraging adolescents' substance use behaviour (Petraitis et al., 1995). Thus these theories argue that adolescents observe, imitate and become involved in a variety of substance-using behaviour due to their deviant and substance-using friends (Petraitis et al., 1995).

1.5.2.3.1 Social control theory

Elliott's social control theory (SCT) (Elliott et al., 1985, 1989) emphasize that there are three possible causes of weak commitment to conventional society and weak attachment to conventional role models. These causes are *strain*, *social disorganization* and *inadequate socialization*.

Strain refers to the discrepancy between adolescents' achievement of academic and occupational goals and their perception of opportunities to obtain these goals (Petraitis et al., 1995). SCT argues that those adolescents, who remain unsuccessful in achieving their goals, subsequently become less attached to conventional society and consequently more attached to deviant and substance-using peers (Petraitis et al., 1995). In addition, some adolescents feel strain at home due to weak attachments with their parents, who generally oppose substance use, and become attached to deviant peers who more

frequently use and encourage substance use. Thus, school strain, occupational strain and home strain are the important causes of weak commitment to conventional society and important precursors towards substance use behaviour among adolescents (Petraitis et al., 1995).

Social disorganization represents weakness or breakdown of established institutions (Kornhauser, 1978) or the inability of local institutions to control residents' behaviour (Farrington et al., 1990). SCT suggests that those adolescents who come from disorganized neighbourhoods where crime and unemployment are common, where social institution failed to offer little hope for future and where schools are ineffective feel uncommitted to conventional society. The adolescents might also feel less attached to their parents if they come from disorganized families, especially from single parent families or families where the parents have divorced.

SCT asserted that *ineffective socialization* into conventional society is another cause of weak conventional commitment and weak attachment. The theory further asserts that even if adolescents do not feel strain or do not come from deprived families or disorganized neighbourhoods, there is still some chance that they may become attached to substance-using peers due to inadequate social abilities and skills to adopt conventional norms (Petraitis et al., 1995). The parents' role is crucial and more important to adequately socialize their children to adopt conventional norms.

Empirical evidences for the role of strain and social disorganization in substance-use is supported by several longitudinal studies which have found that substance use is more common among adolescents who have poor academic grades or are ill-prepared for school (Bailey & Hubbard, 1990; Elliott et al., 1986; Jessor, 1991; Kandel et al., 1978; Kaplan, 1984; Smith & Fogg, 1979; White, Pandina, & LaGrange, 1987), or who experience home strain such as frequent arguments with their parents and   feeling

rejected by their parents (Elliott et al., 1985; Kaplan et al., 1986). Similarly, some studies have demonstrated the role of disturbed homes where parents have separated or divorced or where there is only one parent, and found that substance use is more common among adolescents who belong to such families (Baumrind, 1985; Kandel et al., 1978; Steinberg et al., 1989).

1.5.2.3.2 The social developmental model

In the social developmental model by Hawkins & Weis (1985), much like Elliott's SCT, those adolescents who feel uncommitted to conventional society or unattached to their parents and other conventional models consequently becomes attached to substance-using peers. However, these two models are different in terms of the posited causes of conventional commitment and attachment. SCT largely, but not exclusively, focuses on social systems by targeting academic strain, disorganization among institutions and ineffective socialization. Compared with SCT, SDM focuses more on individuals, their social development, and their immediate social interaction. SDM posits that adolescents who are infrequently rewarded for interaction at home and school and who have inadequate interpersonal and academic skills for successful interaction and have received little reinforcement during interaction with their parents, friends and teachers are more likely to become involved with substance-using peers (Petraitis et al., 1995). SDM further suggest that, when their skills are not rewarded by their parents and teachers, adolescents who have inadequate interpersonal and academic skills feel that they might have little to lose by engaging with deviant peers who encourage their substance use behaviour (Petraitis et al., 1995).

Research studies support the role of positively reinforced interaction, interpersonal skills, and academic skills, and suggested that substance-using behaviour is more

common among those adolescents who reported feeling rejected by their parents (Kaplan et al., 1984, 1986), and wanting close relationship with their families (Elliott et al., 1985). Furthermore, it has been reported that those adolescents who are interpersonally hostile (White et al., 1987), or aggressive (Block, Block, & Keyes, 1988; Johnston, O'Malley, & Eveland, 1978; Kellam, Brown, & Fleming, 1982), have difficulty getting along with others (Block et al., 1988), and who have inadequate academic skills (Bailey & Hubbard, 1990; Kandel et al., 1978, 1986; Shedler & Block, 1990) are at high risk of engaging in substance use behaviour.

1.5.2.4 Theories focus on interpersonal characteristics

There are some theories which focus on adolescents' social settings, for example peers, communities and families, as well as the adolescents' own characteristics such as self-esteem and coping skills. These theories posit that adolescents will be different from each other in their attachment to substance-using peers and their motivation to use substances within a given social setting and these individual differences have some roots in their personality traits, more transient affective states, and behavioural skills.

1.5.2.4.1 The social ecology model (Kumpfer and Turner, 1990-1991)

Kumpfer and Turner's Social Ecology Model (SEM) suggests that the underlying cause of substance use is generally a stress, particularly school-related stress. Those adolescents who find school stressful or unpleasant, are more likely to withdraw from school-related activates and make friendship with deviant peers to get escape from that stress and consequently engage in substance use. The theory further asserts that those adolescents, who feel that their own academic skills are inadequate and that school is stressful, are at high risk for involvement with deviant peers and substance use behaviour.

Kumpfer and Turner's (1990-1991) cross-sectional test of this model suggests that adolescents are more likely to establish their association with deviant peers and use substances if they have negative perceptions of their school and are emotionally detached from their school Petraitis et al., 1995).

1.5.2.4.2 Self-derogation theory

Kaplan (1975) and colleagues' Self-derogation theory (SDT) (Kaplan, Martin, & Robbins, 1982. 1984) argues that when adolescents who are repeatedly evaluated negatively by their parents, teachers and friends and feel deficient in any socially desirable attributes, subsequently experience low levels of self-esteem and frequent self-derogation (Petraitis et al., 1995). Self-derogating adolescents feel unwanted and rejected, in defence of their ego and might alienated from their parents, friends and significant others. Their motivation to become rebellious symbolically against society norms and their self-worth can be enhanced by their involvement in non-conventional behaviour. Furthermore, to boost their sense of worth, they become involved with their deviant peers and access substances easily (Petraitis et al., 1995).

Kaplan et al. (1982) in their 2-year longitudinal study found that adolescents' self-esteem is directly affected by their strong engagement with substance-using peers and indirectly affected by early substance use involvement (Petraitis et al., 1995).

1.5.2.4.3 Family interaction theory

Brook et al. (1990) also described a complex theory, Family interaction theory (FIT) in which emotional attachment to parents, social learning, and the intrapersonal characteristics of adolescents directly affect substance use behaviour. This theory emphasizes the bond between parents and the child, specifically between mother and child. FIT suggested that there are four causes and three consequences of attachment

between parents and children. The causes are: *conventional values among parent*s, *affectionate or supportive parenting styles*, *maternal psychological adjustment*, and *maternal control over a child.* The consequences of strong parents-child associations are: *the development of conventional and well-adjusted adolescent personalities*, *infrequent involvement with substance-using peers* and subsequently *infrequent substance use* among adolescents. The theory further suggests that families where parents lack conventional values and provide little attention to their children (especially when mother is maladjusted or exert little control) place the child at high risk of becoming involved in behavioural problems during adolescence, including poor relationships with their parents, unconventional and maladjusted personalities, association with deviant peers and substance use behaviour (Petraitis et al., 1995).

The present chapter further proceeds to review the literature concerning suicidal behaviour in Pakistan and further explain prevalence and correlates of suicide among incarcerated population and the role of social belongingness (criminal social identity) as a protective factor for suicide among juvenile offenders.

1.6 Suicidal Behaviour among Juvenile Offenders in Pakistan

Along with deviant and substance use behaviour, the prevalence of health-endangering behaviour such as suicide among juveniles has increased dramatically (Loeber, 1990) and research suggests that when the needing to belong (a fundamental human motive) is met, it decreases the risk of death by suicide and when thwarted it can considerably increase the risk for suicide (Joiner 2005).

Suicidal behaviour can be defined as attempted and completed suicides. Attempted suicide refers to cases where individuals fail to die after having tried to kill themselves (De Leo, Burgis, Bertolote, Kerkhof, & Bille-Brahe, 2006), whereas completed *suicide* is reserved for those cases in which a suicide attempt results in death (Van Orden, Chkrowicz, Witte, & Joiner, 2012)

1.6.1 Prevalence and Risk Factors of Suicide among Prisoners

The suicide rate is four to five times higher in prisoners (Fazel, Cartwright, Norman-Nott, & Hawton, 2008; Fruehwald, Matschning, Koenig, Bauer, & Frottier, 2004) than in the wider community (Hayes, 1995; Kerkhof & Bernasco, 1990; Liebling, 1995). However, the degree of excess has not been reliably quantified in many countries, including the UK (Fazel & Benning, 2009). In the United States, the rate of suicide in jails is 8 times higher than in the general population and in England and Wales the suicide rate among male prisoners is 5 times higher than in the general population (Fazel et al., 2008).

Similarly, in Austria, Australia, and New Zealand, the rate among prisoners has been calculated to be 5–10 times higher than in the general population (Fazel, Grann, Kling, & Hawton, 2011). Additionally, a higher suicide rate has been found among those who serve long sentences and have problems of alcohol and drug use (Fazel et al., 2008)

(e.g., Backett, 1987; Kerkhof & Bernasco, 1990; Laishes, 1997). Imprisonment is stressful during the initial stage or first week of confinement, therefore, the exposure of vulnerable people to stressful situations is considered an important cause of suicide in prison inmates (Blaauw, Kerkhof, & Vermunt, 1997; Liebling, 1995). Additionally, characteristics that are associated with suicide risk in the wider world (Clark & Fawcett, 1992) are highly prevalent among inmates, among whom many are male, unemployed, and socially isolated (Gunn, Robertson, Dell, & Way, 1978), suffering from psychological distress (e.g. Blaauw et al., 1997; Gunn et al., 1978), and physiologically disturbed due to withdrawal from substances (Gibbs, 1997; Walker, Utsey, Bolden, & Williams III, 2005).

It is evidenced from many studies that the majority of suicide victims possess characteristics that make them vulnerable towards suicide attempts in the community (Blaauw et al., 2005). In addition, more suicide attempts are made during adolescence than at any other time in life. A study investigated the 12-month prevalence of suicide attempts among 9th–12th grade students in the United States and reported 7.8%, compared to a prevalence of 0.5% among adults. The study further reported that girls have higher rates of attempts than boys (Miranda and Shaffer 2013).

It has been shown by nineteen studies that many suicide victims are male (96%), unemployed (16% in U.S. prisons, and 44% in other countries); single (51%) or separated/ divorced/ widowed (17%); have histories of suicide attempts (74%), psychiatric illness (44%) and drug abuse (54 % in U.S. prisons and 33% in other countries) (Blaauw et al., 2005). It is important to investigate the main characteristics among prison inmates such as psychological problems, demographic and criminal characteristics that make them vulnerable to commit suicide, and that can be measured at the time when they enter the justice system. A more adequate screening system is

necessary in prisons because it is suggested that prison systems usually have insufficient numbers of psychiatrists and psychologists to screen out suicide risks among inmates adequately (Blaauw, Roesc, & Kerkhof, 2000).

Some studies found suicide more common among male (Schimmel, Sullivan, & Mrad, 1989; White & Schimmel, & Frickey, 2002; Anno, 1985; Hayes, 1985, 1989; Marcus & Alcabes, 1993; Salive, Smith, & Brewer, 1989), unemployed (Hatty & Walker, 1986), and single or unmarried inmates (Anno, 1985; Hatty & Walker, 1986) and related to age (Dooley, 1990; Hatty & Walker, 1986; Liebling, 1995). Contrary to these, other studies found no association with age (Anno, 1985; Dooley, 1990; Laishes, 1997; Hatty & Walker, 1986; Hayes, 1995; White & Schimmel, 1994), male (Anno, 1985; Dooley, 1990; Hayes, 1995; Laishes, 1997), white (Dooley, 1990; Hatty & Walker, 1986; Laishes, 1997; Schimmel et al., 1989; White & Schimmel, 1994), unemployed (Kerkhof & Bernasco, 1990), and among single or unmarried inmates (Hayes, 1995; Laishes, 1997).

Furthermore, many studies have found that more common risk factors among suicide victims than among general inmates are prior incarceration (Anno, 1985; Backett, 1987; Dooley, 1990; Green, Kendall, Andre, Looman, & Polvi, 1993; Hayes, 1995; Marcus & Alcabes, 1993) and charges of violent crimes (Anno, 1985; Dooley, 1990; Harris, 1987; Hatty & Walker, 1986; Kerkhof & Bernasco, 1990; Laishes, 1997; Marcus & Alcabes, 1993; Salive et al., 1989). Results suggest that criminal characteristics are more important than demographic characteristics for screening suicide risk factors among in prison inmates

Several authors have suggested the association between inmate suicides and histories of suicide attempts (Anno, 1985; Green et al., 1993; Marcus & Alcabes, 1993), psychiatric illness (Anno, 1985; Dooley, 1990; Green et al., 1993; Marcus & Alcabes,

1993), drug abuse (Green et al., 1993; Marcus & Alcabes, 1993), and alcohol abuse (Green et al., 1993; Marcus & Alcabes, 1993). Another study found two demographic characteristics (age over 40 and homelessness), two criminal characteristics (prior incarceration and violent offences) and two psychiatric problems (history of psychiatric care and history of heavy drug abuse) that identified 82% among the general inmate population in the Netherland that become suicide victims (Blaauw & Kerkhof, & Hayes, 2005).

Fazel and colleagues (2008) systematically reviewed thirty-four studies from 12 countries comparing 4780 suicides cases and found demographic, criminological and clinical factors associated with suicide in prisoners. Recent suicidal ideation, being accommodated in a single cell, a history of attempted suicide, evidence of mental disorder, and remand status were found to be strongly associated with suicide.

Suicides of male prisoners have been increasing during the past quarter of a century. A research study compared 1312 suicides in male prisoners in England and Wales between 1978 and 2003 and found that suicide rates are five times more common than in the general male population with a particularly striking excess in boys aged 15–17 years (Fazel et al., 2009).

Similarly, in a research study data were collected on 861 suicides in prison, of which 810 were in men. It was reported that rates of suicide were at least three times higher than in the general population. The findings of this study suggested that Western European countries had similar rates of prisoner suicide. Additionally suicide rates in Western European centuries were mostly higher than those in Australia, Canada, and New Zealand. However, no association has been found between the rates of suicide in prisoners and general population rates or rates of incarceration (Fazel et al., 2011).

Consequently the most robust risk factors associated with suicide behaviour are mental disorders, previous suicide attempts, social isolation, family conflict, unemployment and physical illnesses (Van Orden et al., 2012). Comprehensive review of the theories related to suicide behaviour is important to understand the suicidal behaviour; therefore in the following section, different theories related to suicide behaviour are presented.

1.6.2 Review of the Theoretical Models related to Suicidal Behaviour

Suicide researches have traditionally used three theoretical models to understand suicidal behaviour: the epidemiological model (demographics), the personological model (individual differences) and the environmental model (Rickelman & Houfek 1995).

1.6.2.1 Blumenthal and Kupher's (1986) suicide model

Blumenthal and Kupher's model proposes that suicidal behaviour results from the joint presence of different risk factors. According to that model, biological, psychosocial, chronic medical illness, personality traits, family history and genetics, and psychiatric disorder all are major risk factors for suicide behaviour.

1.6.2.2 Baumeister's theory of suicide (1990)

Baumeister's theory of suicide (Baumeister, 1990) proposed that an individual commits suicide when he develops a desire to escape from aversive self-awareness. According to the theory, the need to belong is a fundamental human motivation. When this need is unmet, an individual develops a desire for death by suicide. Suicide can be seen as an ultimate step in the effort to escape from self and world

1.6.2.3 Comprehensive model for suicide by Maris (1991, 2002)

A comprehensive model of suicidal behaviour was presented by Maris (1991, 2002) from a developmental perspective. This emphasize that there are multiply interacting factors within life histories of individuals who die by suicide which are denoted by *suicide careers*. This model argues that suicidal lethality varies over time and among different types of individuals as well as that a suicide's "career" is always relevant to the individual's self-destructive reaction to the different crises in his/her life.

1.6.2.4 Durkheim's theory of suicide (1897)

Durkheim's theory of suicide (1897) provides a sociological explanation of suicide, and proposed that dysregulation of social forces results in suicide. According to his theory suicide is a social fact and it happens due to the social causes. The theory further posits that the degree to which individuals are integrated into society and the degree to which society regulates individual behaviour are important in suicide behaviour. However, Durkheim's theory gives little attention to individual factors.

1.6.2.6 The interpersonal-psychological theory of suicidal behaviour (Joiner, 2005)

Joiner's interpersonal theory of suicide behaviour (2005) proposed that the need to belong is basic human motivation and when this need unmet it leads to the desire by suicide (Van Orden, 2007, 2008, 2010)

The theory proposes that individuals die by suicide if they have both the desire to die by suicide and the ability to do so (Van Orden, 2007, 2008, 2010, 2012)

. The theory asserts that when people hold two specific psychological states: *perceived burdensomeness* and *a sense of low belongingness* in their minds

simultaneously, they develop the desire for death. Regarding capability for suicide, self-preservation is so powerful an instinct that few individuals overcome it by force of will. According to the theory, individuals who can have developed a fearlessness of pain, injury, and death, they acquire through the process of repeatedly experiencing painful events. This gives them the ability to commit suicide (Van Orden, Witte, Cukrowicz, Braithwaite, & Joiner, 2010).

1.6.2.6.1 Perceived Burdensomeness

Perceived burdensomeness is viewed as the individual's thinking that his/her existence burdens his/her family, friends, and/or society. According to this view, the individual thinks that his or her death would be worth more than his or her life to family, friends and society. Family were found to be positively correlated with suicidal behaviour in adolescents (Woznica & Shapiro, 1990). A study found perceived burdensomeness toward family as significantly correlated with suicidal ideation among community participants and high-suicide-risk groups (DeCatanzaro, 1995).

Van Orden, Lynam, Hollar, and Joiner (2006) found evidence for perceived burdensomeness as a robust predictor of suicide attempts and suicide ideation even when controlling for hopelessness as a powerful suicide-related covariate.

1.6.2.6.2 Thwarted Belongingness

Social isolation is one of the most significant predictors of suicide ideation, attempted suicide and suicide completion (Van Orden et al., 2012). Facets of social connectedness such as loneliness and loss of spouse are predictive of suicide behaviour. It is suggested that the need to belong is a fundamental human motivation and when it thwarted, the desire for death develops (Baumeister & Leary 1995).

The above aspects of the interpersonal-psychological theory were tested by Conner, Britton, Sworts, and Joiner (2007) by evaluating 131 methadone maintenance patients. They found that the lifetime history of suicide attempts can be predicted by low feelings of belonging. This specific association was found even after rigorously accounting for demographic characteristics, correlates of suicidal behaviour, and other interpersonal variables.

In another study, Van Orden, Witt, Bender, and Joiner (2008) reported that the peak for suicidal ideation among college students falls during their summer semester. They further found that during summer, the campus becomes less active. Thus a low level of belonging during the summer is significant for the association between semester and suicidality (see also Van Orden et al., 2010).

1.6.3 Research on Suicidal Behaviour in Pakistan

Pakistan is a South Asian Islamic country and the Islamic religion condemns suicide as an unforgiveable sin (Farooqi, 2004; Khan, Ahmed, & Khan, 2009; Khan & Reza, 2000; Khokher & Khan, 2005) and in Pakistani law, both suicide and non-suicidal self-injury are considered criminal offences (Pakistan Penal Code 309) (Khan, Ahmed & Khan, 2009; Khan & Reza, 2000).

Information on suicidal behaviour among the Pakistani incarcerated population is limited, although studies have been conducted on hospital patients and members of general population to understand the prevalence of suicide among them. Newspapers, reports of non-governmental organization (NGO), voluntary and human rights organizations and police departments of different cities are the major sources of providing information related to suicide in Pakistan (Khan 2007). However, there is no official data on suicide in Pakistan in the annual national mortality statistics and

information is not collected by the World Health Organization (2000). The reason for the limited studies related to suicide and attempted suicide are mostly because of difficulty in data collection, due to a variety of complex social, religious, psychological and legal factors (Farooqi, 2004; Khan & Reza, 2000). There is a crucial need to study such feelings in the incarcerated population. The findings of such studies can contribute to understanding suicidal thoughts in the Pakistani incarcerated population. To address preventive strategies, it is important to understand suicidal behaviour among incarcerated offenders in Pakistan. However, it is quite difficult to determine the true extent of the problem with any degree of accuracy, due to unreported suicidal behaviour among Pakistani juvenile offenders.

Khokher and Khan (2005) conducted a study to investigate suicidal ideation in Pakistani college students (217, 96 male and 121 female): the age range was 18-24. They found high rates (31.4%) of suicide ideation among college students. Suicidal ideation was assessed on the basis of responses to four questions selected from the depression subscale of the General Health Questionnaire 28 (GHQ-28). No significant difference was found among male and female respondents. Respondents belonging to single-parent families reported higher rates (68.3%) than respondents from two-parent families (33.3%). However, the difference between these two groups was not statistically significant (p=.160). Respondents living at home reported higher rates (33.3%) than those living in a hostel (29%).

In addition, a study investigating suicidal thoughts among depressive patients found responsibility towards family as a strongest risk factor for the development of suicidal feelings (Farooqi, 2004). This study was conducted only in urban areas, while 70% of the Pakistani population live in rural areas so the results from this study have not been generalized.

Khan and Reza (2005) analysed the pattern of suicide in Pakistan, using information provided in the Dawn newspaper over the period of two years. Total suicides were 306 during that period, of which 208 (68%) were male and 98 (32%) were female. The age range was 13 to 70 years and 82% of the subjects were below the age of 30 years. The rates of suicide for single males were higher (67%) than for married males (29%) while the pattern was reversed in females: 40% were single and 59% were married. Domestic problems were found to be an important cause of suicide among both male and female.

Similarly, another study reported higher rates of suicide for married women (73%) than unmarried women (18%). Marital and family conflicts were found to be important factors for suicide among young married females. Domestic problems were found to be the most common factor for suicide among both males and females (Khan at el., 2009).

In a study, police data from the Sindh province were examined to provide a unique picture of trends of suicide over 15 years (1985–1999). During that period there were 2,568 reported suicides and 71% were male while 39% were female. The most common method used for suicide was poisoning by organophosphates followed by hanging (Khan and Hyder 2006)

To determine suicide rates, a study was carried out and provided suicide reports from six cities in Pakistan. The six cities included Karachi, Lahore, Peshawar, Faisalabad, Rawalpindi, and Larkana. Rates varied from 0.43/100,000 in Peshawar to 2.86/100,000 in Rawalpindi. Rates for men are consistently higher than for women; the highest rates for men were 7.06/100,000 between the ages 20–40 years in Larkana city. (Khan, Mahmud, Karim, Zaman & Prince, 2008a)

Deliberate self-harm (DSH) is one of the important predictors of suicide among Pakistani suicide victims (Khan, 2007; Khan, Islam, & Kundi, 1996). In Pakistan, it is

estimated that there are between 30,000 and 60,000 DSH events annually (Khokher & Khan, 2005; Shahid & Hyder 2008).

Shahid and Hyder (2008) searched four electronic databases (PubMed, CINAHL Plus, MDConsult, PakMediNet) and reviewed 23 studies, and reported that the risk factors for (DSH) for females are youth (less than 35 years of age), being married, the occupation of housewife and low socio-economic status; while the reported risk factors among male gender for suicide are youth (less than 35 years of age), being married and low socio-economic status. In Pakistan the three most common methods which are used to attempt suicide are hanging, ingestion of insecticides and firearms (Khan, 2007; Shahid & Hyder, 2008) while medications are commonly used for deliberate self-harm (Shahid & Hyder, 2008).

Syed and Khan (2008) reviewed medical records (January 1990-December 2006) of patients under the age of 18 who were admitted to Agha Khan University Hospital (AKUH) for deliberate self-harm (DSH). They found family conflicts, relationship issues and academic related problems to be the major causes for DSH among Pakistani adolescents. The adolescents who are at risk of deliberate self-harming behaviour may be actually wanting die rather than asking help (Syed and Khan 2008).

Unfortunately, no comprehensive study has been conducted to understand the true extent of suicidal behaviour among incarcerated offenders in Pakistan; therefore, further research is required.

1.7 Objective of the Present Study

Keeping in view the above literature and the paucity of research in Pakistan, there is essential need to conduct research in this area. Therefore, the major objective of the present research is to explore the role of criminal social identity among juvenile offenders in Pakistan. Furthermore, it is appears from the literature that criminal social identity is a risk factor for criminal behaviour, but there is further need to investigate that is there any role of criminal social identity as a protective factor for self-threatening behaviour such as suicide. Therefore, the present study will also attempt to investigate the association between criminal social identity and juvenile offenders' suicide behaviour.

Thus, the main focus of the current research is to look at criminal social identity among incarcerated juvenile offenders in Pakistan.

The particular interest is to explore and empirically test the following research aims:

1) Examine the dimensionality, composite reliability, and incremental validity of the Measure of Criminal Social Identity (MCSI) in the sample of Pakistani incarcerated offenders following translation of the Measure into Urdu (see Chapter 4).

2) To estimate the association between latent classes of delinquency and the three factors of Criminal Social Identity (cognitive centrality, in-group affect and in-group ties), while controlling for criminal friends, period of confinement (in months), addiction, age and location. (See Chapter 5).

3) To specify and test a structural model to examine the relationship between the three factors of criminal social identity (In-group affect, In-group ties, and Cognitive Centrality) and

suicide ideation while controlling for period of confinement, age, criminal friends, and offence type (violent and non-violent) (see Chapter 6).

CHAPTER 2

Analytical Procedures applied in the current thesis

2.1 Structural Equation Modeling (SEM)

In psychology, education, social sciences and behavioural sciences, the substantive use of structural equation modeling (SEM) has been growing and as method and software, it has proceeded rapidly since 1970 (Anderson & Gerbing, 1988; Breckler, 1990; Fan, Thompson, & Wang, 1999; MacCallum & Austin, 2000). For researchers, it is a popular statistical tool (Fan et al., 1999), because it takes a confirmatory approach to the analysis of a structural theory and offers great potential for furthering theory development (Anderson & Gerbing, 1988; Byrne, 2012; Fan et al., 1999).

Bentler (1986) provided a historical review of the development of SEM. Austin & Wolfle (1991) and Austin & Calderon (1996) provided annotated bibliographies of the technical SEM literature. Furthermore, the software development made SEM more powerful and accessible to substantive researchers, and these researchers found SEM a well-suited method to address the variety of questions arising in psychological reassurance (MacCallum & Austin, 2000). SEM is an extension of general linear modeling (GLM) procedure (Lei, & Wu, 2007) and a comprehensive approach to modeling relations among variables (Hoyle & Smith, 1994; Hoyle, 1995). SEM is comparable to common quantitative methods such as correlation, multiple regression, and analysis of variance (ANOVA) (Weston & Gore, 2006).

2.1.1 Basic Concepts and Elements of Structural Equation Modeling

2.1.1.1 Latent versus observed variables

In psychology and in other social and behavioural sciences researchers are interested to study theoretical constructs that cannot be observed directly. These abstract phenomena are termed *latent variables*. Because the latent variable cannot observed and measured directly, researchers must operationally define the latent variables of interest

in term of behaviour which it is believed to represents. Latent variables can be inferred through observed variables, and observed variables are those variables which can be measured directly. For example, self-responses to Criminal Social Identity scale or scores on an achievement test, termed as observed or manifest variables, in the context of SEM methodology, serve as indicators for underlying constructs that they are assumed to represent.

2.1.1.2 Exogenous versus endogenous latent variables

In SEM terminology, all observed variables are termed exogenous variables, and all latent variables are termed endogenous variables. To distinguish between exogenous variables and endogenous variables is helpful in working with SEM models. The exogenous variables are synonymous with the independent variables and the endogenous variables are synonymous with the dependent variables. Changes in any exogenous variables are not explained by the model unless they are considered to be influenced by other factors external to the model. Demographic variables such as gender, age, and socioeconomic status are examples of such external factors. Endogenous latent variables (dependent variables) are influenced by the exogenous variables (independent variables) in the model either directly or indirectly. Because the full structural equation model contains observed variables and unobserved variables, the model parameters must be estimated by mean of relations between these variables and the parameters of the model as specified by the researchers.

2.1.2 Description of the Methodology

The common structural equation model consist of two data analytic methods: factor analysis (FA) and path analysis (PA).

2.1.2.1 The factor analytic Model

The factor analytic model assesses the relationship between observed and latent variables. The researchers try to examine the covariation among a set of observed variables by using this approach, to data analysis in order to gather information on their underlying latent constructs. There are two types of factor analysis: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

2.1.2.1.1 Exploratory factor analysis (EFA)

In EFA, there is no prior specification of the number of the factors. It is known as data-driven method. EFA allows all indicators to be loaded on all factors and does not permit correlated residuals. By using EFA, solutions for different number of factors are often examined to interpret in most sensible solution (Byrne, 2012; Lei & Wu, 2007).

2.1.2.1.2 Confirmatory factor analysis (CFA)

CFA is different from EFA, because the number of factors is assumed to be known. This is theory-driven. In CFA the factor structure is hypothesized *a priori*, based on the theory and verified empirically rather than derived from the data. In CFA the parameter values themselves are freely estimated and values for many of the parameters have been restricted *a priori*, typically to zero (Anderson & Gerbing, 1988; Byrne, 2012; Lei & Wu, 2007).

Thus, the factor analytic model assesses the extent to which the observed variable is generated by the latent construct; therefore, the strength of the regression paths from the factor to the observed variables is of primary interest (Byrne, 2012).

2.1.2.2 The Path diagram

The association among observed variables in a path diagram is demonstrated by the path analysis (PA) technique that is normally presented in a multiple regression analysis (Cohen, 1983). PA is beneficial because it allows the direct, indirect, and total effect of one observed variable on another to be obtained. Therefore, the structural and measurement element of the analysis are estimated simultaneously within the SEM method (McCallum and Austin 2000).

2.1.3 Basic composition

The full SEM consists of two complementary models: the measurement model and the structural model. The measurement model describes the relationship between the observed variables and the constructs (latent variables). In contrast, the structural model describes interrelationships among constructs (Hoyle, & Smith, 1994; Weston & Gore, 2006). As the composite of full structural model consists of both the measurement model and the structural model it conveys two important aspects: first, causal processes under the study are presented by regression equations and second, pictorially modelled these structural relations to present a clearer conceptualization of the theory under study, (Byrne, 2012). Furthermore, the construct validity can be comprehensively assessed by the measurement model in conjunction with the structural model while convergent validity and discriminant validity are assessed by the structural model (Anderson & Gerbing, 1988).

2.1.4. General Purpose and Process of Statistical Modeling

SEM explains how the observed and latent variables are related to one another by expressing it diagrammatically or mathematically via a set of equations and thus

provides an efficient and convenient way of describing the latent structure underlying a set of observed variables. Based on knowledge of the theory, empirical research, or both, the researcher postulates a statistical model. Once he has specified the model, than its plausibility is tested based on sample data that comprises all the variables in the model. To determine the goodness-of-fit between the hypothesized model and the sample data is the primary task of the researcher in model testing procedure. The researcher imposes a structure of the hypothesized model on the sample data and then tests that how well the observed data fit that hypothesized model. Because it highly unlikely that perfect fit will be exist between these two there will be necessarily a differentiation between the hypothesized model and the observed data, and this differentiation is termed the residual.

2.1.4.1 The Model-fitting process

To summarize the model-fitting process, the following equation is presented

$$Data = Model + Residual$$

Data represents the score measurement related to the observed variables derived from the individuals comprising the sample.

Model represents the hypothesized structure linking the observed variables to the latent variables, and, with some models, linking particular latent variables to one another.

Residual represents the discrepancy between the hypothesized model and the observed data.

2.1.4.2 Estimation Method

'Maximum likelihood' has been the predominant estimation method since the inception of SEM methodology in the middle of the 1960s. Maximum likelihood estimations have the desirable asymptotic, or large-sample, properties of being unbiased, consistent and efficient under the assumption of a multivariate normal distribution of the observed variables. Through, maximum likelihood, the asymptotic stranded errors of the parameter estimate can be obtained, thus the significance testing of the individual parameters is possible. Significance testing of the overall model fit is possible because the fit function is asymptotically distributed as a chi-square, adjusted by a constant multiplier (Anderson & Gerbing, 1988).
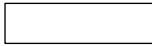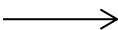
2.1.5 General Strategic Framework for Testing SEM

Furthermore, to summarize the general strategic framework for testing SEM, Joreskog (1993) distinguished among three scenarios, which he termed: *strictly confirmatory* (SC)*, alternative model* (AM), and *model generating* (MG)*. In SC the researcher postulates a single hypothesized model, collects the data and then tests the fit of the model to the sample data. The researcher either rejects or fails to reject the model on the basis of the results of that test; however, no further modifications to the model are made. In AM, the researcher tests several alternative models, all based on theory. Following analysis of a single set of the data, the researcher selects one model as most appropriate in representing the sample data. Finally, the MG scenario proceeds in exploratory method rather than confirmatory fashion and the researcher postulates and rejects a theoretically derived model on the basis of its poor fit to the sample of the data to modify and re-estimate the model. In this case, the primary focus of the researcher is to locate the source of misfit in the model and try to determine a model that better
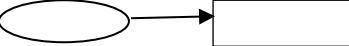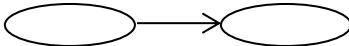
describes the sample data. Joreskog (1993) noted that the ultimate objective is to find a model that is both substantively meaningful and statistically well fitted, either based on theory or data-driven.

2.1.5.1 Symbol notation

Particular configurations of four geometric symbols are used to portray the structural equation model schematically.

- A square or rectangle represents observed variables

- A circle or ellipse represents latent variables

- A single headed arrow represents effect of one variable on another variable

- A doubled-headed arrow represents covariance or correlations between a pair of variables

  These configurations, each accompanied by a brief description, are as follows:

- Path coefficient for regression of an observed variable onto an unobserved latent variable (or factor)

- Path coefficient for regression of one factor onto another Factor.

- Measurement error associated with an observed variable

- Residual error in the prediction of an unobserved factor

2.1.5.2 Absolute fit indices

Absolute fit indices determine how well a hypothesized model fits the sample data, as well as demonstrating that proposed model has the better fit. The most fundamental

indication of how well the proposed theory fits the data is provided by absolute fit indices: the Chi-Square test, Comparative Fit Index (CFI; Bentler, 1990), the Tucker Lewis Index (TLI; Tucker & Lewis, 1973), the Root mean-square error of approximation (RMSEA: Steiger, 1990), the Standardized root mean-square residual (SRMR: Joreskog & Sorbom, 1981), and the Akaike Information Criterion (AIC; Akaike, 1974) are measure included in the fit indices.

2.1.5.2.1   Model chi-square (χ2)

Chi-square is the traditional measure for evaluating the overall model fit and assessing the magnitude of discrepancy between the sample and fitted covariance matrices. A good fitting model is indicated by a non-significant result at the 0.05 threshold. Thus 'badness of the fit' or either 'lack of fit' is reported for a model by using chi-square statistics. Chi-square is a popular measure; however there exist a number of severe limitations in its use. First, this test assumes multivariate normality and severe deviation from the normality may result in model rejection even when the model is properly specified. Second, it is sensitive to sample size which means that chi-square statistics nearly always rejects the model when large sample is used (Byrne, 2013).

2.1.5.2.2 Comparative Fit Index (CFI; Bentler, 1990)

The Comparative Fit Index (CFI: Bentler, 1990) performs well even when sample size is small (Tabachnick and Fidell, 2007). The values for this statistic range between 0 and 1 with values closer to 1 indicating good fit. A value of CFI above 0.95 is presently recognised as indicative of good fit (Hu and Bentler, 1999), whereas a value above 0.90 is indicative of adequate fit. These days, CFI is one of the most popularly reported fit

indices and is included in all SEM programs due to being one of the measures least affected by sample size (Fan et al, 1999).

2.1.5.2.3 Tucker Lewis Index (TLI; Tucker & Lewis, 1973)

TLI like CFI is used to assess good model fit and a value above .95 is considered to reflect a good model fit. However, the value above .90 for TLI indicates adequate fit (Byrne, 2013).

2.1.5.2.4 Root mean-square error of approximation (RMSEA: Steiger, 1990)

This approximation was first developed by Steiger (1990) and recently has been regarded as one of the most informative indices. The main reason for the popularity of RMSEA is that it is sensitive to the number of estimated parameters in the model, or, in other words, it favours parsimony by choosing the model with the lesser number of parameters. RMSEA tells us how well the model would fit the population covariance matrix, with unknown but optimally chosen parameters estimates. The lower the value of RMSEA, the better the model fit, thus a value below .05 indicates good model fit (Mac Callum, Browne, & Sugawera, 1996). It is generally reported that the upper limit indicating an acceptable model should be less than .08 (MacCallum, et al., 1996).

2.1.5.2.5 Standardized root mean-square residual (SRMR: Joreskog & Sorbom, 1981)

SRMR is the square root of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model. A value of .05 indicates good model fit (Byrne, 2013). However, values as high as 0.08 show acceptable fit.

2.1.5.2.6 Akaike Information Criterion (AIC; Akaike, 1974)

Akaike Information Criterion (AIC; Akaike, 1974) is used to compare alternative models and small values for AIC indicate the best model fit (Byrne, 2013).

2.1.6 Mplus

In the present thesis, MPLUS 6.0 (Muthen & Muthen, 1998, 2010) is used for data analysis. It analyses almost all single-level models and unlike LISREL, EQS, or Amos, MPLUS is syntax-driven and does not produce model diagrams. Mplus based programs can be interacted through a language generator wizard, which prompts users to enter data information and select the estimation and output options. Mplus then converts the information into its program-specific syntax. The model specification is applied by the user. The basic advantage of using this programme is that it offers a robust option for non-normal data and a specific full-information maximum likelihood estimation method for missing data. With the add-on modules, Mplus analyses multilevel models and models with latent categorical variables, such as latent class and latent profile analysis. The modelling of latent categorical variables in Mplus is so far unrivalled by other programs (Byrne, 2013; Lei Wu, 2007).

2.1.7 The Benefits of the Application of SEM

Structural equation modelling is a comprehensive and flexible approach because it incorporates the strengths of multiple regression analysis, factor analysis and multivariate ANOVA in single model that can be evaluated statistically. In SEM, multiple equations can be included and estimated simultaneously by using path analysis; it can also be used to test hypotheses that are difficult or impossible to address with ANOVA or multiple regression. SEM may include directional relations among dependent variables unlike multiple regressions, ANOVA, or multivariate ANOVA

(MANCOVA). It includes latent variables and by using latent variables it has the capability to separate the error variance from overall variance in scores and make it possible to evaluate change in the meaning of the variables (i.e., measurement invariance) rather than change in the mean level. Furthermore, SEM includes both measurement and structural models, and these applications correct the measures for unreliability and maintain maximum flexibility in modelling the relations among independent and dependent variables. Additionally, SEM is well suited to evaluate both: the evaluation of internal characteristic of a measure and its relation with other measures to assess the validity. As SEM is capable of hypothesis testing, multiple hypotheses about the structure of a measure can be evaluated directly and unequivocally as variation of the measurement model. To evaluate the construct validity, SEM is to be preferred because it requires formal statements of the hypotheses about within-and between construct relations. It also provides a context of simultaneously evaluating all aspects of the validity of a measure. SEM has advantages over other statistical means by using multimethod designs because other methods are influenced by three sources: a trait factor, a method factor, and error, while SEM has potential ability to obtain clear estimates of the contribution of method and trait variance to the total variance in a measure and it can statistically compare a variety of specific means by which those sources influence a measure (Byrne, 2013; Lei Wu, 2007).

2.2 Latent Class Analysis (LCA)

Theoretical concepts such as attitude, motivation, intelligence, ability and so on, are not directly observed, but they are detectable through various methods of collecting and interpreting observed data relating to them. The structure of the observed data and the mathematical relationship implicit among such observed data provide key understanding about what these latent theoretical concepts may actually look like. Latent Class Analysis provides an ideal frame work for delineating the latent structure of the variables when the observed data variables are categorical and measured at nominal level (Murphy, Houston & Shevlin, 2007; Reunanen & Suikkanen, 1999).

The levels of the categorical latent variables known as classes, for example cases like participants, subjects, patients, and object that are measured on nominal variables differ from one another only in their response pattern to those variables. This is called the assumption of conditional independence which shows that within each class, each variable is statistically independent of every other variable. If the same response patterns are shared by the cases, then it can be assumed that the present association is the result of something that is 'latent' to those responses, and as such, these groups of response patterns collectively represent latent classes. In case where the variables are unrelated, any observed association between cases relates specifically to the pattern of their respective responses, not to the actual variable being observed (Murphy et al., 2007; Reunanen & Suikkanen, 1999).

LCA was developed from the 'empirical social research' proposed by a psychologist, Paul F. Lazarsfeld, who formed his basic views in Vienna of the 1920s and 1930s. He developed his method of Latent Class Analysis, based on probabilities, directly applied to the data produced by using a nominal scale. According to his viewpoint, the aim of social research in any field was to study and understand human

action. The theoretical concepts (attitude, status, and motivation) were not directly observable and his aim was to connect the empirical data in controlled ways that show what it reveals. Methods of collecting and interpreting the observed data were involved in this work. The significance of LCA in 'Latent Structure Analysis' is twofold: first, it indicates the 'latent space' described by the theoretical concepts and second, it points to mathematical relations implicit in empirical data. The word 'latent' is intended to reveal the relationship between these two: the latent space and mathematical relations.

2.2.1 Principle Objectives of LCA

There are two principle objectives of employing latent class analysis. First LCA is a data reduction technique to alleviate the complexity of a given data set by identifying and explaining implicit mathematical association among the manifest variables in terms of how they can be classified parsimoniously within a small number of unobservable latent variables. Thus, reducing the complexity of the data to its respective 'latent form' makes it possible to understand the interrelations between the manifest variables. Second, LCA endeavours to assign each case to one of its latent classes within the data set or alternatively, estimates the probability of each case belonging to one of its latent classes, on the basis of the response pattern vector recorded for that case (Murphy et al., 2007; Reunanen & Suikkanen, 1999).

LCA assumes both latent and manifest variables to be discrete (ordinal or nominal). There are two more techniques under the LCA: latent trait analysis and latent profile analysis. Latent trait analysis enables the characterization of continuous latent variables from discrete observed variables whereas latent profile analysis enables the characterization of discrete latent variables from continuous observed variables (Murphy et al., 2007; Reunanen & Suikkanen, 1999).

2.2.2 The Principle of Local 'Independence'

The aim of LSA is to divide heterogeneous groups into homogenous subgroups/classes, whereby each case, individual, or object is accurately represented within the class of cases, individuals, or objects similar in profile to itself. An individual response to two binary nominal variables (1= Yes, 0= No) is called its response pattern/ vector. In effect there is probability of four possible response pattern/vectors: Yes to variable one and Yes to variable two (1, 1), Yes to variable one and No to variable two (1, 0), No to variable one and Yes to variable two (0, 1), and No to variable one and No to variable two (0, 0). The aim of LCA is to divide heterogeneous groups into homogenous subgroups. The homogeneity of the data can be identified by knowing: the number of response vectors in the sample, how many cases responded in similar fashion, and the mathematical probability of any one of these responses. The logic of LCA demonstrates that the heterogeneity of the total observed data is caused by the fact that it is the mixture of the two or more inherently homogenous subgroups, and by dividing data into statistically unrelated/heterogeneous subgroups this mixture can be unmixed. To demonstrate this, here is an example from the literature (Murphy et al., 2007; Reunanen & Suikkanen, 1999). Two tables (Fig. 2.1 and Fig. 2.2) illustrate the above idea.

Item2	+	−
75	15	**Item 1** +
15	3	−

Figure 2.1 Statistically unrelated/homogeneous distribution

It shows that the mathematical probability of responding yes to both items one and item two (0.25) is lower than the actual proportion of cases that responded (0.32). This in effect indicates that responses to item one seem to influence the responses to item two (or vice versa). Adhering to a LCA framework it can be assumed that that, which is causing this association is the very latent construct that which we are attempting here to identify.

Figure 2.1 illustrates statistically unrelated/homogenous distribution. In the following table the response patterns of 108 cases to two binary variables/items are coded 1 = *yes* and 0 = *no*. The table shows that 75 cases have responded 'yes' to both items. Computing the mathematical probability of responding 'yes' to both items (probability of responding yes to item one 90/108, multiplied by the probability of responding yes to item two 90/108) = 0.68, shows that the mathematical probability of responding 'yes' to both items is very similar to the proportion of cases which actually respond positively to both items (75/108 or 0.69). furthermore, computing the mathematical probability of responding 'no' to both items (probability of responding 'no' to item one 18/108, multiplied by the probability of responding 'no' to item two 18/108) = 0.03 shows that the mathematical probability of responding 'no' to both items

is similar to the proportion of cases which actually respond negatively to both items (3/108= 0.03). This shows that the mathematical probability of given responses within the sample are close or equal to the actual proportion of cases, which is indicative of a homogenous data set. The same rationale was applied to the distribution in Figure 2.2 as was applied to Figure 2.1.

Item2   +   _

35	19	**Item 1** +
19	35	_

Figure 2.2 Statistically related/heterogeneous distributions

An example of heterogeneous distribution is illustrated by Figure 2.2, whereby case responses to item one and item two seem equally divided, and as such suggests the presence of more than one homogenous class. The aim of LCA is to divide heterogeneous groups such as those presented in Figure 2.2 into homogenous subgroups/classes such as those presented in Figure 1.1. Accordingly, each case, individual, or object is accurately represented within a class of cases, individuals, or objects similar in profile to itself. The assessment of whether the data is homogeneous of not depends on knowing the number of response vectors, how many cases have responded in similar manner, and computing the mathematical probability of responding to any one of these response vectors. It is important to note that if the mathematical probability of a particular response pattern/vector is not the same as, or close to, its real share in the data, it means that the data is not homogenous and there is need of some

additional classes the observed the heterogeneity (Murphy et al., 2007; Reunanen & Suikkanen, 1999).

2.2.3 Assumptions for LCA

There are three basic assumptions for latent class analysis. First, the data should be drawn from a completely random sample where every case within the sample belongs to one and only one latent class. Second, the probability of giving a positive/negative response to a particular item should be the same for all objects in the same class. Third, depending on which class a particular case belongs to, its response to different items is conditionally independent (Murphy et al., 2007).

2.2.4 Maximum Likelihood Estimation

Maximum likelihood estimation estimates whether the conditional response probabilities are the model parameters of the latent class analysis and works iteratively. It begins with trial parameter estimates and then calculates a measure of how well the observed data is explained by that parameter's estimation. The parameters are changed until the discrepancy between the data implied by the model and the sample data cannot be decreased (Murphy et al., 2007).

2.2.5 Application of LCA in Current Study

In the present thesis (empirical study 2), six latent class models were tested (a two-class model through to a six-class latent class model), and fit for each of these models were assessed. Several fit indices are used for the selection of the optimal number of latent classes. The statistical fit indices are: likelihood ratio chi-square (LR χ^2), Akaike information criterion (AIC; Akaike, 1987), Bayesian information criterion (BIC; Schwartz, 1978), sample size adjusted BIC (SSABIC; Sclove, 1987), Lo-Mendell-

Rubin's adjusted likelihood ration test (LRT; Lo, Mendell, & Rubin, 2001), and entropy measures (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). A non-significant LR χ^2 indicated acceptable model fit. The information statistics AIC, BIC, and SSABIC are goodness of fit measures that are used to compare competing models. Lower observed values for AIC, BIC, and SSABIC indicates better fit. The LRT (2001) statistic was used to compare models with differing numbers of latent classes; a non-significant value ($p > 0.05$) suggests that a model with one fewer class should be accepted. Entropy (Ramaswamy et al., 1993) is a standardised measure of how accurately participants are classified. Entropy values range from 0 to 1 with higher values indicating better classification (Murphy et al., 2007; Reunanen & Suikkanen, 1999).

CHAPTER 3

Methodology

3.1 Issues Related to Site Access

Khyber Pakhtunkhwa, which was formerly known as North-West Frontier Province, is one of five provinces of Pakistan, located in the north-west. It is the land of the Pukhtoon or Pathans as the English called them. Most of the people of KPK live in a strict tribal system. Pathan people are the main ethnic group in the province. The majority of the people of KPK speak Pushto as their first language and Urdu, the national language, is widely spoken as a second language. Peshawar is its capital, and the largest city of KPK.

For the present study the data was collected from juvenile offenders located in the different prisons of KPK. It is important to mention here that in Pakistan, there was no law for juvenile offenders previous to the promulgation of the Juvenile Justice System Ordinance (JJSO) on July1, 2000 by Chief executive, Journal Pervez Musharraf. The aim of that law was to promote the well-being of children below the age of 18 who come into conflict with the law, and diverting them from the criminal justice system. Under that law, the criminal code prescribed special courts for offenders under the age of fifteen unless they are charged with a particularly serious offence and a high court orders that they be tried before a regular sessions court. According to that law, juvenile wards would be built in regular jails for offenders up to the age of twenty-one. In addition, for boys between 11 and 20 years of age, a few reform institutions would attempt to rehabilitate young offenders (The Library of Congress Country Studies, 2015). However, the JJSO law in KPK could not be implemented in letter and spirit for various reasons, including the absence of necessary budgetary allocation, probation officers and juvenile courts ("Govt asked to implement," 2014). In violation of the JJSO, children continue to be arrested for petty offences and are detained illegally for days and even months. There are no separate cells for these juvenile offenders, thus

their exposure to hardened criminals including jihadis (militants) makes them more likely to embrace crime, after they are released than before they were imprisoned.

3.1.1 Difficulty to Access the Different Prisons

Ethical approval for the project was given by the Ethics Committee, University of York, as the author spent the first year of her PhD studies at York University. After one year, she transferred her PhD to the University of Huddersfield. Huddersfield's Ethics Committee endorsed the ethical approval (see Appendix 1.3). There are no ethics committee currently established in Pakistan. During September 2012, permission for data collection was granted by Mr. Fasihuddin, a senior officer of the Police Service of Pakistan (PSP) (see Appendix 1.2). When the author reached Pakistan on 28th August 2013, access to different prisons was very difficult due to militant prisoners. She contacted Mr. Fasihuddin but he explained might be better that now she needed to get a letter from the Minister for Prisons, otherwise it would not be possible to access the jails, mainly because all prisons were on high alert due to Taliban attacks.

Since the 9/11 attacks in the United States in 2001, the KPK province has been severely hit by troubles caused by the Taliban. Thousands of people have been killed by the Taliban attacking in different ways, specifically by suicide bomber attacks. Because of high profile militant inmates, it was very difficult to access offenders in the prisons during 2013. The Jails authority had previously received a threatening letter from Pakistani Taliban insurgents regarding attacks on different KPK prisons. Consequently, all the jails in KPK were on high alert.

Dera Ismail Khan Central prison is one of Khyber Pakhtunkhwa's oldest and largest jails. D. I. Khan prison was attacked from all sides by heavily armed militants around midnight of July 30, 2013. Nearly 175 inmates, including 35 high-profile militants,

were freed by Pakistani Taliban insurgents and at least nine people, including four policemen were killed during that attack. 45 high profile militants were being held at the jail. By attacking the jail, the Taliban had freed 35 hard core militants. It was also suggested by intelligence reports that 247 prisoners had gone missing after the attack. It was not the first time that militants have attempted to free their captive associates in Pakistan. Four thousand prisoners included militants were also freed on April 15, 2012 from Bunnu Jail after an attack by insurgents armed with guns, grenades and rockets (Sherazi, 2013).

For the present study, the data was collected during September and October 2013. At that time, due to the attacks on the different jails, it was quite difficult to access specific prisoners because they were imprisoned in the different jails of KPK.

Then permission was given by the Minister to Prisons, Khyber Paktunkhwa, Mr Malik Qasim Khan. The author showed the letter of permission which had been provided to Mr, Fasihuddin (See appendix 1.1) about that project and obtained permission to access different prisons (see Appendix 1.4). Approval letter from University of Huddersfield's Ethics Committee (see Appendix 1.3) were also shown to explained him that author has transferred her PhD from University of York to University of Huddersfield.

The author and the assistant researchers visited the different Jails in KPK and all the staff members of the Jail were cooperative and helpful in data collection. However, the author faced problems in data collection from Central Jail Peshawar. The author along with two assistant researchers visited the Central Jail Peshawar, continually for four days but the superintendent of Central Jail Peshawar was not permitting the collection of data from prisoners. The security was already on high alert at the Central Jail Peshawar which housed the alleged US spy Dr Shakeel Afridi and a number of other

high-profile Taliban prisoners. The author gave him full briefing about the project and finally he allowed the author to data.

The data was collected by the researchers, along with her assistant researchers, within two months. The table of the timeline has been included for the entire PhD project.

3.2 Research Project Time Line

Time Line for Year 1 (2012)

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Literature Review	×	×	×	×	×	×						
Preparation of project for Ethical approval							×	×				
Project submission to Ethics Committee									×			
Ethical approval										×		
Systematic review of prison suicide literature											×	×

Time Line for Year 2 (2013)

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Research materials preparation including translation	×	×	×	×								
The Quantitative Research Methods Training Unit (QRM-TU) Courses					×	×						
Preparation for data collection							×					
Data collection from Mardan, Abottabad, Nowshera Jails								×				
Data collection from Haripure jail, Bannu, Timergara, Karak, Charsada, Sawabi Jails									×			
Data collection form Kohat, Daggar, Tank, Peshawar,										×		

Dir, Mansehra, and D. I. Khan Jails												
Data Entry											×	×

Time Line for Year 3 (2014)

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Data Entry	×	×	×	×								
The Quantitative Research Methods Training Unit (QRM-TU) Courses					×							
Data analysis						×	×	×				
Publication 1						×						
Publication 2							×					
Publication 3							×					
Chapter 4 based on publication 1								×				
Chapter 5 based on publication 2									×			
Chapter 6 based on publication 3										×		
Revision of chapters 2, 3, and 4											×	
Theoretical Intro to thesis (Chapter 1)												×

Time Line for Year 4 (2015)

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Chapter 1	×											
Conclusion		×										
Structure			×									
Submission			×									

3.1.2. Cultural Aspects Presenting Difficulty in Data Collection from Prisons.

In Pakistan, there is considerable disparity between the status of men and women. In recent years, some indicators relating to women's status have improved marginally; however, several have remained static. The reasons for these disparities are diverse in almost all areas. They include inadequate policies, plan and programmes and due to the lack of the political will and the absence of meaningful or effective affirmative action, these disparities have continued without any significant change. Working women are striving to earn bread and butter for themselves and for their families. Pakistani society is a male dominated society and unfortunate women feel it difficult to survive among inconsiderate male members of society. Thus in the male-dominated society, specifically that of Khyber Pakhtunkhwa (KPK), when women leave their homes for airing, people outside stare at them and an awkward social scene takes place. Everyone gazes at them, passing teasing remarks and even following them to their destinations, thus making their lives harder (Khan, 2011).

KPK has a conservative society having strict and in-conducive cultural values. In KPK, the birth of a female child generally passes unnoticed while the birth of a male child is celebrated as an occasion of rejoicing and festivity. The reason behind that fact is twofold: firstly the very existence of an individual under a tribal system largely depends upon strength of arm and man power, and secondly the tribal society, where inheritance lagally rests with the male line, is patriarchal in structure. Therefore, far more importance is attached to sons than daughters. However, this does not mean that daughters are deprived of paternal affection.

As a conservative society, KPK has strict and inconducive cultural values which have limited the opportunities of education and development for women. Therefore, the overall literacy rate of women is 19%. Research suggests that the community of KPK

has a negative attitude towards women's education. Specifically most people of the rural areas of KPK are not in favour of educating their females. This attitude of the Pashtun community's has affected women's education as well as independence negatively. The community wants to preserve its values, and according to them educating women is not a social value. Mostly people are unwilling to change stereotypes prevailing in society, which has retarded women's education and independence. The people of the community did not want to change the values which their elders have practised. The religion Islam was made a gratuitous source of exploiting women's rights especially for education. The women's roles in the society restricted: for example, they do not have economic/job opportunities so the community thought that females do not need to be educated. The people of the community have feared that women's honour will not be secure if they go out of their homes for acquiring education. The community perceive women as deficient compared to males in terms of psychosocial characteristics. They perceived that women could never play the roles which the males were playing in the society (Khattak, 2008).

In such a society where women are deprived from their basic rights such as education, and the majority of rigid Pukhtoon people's attitude towards working women is not respectful, it was quite daring for a woman to go to different prisons and collect data from prisoners. To avert the gazing eyes of the people (e.g. prisoners or visitors who came to meet their imprisoned relatives), the author covered herself with big white shawl and even covered her face fully.

In spite of all these problems, the author was enthusiastic and dedicated to collect data from the different prisons.

3.1.3. Other Issues Involved in Data Collection

There are many jails in KPK. The total number of prisoners cannot be disclosed due the anonymous nature of the data collection. The different jails are situated in different cities of KPK. The distance between these prisons in miles was significant. Therefore, travelling from one prison to another was long distance. The author sometimes came back from one prison at 12: pm at night and then next day, early in the morning at 6:am, she had to travel again to visit another prison. However, due to the help of her assistant researchers, it was possible to collect the data within two months.

3.2. Cleaning the Data

In statistical literature, much has been written regarding missing values because missing data is ubiquitous in social science research. Missing data has been described as the 'dirty little secret' of statistics (Alison, 2001). Nearly everyone has missing data and they try to deal with it in some way. There are different traditional approaches to deal with missing data however, it is suggested that when traditional approaches work with missing values, it can lead to biased estimates that consequently reduce or exaggerate statistical power and each of these distortions can lead to an invalid conclusion.

In the present chapter, patterns of missing data are reviewed, and some of the common techniques for dealing with them are described.

3.2.1. Types of Missing Values

Before explaining the specific methods, it is essential to discuss the important assumptions that are often invoked in justifying one method or another. Optimal strategy for working with missing values is influenced by two important assumptions: *missing at random* (MAR) and *missing completely at random* (MCAR). No method for handling missing data can be expected to perform well, without justifying these assumptions (Allison, 2001, 2003)

3.2.1.1 Missing completely at random (MCAR)

Missing data at random is the strongest assumption that is made before handling missing data. MCAR means that the propensity for a data point to be missing is completely random and there is no relationship whether a data point is missing and any values in the data set, missing or observed. For example, if there are only two variables on a data set, X and Y, but 20% data is missing on Y for the cases, we say that data on

Y are missing completely at random (MCAR), if the probability that data are missing on Y depends neither on Y nor on X. Many missing data techniques are valid only by holding the MCAR assumption.

3.2.1.2. Missing at random (MAR)

Data missing at random is a weaker (but still strong) assumption. The probability that the data are missing on Y may depend on the value of X, but does not depend on the value of Y. If X is held constant, then data are missing at random (MAR). It is important to be clear that MCAR is a special case of MAR: that is if the data are missing completely at random, they are also missing at random.

3.2.2. Conventional Methods to Handle Missing Data

Handling missing data is a problem in virtually all methods of statistical analysis and structural equation modeling is no exception. Using inappropriate methods to deal with missing data can lead to bias in: parameter estimates, standard errors and test statistics. In the present study, both pairwise and listwise deletion methods were used to handle the missing data.

3.2.2.1 Listwise deletion

The most common solution to missing values is listwise or casewise deletion and it often addresses missing values in a systematic way. There are two important statistical properties of listwise deletion. First if the data are missing completely at random: listwise deletion will not introduce any bias into the parameter estimates, and the subsample with completed data is affectively a simple random sample form the original population. It is suggested that simple random sampling does not introduce any bias. Second, under listwise deletion, the standard error estimation should be an

approximately unbiased estimation of the true standard errors. This matter is of great importance because standard error estimation under most other conventional methods is flawed for one reason or another. The estimates of the regression coefficient will not be biased by listwise deletion, if the probability of missing data on any variable in a regression model does not depends on the dependent variable (Allison, 2003).

However, this method is conservative and typically results in the loss of 20% -25% of the data. If the assumption of the Missing Completely at Random (MCSR) is met, then listwise deletion may not cause a serious problem with a large sample. Listwise deletion may yield biased estimation, if the data do not meet the assumption of MCAR. It is suggested that listwise deletion would give unbiased estimates, if the missing values are MCSR but the only cost is a reduction in statistical power. If the sample size is sufficiently large, then power is not an issue. Furthermore, if the sample size is big and the pattern of missing values is completely random, then a listwise solution is a reasonable strategy (Acock, 2005).

3.2.2.2. Pairwise Deletion

An alternative technique to listwise deletion is pairwise deletion for linear model. This and is also known as available case analysis. For linear model such as linear regression, factor analysis and structural equation model, the parameters of interest can be expressed as functions of the population mean variances and covariances and under pairwise deletion, each of these moments is estimated using all available data for each variable or each pair of variables. Then the resulting moment estimates are used as input for standard linear modeling software.

Pairwise deletion produces consistent and approximately unbiased results if the data are MCAR. Like listwise deletion, pairwise deletion may yield biased estimates if the

data are MAR but not MCAR. Intuitively, pairwise deletion is more efficient than listwise deletion because more data are utilized in producing the estimates. However, pairwise deletion is unpopular for some reason because it can produce a covariance matrix that is impossible for any single sample. The estimated correlation matrix is not a definite positive and cannot be inverted to calculate the parameters, a necessary step for estimating the regression equation and structural equation models. Another problem is that, under some conditions (e.g. regression analysis with high correlations among the explanatory variables), estimates produced by pairwise deletion may actually have greater sampling variance then those produced by listwise deletion. Most important, the estimates of standard error obtained under pairwise deletion are not consistent estimates of the true standard errors and thus validity of confidence interval and hypothesis tests calling are at question (Acock, 2005; Allison, 2004, 2005).

Missing data often create major problems for the estimation of structural equation models (SEMs) as with other methods, however, Mplus has an option available for handling missing values. Special approaches can be applied when data are MCAR, MAR, or NI. Robust standard errors and bootstrap standard errors are also possible. Mplus is used for illustration because of the extraordinary generality of its applications to situations for which missing values may be problematic. It provides maximum likelihood estimation for continuous, censored, binary, ordered categorical, categorical with three or more categories, counts, or combinations of these either with or without latent variables.

3.2.3. Maximum Likelihood (ML)

It is suggested that maximum likelihood (ML) has much better statistical properties than other conventional methods. The estimates produced by ML are consistent

(meaning approximately unbiased estimates in large samples), asymptotically efficient (meaning having minimal standard errors), and asymptotically normal (meaning normal approximation can be used to calculate confidence intervals and *p*-value). Moreover, ML produces accurate estimates of standard error that fully account for the fact that some of the data are missing (Allison, 2001, 2012).

In short, for a good missing data method, maximum likelihood satisfies all three criteria explained earlier. Even better, it can accomplish these goals under weaker assumptions than those required for many conventional methods. .

Above, different strategies have been described to handle missing data; however, conventional methods that are used in the present thesis to handle missing data are: listwise deletion, pairwise deletion and maximum likelihood.

3.2.5 The Rationale for Strategies Used in the Present Thesis for Handling Missing Data

The simplest approach to missing data is more commonly known among social scientists as listwise deletion. Those cases which have missing data on any of the variables are deleted from the sample to conduct the analysis. Through the ML method, a working sample with no missing data is produced, and then statistical methods may be applied.

In the present study, listwise deletion has been used to handle missing data. The rationale for using the listwise deletion method is that, it is a reasonable strategy if the sample size is big and the pattern of missing values is completely random. The most obvious drawback of listwise deletion is that it discards potentially usable data. In hypothesis testing, loss of data leads to larger standard errors, wider confidence intervals, and loss of power; however, it is suggested that the estimated standard errors

produced by listwise deletion are usually accurate estimates of the true standard errors. Therefore, it is proposed that listwise deletion is an 'honest' method to deal with missing data compared to other conventional methods.

The rationale for using ML is that it is a great way to handle missing data. ML has optimal statistical properties and always produces the same results for the same set of data. ML is much simpler and cleaner technology, while the other methods take more time to explain all the different ways to perform them. For many software packages, it can be done only by specifying the model of interest, and telling the software to handle the missing data by maximum likelihood. The important advantage of ML over other methods is that there is no potential conflict between an imputation model and an analysis model because everything is done under a single model (Allison 2012).

CHAPTER 4

Empirical study 1

Validation of the Urdu version of the Measure of Criminal

Social Identity within a sample of Pakistani incarcerated

offenders

Abstract

The objective of the current chapter was to examine the dimensionality, composite reliability, and incremental validity of the Measure of Criminal Social Identity (MCSI) in the sample of Pakistani incarcerated delinquents (N=415) following translation of the measure into Urdu. Confirmatory factor analysis and bifactor modelling techniques were applied in order to assess the four alternative factor models, with uncorrelated measurement error terms. Results indicated that the three-factor model of criminal social identity provided a better fit to the data than the alternative models tested. Composite reliability was used to establish the reliability of the scale. The differential correlation between the three factors of MCSI and external variables provided further support that the Urdu version of the MSCI is best conceptualized by measuring three distinct dimensions: cognitive centrality, in-group affect and in-group ties.

4.1 Introduction

The theoretical concept of social identity is well-established and has remained a great source of interest by researchers in the field of social and criminal psychology. However, the concept of criminal social identity theory is relatively new in the field of criminology. Boduszek and Hyland (2012) suggested that persistent criminal social identity increases the possibility of the development of criminal thinking and subsequently increases the likelihood of engaging in criminal behaviour. At a theoretical level Boduszek and Hyland (2011) proposed that individuals become criminals due to the salience of criminal social identity, which originates from negative social comparison processes carried out by the individuals who have failed in their pro-social roles and displayed non-conforming behaviour, provoked and compounded by contextual factors such as a dysfunctional family environment and/or the presence of criminal friends.

Based on previous research, it is suggested that the theoretical and practical implications of the concept of criminal social identity are significant in the field of criminology (Boduszek et al., 2012a). It is stated that individuals who are oriented towards criminal behaviour and internalize a criminal concept of that behaviour are at high risk of involvement in criminal acts (Boduszek et al., 2013a). Walters (2006) defined criminal thinking as thought content and processes that are conducive to initiating and maintaining habitual-law breaking. However, only a small amount of research has been conducted to understand the role of criminal social identity in the emergence of criminal behaviour. The basic reason for this lack of research is the absence of a valid scale to assess criminal social identity. Recently, a valid scale to assess criminal social identity has been developed, based on Cameron's (2004) Social Identity scale (Boduszek et al., 2012a).

In previous studies, many issues related to the conceptualization and measurement of the construct of social identity has remained important source of discussion (Brown, Condor, Mathews, Wade, & Williams, 1986; Cameron, 2004; Deaux, 1996; Ellemers et al., 1999; Jackson, 2002). However, a multidimensional concept of social identity has been suggested extensively by previous researchers.

4.1.1 Social identity as Multidimensional Phenomenon

Tajfel's (1987) commonly cited theory proposed that social identity is part of an individual's self-concept that originates from his knowledge of his membership of a particular group, along with the values, significance and emotions related to that membership. As this definition suggestes, the nature of social identity is multidimensional. Tajfel highlighted three components: a *cognitive component* (the individual's knowledge of the group membership), an *evaluative component* (related to an affective aspect of identity) and an *emotional component* (emotional importance of group membership).

It is proposed that the core concept of social identity is that it is the extent to which individuals identify themselves with the particular social group that determines their inclination to behave in terms of their membership of that particular group. Thus, three components of social identity were proposed: group self-esteem (in-group affect), obligation to the group (in-group ties) and self-categorization (cognitive centrality). However, it is suggested that people who belong to the same social group may show differential responses towards that group, depending on the extent to which they are committed to that particular group (Ellemers, et al., 1999).

There is a wealth of research demonstrating the multidimensionality of social identity (Boduszek et al., 2012a; Boduszek & Hyland, 2011b; Brown et al., 1986;

Cameron, 2004; Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002; Karasawa, 1991; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999). Statistical findings have been obtained at several different levels: economic, political, organizational and social- psychological different researches in different context (e.g. educational, organizational and clinical) reported that a three factor-model of social identity is best solution to the data. Thus, the multidimensional nature of social identity has been both theoretically and empirically demonstrated (Boduszek et al., 2012a; Cameron, 2004; Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002;)

Brown, Condor, Mathews, Wade, and William (1986) developed a measure of social identity which has been widely used by researchers to assess social identity. The three aspects of social identity underpinned by the scale are: *awareness*, *evaluation*, and *affect*. *Awareness* is related to the cognitive knowledge of the individual about his membership of the group, the *evaluative* component reflects self-esteem, while *affect* refers to the emotional valence with the group.

Furthermore, Hinkle and colleague (1986) gathered empirical support for a multidimensional conceptualization of social identity and emphasized three factors: an *affective* component reflecting affective or emotional aspect of group membership, a *cognitive* component reflecting the importance of the group and feeling strong ties with the group; and group dynamics interpreted and reflecting the opposition between individual need and group dynamics.

Additionally, Karasawa (1991) differentiated two components of identity by investigating the relationship among different aspect of group identification: *identification with group membership* and *identification with other group members*. The first component was further divided into two subcomponents: *cognitive* and *affective*. He found a difference between identification with group membership and identification

with the group members, but the difference between the *cognitive* and *affective* components could not identified as separate facets of social identity.

Deaux (1996) conducted a literature review and revealed that underlying thinking process, emotive relationship with other in-group members and independence among the members of the particular social group are significant variables that contribute to the process of social identification.

Ellemers and Colleagues (1999) proposed three related but distinct factors of social identity consisting of: *self- categorization*, *affective commitment*, and *group self-esteem*. *Self-categorization* refers to the cognitive awareness of individuals about their group membership; *affective commitment* is related to the emotional attachment of individuals with their groups; while *group self-esteem* reflects the positive or negative value connotations attached to group membership.

Similarly, considering the multidimensional nature of social identity, Jackson (2002) proposed three aspects of social identity. These three aspects are: *self-categorization*, *evaluation of a group*, and *perception of solidarity*. The aspect of self-categorization is associated with the cognitive factor of identity, while the evaluation of the group reflects the affective aspects of identity; the perception of solidarity refers to in-group ties.

More recently, a three-factor structure of social identification is reported by Cameron (2004). *Cognitive centrality* is the first factor, related to cognitive significance of belonging to a special group. This factor is similar to the component of self-categorization proposed by other researchers (Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002). The second factor is the In-*group affect*, which reflects the emotional condition of belonging to a group, resembling to the emotional component of identity suggested in the investigations of Ellmers at al. (1999), and Jackson (2002).

The third factor *In-group ties*, is associated to psychological perceptions of emotional bonds between group members, which correspond to the positivity of feeling also reflected in other studies (Boduszek et al., 2012a; Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002; Karasawa, 1991).

The above studies support the multifactorial structure of social identity which shows that there is a degree of consensus among these researchers about the three dimensions of the constructs (Cameron, 2004; Ellemers et al., 1999; Jackson, 2002). However, a theoretical description of the above three factors is imperative to understand the multidimensional nature of criminal social identity.

4.1.2 Three basic factors of Criminal Social Identity

The theory of Criminal Social Identity (CSI) which was developed by Boduszek and Hyland (2011) on the basis of Cameron's (2004) conceptual and empirical work reflects three related aspects of a criminal's identity: cognitive centrality, in-group affect and in-group ties.

4.1.2.1 Cognitive Centrality

Cognitive centrality reflects the cognitive importance of belonging to a particular group (Boduszek et al., 2011a). The concept of cognitive centrality is related to the conception of self-categorization which was suggested in the Ellemers et al (1999) and Jackson (2002) studies.

Thus, it is suggested that individuals in the company of a criminal group can be expected to think and behave in a manner according to that group. Criminal behaviour can be manifested if criminal identity is salient (Boduszek, Adamson, Shevlin, & Hyland, 2012b). In the presence of criminal in-group members, individuals are expected to act in a more delinquent manner, although, physical presence is not essential for

salience to take place; but psychological identification with the criminal in-group matters. Furthermore, individuals in the presence of family members (if they are not criminals) exhibited less anti-social attitude than they are in the company of criminals (Boduszek et al., 2013c). It is considered that contextual factors, like the salience of specific social categorization, play a significant role in the process of carrying the relevant identity to cognitive prominence. This process is referred to as 'shifting self-categorization' or 'transient change in the self-concept', and consequently leads to psychosocial perception and action. Another justification is that some people are more constantly prepared to perceive and behave in terms of the specific category than others. Thus, social identity for these people can be significantly central. However, centrality can be characterized in terms of its frequency with which specific group and subjective significance of that particular group for self-definition come to the mind.

4.1.2.2 In-group Affect

The second factor of criminal social identity, *in-group affect*, explains emotional belonging to a criminal group. This factor is associated with the emotional feature of criminal social identity and has been described by previous scholars (Ellemers et al., 1999; Hinkle et al., 1989; Jackson, 2002) to explain social identity.

4.1.2.3 In-group Ties

The third dimension of criminal social identity, *in-group ties*, is related to psychological ties that attach the self to the group. A number of measures of social identity underline the dimension of emotional closeness in terms of a sense of association with the group together with the perception that an individual fits into a group (Hinkle et al., 1989), has a strong bond (Brown et al., 1986) and shares the sense of belonging to the group or other group members (Cameron, 2004).

An in-group tie in Cameron's (2004) measure of social identity is operationalized as the extent to which group members feel a sense of association with the group and are emotionally related to that particular group. This concept has also been illustrated by previous researchers (Ellemers et al., 1999; Hinkle et al., 1989; Karasawa, 1991; Schwartz et al., 1999).

4.1.3   Empirical support for multidimensionality of CSI

In order to examine the multidimensionality of criminal social identity, Boduszek, Adamson, Shevlin, and Hyland (2012) provide empirical support for the reliability and validity of a three-factorial solution of criminal social identification. Three alternative models of criminal social identity were tested within a sample of recidivist Polish prisoners. The total sample of the study consisted of 312 including violent ($n = 133$) and non-violent ($n = 179$) offenders. The 8-item version of the Measurement of Criminal Social Identity (MSCI) was used to measure their social identity as criminals. Confirmatory factor analysis (Schwartz et al., 1999) was used to determine the factor structure and factor loading of measured variables, to assess the fit between the data and pre-established theoretical model. One-factor, two-factor and three-factor models were analysed respectively to determine the best fit. The results suggested strong empirical support for the idea that criminal social identity can be successfully conceptualized and measured by three dimensions: *Cognitive Centrality*, *In-group Affect* and *In-group Ties*. The values of CFI = .99, TLI = .99, and RMSEA = .03 for the three-factor model further exhibited statistically significant improvement over one and two-factor models of criminal social identity.

However, results suggest a strong correlation between in-group ties and in-group affects ($r = .41$). The strong correlation between these two latent factors suggested that

they are theoretically but not empirically distinct concepts. In-group ties and in-group affect showed weaker association with cognitive centrality respectively. The above study supports the view that the three- factor model of criminal social identity is the only best fit model, and additionally provided strong empirical support for the construct validity of MCSI. However, a limitation of this study was the failure to include a bifactorial conceptualization of the measure of criminal social identity as a comparison model. It is suggested that the bifactor model should always be used as the baseline comparison model rather than the one-factor model because it is capable of retaining one-dimensional conceptualization and acknowledges the unintended and meaningless covariance that can occur between particular items in a scale due to wording effects.

The three-factor solution of the MCSI is further supported by subsequent research conducted by Boduszek, Adamson, Shevlin, Hyland, and Brouke (2013a). They examined the mediating effect of criminal social identity factors on the relationship between association with criminal peers and criminal thinking style. They did this to test the prediction that social identity should be formed first, prior to acquisition of group belief and attitude. Results of SEM analysis indicated an indirect effect on criminal thinking between association with antisocial friends through in-group affect (β = .19 $p < .001$) and in-group ties ($\beta = .26$ $p < .001$) but not on centrality.

It is suggested that the three distinct components of criminal social identity may act as differential risk factors for various types of criminal act. Boduszek, Hyland, Bourke, Shevlin, and Adamson (2013) supported this suggestion by finding increased level of cognitive centrality positively predicted having committed a violent criminal offence, while increased levels of in-group affect were related with having committed a non-violent criminal offence.

4.1.4 Current study

Criminal social identity has been linked to an increased likelihood of engaging in criminal behaviour (Boduszek & Hyland, 2011a), and empirical support for the three-factor model of CSI has been found in the studies by Boduszek et al., (2012a). Boduszek and Hyland's (2011b) three-factor Criminal Social Identity scale is a relatively new and unique contribution in the field of criminal psychology. However, further investigation into the underlying factor structure of criminal social identity is warranted in a more diverse sample (i.e., participants from other cultural and linguistic backgrounds, and more diverse and extensive prison sample). Therefore the aim of the current study is to replicate and extend the studies by Boduszek et al., (2011b) to understand the underlying factor structure of MCSI among a large sample of incarcerated Pakistani male juvenile delinquents. For the above purpose, both traditional CFA and bifactor modelling techniques were applied to analyse the data. Four alternative models of MCSI, with uncorrelated measurement error terms were tested. Statistical findings obtained from a different research project were best explained by the three- factor solution of criminal social identity (Boduszek et al., 2012a; Boduszek & Hyland, 2010). Empirical support suggested that adequate statistical correlation existed between the three latent factors: cognitive centrality, in-group affect and in-group ties of criminal social identity. Therefore, it is suggested that statistically significant correlation between centrality, in-group affect and in-group ties exists.

In the present study it was hypothesized that the three-factor solution would be the best fit to the data in comparison with alternative models.

4.2 METHOD

4.2.1 Participants and procedure

The current sample included four hundred fifteen ($N = 415$) male juvenile offenders incarcerated in different prisons of Khyber Pakhtunkhwa Province (KPK) Pakistan. The respondents ranged in age from 11 to 18 years ($M = 15.53$, $SD = 1.93$). Most offenders were from rural areas (69.6%), brought up in single-parent homes (53.3%), and imprisoned for non-violent crime (74.7%), and the length of their sentences ranged from 1 to 36 months ($M = 6.29$, $SD = 5.38$).

In the current project, demographic information was collected including age (continuous), location (urban or rural), period of confinement (in months), and offender types (violent or non-violent).

Ethical approval for the present project was granted by the University of Huddersfield after receiving permission from Minister of Jails and Prisons, KPK, Pakistan. The sample was recruited over a period of two months (September - October 2013) in the different prisons of KPK Pakistan wherever juvenile offenders were located.

Measures were administered by the lead researcher, an assistant researcher or prison superintendent, to groups of up to 40 offenders. The lead researcher instructed the assistant researcher and prison superintendent about the procedure involved in conducting the present study. A brief description of the study was provided to each participant including the general area of interest, how to complete the questionnaire, and the expected commitment. Each participant completed an anonymous, self-administered, paper-and-pencil questionnaire, compiled into a booklet along with an instruction sheet; consent forms were attached to the front of the booklet. Participants

were assured about the confidentiality of their participation and were informed that they could withdraw from the study at any time. Their participation in the project was voluntary and without any form of reward. The participants were debriefed about the purpose of the study on their completion. In the current project, demographic information was collected including age (continuous), location (urban or rural), period of confinement (in months), and offender types (violent or nonviolent).

4.2.2 Materials

The Measure of Criminal Social identity (MCSI; Boduszek et al., 2012a) consists of 8 items and is based on Cameron's (2004) Three-dimensional Strength of Group Identification Scale (12 items). The instrument is intended to measure the prisoners' criminal social identity. Each item was scored on a 5-point Likert scale: 1= *strongly disagree*, 2= *disagree*, 3= *sometimes*, 4= *agree*, 5= *strongly agree*. Three items included in the scale were scored in the reverse direction (i.e., *strongly agree* =5 and *strongly disagree*=1) to prevent response bias. Scores ranged from 8 to 40 with higher scores indicating a higher level of criminal social identity. The measure included three sub scales: Cognitive Centrality (3 items) measured the psychological significance of criminal group identity; In-Group Affect (2 items) measured criminals' felt attitude or emotional bonding towards in-group criminals; and In-Group Ties (3 items) measured the level of personal attachment to other criminals. Cognitive Centrality (e.g., "I often think about being a delinquent"); In-group Affect (e.g., "In general I am glad to be a part of a delinquent group"); and In-group Ties (e.g., "I have a lot in common with other people who committed a crime"). The reliability of the MCSI Urdu version scale is provided in table 4.1.

The translation of the *Measure of Criminal Social Identity* from English to Urdu was performed by the principal researcher and then given to a group of academics to translate the Urdu version back into English. Both the translation of MCSI and the original English version were then submitted to three experts who indicated appropriate changes. According to their suggestion, the word 'criminal' was changed into 'delinquent' (*khtakar* in Urdu) according to the sample age range.

The Measure of Criminal Attitudes and Associates *(MCAA; Mills & Kroner, 1999)* is a two-part self-report measure of criminal attitudes and associations with criminal friends. For the purpose of the current study only part A was used. Part A is a measure intended to quantify criminal associations (before incarceration). Respondents were asked to recall the three adults with whom they spend most of their free time (0%-25%, 25%-50%, 50%-75%, and 75%-100%). The respondent then answered four questions in relation to the degree of the criminal involvement of his associates: (a) "Has this person ever committed a crime?" (b) "Does this person have a criminal record?" (c) "Has this person ever been to jail?" and (d) "Has this person tried to involve you in a crime?" Part A was used to calculate two measures of criminal associates. The first, "Number of Criminal Friends," was calculated by adding up the number of friends to which the participant had answered "yes" to any of the questions of criminal involvement. This meant the participant could indicate zero to three criminal associates. The second measure "Criminal Friend Index" is the extent of exposure to criminal friends. This measure is calculated by assigning a number from one to four to the percentage of time options available for each identified associate. That number is then multiplied by the number of yes responses to the four questions of criminal involvement. Each of the resulting products is added together to produce the Criminal Friend Index. Overall

scores for the Criminal Friend Index (CFI) therefore range from 0 to 48, with higher scores reflecting increased involvement with criminal associates.

4.2.3 Analysis

The present study contains two levels: measurement level and structural level for data analysis.

4.2.3.1 Measurement level

On measurement level, the dimensionality of the Criminal Social Identity was investigated through the use of traditional confirmatory factor analytic (Schwartz et al., 1999) techniques, and confirmatory bifactor modelling (see Reise, Morizot, & Hays, 2007). Three models of CFA conceptualization and a fourth bifactor model were specified and estimated using MPLUS version 6.0 (Muthen & Muthen, 1998, 2010) with robust maximum likelihood (RML) estimation. CFA was used because it helps to determine the factor structure and factor loading of measured variables and to assess the fit between the data and the pre-established theoretical model. Within these three models, items were restricted to load onto a single factor, while in the bifactor model each item was allowed to load onto a general factor (criminal social identity) and one grouping factor (cognitive, affective, or ties), according to recommendations (Reise et al., 2010). It is suggested that the bifactor model should always be used as the baseline comparison model rather than the traditional one-factor because bifactor model is capable of retaining a one-dimensional conceptualization and acknowledge the unintended and meaningless covariance that can occur between particular items in a scale due to wording effects. Thus, the bifactor model exposes spurious evidence of multidimensionality and it has a capability to determine whether grouping factors have statistical relevance or whether they are better conceptualized as unimportant method

effects. In all cases measurement error terms remained uncorrelated as suggested in previous research (Boduszek, Shevlin, Mallett, Hyland, & O'Kane, 2012c; Boduszek et al., 2013; Hyland, Boduszek, Dhingra, Shevlin, & Egan, 2014a).

The first model specified included criminal social identity as a one-factor model containing each of the 8-items within the scale (Table 2). The second model exhibited two factors of criminal social identity. The first factor comprises three items (centrality; Q1, Q2, and Q3). These three items measure the cognitive aspect of MCSI. The second factor comprises five items (Q4, Q5, Q6, Q7, and Q8) measuring emotional association with criminal others. The third model of criminal social identity included three factors: cognitive centrality (3 items; Q1, Q2, and Q3), in-group affect (2 items; Q4, and Q5) and in-group ties (3 items; Q6, Q7, and Q8). The specifications for each of these models were taken from the results of previous factor analyses (Boduszek et al., 2012; Cameron, 2004; Obst &White, 2005). The fourth model is bifactor conceptualisation, containing four latent variables: a single general factor of criminal social identity, and three grouping factors: cognitive centrality, in-group affect and in-group ties. In the bifactor model all 8 items load on to the general criminal social factor and also load onto the three grouping factors (cognitive centrality, items 1, 2 and 3; in-group affect, items 4 and 5; in-group ties, items 6, 7, and 8). In this fourth model the grouping factors are restricted to being uncorrelated with each other and uncorrelated with the general factors. The variance of each factor is set to 1.0 for the purpose of model identification.
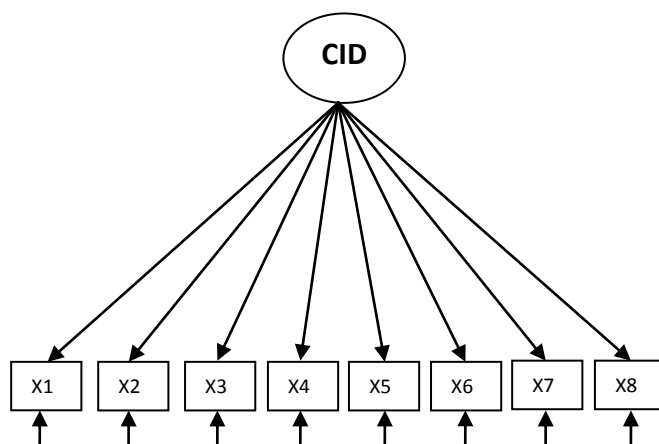
One-Factor Model
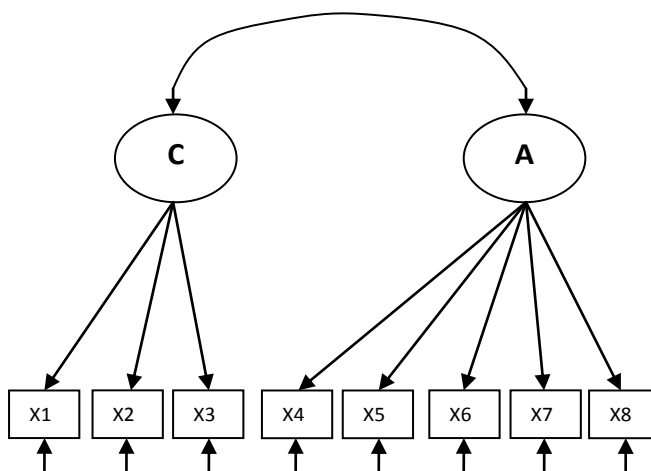
Two-Factor Model
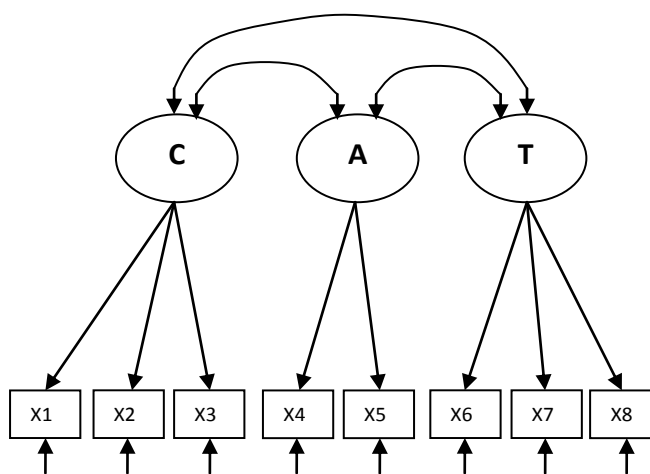
Three-Factor Model
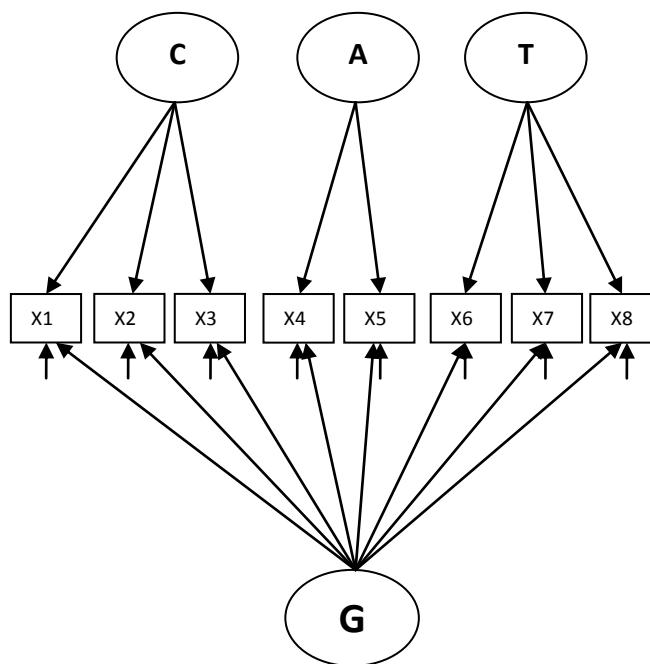
Bi-Factor Model

Figure 4.1 Four Alternative CFA Models of Criminal Social Identity.

Note: CID = criminal identity (total), C = centrality, A = in-group affect, T = in-group ties, G = general factor, x1- x8 = items included in the Measure of Criminal Social Identity

Goodness-of-fit indices were used to compare four alternative models of criminal social identity. The chi-square ($\chi2$) statistic is used to assess the sample. Implied covariance matrix and a good fitting model is indicated by a non-significant result. However, the $\chi2$ statistic is strongly associated with sample size, and as such good models tend to be over-rejected. It is suggested by Tanaka (1987) that a model should not be rejected simply on the basis of a significant $\chi2$ result. Kline (1994) suggested that models with a $\chi2$-to-df ratio of less than 3:1 represent a good fitting model. The Comparative Fit Index (CFI; Bentler, 1990) and the Tucker Lewis Index (TLI; Tucker & Lewis, 1973) are measures to assess how much better the model fits the data compared to a baseline model where all variables are uncorrelated. For these above indices, values above .95 indicate good model fit (Bentler, 1990). Furthermore, two more absolute indices, the standardized root mean-square residual (SRMR: Joreskog & Sorbom, 1981) and the root mean-square error of approximation (RMSEA: Steiger, 1990), are presented. Good fitting models are indicated by values less than 0.05 (Joreskog & Sorbom, 1993). Additionally, the Akaike Information Criterion (AIC; Akaike, 1974) was used to compare alternative models, with smallest value indicating the best fitting model. However, the CFI, RMSEA and the AIC all have explicit penalties for model complexity.

4.2.3.2 Structural level

At the structural level, the conceptual level of criminal social identity (Fig. 4. 2) was specified and estimated in MPLUS 6.0 with restricted maximum likelihood estimation (Muthen & Muthen, 1998, 2010), using structural equation modelling (SEM). For the quantification and statistical testing of the theoretical construct, SEM is considered to be a broad data analytic method. The common structural equation model is consists of two

data analytic methods: path analysis (PA) and factor analysis (FA). The association among observed variables in a path diagram is demonstrated by a PA technique that is normally presented in a multiple regression analysis (Cohen and Cohen 1983). The PA is beneficial because it allows the direct, indirect, and total effects of one observed variable on another to be obtained. Therefore, the structural and measurement element of the analysis are estimated simultaneously within the SEM method (McCallum and Austin 2000). In the present study, the relationship among latent variables was determined by the structural part of the analysis.

For the purpose of the current study three latent variables of criminal social identity: (cognitive centrality, in-group affect, and in-group ties) and four observed variables (criminal friend index, period of confinement (in months), age, and offender type (violent/nonviolent) are measured.

4.3 Results

4.3.1 Descriptive Statistics and Correlations

Table 4.1 presents the descriptive statistics for the subscales of Criminal Social Identity (in-group ties, in-group affect and centrality), criminal friends and period of confinement including mean and standard deviations together with Cronbach's Alpha reliability (Cronbach, 1951). These statistics shows that juvenile offenders demonstrate high levels of in-group ties and centrality, and moderate levels of in-group affect.

Table 4.1

Descriptive statistics

Variable	*M*	*SD*	Range	Possible range	Cronbach's Alpha
In –group ties (T)	12.18	2.87	3-15	3-15	.81
In-group affect (A)	6.80	2.37	2-10	2-10	.91
Centrality (C)	11.03	2.08	4-15	3-15	.68
Criminal Friends	18.66	11.79	0-48	0-48	N/A
Period of Confinement	6.29	5.93	1-36	N/A	N/A

4.3.2 Alternative CFA Models of Criminal Social Identity

Four alternative models of criminal social identity along with the bifactor model were specified and estimated in MPLUS 6.0 with restricted maximum likelihood estimation (Muthen & Muthen, 1998, 2010). CFA techniques were used in order to determine the factor structure and factor loading of measured variables, and to assess the fit between the data and the pre-established theoretical model.

Table 4.2 reports both absolute and comparative fit indices for three alternative models of criminal social identity along with the bifactor model. All indices indicated improvement in the three-factorial model of criminal social identity above the one-factor, two-factor and bifactor models. Although, the chi-square is large in relation to the degree of freedom and statistically significant, Tanaka (1987) suggested the model should not be rejected on the basis of significant chi-square, since large sample sizes amplify the power of the test. Additionally, the CFI = .96, TLI = .93, RMSEA = .07 and RMSR = .05 indicating that the three-factor solution is an adequate fit to the data of juvenile offenders. The AIC value (8377.59) further supports the interpretation that the three-factor model is a more parsimonious model than the alternative models. The adequacy of this model can also be determined in relation to its parameter estimates. As Table 4.2 shows, all items displayed statistically significant ($p < .001$) factor loadings on their respective factors. All items displayed factor loading above .5, suggested that the factor loadings were all in the expected direction.

Table 4.2

CFA and Bifactor Model Fit Indices for Four Alternative Models of the MCSI

	χ^2	*Df*	CFI	TLI	(90%CI)	RMSEA	SRMR	AIC
Models								
1 Factor Model	255.88***	20	.71	.59	(.15/.21)	.17	.08	8982.83
2 Factor Model	164.19***	19	.84	.76	(.13/.16)	.14	.09	8514.78
3 Factor Model	55.35***	17	.96	.93	(.05/.08)	.07	.05	8377.59
Bifactor Model	245.09***	16	.75	.56	(.16/.22)	.19	.44	8552.41

Note. χ^2 = chi square goodness of fit statistic; *df* = degrees of freedom; RMSEA = Root-Mean-Square Error of Approximation; CI = Confidence Interval; AIC = Akaike Information Criterion; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = Standardized Square Root Mean Residual. *** Indicates χ^2 are statistically significant ($p < .001$).

Table 4.3 shows the correlations between the three latent factors of criminal social identity which indicate that the components of criminal social identity are moderately statistically correlated. The strongest correlation existed between in-group affect and in-group ties ($r = 0.62$), which is consistent with the theoretical view that these two factors are related and reflect the emotional aspects of social identity. Both factors showed a weaker association with cognitive centrality, $r = 0.53$ and $r = 0.48$, respectively.

Table 4.3

Correlation between three latent factors of Urdu version of Criminal Social Identity Scale

Latent Factors	C	A	T
Centrality (C)	---		
In-group affect (A)	.53	---	
In-group ties (T)	.48	.62	---

Note: All correlations are significant at p < .001

Table 4.4 shows the standardized and unstandardized factor loading with standard error for each measurement level and structural level. According to Hair et al., (1998), to confirm that the observed variable identified *a priori* is represented by a specified latent variable, the CFA standardized factor loading should be .6 or higher because this indicates that approximately half of the variance in the observed variable is explained by the latent variable. However, on the measurement level, current results are consistent with Hair et al.'s (1998) indication. The structural level analysis indicated that age (β = -.24, p < .001) was significantly negatively related to centrality, while criminal friends was positively associated with both affective ties (β = .19, p < .001) and centrality (β = .18, p < .001). Consequently, although the three MCSI factors are moderately correlated, they can be considered to measure substantially different constructs as suggested by Carmines and Zeller, 1979).

Table 4.4

Standardized and unstandardized regression paths (with standard errors) for the specified structural model

Item	B	β	SE
Factor 1 (centrality)			
1.Being a delinquent has little to do with how I feel about myself in general	1.00	.53***	.07
خطاکار ہونے کی حثیت سے میں اپنے بارے میں عام طور پر ر کم ہی محـ سوس کرتا/کر			
2. Being a delinquent is an important part of my self-image	1.41	.87***	.05
خطاکار ہونا میری ذاتکا ا ایک ابم ححص ہے.			
3. The fact I am a delinquent rarely enters my mind	.93	.51***	.06
یہ حقیقت کے میں خطاکار ہوں کہ بہیکبھار میرے زیہن میں آتـ ی ہے .			
Factor 2 (in-group affect)			
4. In general I'm glad to be a part of delinquent group	1.00	.89***	.03
عموما میں خوش ہوتا /ہوتی ہوں کے میں خطاکاروں کے گ روہ کا حصہ ہوں .			
5. Generally I feel good about myself when I think about being a delinquent	1.09	.94***	.03
عموما میں اپنے بارے میں یا سوچ کر اچھا محسوس کرتا/ کرتی ہوں کے میں خطاکار ہوں.			
Factor 3 (in-group ties)			
6. I have a lot in common with other people who committed a crime	1.00	.83***	.03
مجھ میں بہت ساری باتیں مشترک ہیں جودوسرے خطاکار لوگوں میں ہیں.			
7. I feel strong ties to other people who committed a crime	1.21	.87***	.03
میں ان تمام دوسرے لوگوں کے ساتھ مضبوطی سے جڑا ہوا محسوس کرتا ہوں جو خطاکار ہیں.			
8. I find it difficult to form a bond with other people who committed a crime.	.85	.62***	.05
میرے لئےدوسروں لوگوں کےساتھ تعلق نانا مشکل ہے جوکہ خطاکار ہیں.			

Structural Level

Violent ➔ centrality	.09	.08	.06
Age ➔ centrality	-.06	-.24***	.06
Confinement ➔ centrality	.01	.05	.07
Criminal friends ➔ centrality	.01	.18***	.07
Violent ➔ affect	.20	.07	.05
Age ➔ affect	-.02	-.04	.05
Confinement ➔ affect	.01	.01	.05
Criminal friends ➔ affect	.02	.19***	.05
Violent ➔ ties	.09	.05	.06
Age ➔ ties	-.03	-.06	.05
Confinement ➔ ties	-.01	-.03	.07
Criminal friends ➔ ties	.01	.07	.06
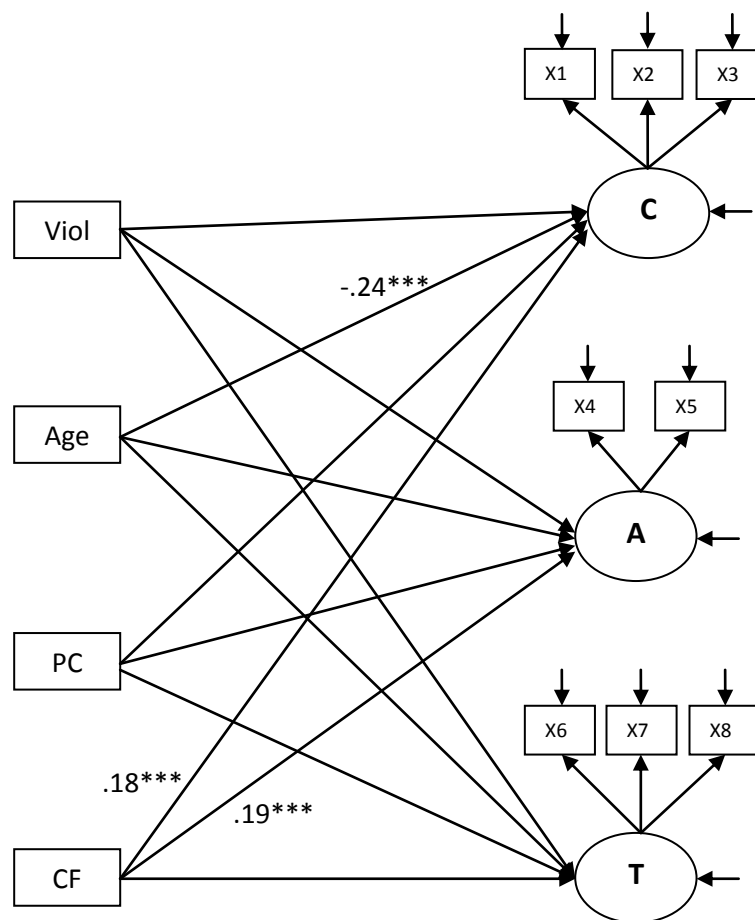
Figure 4.2

SEM Model of Criminal Social Identity

Note: Viol = violent offence, PC = period of confinement (months), CF = criminal friends, C = centrality, A = in-group affect, T = in-group ties; x1- x8 = items included in the Measure of Criminal Social Identity.

4.3.3   Incremental Validity of the MCSI Factors

The incremental validity of the MCSI was investigated by examining the association between latent factors of the Criminal Social Identity scale and external variables. Thus the proposed structural equation model of criminal social identity (Fig. 4.1) was developed based on the CFA results obtained. It includes three latent variables of criminal social identity (cognitive centrality, in-group affect and in-group ties) and four observed variables (age, offender types (violent/non-violent), criminal friend index and period of confinement in months).

The overall fit of the specified model (Figure 1) provided an adequate fit to the data, $\chi^2 = 88.20$, $df = 37$, $p < .001$; CFI = .95, TLI = .92; RMSEA = .06, SRMR = .04.

4.3.4   Reliability analysis

The use of traditional measures of internal consistency has been criticised due to their propensity to over-or-under-estimate scale reliability (Raykov, 1998). As a result, composite reliability was performed in order to provide a rigorous assessment of the internal reliability of the MCSI items. Values greater than .60 are generally considered acceptable (Bagozzi & Yi, 1988; Diamantopoulos & Winklhofe, 2001). Current results indicate that the in-group affect ($\rho_c = .88$) and in-group ties ($\rho_c = .71$) factor items possess good internal reliability ($\rho_c = .79$). However, the internal reliability for centrality items was lower than expected ($\rho_c = .54$).

4.4 Discussion

The main objective of the present chapter was to provide a comprehensive evaluation of the dimensionality and construct validity of the Urdu version of the MCSI. The 8-item Urdu version of MSCI was used to collect data from the sample of juvenile offenders in prison in order to measure their social identity as criminals. The results demonstrate that criminal social identity can be successfully conceptualized and reliably measured by three dimensions: cognitive centrality, in-group affect and in-group ties. The current research used both traditional CFA and confirmatory bifactor modelling procedure as many researchers (e.g. Reise et al., 2010) have argued that a significant limitation of factor analytical research is the use of a traditional one-factor model when attempting to assess unidimensionality. Additionally, an aim of the study was to assess the incremental validity of the Urdu version of the MCSI by examining the relationship between the different MCSI factors and external variables: offence type, criminal friends, period of confinement (in months), while controlling for age. Finally, in the present research, composite reliability was applied to determine the internal reliability of the scale.

The three-factor solution, on the basis of the fit indices, was considered to provide a better fit to the data than the alternative solutions tested. Present findings supported the earlier research by Boduszek et al. (2012) who found that the MCSI was a three-dimensional construct within a sample of Polish recidivistic prisoners. Additional support for the three-factor conceptualization of the MCSI was provided by inspection of the factor loading. Generally satisfying the criteria outlined by Hair, Anderson, Tatham, and Black (1998), the present results indicate that all 8 items loaded strongly onto their respective factors, with the majority of items displaying factor loadings in excess of 0.60.

In order to investigate the incremental validity of the scale, after the identification of the underlying latent structure of the Urdu Version of the MCSI, the three factors were correlated with offence type (violent or non-violent), period of confinement, the criminal friends index and age, within the structural equation model. Results of the present analysis provide further empirical support for conceptualising CSI in terms of three factors. In-group affect and centrality were positively associated with the criminal friend index, while age was negatively associated with centrality. The differential relationship between the three MCSI factors and external factors is an important finding of the present study. It indicates that the MCSI measures substantially different dimensions, despite the high level of correlation observed between the two factors in-group affect and in-group ties (see Carmines & Zeller, 1979). The finding is consistent with previous research by Boduszek and colleagues (2013a, b) and the proposition of Cameron (2004).

The present research shows positive relationship between the criminal friends index and both centrality and in-group affect, consistent with Boduszek et al.'s (2012) findings. In-group affect and centrality were positively associated with criminal friend index while age was negatively associated with centrality. The differential relationship between external factors and the three MCSI factors is an important finding as it indicates that the MCSI measures a substantially different dimension, despite the high level of correlation observed between the factors (see Carmines & Zeller, 1979). This finding is consistent with previous research by Boduszek and colleagues (2013a, b) and the proposition of Cameron (2004).

The positive relationship between the criminal friend index and both centrality and in-group affect in the present research is supportive of Boduszek et al.'s (2012) findings. However, inconsistent with the findings of Boduszek and colleagues (2013),

the criminal friend index was not significantly associated with cognitive centrality. The reasons for this disparity are unclear, but may relate to the younger age of participants in the present sample. It is also discrepant with previous research (Boduszek et al., 2013a) which found that increased level of cognitive centrality positively related to having committed a violent criminal offence, while increased levels of in-group affect were associated with having committed a non-violent criminal offence. In the present study, none of the MCSI factors were associated with offence type. Again, the reasons for such a discrepancy are unclear, and this is something in need of further investigation. Age is negatively associated with cognitive centrality in the present study which suggested that the cognitive importance of belonging to a criminal group decreases with age. This perhaps explains why desistance from crime has been associated with increasing age (Farrington, 1986).

A further objective of the present study was to provide a robust assessment of the internal reliability of the Urdu version of the MCSI. Composite reliability was performed to provide a more accurate assessment of internal reliability of the latent factors because traditional approaches to establishing internal reliability such as Cronbach's alpha have been criticised within a latent variable context due to their tendency to over- or under-estimate scale reliabilities (Novick & Lewis, 1967; Raykov, 1998). The in-group affect and in-group ties MCSI subscales showed good reliability, as indicated by results; however, the internal reliability for centrality items was lower than expected.

4.5 Limitations and further directions

As with any research attempt, the present study has several important limitations related to the measurement and generalizability of the findings, and these should be considered for future research. First, the sample of incarcerated juvenile delinquents was relatively homogenous, thereby limiting the generalizability of the results to more diverse samples of varying ages, ethnicities, and offender groups. Future research with the replication of these results with more heterogeneous samples is, therefore, needed. Particularly, replication of the results in samples including female juvenile offenders is needed. Second, the use of a self-report measure also introduces several well-known limitations, such as response bias. It is not possible to assess whether the factorial solution identified in the current sample remains invariant across different populations, due to the somewhat limited sample size. Consequently, this remains an important for further investigation.

4.6 Conclusion

In conclusion, the present study is the first to have used the Urdu version of MCSI among Pakistani juvenile offenders and to assess a bifactorial solution of CSI using the MCSI. The results indicate that the Urdu version of the MCSI is best conceptualised as measuring three distinct dimensions: cognitive centrality, in-group affect, and in-group ties. Additionally, the results indicate that the three MCSI factors have acceptable composite reliability and are differentially associated with age and criminal friends. Consequently, the results add valuable evidence as to the cross-cultural applicability of the MCSI.

CHAPTER 5

Empirical study 2

Latent Classes of Delinquent Behaviour Associated With Criminal

Social Identity among Juvenile Offenders in

Pakistan

Abstract

The aim of the current chapter is to examine the number and nature of latent classes of delinquency that exists among male juvenile offenders (N=415) incarcerated in different prisons of the Khyber Pakhtunkhwa (KPK) Pakistan. To determine the nature and number of delinquency classes, latent class analysis was applied. To estimate the association between latent class analysis and the three factors of Criminal Social Identity (cognitive centrality, in-group affect and in-group ties), multinomial logistic regression was used, while controlling for criminal friends, period of confinement, addiction, age and location. Results indicated three class solutions labelled 'minor delinquents'(the baseline/normative class; class 3), 'major delinquents' (class 1), and 'moderate delinquents' (class 2) as the best fitting latent class model. Class membership was predicted by differing external variables. Most previous studies have focused on school children, whereas, this study focuses on incarcerated juvenile offenders.

5.1 Introduction

Delinquent behaviour among youth causes great problems both individually and socially and strongly associated with later violent crime, alcoholism, substance misuse, mental health difficulties, psychological impairment and unemployment. In Pakistan, poverty, family size, peer delinquency, low education, bad media influences, and conflicting environment, both inside and outside the home are important causative factors for juvenile delinquency (Bano et al., 2009; Ghouri, Abrar, & Baloch, 2010; Malik and Shirazi, 2010). However, the figures are unavailable for youth in Pakistan, although in America in 2008, nearly 1.2 million under the age of 18 were arrested for crimes ranging from curfew and loitering to rape and murder in (U.S. Department of Justice, Federal Bureau of Investigation, 2009). Further research into the nature of these behaviours as well as the implications for understanding delinquency in terms of an accurate classification system is required.

To classify delinquent acts, a categorical approach has largely been taken by previous research (Simourd & Andrews, 1994), and in doing so it has assumed equal valence, i.e., taken a "one size fits all approach" (Odgers, Moretti, & Burnette et al., 2007). Therefore, little is known about the different profile or mixes of behavioural problems that may exist (Fergusson, Horwood, & Lynskey, 1994). However, limited knowledge exists about dependence between minor forms of delinquent behaviour (truancy, trespassing, causing a public disturbance, or vandalism) and other more serious delinquent acts such as violent crime. To date, a latent structure modelling techniques, to identify homogenous subtypes of delinquent youth has been used by only a small number of researchers.

Brownfield and Sorsenson (1987), by using a sample of male adolescents, modelled the indicators of delinquency involving theft, vandalism, and assault. They suggested

that latent structure analysis has proved to be productive in the construction of measures of delinquency and found three distinct classes: conformists, moderately delinquent, and seriously delinquent. Similarly, Osgood, McMorris, and Potenza (2002) found evidence for a continuum of severity by fitting latent trait modelling to delinquency data.

 In a sample of 12,292 Canadian elementary school youths, aged between 5 and 11, Lee, Baillargeon, and Vermunt, Wu, and Tremblay, (2007) examined subgroup heterogeneity with the measures of delinquency which included physical aggression (kicking, biting, fighting, attacking others, and hitting). They found a three-class solution to be the best fit model to the data, with 'low', 'medium', and 'highly' aggressive groups identified (frequency or propensity of committing physical aggression was used to determine class membership).

Furthermore, Odgers et al. (2007) reported three class solutions as the best fit model to the data in their analysis by using a relatively small sample of 133 female juvenile offenders. Their results supported a three-class solution characterized by 'violent (with physical aggression) and delinquent behaviour (including substance use, theft, and fighting)', delinquency only (few violent items were endorsed), and low offending groups. The 'violent and delinquent' class was characterized by psychiatric diagnoses, affect dysregulation, familial histories of criminality and exposure to violence within the home, school and neighbourhood.

In addition, Hasking, Scheier, and Abdallah (2011) identified three distinct classes of youth, based on a 5-item assessment of delinquency. They labelled their three groups 'rule breakers', 'minor delinquents' and 'major delinquents'.

Muthén and Muthén (2000) reported slightly different results, four distinct classes of youths based on data drawn from the US National Longitudinal Survey of Youth (NLSY). The classes consisted of: youths with limited endorsement of delinquent

behaviours (47%; class 4), youths characterized by fighting and person offences (25%; class 3), substance users (18%; class 2), and property offenders (9%; class 1) who damaged property, stole, and trespassed.

Similarly a study conducted by Fergusson et al. (1994) examined delinquency subtypes in birth cohort of New Zealand youth (aged 15 years) found a four-class solution as the best model to fit their data. The four classes included: a group displaying virtually no problematic behaviour (85 %); a group showing sexual abuse, marijuana use and elevated alcohol abuse (5 %); an antisocial group characterized by conduct problems, police contact and marijuana use (7 %); and a norm-violating group reporting all forms of problem behaviour (3%).

As reported in chapter 1, the theory of Criminal Social Identity (CSI; Boduszek & Hyland, 2011) proposed that the development and activation of CSI increases an individual's likelihood of involvement in criminal acts. Simultaneously with their theory of criminal social identity, Boduszek, Adamson, Shevlin, and Hyland (2012a) developed the Measure of Criminal Social Identity (MCSI) which underpinned three latent factors: cognitive centrality, in-group affect and in-group ties.

Recently a series of researches has suggested that the distinct components of criminal social identity (centrality, in-group affect and in-group ties) may act as differential risk factors for various type of criminal acts (Boduszek, O'Shea, Dhingra, & Hyland 2014c) Even though a direct relationship between criminal peers and criminal thinking style has been suggested by many researchers (Sutherland, Cressey, & Luckenbill, 1992; Mills, Kroner et al., 2002; Losel, Carson et al., 2003), social identity theory proposes that it is important to establish a social identity prior to the acquisition of group beliefs and attitudes. Thus the mediating effect of criminal social identity in the relationship between association with criminal friends and criminal thinking style

was examined (Boduszek et al., 2013c). However, the predictions of criminal social identity theory were supported by an indirect effect between association with criminal friends with criminal thinking through in-group affect and in-group ties by examining structural equation modelling

In another study (Boduszek et al, 2012b), in-group affect and in-group ties were demonstrated to investigate a direct effect on criminal thinking. By using multiple regression analysis the moderating role of personality between criminal social identity and criminal thinking was demonstrated and it was found that, for more introverted criminals, the impact of in-group affect on criminal thinking was stronger. On the other hand, the impact of in-group ties on criminal thinking was stronger among those who were more extroverted. However, due to the cross-sectional nature of the study findings of direct relationship between criminal social identity and criminal thinking style were limited.

Furthermore, to gain more reliable understanding of the nature of the relationship between criminal social identity and criminal attitude, a propensity score analysis with participant matching procedure was performed to obtain a set of violent and non-violent recidivistic prisoners. This procedure allows controlling confounding variables within the cross-sectional data and mimicking experimental randomization. In this study, even after controlling offence type, age, extraversion, neuroticism, psychoticism, level of recidivism, and association with criminal friends, criminal social identity was still found to positively predict criminal attitude (Boduszek et al., 2013d)

Further, to predict criminal attitude, the relationship between criminal social identity and criminal behaviour has been investigated. However, results suggested an association between   increased level of cognitive centrality and violent criminal

offences while increased level of in-group affect was associated with non-violent offences (Boduszek et al., 2013b).

In addition, to evaluate the relationship between criminal social identity and criminal friends empirically (Boduszek et al., 2013c), it was found that centrality, in-group affect and in-group ties were positively associated with criminal friends.

There is substantial evidence from several studies that criminal social identity is an important predictor of criminal behaviour. However, little was known about different levels of criminal social identity among different type of offenders (Boduszek et al., 2014b).

To identify the appropriate number of latent classes of criminal social identity (Boduszek et al., 2014c) analysis was conducted in a recidivistic criminal sample. This used logistic regression to identify the relationship between latent classes of criminal social identity and number of police arrests, recidivism and violent offences while controlling for current age. The results indicated five homogeneous latent classes of criminal social identity: 'High criminal social identity' (17%), 'High centrality, Moderate Affect, Low Ties' (21.7%), 'Low Centrality, Moderate Affect, High Ties' (13.3%), 'Low Centrality, High Affect, Low Ties' (24.6%) and 'Low criminal social identity' (23.4%). These displayed quantitate and qualitative differences.

Similarly another study (Boduszek et al., 2014a) examined the number of latent classes of criminal intent among prisoners and their association with recidivism, number of police arrests, type of offending (robbery, violent offences, murder, and multiple offences) and age. To identify the homogeneous subgroups of prisoners, latent class analysis was used on the basis of their responses to 10 questions exhibiting criminal intent. The sample consisted of recidivistic criminals ($n = 309$), in a Maximum Security Prison. To interpret the nature of latent class analysis, multinomial logistic regression

was used by estimating the relationship between recidivism and latent classes of criminal intent while controlling for offence type, number of arrests and age. The results suggested three latent class solutions: 'High criminal intent' (49.3%) 'Intermediate criminal intent' (41.3%), and 'Low criminal intent' (9.4%) were found to be best fitting. These three latent classes were differently associated with external variables (recidivism, violent offence and age). This present study was conducted using a sample of recidivist prisoners; however there is substantial need to further investigate the latent classes to predict criminal social identity among different types of offenders, for example young offenders.

5.1.2 The Current Research

The aim of the present chapter is to use a latent variable approach to the classification of delinquent acts to allow for the identification of subgroups with distinct behavioural profiles among male juvenile offenders in Pakistan. The present research makes the assumption that important differences exist within the delinquent population. This is an important departure from most previous research. The present sample of juvenile delinquents also differs from those of previous studies in several important respects. First, the present study focuses on juvenile offenders, whereas most previous studies have focused on school-children. Second, the present study includes youths from Pakistan, whereas most previous research has examined delinquents' behaviour in western cultures (e.g., Hasking et al., 2011; Lee et al., 2007). However, most previous research viewed delinquency as discrete events with different constellation or pattern of commission whereas the present research views juvenile delinquency as a dimensional construct with the present data. Given the nature of the present sample (incarcerated

juvenile offenders), it is expected that the normative/baseline class in this study will still

report considerable engagement in delinquent acts.

5.2 Method

5.2.1 Participants and Procedure

As reported in previous chapters, participants were 415 male prisoners whose age ranged from 11 to18, (M = 16.53, SD = 1.93), incarcerated in different prisons of Khyber Pakhtunkhwa (KPK) Pakistan. Most offenders came from rural areas (69.6%), were brought up in a single-parent home (53.3%), and reported having been imprisoned for non-violent crimes (74.7%). The duration of imprisonment reported by juvenile offenders ranged from 1 to 36 months (M = 6.29; SD = 5.93).

The measures were administered in groups of up to 40 individuals by the lead researcher, an assistant researcher or prison superintendent. The assistant researcher and prison superintendent were instructed by the lead researcher about the procedures involved in conducting this study. Each participant was provided with a brief description of the study including the general area of interest, how to complete the questionnaire, and the general expected completion time. Participants completed an anonymous, self-administered, paper and pencil questionnaire, which was compiled into a booklet along with an instruction sheet and a consent form attached to the front of the booklet. Participants were assured about the confidentiality of their participation and informed that they could withdraw from the study at any time. Their participation was voluntary without any form of reward and on completion; participants were debriefed on the purpose of the study.

5.2.2 Measures

Demographic information was collected including age (continuous), period of confinement (in months), and location (urban or rural).

The Measure of Criminal Social identity (MCSI; Boduszek et al., 2012a) consists of eight items and is based on Cameron's (2004) Three-dimensional Strength of Group Identification Scale. Each item is scored on a (1= *strongly disagree* to 5 = *strongly agree).* Scores range from 8 to 40, with higher scores reflecting higher levels of criminal social identity. As reported in the previous chapter, the MCSI measure is underpinned by three subscales: in-group ties, cognitive centrality, and in-group affect. Initially it was translated from English into Urdu by the principal researcher and then sent to a group of academics to translate the Urdu version back into English. The translation of the MCSI, along with the original English version, was then submitted to three experts who indicated appropriate changes. The word criminal was changed to delinquent at their suggestion.

The Measure of Criminal Attitudes and Associates (MCAA; Mills & Kroner, 1999) is a two-part self-report measure of criminal attitudes and associates (only part A was used in the current research). Part A is a measure intended to quantify criminal associations before incarceration. Respondents are asked to recall the three adults with whom they spent most of their free time (0%-25%, 25%-50%, 50%-75%, and 75%-100%). The respondent then answers four questions in relation to the degree of the criminal involvement of their associates: (a) "Has this person ever committed a crime?" (b) "Does this person have a criminal record?" (c) "Has this person ever been to jail?" and (d) "Has this person tried to involve you in a crime?" Part A was used to calculate two measures of criminal associations. The first, "Number of Criminal Friends," was calculated by adding up the number of friends for whom the participant had answered "yes" to any of the questions of criminal involvement. This meant the participant could indicate zero to three criminal associates. The second measure is the extent of exposure to criminal friends. This measure is calculated by assigning a number one to four to the

percentage of time options available for each identified associate. That number is then multiplied by the number of 'yes' responses to the four questions of criminal involvement. Each of the resulting products is added together to produce the Criminal Friend Index. Overall scores for the Criminal Friend Index (CFI) therefore range from 0 to 48, with higher scores reflecting an increased involvement with criminal associates.

Addiction was assessed using the single item, "are you addicted to any drug?

Delinquent behaviour was assessed using 10 items which asked if participants had ever: 1) caused a disturbance while in a large group, 2) played truant from school, 3) told lies or cheated, 4) broken rules, 5) smashed, slashed, or damaged property belonging to someone else, 6) physically fought with someone, 7) physically attacked someone for no reason, 8) used threats of violence to get someone to do something for you, 9) stolen something from a store/shop or school, 10) set fire to a building, a car, or something else not belonging to you on purpose.

5.2.3 Analysis

For the present study 10 questions reflecting criminal intent were used and dummy coded for analysis. Latent class analysis (LCA) is a statistical method used to identify homogeneous groups (or classes) from categorical multivariate data. LCA was used to determine the nature of delinquent behaviour based on the endorsement of each of these 10 items. Six latent class models were tested (a one- through to a six-class latent class model). Selection of the optimal number of latent classes was based on several statistical fit indices such as likelihood ratio chi-square (LR χ^2), Akaike information criterion (AIC), Bayesian information criterion (BIC), sample size adjusted BIC (SSABIC), the Lo-Mendell-Rubin's adjusted likelihood ratio test (LRT), and entropy measures. A non-significant LR χ^2 indicates acceptable model fit. The information statistics AIC, BIC, and SSABIC are goodness of fit measures used to compare competing models; lower observed values indicate better fit. The LRT statistic was used to compare models with differing numbers of latent classes; a non-significant value ($p > 0.05$) suggests that a model with one fewer class should be accepted. Entropy is a standardised measure of how accurately participants are classified. Values range from 0 to 1 with higher values indicating better classification.

There are two models of logistic regression: binomial/ binary logistic regression and multinomial logistic regression. Binary logistic regression is typically used when the dependent variable is dichotomous and the independent variables are either continuous or categorical variables. When the dependent variable is not dichotomous and is comprised of more than two cases, multinomial logistic regressions can be used (Hosmer Jr, Lemeshow, & Sturdivant, 2013).

In the present study, multinomial logistic regression was used to assess the association between class membership (posterior probabilities from the model were

used to assign individuals to a class) and criminal social identity factors (cognitive centrality, in-group affect, and in-group ties), while controlling for age, period of confinement, criminal friends, location (urban or rural) and addiction status. The subsequent odd ratios (OR) indicate the expected increase/decrease in the likelihood of scoring positively on a given variable compared to the reference, or control group (in this case low criminal social identity group). The analysis was conducted using Mplus 6.12 (Muthén & Muthén, 1998– 2010).

5.3 Results

Table 5.1 presents the rates of endorsement for each of the 10 items for the entire sample after list-wise deletion of missing data ($N = 415$). The most commonly endorsed items were fighting (80.5%), property damage (56.9%), and playing truant from school (48.7%).

Table 5.1

Prevalence rates of delinquent behaviours

Item	Criteria endorsed count (%)
Group disturbance	73 (17.6)
Truant from school	202 (48.7)
Lying or cheating	137 (33.0)
Breaking rules	193 (46.5)
Property damage	236 (56.9)
Fighting	334 (80.5)
Physically attack people	77 (18.6)
Threatening to hurt people	189 (45.5)
Stealing	122 (29.4)
Setting fires	103 (24.8)

The fit indices for alternative latent class analyses are presented in Table 5.2. The three-class solution is considered to be the best model; the Bayesian information statistic (BIC), sample size adjusted Bayesian information statistic (SSABIC), and Akaike information criterion (AIC) are markedly lower than for the one and two-class solutions. Most importantly, the Lo-Mendell-Rubin's LRT indicates that the four-class model is not significantly better than the three-class model. Consequently, the three-class solution is preferred on the basis of parsimony. The entropy value (0.84) indicates acceptable classification of participants.

Table 5.2

Fit indices for the latent class analysis of victimization experiences

Model	AIC	BIC	SSABIC	LRT	Entropy
2 classes	4968.31	5052.91	4986.27	48.88***	0.67
3 classes	4947.60	**5076.50**	**4974.96**	**42.08***	0.84
4 classes	4946.65	5119.86	4983.42	527.49	0.84
5 classes	4946.49	5164.02	4992.67	21.83	0.63
6 classes	4945.90	5207.74	5001.48	22.26	0.69

Note: AIC = Akaike information criterion, BIC = Bayesian information criterion, SSABIC = sample size adjusted BIC, LRT = Lo-Mendell-Rubin's adjusted likelihood ratio test. * $p < 0.05$; *** $p < 0.001$.

The latent class profile plot indicating the probability of endorsement, across each of the three classes, for each of the delinquent behaviours showing in Figure 5.1. The strength of a particular item is indicated by the probability of a youth being a member of each class. The majority of respondents were classified in class 2 (64.9 %) which was characterized by individuals with a high probability of endorsing truancy, property damage, and fighting; and a low probability of endorsing disturbing others when in a group, physically attacking others, and stealing. Based on this pattern of endorsement, this class is labelled 'moderate delinquents'. Class 3 (29.8% of participants) was characterized by individuals with a low probability of endorsing all items (response probabilities did not exceed 0.40 for any single item) except for breaking rules, property damage, and fighting. By the nature of their modest and restricted involvement in delinquent behaviour, these youth were labelled as 'minor delinquents' (the baseline/normative class). The pattern of item endorsement for classes 2 and 3 is similar for the majority of items, differing mainly in magnitude. However, items two (truancy) and three (lying or cheating) provide clear markers that differentiate these classes, with endorsement of both items much greater for class two than for class three. The smallest proportion of youths (5.4%) was classified the third class. These youths endorsed a wide range of items that exceeded the delinquent involvement of the other two classes. These youths had the highest likelihood of endorsement of all delinquent behaviours except for setting fires. Given this pattern of delinquent involvement, these youths were labelled 'major delinquents'.
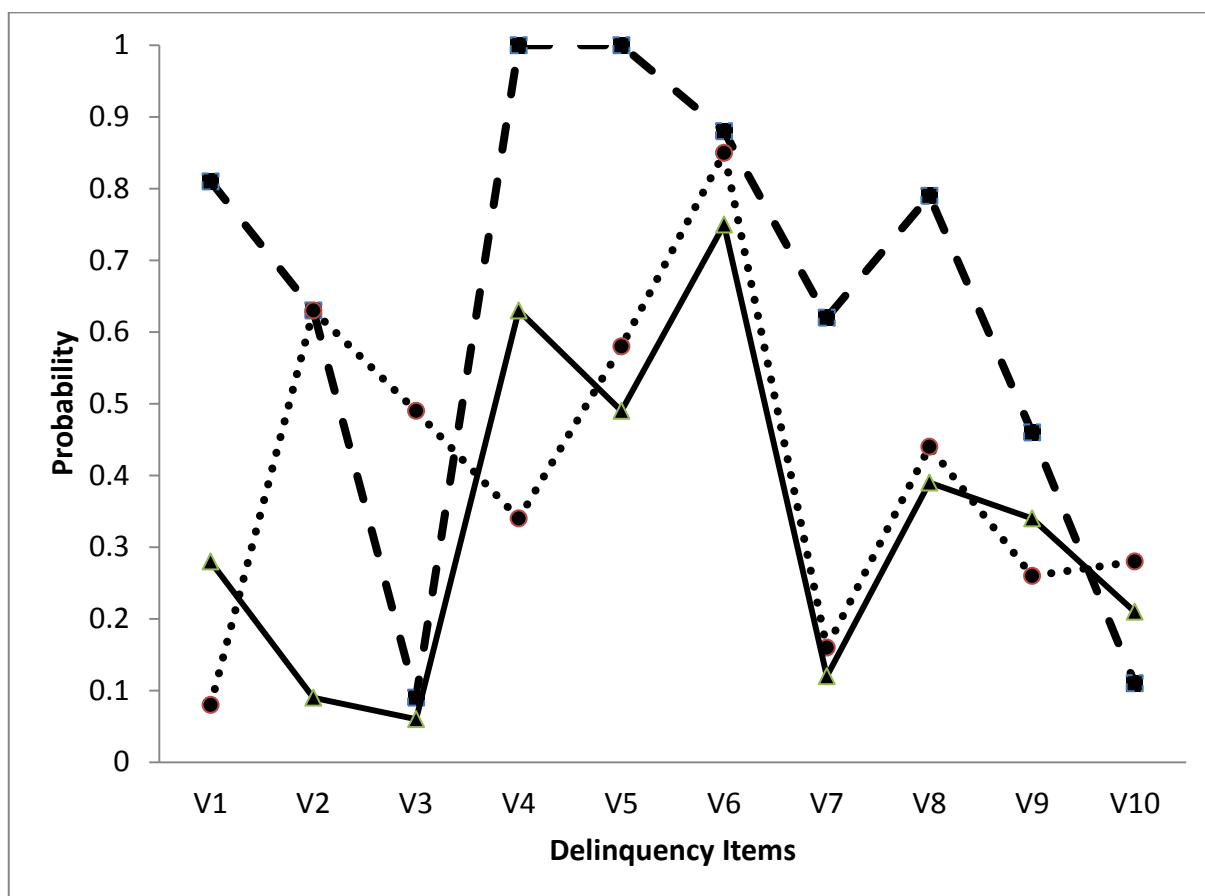
Figure 5.1   Profile plots of three latent classes

Note: Class 1 = long dash line with squares (5.4% of participants); Class 2 = round dot line with circles (64.9% of participants); class 3 solid line with triangles (29.8% of participants).

To analyse the association between latent classes of delinquent behaviour and criminal social identity factors (cognitive centrality, in-group affect, and in-group ties), multinomial logistic regression was used while controlling for criminal friends, period of confinement (in months), addiction, age and location. The reference category for the outcome variable was the baseline/normative class (class 3); the other two classes were compared to this reference group.

The first column in Table 5.3 has the outcome of the 'high delinquency class' (class 1) compared to the 'minor delinquency class (reference category). The results suggested that criminal friends (OR = 1.15) significantly increased the probability of membership of class 1, while controlling for all other covariates. The second column in Table 5.3 has the outcome of the 'moderate delinquency' class (class 2) compared to the reference category (class 3). Statistical analysis shows that those participants who reported lower levels in in-group affect (OR = 0.57) and higher levels of in-group ties (OR = 1.44) were significantly more likely to belong to this class, while controlling for all other covariates.

Table 5.3

Associations between latent classes of delinquent behaviour, criminal

social identity factors, criminal friends, period of confinement, addiction,

age, and location

Variable	Class 1 OR (95% CI)	Class 2 OR (95% CI)
Centrality	1.29 (0.49/3.37)	0.75 (0.55/1.03)
In-group Affect	2.15 (0.68/6.83)	0.57 (0.40/0.83)**
In-group Ties	0.70 (0.47/1.03)	1.44 (1.14/1.81)**
Criminal Friends	1.15 (1.04/1.27)**	1.06 (0.99/1.14)
Confinement (months)	0.92 (0.67/1.27)	0.99 (0.92/1.07)
Addiction	0.21 (0.03/1.23)	0.28 (0.07/1.22)
Age	1.63 (0.90/2.97)	1.07 (0.84/1.37)
Location	0.50 (0.05/5.43)	0.81 (0.29/2.28)

Note. Reference group (Class 3): low delinquency group, OR = Odds Ratio,

95% CI = Confidence Interval. ** $p < 0.01$

5.4 Discussion

The aim of the current study was to identity the appropriate number of latent classes of delinquent behaviour within a sample of juvenile offenders incarcerated in Pakistan, and to examine the associations between class membership and criminal social identity factors while controlling for age, criminal friends, period of confinement, addiction, and location.

On the basis of a LCA analysis, three subgroups of incarcerated youths with distinct behavioural profiles were identified. The results of the LCA indicated the presence of three delinquency classes, which can be differentiated by both the variety and severity of delinquent acts endorsed. By far the most prevalent form of delinquent behaviour was getting into fights. This finding is contrary to those of Hasking et al. (2011) who found that the most prevalent forms of delinquent behaviour were the least offensive from a criminal behaviour standpoint (e.g., drinking underage, viewing pornography, littering, making obscene phone calls, and lying).

Although the classes were labelled as 'high,' 'moderate,' and 'low' delinquency, the classes that emerged were not ordered - that is, the probabilities of all items did not decrease from Class 1 to Class 3. For example, group disturbance, rule-breaking, and stealing have lower probabilities for Class 2 than for Class 3. This suggests that there is not a single dimension of delinquent behaviour with the three classes representing decreasing levels of severity on this dimension; instead, the classes represent different kinds of antisocial behaviour, corresponding to different class profiles of high and low item probabilities. This finding is in contrast to research by Brownfield and Sorsenson (1987) and Osgood et al. (2002) which found evidence for a continuum of severity. Whether this reflects a difference in sample type (incarcerated offenders vs. school-

children) or a cultural difference is unclear and remains an important direction for further research.

One class of delinquents consisted of rule-breakers and fighters characterized by a generally low level of delinquent involvement (the baseline/normative class; class 3). Brownfield and Sorenson (1987) referred to these youths in their sample as 'conformists', given their low levels of delinquency. However, given the nature of the sample used in the present research (incarcerated juvenile offenders), this may not perhaps be the most appropriate characterisation of this class. Therefore, in the present study, this class is referred to as the 'minor delinquency' class. In the present sample, no items other than rule-breaking and fighting recorded a response probability above the threshold of 0.50 in this low level group. From a primary prevention standpoint, these youths would perhaps benefit from learning alternative conflict resolution strategies to fighting.

Class 2 (the largest class) endorsed a wide range of activities, including truancy, property damage, and fighting, as well as group members having the highest endorsement of setting fires. This class is more characteristic of what previous research has identified as moderate delinquency. However, the pattern of item endorsement for delinquency items did not differ that substantially from that of class 3. Indeed, differentiation between these classes appears to mainly be the higher endorsement of truancy and lying or cheating in this class compared to the baseline/normative class.

The final class (Class 1) indicated a profile consistent with what would be considered serious delinquency. This very small (5.4%) group of youths was clearly different from the majority, and they engaged in a variegated form of delinquency. These youths disobeyed and caused a disturbance while in large group; played truant from school; broke rules; smashed, slashed, or damaged property belonging to someone

else; physically fought with others; physically attacked others for no reason, and used threats of violence to get someone to do something for them.

Present findings suggest that there is not a 'sub-type' of boys that specialize in serious forms of violence only in the light of the above discussion. Thus, while it is virtually normative for boys within high-risk contexts to report engagement in fights (indeed 80.5% of this sample had been in a fight) exclusive involvement in more serious forms of violence (e.g., physically attacking someone for no reason, using threats of violence to get someone to do something for you) was not supported.

Results of the regression analysis shows that the three classes can be differentiated based on criminal social identity factor scores and number of criminal friends. Specifically, the results indicated that incarcerated juvenile offenders reporting having more criminal friends were more likely to belong to the 'major delinquency' class; while those reporting higher in-group ties and lower in-group affect were more likely to belong to the 'moderate delinquency' class than the baseline class. This finding is consistent with previous research indicating that number of criminal friends and CSI are related to criminal cognitions and behaviour (e.g., Boduszek, Adamson, & Shevlin et al., 2013; Boduszek & Hyland, 2011; Boduszek, Hyland, & Bourke, 2012) and suggests that those working with criminal populations should be cognisant of the role of both criminal friends and CSI in increasing or decreasing an individual's likelihood of more delinquent acts. The results also suggested that for 'moderate delinquents' in prison there may be a greater perceived need to display a strong criminal identity in order to adapt to one's surroundings and to form social relationships with other criminals, whereas, for 'major delinquents' this may not be so important as social relationships with other criminals have already been formed, as indicated by reporting a greater

number of criminal friends. This suggestion is, however, in need of further empirical investigation.

As with all research, the present study has a number of limitations that need to be taken into consideration while considering these findings. First, the present sample included juvenile male offenders only and as such we could not test for sex differences with respect to subgroups or key risk factors. Although previous work with female juvenile offenders (Odgers et al., 2007) supports the existence of similar offending subtypes, in this study due to the nature of the present sample it was not possible to test directly for differences across sex. Consequently, replication of our findings in a sample of both male and female juvenile offenders is required. Second, self-report assessments of delinquency used in some prior research contained considerably more items than were used in the present research (e.g., Hindelang, Hirschi, & Weis, 1981; Quay & Peterson, 1983). It is, therefore, possible that the restricted range of items used to create the class solution was not sufficient to typologically cast these youths. Consequently, it is possible that the inclusion of a broader measure would have led to a different class solution being found. However, the three-class solution is consistent with previous research (Brownfield & Sorenson, 1987; Hasking et al., 2011; Lee et al., 2007; Odgers et al., 2007; Osgood et al., 2002) and the nature of the sample meant further item inclusion was not possible. Third, there is the possibility of response biases because young offenders provided self-report data. However, recent reviews suggest that adolescents tend to be reasonably truthful in reporting rates of problematic behaviours (e.g., Oetting & Beauvais, 1990). Despite this, the extent to which the structure of delinquent behaviour found through self-reporting would generalise to other assessment methods clearly remains to be seen.

Finally, a restricted set of external variables, albeit reliable and valid ones were used to characterise the classes. However, numerous predictors that have been identified as risk factors for delinquency were not included in the present study. For instance, psychopathic traits have been linked with onset to and development of delinquent behaviours (e.g. Dhingra & Boduszek, 2013). Although the main interest in the present research was the relationship between class membership and the three CSI components, the inclusion of a broader set of factors might have been advantageous.

Despite these limitations, implications for clinical practice and prevention can be noted, as well as implications for the assessment of problem behaviours in adolescents. The findings of the present study demonstrated the considerable diversity that exists among male juvenile incarcerated offenders in Pakistan. Admittedly, the findings of the present research are not entirely novel and require further replication; however, they underscore the need to recognise that not all youths in Pakistan who become involved with the justice system are the same—both in terms of their delinquent behaviour profiles and associated risk profiles. Given the wide ranging behaviours reported across the classes, programmes that combine normative education and skills building (e.g., Prothrow-Stith, 1987) might be most effective. The present results also indicate a need to move beyond classifying youth based on their engagement in one type of behaviour (i.e., adopting a "one size fits all approach"). This is because a failure to do so may prevent us from furthering our ability to understand the mechanisms underlying their behaviour. For instance, although some variables may increase an adolescent's general risk for involvement in delinquent behaviour, others may exert greater influence on specific delinquent acts (e.g., some risk factors may be particularly relevant to truancy and lying or cheating).

Building on the findings of previous studies using normative samples, the present study confirmed that three distinct classes of delinquency exist. Class membership was also found to be differently related to two of the three factors of criminal social identity (in-group affect and in-group ties), as well as criminal friends. Thus, the present research furthered the understanding of how delinquency is best conceptualized as well as provides further direction for clinical practice and prevention efforts.

CHAPTER 6

Empirical study 3

Criminal Social Identity and Suicide Ideation among

Pakistani young offenders

Abstract

Suicidal behaviour is a common among an incarcerated population, yet little is known about the factors that may protect against thoughts of ending one's life. The main objective of the present chapter was to specify and test a structural model by using Mplus to examine the relationship between the three factors of criminal social identity (In-group affect, In-group ties, and Cognitive Centrality) and suicide ideation while controlling for period of confinement, age and offence type (violent and non-violent). The sample size was ($N = 415$) male juvenile offenders incarcerated in different prisons in Khyber Pakhtunkhwa (KPK) Pakistan. The model provided an adequate fit for the data explaining 22% of variance in suicide thoughts. Results indicated that in-group ties (the level of personal bonding with other criminals) exerted strong protective effects against suicide ideation. It can be concluded that juvenile offenders' sense of shared identity may help to prevent the development of thoughts of death by suicide. Consequently, separating and isolating young prisoners may be ill advised.

6.1 Introduction

Suicidal behaviour and completed suicides are serious problems in prison inmates. It has been found that suicide is 11-14 times more prevalent in the prison population than in the general population (Lekka, Argyrious, & Beratis, 2006). The reported rates of suicide in prisons are approximately five times higher in men, with a particularly striking excess in boys aged 15 to 17 years, than in the general population over a quarter of century in England and Wale (Fazel et al., 2005). It was reported in one US city (Detroit) that the rates of suicide in jails were eight times higher than in the general population (DuRand, Burtka, Federman, Haycox, & Smith, 1995). Suicide rates in prisons, calculated in Austria, Australia, and New Zealand were 5-10 times higher than in the general population (Fruehwald, Frottier, Eher, Gutierrez, & Ritter, 2000; Kariminia, Law, Butler, Corben, Levy, Kaldor, Grant, 2007; Skegg & Cox, 1991). Similarly, an ecological study examined the prison inmate suicide rates in 12 different countries, and compared them with general population rates of suicide and rates of incarceration in each country. The results of that study indicated that mean rates of suicide were at least three times higher than the general population (Fazel et al., 2011). The prisoner suicide rates in Western countries are similar to and mostly higher than those in Australia, Canada, and New Zealand and there was no association between the rates of suicide in prisoners and general population rates (Konrad, Daigle, Daniel, Dear, Frottier, Hayes, Kerkhof, Liebling, & Sarchiapone). The rate of attempted suicides attempted among pre-trial detainees is about 7.5, and in sentenced prisoners almost 6, times higher than the rate of males at home (Konard et al., 2007). However, in Pakistan, the comparison between inmate suicide rates with suicide rates in general population has not been reliably quantified.

It has been argued that understanding suicide that is consists of both: an event (the event being a self-inflicted death) and a process (include multidimensional sequences of events) (Marzano, Hawton, Rivlin, & Fazel, 2011). It is suggested that this process is developed in such a way that initially suicidal ideation becomes plans and then is followed by action upon that plans (Marzano et al., 2011). To understand the concept of suicide as a process, it is important to know about the duration, development and characteristics of this process because it is 'something' in which individual can 'intervene' potentially on several levels (Marzano et al., 2011). Theoretical models of suicide suggest that suicidal behaviour depends on the cumulative and interactive effects of several social, environment, familial, personality, and mental health factors, and is rarely the consequence of a single cause or event (Rivlin, Hawton, Marzano, & Fazel, 2013). Criminologists have argued for the importance of social and environmental factors for inmate suicide by using predominantly qualitative data. Recent ethological study reported that the rate of overcrowding in incarceration is another factor associated with suicide rates (Leese, Thomas, & Snow, 2006). It is also suggested that those people who break the laws inherently, have many risk factors for suicidal behaviour and even after their release from prison, the suicide rate is higher within this ex-offender group. However, being imprisoned is another stressful event and it does not mean that correctional services are not responsible for the suicide of offenders: there is crucial need to treat these vulnerable offenders while they can be reached inside the prisons (Konrad et al., 2007).

Age, gender, ethnicity, marital status, family background, penal history, psychiatric history, and environmental and situational factors are most frequently cited in relation to suicide (Meltzer, Jenkins, Singleton, Charlton, & Yar, 2003). A theoretical approach to prion suicide drawn from the field of psychology and psychiatry, from psychological

autopsies, found higher rates of psychiatric morbidity, previous suicidality, and recent stressful events by examining the characteristics of those who have died in custody (Fazel et al., 2008; Fruehwald, Matschning, Koenig, Bauer, & Frottier, 2004).

In another study, demographic, criminological, and psychiatric factors associated with inmate suicide were examined by systematic review of case-control comparison. Psychiatric disorder, suicidal thoughts, and long-term sentences have been found as high risk factors for inmate suicide by comparing them with general population. They also found suicide risk elevated during the first week of their custody among those inmates who had drug and alcohol problems (Blaauw et al., 2005; Fruehwald et al., 2004; Shaw, Baker, Hunt, Moloney, & Appleby, 2004). A study carried out meta-analysis of risk factors for inmate suicide and found that strongest risk factors for inmate suicides are: environmental (being in a single cell); psychiatric (a history of attempted suicide, recent suicidal ideation, and current psychiatric diagnosis); and criminal history (being on remand, having received a life sentence, and having a violent index offence) (Fazel et al., 2008).

Another important and common risk factor for prisoner suicide is self-harm. Research reported 109 subsequent suicides in prisoners who self-harmed (Hawton, Linsell, Adeniji, Sariaslan, & Fazel, 2014). The risk of suicides is higher in those prisoners who self-harmed than in the general prison population (Hawton et al., 2014). A systematic review reported that about 50% of people who died by suicide in the prisons, had a history of self-harm (Hawton et al., 2014). There is need to understand how frequently self-harm is followed by suicide, and in which prisoners this progression is most likely to happen. Additionally, research reported that psychosocial factors associated with self-harm in prisoners are: higher levels of depression, hopelessness,

impulsivity, hostility, aggression, adverse life events, prior prison spells and being bullied in prions, as well as low self-esteem and social support (Rivlin et al., 2013).

Furthermore, the correctional settings are also a most common cause among other factors of inmate suicide (Konrad et al., 2007). It is argued that an interaction between a stressful environment and psychological vulnerability of the inmate produces higher suicide rates among prisoner inmates (Blaauw, Schilder, & DeLande, 1998; Davis & Muscat, 1993; Liebling, 1994; Schofield, Pattison, Hill, & Borland, 2003). Considerable evidence exists that the stressful effects of imprisonment (Blaauw, Winkel, & Kerkhof, 2001) feelings of unsafety (Wolff, Shi, & Siegel, 2009), decreased emotional well-being, poor coping (Gullone, Jones, & Cummins, 2000), long sentences and hopelessness regarding the possibility of release from isolation, and segregated housing (Bonner, 2006; Marzano et al, 2005), mental disorders (Blaauw, Arensman, Kraaij, Winkel, & Bout, 2002; Johnson & Dobrzanska, 2005), low self-esteem (Castellano, & Soderstrom, 1997; Oser, 2006) and physical and psychological problems (Conklin, Lincoln, & Tuthill, 2000; Haney, 2003a, 2003b; Oser, 2006) , are substantial risk factors of suicide among the incarcerated population.

Inmate suicides have significant and widespread consequences. They affect other prisoners, prison staff, and the prisoner's family and friends. Consequently these people experience adverse emotional outcomes, including feeling of guilt for not detecting the signs and the sense of powerlessness to prevent such occurrences (McHugh & Snow, 2002). Although suicide rates are higher in prisoners than in the general population, the degree of excess has not been quantified in many countries. In monitoring such trends, sufficient funds, and long term observation are needed (Fazel et al., 2005). For suicide prevention among the incarcerated population, there is need to provide sufficient psychiatric services to the prisoners with psychological problems and mental illness

(Fazel et al., 2005. Due to strong association between drug abuse and prison suicide prisoners with alcohol use problems should be given priority for clinical intervention (Fazel et al., 2008). Shared accommodation is suggested for those thought to be vulnerable because strong association has been found between being accommodated in a single cell and self-inflicted death (Fazel et al., 2008) Interviewing prisoners with near-lethal suicide attempts is an appropriate way to investigate the relationship between potential risk factors and prison suicide. Providing purposeful activity is another preventive factor and it is suggested that providing purposeful activities to prisoners has been found negatively associated with inmate suicide (Fazel et al., 2008). For prevention of suicide in prisons, it is important to raise staff awareness and provide further training to initiate appropriate preventive measures to identify at reception the prisoners with high risk of self-harm. In more serious cases medical and psychological treatment should be provided. There is an essential need to consider greater health care involvement in prisons and to change the negative attitude of prison officers and health-care staff for the prevention of inmate suicide.

Moreover, research has emphasized that the sense of belonging is a powerful motivation and lack of belonging is linked to a variety of ill effects on health, adjustment and well-being (Baumeister & Leary, 1995) Additionally, considerable evidence exists that sense of belonging is a protective factor for suicide (McLaren & Challis, 2009) . Furthermore, the interpersonal-psychological theory of suicide behaviour (Joiner 2005) postulated that the need to belong is fundamental; when it is met it lowers the risk of suicide and when thwarted it can considerably increase the risk of suicide.

Therefore, one of the aims of the present study is to examine that whether Criminal Social Identity (CSI) might play a potential role against the development of suicide ideation in prison using a sample of juvenile Pakistani prisoners.

6.1.1 Boduszek and Hyland's Theory of Criminal Social Identity

As explained in the previous chapter, Boduszek and Hyland's (2011) theory of criminal social identity posits that those individuals who are oriented towards criminal behaviour and have internalized criminal concepts of behaviour are at higher risk of engaging in criminal activity (Boduszek et al., 2011c). Research indicates that development of criminal social identity increases criminal thinking which subsequently increases individuals' likelihood of involvement in criminal behaviour (Boduszek & Hyland, 2011a). Furthermore, most empirical researches testing the merits of this theory have focused only on how criminal social identity predicts and understand the various aspects of criminality including criminal thinking (Boduszek et al., 2012a), criminal attitude (Boduszek at el., 2011c), violent or non-violent offending (Boduszek et ., 2013b), criminal association (Boduszek et al., 2013a) and recidivism (Boduszek, Hyland, Pedziszczak, & Kielkiewicz, 2012d) . Thus, CSI is generally considered to be a risk factor (Boduszek et al., 2012a; Boduszek et al., 2013a; Boduszek et al., 2013b) for criminal behaviour. However, it is possible that CSI might also have some positive aspects; therefore, the main objective of the present chapter is to investigate that positive impact upon individuals.

It is proposed that the social environment, including comparison communities, families, friends, neighbourhood, work team and other external variables provides settings for an individual's behaviour. These groups are not only important features of the external world but also form the individual's behaviour. Indeed, they shape her or

his psychology through their capacity to be internalized and contribute to the individual's sense of self. Thus these groups provide the individual with a sense of social identity (Haslam, Jetten, Postmes, & Haslam, 2009a). It is postulated that social identity refers to the individual's self-concept derived from the individual's knowledge of belonging to a certain group (Baumeister & Leary, 1995; Tajfel, 1978; Tajfel & Turner, 1979). There is a wealth of research demonstrating social identity in terms of religious, cultural or demographic associations (e.g. Boatswain & Lalonde, 2000; Cameron & Lalonde, 2001; Obst, Smith, & Zinkiewicz, 2002). However, the concept of criminal social identity has only been explored (Boduszek & Hyland, 2011a). As was outlined in the previous chapter, CSI was developed by Boduszek and Hyland (2011b) based on Cameron's (2004) conceptual and empirical work and underpinned by three related components of criminal social identity: cognitive centrality, in-group affect, and in-group ties. *Cognitive centrality* exhibits the cognitive importance of an individual's belonging to a criminal group, *in-group affect* reflects the emotional valence of an individual's belonging to a criminal group, and *in-group ties* refers to an individual's emotional connection or attachment with other members of a criminal group. Furthermore, when individuals relate themselves to important social groups like family, friends, work, support teams, religious and other social entities, they don't see the members related to those entities as "others" but routinely embrace these other members as "us". Therefore they psychologically relate to these social entities; however, to explain it in broadly rational term, the entities with which they engage help them to define themselves who they are. The important reason why they are willing to embrace other members in this way is that such entities have the capacity to enrich their lives in different ways: as a source of personal security, social companionship, intellectual stimulation, emotional relationship, and collaborative learning. Therefore, groups have

qualitative advantages over individual as they allow the individual to achieve goals and levels of agency that would otherwise be unachievable. Haslam and colleague (2009b) proposed that individuals' self -concept is enhanced not only by knowing that they belong to a certain group but also that they are different from the members of other groups. This "ourselves" verses "themselves" distinction is not only helpful in their self-understanding but also has an impact on their self-evaluation and sense of worth. Particularly if they achieved their sense of self through the process of positive intergroup comparisons, it would tend to enhance self-esteem, well-being and mental health. In contrast negative group comparison is likely pose a threat to well- being. However, Boduszek and Hyland (2011a) proposed that criminal social identity originates from the process of negative social comparisons carried out by individuals who have failed in their pro-social roles and exhibit non-conforming behaviour.

Social contextual factors determine the individual's internalization of particular social identities that is critical for understanding the meaning of socio-demographic factors and individual responses to the various stressors and threats with which those factors are associated. However, research has found social identity to be a contributory factor to long-term well-being and group performance in a range of different contexts (e.g., organisational, clinical, and educational; Haslam, Powell, & Turner, 2000; Van Knippenberg & Ellemers, 2003; Wegge, Van Dick, Fisher, Wecking, & Moltzen, 2006); as determinant of health-related norms and behaviour (e.g., Haslam, Waghorn, O'Sullivan, Jetten, & O'Brien, 2005; Haisser, Kattenstroth, van Dick, & Mojzisch, 2012); as determinant of symptoms, appraisals and responses (e.g. Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005; Levine & Reicher, 1996); and as a basis for social support (e.g., Haslam et al., 2009; Postmes & Branscombe, 2002).

6.1.2 Social identity as Determinant of Well-being in Different Contexts

It is suggested that there is a relationship between social identity and well-being in a range of organizational, clinical and education contexts. By exploring social identity in educational contexts, it has been found that teachers' and students' identification with their school not only predicts the persons' anxiety and depression but is also a positive predictor of the ability to maintain emotional control and disruptive behaviour (Bizumic, Reynolds, Turner, Bromhead, & Subasic, 2009).

Examining the role of social identity in clinical context has found that the loss of social identity (e.g. job restructuring or retirement) had dramatic negative impact on individual's well-being and mental health (Jetten, O'Brien, & Trindall, 2002).

Thus social identity is not only an important factor for individual well-being but is also essential for the sustainability of the institutions and societies in which the individual is embedded (Haslam et al., 2009a). Furthermore, Rivlin, Hawton, Marzano, and Fazel (2013) suggested that increased levels of an individual's socialization into the norms of the group is associated with decreased levels of self-harming and suicidal behaviour.

 Furthermore, Haslam and Reicher (2006) in their nine-day examination of prisoners and guards in a simulated prison environment found that prisoners developed a sense of shared social identity and subsequently resisted the stressors they faced; their well-being increased and their level of cortisol remained stable. On the other hand the guards' well-being declined and their cortisol increased over the same period of time due to their failure to develop shared social identity and as a group consequently they failed due to their inability to resist the threat posed by the prisoners (Haslam & Reicher, 2006). Therefore, shared identity may lead prisoners to provide each other with social support that serves to protect them from the stressors that they face.

6.1.2.1 Social identity as a determinant of health-related behaviour

Social identity plays important role in determining that whether people involve in a particular behaviour that places their (and others') health at risk. It is suggested that particular behaviour (e.g. smoking, drug taking, and sexual activity) are driven by norms related with identities that become salient for the people in particular context. It is suggested that individual in the salience of social identity (e.g. the family) may be far less willing to smoke than in the company of others (e.g. teenage peer groups who smokes) (Kobus, 2003; Schofield et al., 2003).

6.1.2.2   Social identity determines social appraisals

It is suggested that in the salience of social identity the appraisals and responses of individuals become moderated. For example, asthma sufferers were much more likely to take their medication if they characterized themselves as members of a group that suffered from asthma.

6.1.2.3   Social Identity as a basis for social support

Much research supports the idea that shared identity has positive impact on work and life satisfaction (Cohen & Wills, 1985; Haslam, et al., 2005). Social identity proved a strong predictor of well-being in a wide range of contexts, for example organizational, clinical and educational settings (Haslam, Jetten, & Waghorn, 2009b; Postmes & Branscombe, 2002). Social identity not only affects individual psychology in isolation but serves as a structure for social interaction and is central to the accumulation of health-related social capital. Those who are in the position to provide and receive social support perceive themselves to share a sense of social identity. It is evidenced that the helper's willingness to assist the stranger in stressful situation is enhanced if both the

stranger and helper share a salient social identity (Levine, Cassidy, Brazier, & Reicher, 2002). In addition, evidence by longitudinal research suggests that social identification with a workgroup has positive and long-term impact on individual's health, well-being and morale because it is associated with the support and appreciation factors which protect individuals from burnout in demanding phases of group identification (Haslam et al., 2009b).

6.1.2.4 Social identification as a coping resource

Beside evidence of the relationship between social identity and social support, research has also shown that a sense of shared identity underpins the capacity of group members to work in collaboration to cope with the negative consequences of their circumstances. It is argued that salient shared social identity of stigmatised group members provides basis for giving, receiving and benefiting from social support that substantially provides emotional, intellectual and material support to the members of that group to cope and resist the injustice of discrimination, prejudice and stigma (Cohen & Wills, 1985).

Social identity not only forms individual psychology but also enhances the coping resources of individuals (Haslam et al., 2009b).

6.1.3 Current Study

To examine the close relationship between suicidal ideation and completed suicide among prisoners it is essential to understand those factors that contribute to, and prevent, the development of suicidal thoughts. The main objective of the present chapter is to examine the relationships between the three factors of CSI and suicidal thoughts while controlling for age, offender type (violent or non-violent), period of confinement, and addiction by using structural equation modelling techniques. As shared social

identity might serve as effective support for in-group members to work together to buffer themselves from the negative consequences of their circumstances, it is hypothesised that suicide ideation will be negatively associated with the three components of CSI. Moreover, consistent with previous research (Webb, Shaw, & Stevens, 2012), it is suggested that violent offence type will be positively associated with the presence of suicidal thoughts. Additionally, in the light of prior research (Frottier, Fruehwald, & Ritter et al., 2002; Humber, Piper, Appleby, & Shaw, 2011; Konrad et al., 2007), it is predicted that the relationship will be positive between drug addiction, age and period of confinement suicide ideation. These hypotheses are tested within a sample of Pakistani juvenile offenders using data incorporated in a single structural model.

The context of the current chapter is very important. Information related to suicidal behaviour and completed suicide among the general population in Pakistan is limited as a result of complex social, religious, psychological and legal factors (Farooqi, 2004; Khan et al., 2008; Khan & Reza, 2000; Khokher & Khan, 2005). Pakistan is a South Asian Islamic country and Islam condemns suicide as an unforgiveable sin (Farooqi, 2004; Khan, 2007; Khan et al., 2009; Khan, Naqvi, Thaver, & Prince, 2008b; Khan, & Reza, 2000; Khokher & Khan, 2005). According to Pakistani law, both suicide and attempted suicide are considered criminal offences (Pakistan Penal Code 309) (Khan et al., 2009; Khan & Reza, 2000). Indeed, data on suicide is not included in the annual national morbidity statistics, and, as a result, rates of suicide are neither known nor reported to the World Health Organisation (WHO; 2008). Information related to suicidal behaviour in the Pakistani incarcerated population remain undetermined with any degree of accuracy and the true extent of the problem is lacking due to the difficulty

in data collection. However, there is crucial need to study such feelings in the incarcerated population.

<div align="center">

6.2 Method

</div>

6.2.1 Participants and Procedure

As reported in Chapter 2, the participants were 415 male juvenile prisoners incarcerated in the different prisons of Khyber Pakhtunkhwa (KPK) Pakistan wherever they were located. The respondents' age range was between 11 and 18 years (M = 16.53, SD = 1.93). Most offenders came from rural areas (69.6%), were bought up in a single-parent home (53.3%), and most of them had been imprisoned for non-violent crimes (74.7%). They reported their duration of imprisonment ranged from 1 to 36 months (M = 6.29; SD = 5.93). In addition, demographic information was collected including age (continuous), period of confinement (in months), and offender types (violent or nonviolent).

6.2.3 Materials

The Measure of Criminal Social identity (MCSI; Boduszek et al., 2012) consists of eight items based on Cameron's (2004) Three-dimensional Strength of Group Identification Scale. Each item is scored on a 5-point Likert scale (1= *strongly disagree* to 5 = *strongly agree*). Scores range from 8 to 40, with higher scores reflecting higher levels of criminal social identity. For the prevention of response biases, three items included in the scale were scored in reverse direction (i.e., *strongly agree* =5 and *strongly disagree*=1). The measure included three subscales: cognitive centrality (three items), which assesses the psychological salience of criminal's group identity; in-group affect (two items), which assesses a criminal's felt attitude towards other in-group criminals; and in-group ties (three items), which assesses a criminal's level of personal attachment to other in-group members.

The MCSI was translated from English into Urdu by the principal researcher and then sent to a group of academics to translate the Urdu version back into English. The translation of the MCSI, along with the original English version, was then submitted to three experts who indicated appropriate changes. According to their indication the word 'criminal' was amended to 'delinquent' (*khtakar* in Urdu translation) due to the sample age range.

Suicidal thoughts were assessed using two items: 1) "I have thoughts of killing myself since entering prison"; 2) "I would kill myself if I had the chance".

Addiction was assessed using the single item, "are you addicted to any drug?

6.2.4 Analysis

The conceptual model (Figure 1) was specified and estimated in Mplus 6 with restricted maximum likelihood estimation (Muthén & Muthén, 1998–2010), using structural equation modelling (SEM). SEM is considered as a broad method to test a theoretical construct through analysing multivariate data. The common SEM consists of path analysis (PA) and factor analysis (FA) (Boduszek, Adamson, Shevlin, Hyland & Dhingra, 2013e). PA measures the associations among observed variables which are displayed in a path diagram (Cohen & Cohen, 1983) while FA measures a complex data set by combining related observed variables into latent factors. Thus, SEM is beneficial because it allows theory testing by verifying correlations between observed and latent variables. Therefore, in the structural part of analysis, four latent factors were identified: in-group affect, in-group ties, and Cognitive Centrality (as indicated by Boduszek et al., 2013a; Cameron, 2004), and suicide ideation (measured by responses to two items).

Observed covariates included in the model are: type of offence (violent or non-violent), duration of confinement, addiction, and age.

Chi-square (χ^2), Standardized Root Mean Square Residual (SRMR), Root-Mean-Square Error of Approximation (RMSEA; Steiger, 1990) with 90 % confidence interval (90 % CI), Comparative Fit Index (CFI; Bentler, 1990), and the Tucker Lewis Index (TLI; Tucker & Lewis, 1973) were used to assess the model. A non-significant chi-square (Kline, 2005) and value above .95 for the CFI and TLI are considered to reflect a good model fit (HU & Bentler 1999; Vandenberg & Lance, 2000). However, a value above 0.90 for both CFI and TLI indicate adequate fit (Bentler, 1990; Hu & Bentler, 1999). RMSEA and SRMR values less than 0.05 suggest good fit and values of up to 0.08 indicate reasonable errors of approximation in the population (Browne & Cudeck, 1993).

Figure 6.1

SEM model of relationship between criminal social identity and suicidal thoughts
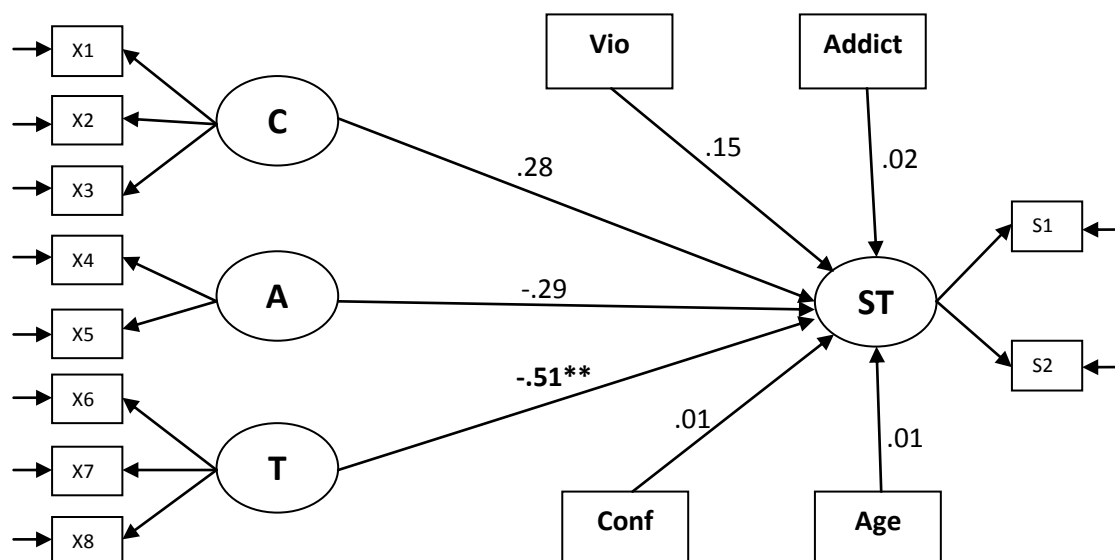
6.3 Results

6.3.1 Descriptive Statistics and Correlations

Descriptive statistics, including means (*M*) and standard deviations (Larsson et al., 2007) for three subscales of CSI (in-group affect, in-group ties, and cognitive centrality) and age (in years) period of confinement (in months) along with Cronbach's alpha reliability (Cronbach, 1951), are presented in Table 6.1. The descriptive statistics show high levels of in-group ties and centrality, and moderate levels of in-group affect indicated for juvenile offenders.

The relationship among all continuous variable were investigated using Pearson's product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

Table 6.1

Descriptive statistics for the three CSI factors (in-group affect, in-group

ties, and cognitive centrality), age, and period of confinement

Variable	*M*	*SD*	Range	Possible range	Cronbach's Alpha
In–group ties (T)	12.18	2.87	3-15	3-15	.81
In-group affect (A)	6.80	2.37	2-10	2-10	.91
Centrality (C)	11.03	2.08	4-15	3-15	.68
Age (years)	16.53	1.93	11-18	N/A	N/A
Period of Confinement (months)	6.29	5.93	1-36	N/A	N/A

6.3.2 SEM Model of Relationship between CSI and Suicidal Thought

A two-step procedure was adopted in order to test the model proposed in the current research. At first step (measurement level), the adequacy of the three-factor model of MCSI was assessed using CFA. The second step (structural level) was to analyse the overall model fit for the structural model.

6.3.2.1 Measurement level

At measurement level the adequacy of the three-factor model of MCSI was tested using CFA to explain the underlying factors of the MCSI. CFA analysis indicated satisfactory fit of the data, CFA = .96, TLI = .93, RMSEA = .07 and SRMR = .05. The adequacy of the three-factor model of CSI was further supported by the parameter estimates. All items displayed statistically significant (P <.001) factor loading on their respective factors as can be seen in Table 6.2. Furthermore, all factor loadings were in the expected direction and all items displayed factor loading above .5, thus, generally satisfying the strict recommendations of Hair, Anderson, Tatham, and Black (1998). The fit of the proposed SEM (Fig. 6.1) was satisfactory ($\chi2$ = 126.78, df = 53, p > .05; RMSEA = .05 [90% CI = .04/.07]; SRMR = .04; CFI = .94; TLI = .91) and explained 22 % of the variance in suicidal thoughts.

Table 6.2 presents the standardised and unstandardized path regression weights for the specified structural model of suicidal thoughts, along with the factor loadings for the three-factor model of criminal social identity. As can be seen, all observed variables are significantly correlated with the latent factors of which they form a part.

Table 6.2

Standardized and Unstandardized Factor Loadings (and Standard Errors) for the the measurement level of the proposed SEM model

Item	B	*B*	SE
MEASUREMENT LEVEL			
Centrality (C) by			
1. Being a delinquent has little to do with how I feel about myself in general	1.00	.55***	.06
2. Being a delinquent is an important part of my self-image	1.31	.85***	.05
3. The fact I am a delinquent rarely enters my mind.	.94	.53***	.06
In-group Affect (A) by			
4. In general, I'm glad to be a part of delinquent group	1.00	.89***	.03
5. Generally, I feel good about myself when I think about being a delinquent	1.08	.93***	.03
In-group Ties (T) by			
6. I have a lot in common with other people who committed a crime	1.00	.85***	.03
7. I feel strong ties to other people who committed a crime	1.24	.88***	.03
8. I find it difficult to form a bond with other people who committed a crime	.86	.62***	.04
Suicidal thoughts (ST) by			
1. I would kill myself if I had the chance	1.00	.32**	.14
2. I have thoughts of killing myself	1.45	.44**	.17

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

6.3.2.2 Structural level

At the structural level, the overall model fit was analysed. In the analysis all the direct paths are included from the three CSI factors and covariates: type of offence (violent or non-violent), duration of confinement, addiction, and age, to suicidal thoughts.

Table 6.3 (structural level) presents the standardised and unstandardized path regression weights for the specified structural model of suicidal thoughts. Results indicated that a significant negative relationship exists between suicidal thoughts and in-group ties ($\beta = -.51$, $p < .001$). However, none of the other variables included in the model yielded significant results.

Table 6.3

Standardized and Unstandardized Factor Loadings (and Standard Errors) for

the the structural level of the proposed SEM model

Item	B	*β*	SE
STRUCTURAL LEVEL			
C ➔Suicidal thoughts	.13	.28	.15
A ➔Suicidal thoughts	-.06	-.29	.16
T ➔Suicidal thoughts	-.14	-.51***	.19
Violence ➔Suicidal thoughts	.08	.15	.14
Age ➔Suicidal thoughts	.01	.01	.11
Addiction ➔Suicidal thoughts	.01	.02	.13
Confinement ➔Suicidal thoughts	.01	.01	.10

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

6.4 Discussion

The objective of the present study was to specify and test a structural model examining the relationship between the three factors of CSI (cognitive centrality, in-group affect, and in-group ties) and suicide ideation, while controlling for age, offender type, period of confinement, and drug addiction in a sample of young Pakistani male prisoners. Results show that of the variables included in the model, the only significant relationship was between in- group ties and suicidal thoughts. Specifically, the relationship was negative and so the participants scoring higher on the in-group ties subscale (assessment of a criminal's level of personal attachment with other in-group members) were less likely to report suicide ideation. It is suggested that in-group ties of CSI may provide a sense of belonging which can prevent the desire to die by suicide (Joiner, Brown, Wingate, 2005).

Although a study shows that problematic substance use has been associated with suicidal ideation in general population samples (Borges & Loera, 2010). SEM results in the current study indicate that in the present sample of juvenile offenders, regular pre-incarceration illicit drug use was not associated with suicidal ideation. At least two other studies related to suicidal ideation in prisoner reports a lack of association with alcohol and drug use (Jenkins, Bhugra, & Meltzer et al., 2005; Larney, Toson, Burns, & Dolan, 2012). Although the reason why substance abuse and suicide ideation are not significantly related is not clear, it may be that the high prevalence of problematic substance use among prisoners may mean that it is not a useful predictor of suicide ideation in this population. Furthermore, inconsistent with previous research, age is unrelated to suicide ideation; however, this was not entirely unexpected given the limited age range of the present sample, because research indicates that those who attempt suicide in prison are generally between the ages of 30 and 35 years (Konrad,

Daigle, & Daniel et al., 2007). Similarly, period of confinement was not related to suicide ideation and this was also not entirely unexpected given that offenders who attempt suicide, spent considerably longer time in custody than the juvenile offenders had been in the present research (often 4 or 5 years; Konrad et al., 2007).

6.5 Implications

It is suggested that the transition from ideation to attempted suicide is becoming rapid with more than 60% of transitions occurring during the first year after initial onset of suicide ideation (Nock, Borges, & Bomet et al., 2012), and thus the window of opportunity for preventative initiatives after the onset of ideation remains quite narrow. Perhaps it would be better to direct intervention efforts towards the prevention of suicide ideation in the prison population rather than towards prevention of the transition from ideation to more serious outcomes. However, the results of the present study might suggest that the scope for well-being and mental functioning of prisoners would be enhanced through maintaining or increasing the individual sense of shared social identity. The present study thus suggests that juvenile offenders' sense of shared identity may help to prevent the development of thoughts of death by suicide: and that separating and isolating young prisoners is perhaps unadvisable.

6.6 Limitations

To interpret the findings of the present study, as with all research, there are several limitations that need to be taken into consideration. First, it is important to note that there is the potential for bias as a result of stigma and sensitivity related to suicide in Pakistan, and the self-report nature of the data. Although it is not possible to determine the extent to which this may have affected the results, under-reporting of suicide ideation would contribute to more conservative findings. Second, suicide ideation was only measured using two items due to limited time. However, the use of psychometrically validated measure of suicide ideation is suggested for future research. A third limitation of the present study was the relative homogeneity of the sample. Research with more diverse samples (for example participants from other cultural and linguistic backgrounds, and more diverse and extensive prison samples) is recommended for future studies. Fourth, in the present study, a number of variables associated with suicide ideation (including the components of Joiner's 2005 model) were not included. Joiner's 2005 theory proposed that the two interpersonal constructs, thwarted belonging and perceived burdensomeness, are proximal and sufficient causes of passive suicidal ideation. In the present study, the second construct was not measured due to the juvenile participants. The questionnaire to assess burdensomeness has questions which are too blunt and therefore unethical for a juvenile population (e.g., these days I think my death would be a relief to the people in my life). Additionally, it is necessary to explore the impact of a wide range of psychological characteristics (e.g. depressive symptoms, hopelessness, self-esteem, impulsivity, aggression and hostility), life events (e.g. childhood trauma), and environmental and criminological factors (e.g. prior incarceration, extent and quality of prisoners' social networks) on suicide ideation within this population.

Despite all these limitations, it is worth noting too that these findings are of interest not only for researchers working in the field of criminal psychology but also for those who are turning to the criminal social identity approach for the first time. The present research not only contributes important information on suicide ideation in Pakistan, an Islamic country in which data collection poses considerable challenges, but also suggests that in-group ties or the psychological perception of resemblance and emotional connection with other members of a particular group, may serve to protect Pakistani juvenile offenders from developing suicide ideation.

However, understanding which prisoners among those with suicide ideation will transition to make a suicide plan and attempt is an important direction for future research due to its possible impact on clinical practice (Borges, Angst, & Nock et al., 2006).

CHAPTER 7

CONCLUSION

7.1 Conclusion

This thesis has presented an Urdu version of the reliable and valid measure of criminal social identity which was first prosed by Boduszek and Hyland (2012a). Criminal social identity plays an important role in understanding criminal behaviour. The reason for producing an Urdu version self-report measure of criminal social identity was the need for an instrument that can investigate the role of criminal social identity among juvenile offenders in Pakistan. Therefore, the present work was threefold: to translate the measure of criminal social identity into Urdu, and to extend the earlier research on juvenile offenders to explore the role of criminal social identity in another culture, i.e. among Pakistani juvenile offenders; second, to identify the appropriate number of latent classes of delinquent behaviour and the associations between class membership and CSI factors; third, to examine the relationship between the three factors of criminal social identity (In-group affect, In-group ties, and Cognitive Centrality) and suicide ideation among juvenile offenders.

The first stage of the present research examined whether it would be possible to utilise the measure of criminal social identity scale in a sample of 415 juvenile offenders from 11-18 years, located in the different prisons of Khyber Pakhtunkhwa province, Pakistan. As the MCSI is a relatively new self-report measure to assess criminal social identity, further investigation of its construct validity and dimensionality was essential. Boduszek et al., (2012) found empirical support for a three-factor model of CSI among Polish prisoners, although, it is possible that the same structure may not apply to more diverse samples (i.e., participants from other cultures and linguistic backgrounds and more diverse and extensive prison samples). Thus, the first Empirical chapter aimed to test whether the translated measure was reliable and valid, and could

be used for the purposes of the rest of the research (see Empirical chapters two and three).

Therefore the first step was to translate the measure of criminal social identity scales into Urdu, the national language of Pakistan, back translated and administered to the juvenile offenders to examine its dimensionality, composite reliability, and incremental validity. In order to find the best fitting model, the data was subjected to confirmatory factor analysis (CFA). The present study tested four theoretically plausible solutions including three traditional CFA models and one bifactor model. The first model included criminal social identity (CSI) as a one-factor model. The second model examined a two-factor model of CSI: cognitive centrality, and a factor measuring emotional association with criminal others. The third model of CSI included three factors: cognitive centrality, in-group affect, and in-group ties. The specifications for each of these models were taken from the results of previous factor analyses (Boduszek et al., 2012; Cameron, 2004; Obst &White, 2005). The fourth model was a conceptualisation of the bifactor model, containing four latent variables: a single general factor of CSI and three grouping factors (cognitive centrality, in-group affect and in-group ties). The results suggested a three factorial solution was the best fit to the data.

Moreover, a more thorough examination of the accuracy of treating in-group affect and in-group ties as distinct dimensions was necessary due to a high correlation between these latent variables. In order to investigate the incremental validity of the scale, the three factors of the Urdu version of MCSI were correlated with offence type (violent or non-violent), period of confinement, the criminal friends index and age, within a structural equation model. In-group affect and centrality were positively associated with the criminal friend index, while age was negatively associated with centrality. The

differential relationship between the three MCSI factors and external factors was an important finding of the present study. It indicates that the Urdu version of MCSI measures substantially different dimensions, despite the high level of correlation observed between the in-group affect and in-group ties factors (see Carmines & Zeller, 1979).

In short, the present research replicates the three-factor model of criminal social identity in Pakistani juvenile offenders and provides further evidence there-factor model of criminal social identity exists in various culture, Polish prisons as well as Pakistani the prison population.

Previous studies have indicated that persistent criminal social identity (CSI) plays an important role in developing criminal behaviour. Studies on the number and nature of classes of juvenile delinquency are fairly well documented in the USA and other Western countries (Simourd & Andrews, 1994; Fergusson, Horwood, & Lynskey, 1994; Brownfield & Sorsenson 1987; Lee, Baillargeon, Vermunt, Wu, & Tremblay, 2007; Odgers et al. 2007; Hasking, Scheier, & Abdallah, 2011; Muthén & Muthén 2000). Although studies on juvenile delinquency have started to appear in different journals (Bano et al., 2009; Ghouri, Abrar, & Baloch, 2010; Malik & Shirazi, 2010), the numbers and nature of juvenile delinquency are not well documented yet. Therefore, this thesis is taking a further step to identify the appropriate number of latent classes of delinquent behaviour within a sample of juvenile offenders incarcerated in Pakistan, and examine the associations between class membership and CSI factors (identified in Empirical Chapter one), whilst controlling for age, criminal friends, period of confinement, addiction, and location. Latent class analysis was applied to determine the nature and number of the classes of delinquency

Results indicated three class solution labelled 'minor delinquents', 'moderate delinquents', and 'major delinquents'. 'Minor delinquents', which is the baseline/normative class 3 (29.8% of participants) consisted of rule breakers and fighters showing low level of delinquent involvement. 'Moderate delinquents' class 2 (64.9 % of participants) were involved in a wide range of activities, including truancy, property damage, and fighting, as well as group members having the highest endorsement of setting fires. 'Major delinquents' class 3 (5.4% of participants) were clearly different from the majority, and they engaged in various forms of delinquency. These youths caused a disturbance while in large groups; played truant from school; broke rules; smashed, slashed, or damaged property belonging to someone else; physically fought with others; physically attacked others for no reason, and used threats of violence to get someone to do something for them.

The pattern of item endorsement for delinquency items for class 2 'moderate delinquents' did not differ that substantially from that of class 3 'minor delinquents'. Indeed, differentiation between these two classes appeared to relate mainly to the higher endorsement of truancy and lying or cheating in class 2 than class 3.

The results of the present research indicated that incarcerated juvenile offenders reporting having more criminal friends were more likely to belong to class1 ('major delinquents'); while those reporting higher in-group ties and lower in-group affect were more likely to belong to class 2 ('moderate delinquents') compared to the class 3 ('minor delinquents'). This finding is consistent with previous research indicating that the number of criminal friends and CSI are related to criminal cognitions and behaviour (e.g., Boduszek et al., 2013b; Boduszek & Hyland, 2011b; Boduszek, Hyland, & Bourke, 2012e). It also suggests that those working with criminal populations should be cognisant of the role of both criminal friends and CSI in increasing or decreasing

probability of more delinquent acts in a particular individual'. Furthermore, the results also suggests that for 'moderate delinquents' in prison there might be a greater perceived need to display a strong criminal identity in order to adapt to one's surroundings and to form social relationships with other criminals; whereas, for 'major delinquents' this might not be so important as social relationships with other criminals might have already been formed, as indicated by reports of a greater number of criminal friends.

This study has confirmed the existence of three distinct classes of delinquency among Pakistani juvenile offenders, similar to that sound in previous studies using normative samples conducted in western countries. Class membership was also found to be differently related to two of the three factors of criminal social identity (in-group affect and in-group ties), as well as criminal friends. In short, the findings of the present research have furthered our understanding of how delinquency is best conceptualized, as well as providing further direction for clinical practice and prevention efforts.

Previous psychological studies have found that suicidal behaviour and completed suicide are serious problems in prison inmates. However, studies related to suicide ideation among Pakistani juvenile offenders are not much reported, therefore, as a third step, the findings of previous studies were extended to examine the relationship between the three factors of criminal social identity (In-group affect, In-group ties, and Cognitive Centrality) and suicide ideation among juvenile offenders.

Common risk factors for suicidal behaviour found in previous studies are: stressful conditions related to imprisonment (Blaauw, Winkle, & Kerkhof, 2001); decreased emotional well-being and poor coping skills (Gullone, Jones, & Cummins, 2000); higher rates of psychiatric morbidity, previous suicidality, and recent stressful events (Fazel, Cartwright, Norman-Nott, & Hawton, 2008; Fruehwald, Matschnig, Koenig,

Bauer, & Frottier, 2004); having received a life sentence or having a violent index offence (Fazel et al., 2008); and isolation associated with segregated housing (Bonner, 2006; Marzano et al, 2005).

In addition, considerable evidence exists to indicate that the sense of belonging is a protective factor for suicide (McLaren & Challis, 2009). Previous research has emphasized that the sense of belonging is powerful and lacking it is linked to poor health, poor adjustment and poor well-being (Baumeister & Leary, 1995).

Although Criminal Social Identity (CSI) is generally considered to be a risk factor (Boduszek, Adamson, Shevlin, & Hyland, 2012; Boduszek, Adamson, Shevlin, Hyland, & Bourke, 2013; Boduszek, Hyland, Bourke, Shevlin, & Adamson, 2013) for criminal behaviour, most empirical research has focused only on how CSI predicts and helps us to understand various aspects of criminality. Therefore, a further objective of the present thesis was to determine whether CSI might also have some positive aspects.

The third empirical chapter specified and tested a structural model examining the relationship between the three factors of Criminal Social Identity (CSI) and suicide ideation, while controlling for age, offender type, period of confinement, and drug addiction in a sample of young male prisoners incarcerated in Pakistan. Results showed that of the variables included in the model, the only significant relationship was between in- group ties and suicidal thoughts. Specifically, the relationship was negative, and so participants scoring higher on the in-group ties subscale (assessment of a criminal's level of personal attachment with other in-group members) were less likely to report suicide ideation. Thus, on the basis of the present results, it can be concluded that the in-group ties component of CSI may provide a sense of belonging which can prevent the desire to die by suicide (Joiner et al., 2005).

SEM results further indicated that in the present juvenile offender sample, regular pre-incarceration illicit drug use was not associated with suicidal ideation. This suggests that the high prevalence of problematic substance use among prisoners may not mean that it is a useful predictor of suicide ideation in this population. Furthermore, age was unrelated to suicide ideation, which is inconsistent with previous research. However, this was not entirely unexpected given the limited age range of the present sample. Previous research indicates that those who attempt suicide in prison are generally between the ages of 30 and 35 years (Konrad, Daigle, & Daniel et al., 2007) while the age range of the present sample was between 11 and 18. Similarly, period of confinement was unrelated to suicide ideation. The reason for this is attributed to the age of the present sample and their relatively short periods of incarceration. Previous research suggested that offenders who attempt suicide spent considerably longer time in custody, often 4 or 5 years (Konrad et al., 2007).

The study results revealed that juvenile offenders' sense of shared identity may help to prevent the development of thoughts of death by suicide. Consequently, separating and isolating young prisoners may be ill advised.

7.2 Limitations

There are number of limitations of the present research related to the measurement and generalizability of the findings that should be considered in future research. The sample of incarcerated juvenile delinquents was relatively homogenous, thereby limiting the generalizability of the results to more diverse samples of varying ages, ethnicities, and offender groups. Therefore, more heterogeneous samples are required in research with aim of replicating of the results presented here. The use of a self-report measure may also have introduced several well-known limitations, such as response bias; however, recent reviews suggest that adolescents tend to be reasonably truthful in reporting rates of problematic behaviours (e.g., Oetting & Beauvais, 1990). The present sample included juvenile male offenders only and thus it was impossible to test for sex differences with respect to subgroups or key risk factors. Thus, a sample of including both male and female juvenile offenders would be particularly valuable for future research. Due to the somewhat limited access to the sample, it was not possible to assess whether the factorial solution identified in the current sample remains invariant across different populations. Consequently, this remains an important direction for further investigation.

Another limitation is related to the use of limited delinquency items in empirical study two. The self-report assessment of delinquency used in some prior research had contained considerably more items than were used in the present research (e.g., Hindelang, Hirschi, & Weis, 1981; Quay & Peterson, 1983). It is, therefore, possible that the restricted range of items used to create the class solution was not sufficient to cast these youths typologically. Consequently, it is possible that the inclusion of a broader measure would have led to a different class solution being found. However, the three-class solution is consistent with previous research (Brownfield & Sorenson, 1987;

Hasking et al., 2011; Lee et al., 2007; Odgers et al., 2007; Osgood et al., 2002) and the nature of the sample meant further item inclusion was not possible.

Another important limitation is related to the incomplete information related to suicidal behaviour and completed suicide among people in Pakistan which is the result of complex social, religious, psychological and legal factors (Farooqi, 2004; Khan et al., 2008; Khan & Reza 2000). Although it is not possible to determine the true extent of this behaviour because according to Pakistani law, both suicide and self-harm are criminal offences (Pakistan Penal Code 309) (Khan et al., 2009; Khan & Reza 2000). Therefore, the under-reporting of suicide ideation may have contributed to more conservative findings. Suicide ideation was only measured using two items due to restrictions put in place by prison authorities.

The present thesis relies too much on one source of reference, because, as explained in chapter 1, criminal social identity theory is relatively new in the field of criminal psychology. Therefore, it is most necessary to test this theory in different cultures. Another reason for over-reliance on one source was that Boduszek (2012) is the single researcher who, originally introduced the theory of criminal social identity and devised a measure of criminal social identity. Previously no work had been done by any researcher to investigate CSI. He proposed that the role of criminal social identity is important in the development of criminal behaviour. According to his reintegrated model of criminal social identity, complex interaction between four psychosocial factors plays an important role in the development of criminal social identity. First, an identity crisis which results in weak bonds with society, peer rejection, and role of poor parental attachment; second, a criminal/antisocial environment in the form of association with criminal friends before, during or/and after incarceration; third, the need for identification with a criminal group in order to protect one's self-esteem; and fourth, a

moderating role of personality traits, a factor that has recently been added to the theory, in the relationship between criminal/antisocial friends and the development of criminal social identity (Boduszek, Dhingra, & Debowska, 2015).

Therefore, in the present thesis, the theory was tested among juvenile offenders in Pakistan because previously no work has been done to examine this theory as well as the concept of criminal social identity, which was also new among Pakistani researchers. Another aim of this theory which should be emphasized was the absence of sufficient work to examine both the role of criminal social identity and time spent with criminal friends in Pakistan.

Despite these limitations, this thesis has important implications for further criminal social identity research in Pakistan, where a vacuum exists in terms of investigating the role of CSI among incarcerated adult criminals.

The CSI-Urdu version has important implications for research among criminal inmates to understand their criminal behaviour as it is a short and not too costly or time-consuming questionnaire.

Another key advantage of this study is the provision of important information on suicide ideation in Pakistan, an Islamic country in which data collection poses considerable challenges. The study further suggests that in-group ties, or the psychological perception of resemblance and emotional connection with other members of a particular group, may serve to protect juvenile offenders in Pakistan from the development of suicide ideation.

7.3 Contribution of the Research

The present research project contributes to a better understanding of the nature of criminal social identity (CSI). The most significant contribution is marked by the preparation of the Urdu translation of the MCSI. The composite reliability, incremental validity and dimensionality of the new version of the scale were confirmed within a relatively large sample of incarcerated juvenile delinquents in Pakistan. Previous research has emphasized the theoretical and practical implications of the concept of CSI in the field of criminology. Boduszek and colleagues 2012a) provided empirical support for reliability and the validity of three-factorial solution of CSI. The present study also supported the three-factor model of CSI but also ruled out a bifactor solution as the best fitting model, thus providing another contribution to the literature. Moreover, the study sample consisted of juvenile delinquents, which significantly increases the power and the value of the research. Previous studies have relied on a sample of recidivistic adults and hence the reliability of the MCSI scale was limited. The present study also verified earlier reported results regarding the multidimensionality of CSI by providing a novel cultural and social context to those explorations.

The major contribution of the study is the investigation of criminal social identity (CSI) among juvenile offenders in Pakistan. To understand delinquent behaviour, previous studies have focused on parents' conflicts and their attitudes towards their children, media influence (Mahmood & Cheema, 2004), family size, role of self-esteem (Bano et al., 2009), family functioning, psychological characteristics (Khurshid & Urooj, 2012; Siddiqui, 2003), personality traits (Tariq, 1986), and illiteracy, poverty, and peer association (Paracha et al., 2009) Therefore, the present research is the first systematic attempt to understand the CSI among Pakistani juvenile offenders and thus provides a significant contribution to criminal psychology literature in Pakistan.

A further important contribution of this research is the provision of valuable information on suicide ideation among juvenile delinquents in Pakistan. Information related to suicidal behaviour and completed suicide among the general population in Pakistan is limited as a result of complex social, religious, psychological and legal factors (Farooqi, 2004; Khan et al., 2008; Khan & Reza 2000). This research suggests that in-group ties, or the psychological perception of resemblance and emotional connection with other members of a particular group, may serve as a protective factor from the development of suicide ideation among juvenile offenders in Pakistan.

Another significant contribution made by the present research project is the use of advanced statistical analytical procedure. In the area of psychology and criminology, studies often fail to adopt robust analytical techniques. This lack of robust methodological procedures may have substantially affected the reliability of the findings (e.g. by not controlling for error variance). The present Thesis has sought to utilise the most recent statistical analytical techniques in order to obtain new insights into the relationships between variables included in the study. The use of structural equation modelling as well as latent class analysis provides a comprehensive understanding of criminal social identity and related factors within the male incarcerated juvenile population in Pakistan. Such an approach is believed to have the power to enrich the current psychological and criminological literature significantly, as well as the potential to set new standards for further research in the above fields.

REFERENCES

Acock, A. C. (2005). Working With Missing Values. *Journal of Marriage and Family, 67*(4), 1012-1028.

Agnew, R. (1992). Foundation for general strain theory of crime and delinquency. *Criminology, 30*(1), 47-88.

Agnew, R. (1993). Why do they do it? An examination of the intervening mechanisms between "social control" variables and delinquency. *Journal of research in Crime and Delinquency, 30*(3), 245-266.

Agnew, R. (2003). An integrated theory of the adolescent peak in offending. *Youth & Society, 34*(3), 263-299.

Ajen, I., & Fishbein, M. (1980). Understanding attitude and predicting social behaviour. Englewood Cliffs, NJ: Prentice-Hall.

Akaike, H. (1974). A new look at the statistical model identification. *Automatic Control, IEEE Transactions on, 19*(6), 716-723.

Akers, R. L., Krohn, M. D., Lanza-Kaduce, L., & Radosevich, M. (1979). Social Learning and deviant behaviour: A specifictest of a general theory. *American Sociology Review,* 44(4), 636-655.

Allison, P. D. (2001). *Missing data* (Vol. 136): Sage publications.

Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal psychology, 112*(4), 545-557.

Allison, P. D. (2012, April 23). *Handling missing data by maximum likelihood.* Keynote presentation at the SAS Global Forum, Orlando, Florida. Available at   http://www.statisticalhorizons. com/wp-content/uploads/MissingDataByML.pdf.

Andersen, S. M., & Chen, S. (2002). The relational self: an interpersonal social-cognition theory. *Psychological review, 109*(4), 619.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modelling practice: A review and recommended tow-step approach. *Psychological bulletin, 103*(3), 411.

Anno, B. J. (1985). Patterns of suicide in the Texas Department of Correction 1980-1985. *Journal of Prison & Jail Health*, *5*(2), 82-92.

Ary, D. V., Ducan, T. E., Biglan, A., Metzler, C. W., Noell, J. W., & Smolkowski, K. (1999). Development of adolescent problem behaviour. *Journal of abnormal child psychology, 27(*2), 141-150.

Austin, J. T., & Wolfle, L. M. (1991). Annotated bibliography of structural
eqution modelling: Technical work. *British Journal of Mathematical
and Statistical Psychology, 44(*1), 93-152.

Austin, J. T., & Claderon, R. F. (1996). Theoretical and technical
contribution to structural equation modeling: An updated annotated
bibliography. *Structural Equation Modeling: A Multidisciplinary
Journal, 3*(2), 105-175.

Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1990). Explaining the
recent decline in cocaine use among young adults: further evidence
that perceived risk and disapproval lead to reduced drug use. *Journal
of Health and Social Behaviour, 3*(2), 173-184.

Bachman, J. G., Johnston, I. D., O'Malley, P. M., & Humphery, R. H.
(1988). Explaining recent decline in marijuana use: Differentiating the
effects of perceived risk, disapproval and general lifestyle factors.
Journal of Health and Social Behaviour, 29(1), 92-112.

Backett, S. A. (1987). Suicide in Scottish Prisons. *The British Journal of
Psychiatry, 151*(2), 218-221.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation
models. *Journal of the Academy of Marketing Science*, 16(1), 74–94.

Bailey, S. L., & Hubbard, R. L. (1990). Developmental variation in the context of marijuana initiation among adolescents. *Journal of Health and Social Behaviour,* 58-70.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behaviour change. *Psychological review,* 84(2), 191.

Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. Organizational behaviour and human decision processes, 38(1), 92-113.

Bano, M., M. Shah, et al. (2009). "The role of juvenile delinquency and intelligence to thestability of social system with reference to Pakhtoon culture." Sarhad Journal of Agriculture 25(4): 635-640.

Barnes, G. M., Farrell, M. P., & Banerjee, S. (1994). Family influence on alcohol and other problem behaviour among black and white adolescents in a general population sample. *Journal of Research on Adolescence, 4*(2), 183-201.

Baumeister, R. F. (1990). Suicide as escape from self. *Psychological review, 97*(1), 90.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for

interpersonal attachments as a fundamental human motivation.

Psychological Bulletin, 117(3), 497-529.

Baumeister, R. F., Stilwell, A. M., & Heatherton, T. F. (1994). Guilt: an

interpersonal approach. *Psychological bulletin, 115*(2), 243.

Bentler, P. M. (1986). Structural modelling and psychometirka: An

historical perspective on growth and achievements. *Psychometika,

51*(1), 35-51.

Bentler, P.M. (1990). Comparative fit indexes in structural models.

Psychological

Bulletin 107(2), 238

Bentler, P. M., & Speckart, G. (1979). Models of attitude-behaviour

relations. *Psychological review, 86*(5), 452.

Bizumic, B., Reynold, K., Turner, J. C., Bromhead, D., & Subaisc, E.

(2009). The Role of the Group in Individual Functioning: School

Identification and the Psychological Well-Being of Staff and students.

Applied Psychology, 58(1), 171-192

Blaauw, E., Arensman, E., Kraaij, V., Winkel, F., & Bout, R. (2002).

Traumatic life events and suicide risk among jail inmates: the

influence of types of events, time period and significant others. *Journal of traumatic stress, 15*(1), 9-16.

Blaauw, E., Keerkhof, A., & Vermunt, R. (1997). Suicide and other deaths in police custody. *Suicide and Life-Threatening Behaviour, 27*(2), 153-163.

Blaauw, E., Kerkhof, A. J., & Hayes, L. M. (2005). Demographic, criminal, and psychiatric factors realted to inmate suicide. *Suicide and Life-Threatening Behaivour, 35(*1), 63-75.

Blaauw, E., Roesch, R., & Kerkhof, A. (2000). Mental disorders in Eurpeaon prison systems: arrangements for mentally disordered prisoners in the prison system of 13 European countries. *International journal of law and psychiatry, 23*(5), 649-663.

Blaauw, E., Schilder, F., & van de Lande, S. (1998). Prevention of suicide in the Duch criminal justice system. *Deaths of offenders,* 201-223.

Blaauw, E., Winkel. F. W., & Kerkhof, A. J. (2001). Bullying and suicidal behaviour in jails. *Criminal and behaviour, 28*(3), 279-299

Block, J., Block, J. H., & Keyes, S. (1988). Longitudinally foretelling drug usage in adolescence: Early childhood personality and environmental precursors. *Child development,* 336-355.

Blumenthal, S. J., Kupfer, D. J. (1986). Generalizable treatment strategies for suicide behaviour. *Annals of the New York Academy, of Sciences, 487*(1), 327-340.

Boatswain, S. J., & Lalonde, R. N. (2000). Social identity and preferred ethnic/racial labels for Blacks in Canada. *Journal of Black Psychology,* 26(2), 216-234.

Boduszek, D., Adamson, G., Shevlin, M., & Hyland, P. (2012b). Development and Validation of a Measure of Criminal Social Identity within a sample of Polish Recidivistic Prisoners. *Criminal Behaviour and Mental Health, 22*(5), 315-324.

Boduszek, D., Adamson, G., Shevlin, M., Hyland, P., & Brouke, A. (2013a). The Role of Criminal Social Identity in the Relationship between Criminal Friends and Criminal Thinking Style within a Sample of Recidivistic Prisoners. *Journal of Human Behaviour in the Social Environment, 23*(1), 14-28.

Boduszek, D., Adamson, G., Shevlin, M., Hyland, P., & Bourke, A. (2013f). The Mediating Role of Criminal Social Identity in Relationship between Criminal Friends and Criminal Thinking Style within a sample of recidivistic prisoners. *Journal of Human Behavior in the Social Environment.* 23(1), 14-28.

Boduszek, D., Adamson, G., Shevlin, M., Hyland, P., Dhingra, K. (2014b). Psycho-sociological Investigation of Criminal Behaviour within a Prison Sample Using Retrospective Data. The Howard Journal of Criminal Justice, 53(1), 31-48.

Boduszek, D., Adamson, G., Shevlin, M., Mallett, J., & Hyland, P. (2013c). Criminal Social Identity of Recidivistic Prisoners: The Role of Self-Esteem, Family and Criminal Friends. *Journal of Police and Criminal Psychology,* 28(1), 1-11.

Boduszek, D., Dhingra, K., & Debowska, A. (2015). The Integrated Psychosocial Model of Criminal Social Identity. *Deviant Behavior: an interdisciplinary journal*.

Boduszek, D., Dhingra, K., Stander, C., Loannou, M., & Palmer, D. (2014a). Latent Classes of Criminal Intent Associated with Criminal Behaviour. *Current Issues in Personality Psychology, 2*(2).

Boduszek, D., & Hyland, P. (2010). The Development of Criminal Social Identity: The Significance of multiple identities and contextual factors. *International Journal of Criminology and Sociology Theory, 4(1),* 604-615.

Boduszek, D., & Hyland, P. (2011). The theoretical model of criminal social identity: Psycho-social perspective. *International journal of Criminlogy and Sociology Theory, 4*(1), 604-615.

Boduszek, D., & Hyland, P. (2012a). Psycho- Sociological review of criminals thinking style. *Journal of Humanistics & Social Sciences, 1*(1), 28-36.

Boduszek, D., Hyland, P., & Bourke, A. (2012e). An investigation of the role of personality, familial, and peer-related characteristics in homicidal offending using retrospective data. *Journal of Criminal Psychology*, *2*(2), 96-106.

Boduszek, D., Hyland, P., Bourke, A., Shevlin, M., & Adamson, G. (2013b). Assessment of psycho-social factors predicting recidivistic violent offenses within a sample of male prisoners. *The Irish Journal of Psychology,* 34(1), 24-34.

Boduszek, D., Hyland, P., Pedziszcak, J., & Kielkiewicz, K. (2012d). Criminal attitude, recidivistic behaviour, and the mediating role of association with criminal friends: An empirical investigation within a prison sample of violent offenders. *Europe's Journal of Psychology 8*(1), 18-31.

Boduszek, D., Mchaughlin, C., & Hyland, P. (2011). Criminal Attitude of ex-Prisoners: the Role of Personality, Anti-Social Friends and Recidivism. *The International Journal of Criminology, 9,* 1-10.

Boduszek, D., C. O'Shea, C., Dhingra, K., & Hyland, P. (2014c). "Latent Class Analysis of Criminal Social Identity in a Prison Sample." *Polish Psychological Bulletin, 45*(2), 192-199.

Boduszek, D., Shevlin, M., Adamson, G., & Hyland, P. (2013d). Eysenck's Personality Model and Criminal Thinking Style within a Violent and Nonviolent Offender Sample: Application of Propensity Score Analysis. *Deviant Behavior, 34*(6), 483-493.

Boduszek, D., Shevlin, M., Mallett, J., Hyland, P., & O'Kane, D., (2012c). Dimensionality and construct validity of the Rosenberg Self-Esteem Scale within a sample of recidivistic prisoners. *Journal of Criminal Pshcyology,* 2(1), 19-25.

Bogenschneider, K., Wu, M. Y., Raffaelli, M., & Tsay, J. C.(1998). Parent influence on adolescent peer orientation and substance use: The interface of parenting Practices and values. *Child development, 69*(6), 1672-1688.

Borges G, Angst J, Nock, M. K., Ruscio A. M., Walters, E. E., & Kessler R. C. (2006). A risk index for 12-month suicide attempts in the

National Comorbidity Survey Replication (NCS-R). *Psychological Medicine*, *36*(12), 1747-1757.

Borges G, & Loera, C. R. (2010). Alcohol and drug use in suicidal behaviour. Current Opinion in Psychiatry, 23(3), 195-204.

Bowers Jr, M. B., Mazur, C. M., Nelson, J. C., & Jatlow, P. I. (1990). Psychotogenic drug and neuroleptic response. *Schizophrenia Bulletin, 16(*1), 81.

Brook, J. S., Brook, D. W., Gordon, A. S., Whiteman, M., & Cohen, P. (1990). The psychosocial etiology of adolescent drug use: a family interactional approach, *Genetic, social and general psychology monographs, 116*(2), 111-267.

Brown, R., Condor, S., Mathews, A., Wade, G., & Williams, J. (1986). Explaining intergroup differentiation in an industrial organization. *Journal of Occupational Psychology,* 59(4), 279-304.

Brown, M, W., & Cudeck, R. (1993). Alternative ways of assessing model fit, *Sage Focus Editions, 154*, 136-136.

Brown, B. B., & Huang, B. H., (1995). Examining parenting practices in different peer contests: Implication for adolescent trajectories. In J. L. Crockett, & C. N. Crouter (Ed.), *Pathways through adolescence:*

Individual development in relation to social context. The Penn state series on child & adolescent development (pp. 151-174). Hillsdale, NJ, England.

Brown, B., Mounts, N., Lamborn, S. D., & Steinberg, L. (1993). Parenting practices and peer group affiliation in adolescence. *Child development, 64*(2), 467-482.

Brownfield, D., & Sorenson, A. M. (1993). Self-control and juvenile delinquency: Theoretical issues and an empirical assessment of selected elements of a general theory of crime. *Deviant Behaviour, 14(3),* 243-264.

Byrne, B. M. (2013). *Structural equation modelling with Mplus: Basic concepts, applications, and programming.* Routledge.

Cameron, J. (2004). A three-factor model of social identity. *Self and Identity, 3*(3), 239-262.

Cameron, J. E., &. Lalonde, R. N. (2001). Social identification and gender-related ideology in women and men. *British Journal of Social Psychology,* 40(1), 59-77.

Carmines, E. G., & Zeller, R. A. (Eds.). (1979). *Reliability and validity assessment*. Sage publications.

Castellano, T. C., & Soderstrom, I. R. (1971). Self-esteem, depression, and

anxiety evidenced by a prison inmate sample: Interrelationships and

consequences for prison programming. *The Prison Journal, 77*(3),

259-280.

Chein, I. (1980). Psychological, social, and epidemiological factors in

juvenile drug use. *NIDA research monograph,* 30, 76-82.

Clark, D. C., & Fawcett, J. (1992). Review of empirical risk factors for

evaluation of the suicidal patient. In M. B. Bongar (Ed.), *Suicide:*

Guidelines for assessment, management, and treatment (pp. 16-48).

New York, NY, US: Oxford University Press.

Clayton, R. R. (1981). The delinquency and drug use relationship among

adolescents: A Critical Review. In D. J. Lettieri and J. P.

Ludford(Ed.), *Drug Abuse and American Adolescent* (pp. 82-103).

Rockville, MD: National institute of Drug Abuse.

Cloinger, C. R. (1987). Neurogentic adaptive mechanisms in alcoholism.

Science, 236(4800), 410-416.

Cohen, A. K. (1955). *Delinquent Boys: The Culture of the Gang.* The Free

Press.

Cohen, J. (1983). The cost of dichotomization. *Applied Psychological Measurement, 7*(3), 249-253

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological bulletin, 98*(2), 310.

Coie, J. D., & Jacobs, M. R. (1993). The role of social context in the prevention of conduct disorder. *Developmental and Psychopathology, 5*(1-2), 263-275.

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent disorder from childhood aggression and peer rejection. *Journal of Consulting and Clinical psychology, 60*(5), 783.

Conklin, T. J., Lincoln, T., & Tuthill, R. W. (2002). Self-reported health and prior health behaviours of newly admitted correctional inmates. *American Journal of Public Health, 90*(12), 1993.

Conner, K. R., Britton, P. C., Sworts, L. M., & Joiner, T. E. (2007). Suicide attempts among individuals with opiate dependence: The critical role of belonging. *Addictive behaviours, 32*(7), 1395-1404.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297–334.

Cullen, F. T., & Agnew, R. (Eds.). (1999). *Criminological Theory: Past to present*. Los Angeles: Roxbury.

Davis, M. S., & Muscate, J. E. (1993). An epidemiologic study of alcohol and suicide risk in Ohio jails and lockups, 1975-1984. *Journal of Criminal Justice, 21*(3), 277-283.

De Catanzaro, D. (1995). Reproductive status, family interactions, and suicidal ideation: Surveys of the general public and high-risk groups. *Ethology and Sociobiology, 16*(5), 385-394.

De Leo, D., Burgis, S., Bertolte, J. M., Kerkhof, A., & Bille-Brahe, U. (2006). Definitions of suicidal behaviour: Lessons learned from the WHO/EURO Multicentre Study. *Crisis, 27*(1), 4.

Deater-Deckard, K. (2001). Annotation: Recent research examining the role of peer relationship in the development of psychopathology. *Journal of Child Psychology and Psychiatry, 42*(05), 565-579.

Dhingra, K., & Boduszek, D. (2013). Psychopathy and criminal behaviour: a psychosocial research perspective. *Journal of Criminal Psychology*, *3*(2), 83-107.

Deaux, K. (1996). Social identification. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 777 – 798). New York: Guilford.

Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing LISREL.* London: Sage Publications.

Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescence: Relationship characteristics, quality, and interactional process. *Child development, 66*(1), 139-151.

Dishion, T. J., Loeber, R. (1985). Adolescent marijuana and alcohol use; the role of Parents and peers revised. *The American Journal of drug and alcohol abuse, 11*(1-2), 11-25.

Dishion, T. J., Patterson, G. R., & Griesler, P. C. (1994). Peer adaptations in the development of antisocial behaviour. In L. R. Huesmann (Ed.), *Aggressive behaviour: Current Perspective* (pp. 61-95). USA: Springer.

Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, School, and behaviour antecedents to early adolescent involvement with antisocial peers. *Developmental psychology, 27*(1), 172.

Donovan, J. E., & Jessor, R. (1985). Structure of Problem behaviour in adolescence and young adulthood. *Journal of Consulting and Clinical Psycholgoy, 53(*6), 890.

Donovan, J. E., Jessor, R., & Costa, F. M. (1991). Adolescent health behaviour and conventionality-unconventionality: An extension of problem-behaviour therapy. *Health psychology, 10*(1), 52.

Dooley, E. (1990). Prison suicide in England and Wales, 1972-87. *The British Journal of Psychiatry 156*(1), 40-45.

Downs, W. R., & Rose, S. R. (1991). The relationship of adolescent peer groups to the incidence of psychosocial problems. *Adolescence, 26*(102), 473

Duncan, S. C., Duncan, T. E., Biglan, A., & Ary, D. (1998). Contribution of the social context to the development of adolescent substance use: a multivariate latent growth modelling approach. *Drug and alcohol dependence, 50*(1), 57-71.

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. (1999). Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology*, *29*, 371 289.

Elliott, D., Menard, S. (1996). Delinquent friend and delinquent behaviour. In J. D. Hawkins (Ed.), *Delinquency and Crime: Current theories* (pp. 28-67). New York: Cambridge University Press.

Elliott, D. S. (1994). Serious violent offenders: Onset, developmental course, and termination-The American Society of Criminology 1993 Presidentialaddress. *Criminology, 32*(1), 1-21.

Elliott, D. S., Huizinga, D., & Agetion, S.S. (1985). *Explaining delinquency and drug use:* Sage Publication.

Elliott, D. S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth.* Springer science & Business Media.

Elliott, D. S., Huizinga, D., & Morse, B. (1986). Self-Reported Violent Offending A Descriptive Analysis of Juvenile Violent Offenders and their Offending Careers. *Journal of Interpersonal Violence, 1*(4), 472-514.

Elliott, D. S., Huizinga, D., & Morse, B. J. (1985). *The dynamics of deviant behaviour: A national survey progress report*. Boulder, CO: Behavioural Research Institute.

Erickson, K. G., Crosnoe, R., Dornbush, S. M. (2000). A Social process model of adolescent deviance: Combining social control and

differential association perspective. *Journal of Youth and Adolescence*. 29(4), 395-425.

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation, method, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling: A Multidiciplinary Journal,* 6(1), 56-83.

Farooqi, Y. N. (2004). Comparative study of suicide potential among Pakistani and American psychiatric patients. *Death studies, 28*(1), 19-46.

Farrington, D. P. (1986). Age and crime. *Crime and justice*, 189-250.

Farrington, D. P. (1987). *Early precursors of frequent offending: Families, schools, and delinquency prevention.* Springer.

Farrington, D. P. (1992). Criminal careers research in the United Kingdom. *The British Journal of Criminology,* 521-536.

Farrington, D. P. (1994). Early developmental prevention of juvenile delinquency. *RSA Journal*, 142(5454), 22-34.

Farrington, D. P. (1995). The development of offending and antisocial behaviour from childhood: Key findings form the Cambridge Study in

Delinquent Development. *Journal of Child Psychology and Psychiatry, 36*(6), 929-964.

Farrington, D. P., Gallagher, B., Morley, L., Ledger, R. J. S., & West, D. J. (1986). Unemployment, school leaving, and crime. *British Journal of Criminology, 26*(4), 335-356.

Farrington, D. P., Loeber, R., Elliott, D. S., Hawkins, J. D., Kandel, D. B., Klein, M. W., …Tremblay, R. E. (1990*). Advancing knowledge about the onset of delinquency and crime: Advances in clinical child psychology.* New York: Plenum Press

Farrington, D. P., Loeber, R., Yin, Y., Anderson, S. J. (2002). Are within-individual of delinquency the same as between-individual causes. *Criminal Behaviour and Mental Health, 12*(1), 53-68.

Fazel, S., & Benning, R.(2009). Suicides in female prisoners in England and Wales, 1978-2004. *The British Journal of Psychiatry, 194*(2), 183-184.

Fazel, S., & Benning, R., & Danesh, J. (2005). Suicide in male prisoner in England and Wales, 1978-2003. *The Lancet, 366*(9493), 1301-1302.

Fazel, S., Cartwright, J., Norman-Nott, A., & Hawton, K. (2008). Suicide in prisoners: a systematic review of risk factors. *Journal of Clinical Psychiatry, 69*(11), 1721-1731.

Fazel S., Grann, M., Kling, B., & Hawton, K. (2011). Prison suicide in 12 countries: an ecological study of 861 suicides during 2003–2007. *Social Psychiatry and Psychiatric Epidemiology 46*(3), 191-195.

Fergusson, D. M., & Horwood, L. J. (1997). Early onset cannabis use and psychosocial adjustment in young adults. *Addiction, 92*(3), 279-296.

Fergusson, D. M., & Horwood, L. J. (1999). Prospective childhood predictors of deviant peer affiliations in adolescence. *Journal of Child Psychology and Psychiatry, 40*(04), 581-592.

Fergusson, D. M., Horwood, L. J., & Lynskey, M. (1994). The Childhoods of Multiple Problem Adolescents: A 15-Year Longitudinal Study. *Journal of Child Psychology and Psychiatry*, *35*(6), 1123-1140.

Fergusson, D. M., Lynskey, M. T., & Horwood, L. J. (1996). Factors associated with continuity and changes in disruptive behaviour patterns between childhood and adolescence. *Journal of abnormal child psychology, 24*(5), 533-553.

Fergusson, D. M., Swain-Campbell, N. R., & Horwood, L. J. (2002). Deviant peer affiliations, crime and substance: A fixed effects regression analysis. *Journal of abnormal child psychology, 30*(4), 419-430.

Fergusson, D. M., Woodward, L. J., & Horwood, L. J. (1999). Childhood peer relationship problems and young people's involvement with deviant peers in adolescence. *Journal of abnormal child psychology, 27*(5), 357-369.

Flay, B. R., d'Avernas, J. R., Best, J. A., Kersell, M. W., & Ryan, K. B. (1983). Cigarette smoking: Why young people do it and ways of preventing it. *Pediatric and adolescent behavioural medicine, 10,* 132-183

Frottier, P., Fruehwald, S., Ritter, K., Eher, R., Schwaerzler, J., & Bauer, P. (2002). Jailhouse blues revisited. *Social psychiatry and psychiatric epidemiology, 37*(2), 68–73.

Fruehwald, S., Matsching, T., Koenig, F., Bauer, P., & Frottier, P. (2004). Suicide in custody. *The British Journal of Psychiatry, 185*(6), 494-498.

Gerad, D. L., Kornetsky, C. (1955). Adolescent opiate addiction: A study of Control and addict subjects. *Psychiatric Quarterly, 29*(1), 457-486.

Getting, E., & Beauvais, F. (1986). Peer cluster theory: Drugs and the adolescent. *Journal of Counseling and development, 65*(1), 17-22.

Ghouri, A. M., N. Abrar, N., & Baloch, A. G. (2010). Main Attributes and Features Effecting Juvenile Delinquents: Evidence from Karachi, Pakistan. *European Journal of Social Sciences,* 15(4), 530-536.

Gibbs, J. T. (1997). 8 African-American Suicide: A Cultural Paradox. *Suicide and Life- Threatening Behaviour, 27*(1), 68-79.

Goethals , G. R., Darley, J. M. (1987). Social comparison theory: Self-evaluation and group life. In M. Brain & G. R. Goethals (Eds.), *Theories of group behaviour* (pp. 21-47). Retrieved from Springer Link.

Gorsuch, R. L., & Butler, M. C. (1976). Initial drug abuse: A review of predisposing social psychological factors. *Psychological bulletin, 83*(1), 120.

Govt asked to implement juvenile justice ordinance. (2014, July 2). *Bureau Report: The Dawn Newspaper,* Retrieved from http://www.dawn.com/news/1116481/govt-asked-to-implement-juvenile-justice-ordinance

Green, C., Kendall, K., Andre, G., Looman, T., & Polvi, N. (1993). A study of 133 suicides among Canadian federal prisoners. *Medicine, Science and the Law, 33*(2), 121-127.

Gulone, E., Jones, T., & Cummins, R. (2002). Coping styles and prison experience as predictors of psychological well-being in male prisoners. *Psychiatry, psychology and law, 7*(2), 170-181.

Gunn, J., & Maxwell, E. (1978). *Psychiatric aspect of imprisonment.* Academic press, London.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis with Reading*. Englewood Cliffs, NJ: Prentice Hall.

Haney, C. (2003a). Mental health issues in long-term solitary and "supermax" confinement. *Crime & Delinquency, 49*(1), 124-156.

Haney, C. (2003b). The psychological impact of incarceration: Implications for post-prison adjustment. In J. Travis & M. Waul (Ed.), *In Prisoners once removed: The impact of incarceration and Reentry on Children, Families, and Communities* (pp. 33-66). Washington, DC: Urban Inst.

Hasking, P. A., Scheier, L. M., & Abdallah, A. B. (2011). The three latent classes of adolescent delinquency and the risk factors for membership in each class. *Aggressive behavior*, *37*(1), 19-35.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009a). Social identity health and well-being: an emerging agenda for applied psychology. *Applied Psychology*, *58*(1) 1-23.

Haslam, S. A., J., & Waghorn, C. (2009b). Social identification, stress and citizenship in team: a five-phase longitudinal study. *Stress and Health, 25*(1), 21-30.

Häusser, J. A, Kattenstroth, M., van Dick, R., & Mojzisch, A. (2012). We are not stressed: Social identity in groups buffers neuroendocrine stress reactions. *Journal of Experimental Social Psychology, 48*(4), 973-977.

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology, 44*(3): 355-370.

Haslam, S. A., & Reicher, S. (2006). Stressing the group: social identity and the unfolding dynamics of responses to stress. *Journal of Applied Psychology, 91*(50), 1073.

Haslam, S. A., Powell, C., & Turner, J. (2000). Social Identity Self-categorization and Work Motivation: Rethinking the Contribution of the Group to Positive and Sustainable Organisational Outcomes. *Applied Psychology, 49(3),* 319-339.

Hawton, K., Linsell, L., Adeniji, T., Sariaslan, A., & Fazel, S. (2014). Self-harm in prison in England and Wales: an epidemiological study of prevalence, risk factors, clustering, and subsequent suicide. *The Lancet, 383*(9923), 1147-1154

Haslam, S. A., Waghorn, C., O'Sullivan, L., Jetten, J., & O'Brien, A. (2005). Social identity stress and positive work-related outcomes: A five-phase longitudinal study. In G. P. Hodgkinson & J. K. Ford (Ed.), *International Review Of Industerial And Organizational Psychology* (Vol. 20, pp. 39-118). West Sussex, England: John Wiley & Son Ltd.

Hatty, S., & Walker, J. R. (1986*). A national study of death in Australian prisons*. Australian Institute of Criminology, Canberra.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological bulletin, 112*(1), 64.

Hayes, L. M. (1989). National study of jail suicides: Seven year later. *Psychiatric Quartelrly, 60*(1), 7-29.

Hayes, L. M. (1995). Prison suicide: An overview and a guide to prevention. *The Prison Journal, 75*(4), 431-456.

Haynie, D. L. (2002). Friendship network and delinquency: The relative nature of peer delinquency. *Journal of Quantitative Criminology, 18*(2), 99-134.

Haynie, D. L., & Osgood, D. W. (2005). Reconsidering peers and delinquency: How do peers matter? *Social forces, 84*(2), 1109-1130.

Hindelang, M. J., Hirschi, T., & Weis, J. G. (1981). *Measuring delinquency*. Beverly Hills, CA: Sage Publications.

Hinkle, S., Taylor, L., Fox-Cardamone, D., & Crook, K. (1989). Intragroup identification and intergroup differentiation: A multicomponent approach. *British Journal of Social Psychology, 28(4),* 305-317.

Hirschi, T. (2002). *Causes of delinquency.* Transaction publishers.

Hirschi, T., & Stark, R. (1983). Hellfire and delinquency. *Social Problems, 17*(2), 202-213.

Hoge, R. D., Andrews, D., & Leschied, A. W. (1994). Tests of three hypotheses regarding the predictors of delinquency. *Journal of abnormal child psychology, 22*(5), 547-559.

Hogg, M. A. (1996). *Social group and identities: Developing the legacy of Henri Tajfel*. Reed Educational and Professional Publishing LTD

Hogg, M. A. (2000). *Social identity and social comparison: Handbook of social comparison*. Springer.

Hogg, M. A. (2001). A social identity theory of leadership. *Personality and social psychology review,* 5(3), 184-200.

Hogg, M. A. & Smith, J. R. (2007). Attitude in social context: A social identity perspective. *European review of social psychology*, 18(1), 131.

Holsinger, K., & Hoslinger, A. M. (2005). Differential pathways to violence and self-injurious behaviour: African American and white girls in the juvenile justice system. *Journal of research in Crime and Delinquency, 42*(2), 211-242.

Hosmer Jr, D. W., & Lemeshow, S. (2004). *Applied logistic regression*. New York: Wiley.

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (Vol. 398): John Wiley & Sons.

Hoyle, R. H. (1995). *Structural equation modeling: Concepts, issues, and application*. Sage Publication.

Hoyle, R. H., & Smith, G. T. (1994). Formulating clinical research hypotheses as structural equation models: a conceptual overview. *Journal of consulting and clinical psychology, 62*(3), 429.

Hu, F., Flay, B. R., Hedeker, D., Siddiqui, O., & Day, L. E. (1995). The Influences of Friend's and Parental Smoking on Adolescent Smoking Behaviour: The Effects of Time and Prior Smokin1. *Journal of Applied Social Psychology, 25*(22), 2018-2047.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: *A Multidisciplinary Journal, 6*(1), 1-55.

Huba, G., Wingard, J., & Bentler, P. (1980). Framework for an interactive theory of durg use. *NIDA research monograph,* 30, 95-101.

Huba, G. J., & Bentler, P. M. (1982). A development theory of drug use: derivation and assessment of a causal modelling approach. In B. P.

Baltes & O. G. Brim Jr (Ed.), *Life-span development and behaviour*. (Vol. 5). New York: Academic Press.

Huesmann, L. R., Eron, L. D., Lefkowitz, M. M., & Walder, L. O. (1984). Stability of aggression over time and generations. *Developmental Psychology, 20*(6), 1120.

Humber, N., Piper, M., Appleby, L., Shaw, J. (2011). Characteristics of and trends in subgroups of prisoner suicides in England and Wales. *Psychological medicin, 41*(11), 2275–2285.

Hyland, P., Boduszek, D., Dhingra, K., Shevlin, M., & Egan, A. (2014). A bifactor Approach to modelling the Rosenberg Self-Esteem Scale. *Personality and Individual Differences. 66*, 188-192.

Jackson, J., & Smith, E. (1999). Conceptualizing social identity: A new framework and evidence for the impact of different dimensions. *Personality and Social Psychology Bulletin,* 25(2), 120–135.

Jackson, J. W. (2002). Intergroup attitude as a function of different dimensions of group identification and perceived intergroup conflict. *Self and Identity, 1*(1), 11-33.

Javed, M. A. (1996). Suicidal symptoms in depressed Pakistani patients. *Journal-Pakistan Medical association, 46,* 69-70.

Jenkins, R., Bhugra, D., Meltzer, H., Singleton, N., Bebbington, P., Brugha, T., & Paton, J. (2005). Psychiatric and social aspects of suicidal behaviour in prisons. *Psychological* Medicine, 35(02), 257-269.

Jensen, G. F. (1972). Parents, peers, and delinquency action: A test of the differential association perspective. *American Journal of Sociology, 78*(3), 562-575.

Jessor, R. (1991). Risk behaviour in adolescence: a psychosocial framework for understanding and action. *Journal of Adolescent Heath, 12*(8), 597-605.

Jessor, R., Graves, T. D., & Hanson, R. C., & Jessor, S. L. (1969). Society, Personality, and Deviant behaviour: A Study of a Tri-Ethnic Community. *American anthropology, 71*(2), 371-372.

Jessor, R., & Jessor, S. L. (1975). Adolescent development and the onset of drinking; a longitudinal study. *Journal of Studies on Alcohol and Drugs, 36*(01), 27.

Jetten, J., O'Brien, A., & Trindall, N. (2002). Changing identity: Predicting adjustment to organizational restructure as a function of subgroup and superordinate identification. *British Journal of Social Psychology, 41*(2), 281-297.

Johnson, D. W. (1980). *Group processes: Influences of student-student interaction on school* outcomes. Academic Press.

Johnson, R., & Dobrzanska, A. (2005). Mature coping among life-sentenced inmates: An exploratory study of adjustment dynamics. *Corrections Compendium, 30*(6), 8-9.

Johnston, L. D., O'Malley, P. M., & Eveland, L. K. (1978). Drugs and delinquency: A search causal connection. *Longitudinal research on drug use: Empirical findings and methodological issues,* 137-156.

Joiner, T. E., Brown, J. S., & Wingate, L. R. (2005). The psychology and neurobiology of suicidal behavior. *Annual review of psychology, 56*(1), 287-314.

Joiner, T. E. (2005). *Why people die by suicide*. Harvard University Press.

Joreskog, K. G., & Sorbom, D. (1986). *LISREL VI: Analysis of linear structural relationships by maximum likelihood, instrumental variables, and least squares methods*. Mooresville: Scientific Software.

Joreskog, K. G., & Sorbom, D. (1993). *LISREL8: Structural equation modeling with the SIMPLIS command* language. Scientific Software International.

Joreskog, K. G., & Sorbom, D. (1996), *LISREL 8: User's Reference Guide.* Chicago, IL: Scientific Software Internationa Inc.

Juvonen, J. (1991). Deviance, perceived responsibility, and negative peer reactions. *Developmental Psychology, 27*(4), 672.

Kandel, D. B. (1986). Processes of Peer Influences in Adolescence. In R. Silbereisen, K. Eyferth & G. Rudinger (Eds.), *Development as Action in Context* (pp. 203-227): Springer Berlin Heidelberg.

Kandel, D. B., & Andrews, K. (1987). Processes of adolescent socialization by parents and peers. *Substance Use & Misuse, 22*(4), 319-342.

Kandel, D. B., Kessler, R. C., & Margulies, R. Z. (1978). Antecedents of adolescent initiation on into stages of drugs use: A developmental analysis. *Journal of Youth and Adolescence, 7*(1), 13-40.

Kaplan, H. B. (1984). *Patterns of juvenile delinquency:* Sage Beverly hills, CA.

Kaplan, H. B., Martin, S. S., & Johnson, R. J. (1986). Self-rejection and the explanation of deviance: Specification of structure among latent constructs. *American Journal of Sociology, 92*(2), 384-411.

Kaplan, H. B., Martin, S. S., & Robbins, C. (1982). Application of a general theory of deviant behaviour: Self-derogation and adolescent drug use. *Journal of Health and Social Behaviour, 23*(4), 274-294.

Kaplan, H. B., Martin, S. S., & Robbins, C. (1984). Pathways to adolescent drug use: Self-derogation, peer influence, weakening of social controls, and early substance use. *Journal of Health and Social Behaviour, 25*(3), 270-289.

Karasawa, M. (1991). Towards an assessment of social identity: the structure of group identification and its effects on in-group evaluation. *British Journal of Social Psychology*, *30*(4), 293-307.

Kellam, S. G., Brown, C. H., & Fleming, J. P. (1982). Social adaptation on to first grade and teenage drug, alcohol and cigarette use. *Journal of School Health, 52*(5), 301-306.

Kelly, C. (1988). Intergroup differentiation in a political context. *British Journal of Social Psychology*, 27(4), 319–332.

Kerkhof, A. J., & Bernasco, W. (1990). Suicide behaviour in jails prison in the Netherlands: Incidence, characteristics, and prevention, *Suicide and Life-Threatening Behaviour, 20*(2), 123-137.

Khan, M. J. (2011). Obstacles faced by females in pursuing their jobs in Pakistan. *Journal of international Academic research, 11*(2), 52-60.

Khan, M. M. (2007). Suicide prevention in Pakistan: an impossible challenge. *Suicide, 57*(10), 478-479.

Khan, M. M., Ahmed, A., & Khan, S. R. (2009). Female suicide rates in Ghizer, Pakistan. *Suicide and Life-Threatening Behavior, 39*(2), 227-230.

Khan, M. M., & Hyder, A. A. (2006). Suicide in the developing world: Case study form Pakistan. *Suicide and Life-Threatening behaviour, 36*(1), 76-81.

Khan, M. M., Islam, S., & Kundi, A. K. (1996). Parasuicide in Pakistan: experience at a university hospital. *Acta Psychiatrica Scandinavica, 93*(4), 264-267.

Khan, M. M., Mahmud, S., Karim, M. S., Zaman, M., & Prince, M. (2008). Case–control study of suicide in Karachi, Pakistan. *The British Journal of Psychiatry, 193*(5), 402-405.

Khan, M. M., Naqvi, H., Thaver, D., & Prince, M. (2008). Epidemiology of suicide in Pakistan: determining rates in six cities. *Archives of suicide research, 12*(2), 155-160.

Khan, M. M., & Reza, H. (2000). The pattern of suicide in Pakistan. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 21*(1), 31.

Khattak, M. K. (2008). *Community* Khattak, M. M. (2008). *Attitude Towards Female Education in NWFP* (Doctoral dissertation). Retrieved from http://eprints.hec.gov.pk/6821/1/3616H.htm

Khokher, S., & Khan, M. M. (2005). Suicidal ideation in Pakistani college students. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 26*(3), 125.

Khurshid, F., & Urooj, T. (2012). Causes of juvenile delinquency among teenagers in Pakistani context. *Elixir Criminal Law, 45*, 7793-7796.

Kline, R. B. (1998). *Principles and Practice of Structural Equation Modeling* New York: The Guilford Press.

Kobus, K. (2003). Peers and adolescent smoking. *Addiction, 98*(1), 37-55.

Konrad, F., Daigle, M. S., Daniel, A. E., Dear, G. E., Frottier, P., Hayes, L., M.,… Sarchiapone, M. (2007). Preventing suicide in prisons, Part1: Recommendations from the international Association for Suicide Prevention Task Force on Suicide in Prison. *Crisis, 28*(3), 113-121.

Kornhauser, R. R. (1978). *Social sources of delinquency: An appraisal of analytic models*. University of Chicago Press Chicago.

Krohn, M. D. (1974). An investigation of the effect of parental and peer associations on marijuana use: An empirical test of differential association theory. In M. Riedel & T. P. Thornberry (Eds.), *Crime and Delinquency: Dimensions of Deviance* (pp. 75–87). Praeger, NY, NY.

Kumpfer, K. L., & Turner, C. W. (1990). The social ecology model of adolescent substance abuse: Implications for prevention. *Substance Use & Misuse*, *25*(4), 435-463.

Laishes, J. (1997). Inmate suicides in the Correctional Service of Canada. *Crisis*, *18*(4), 157-162.

Larney, S., Toson, B., Burns, L., & Dolan, K. (2012). Effect of prison-based opioid substitution treatment and post-release retention in treatment on risk of re-incarceration. *Addiction*, *107*(2), 372-380.

Larsson, H., Tuvblad, C., Rijsdijk, F. V., Andershed, H., Grann, M., & Lichtenstein, P. (2007). A common genetic factor explains the association between psychopathic personality and antisocial behaviour. *Psychological medicine, 37*(01), 15-26.

Lemyre, L., & Smith, P. M. (1985). Intergroup discrimination and self-esteem in the minimal group paradigm. *Journal of Personality and Social Psychology, 49*(3), 660.

Lettieri, D. J. (1980). *Theories of Drug Abuse*. U.S. Government Printing Office, Washington, DC.

Levine, M., Prosser, A., Evans, D., & Reicher, S. (2005). Identity and emergency intervention: How social group membership and inclusiveness of group boundaries shape helping behavior. *Personality and Social Psychology Bulletin*, *31*(4), 443-453.

Levine, R. M., & Reicher, S. D. (1996). Making sense of symptoms: Self-categorization and the meaning of illness and injury. *British Journal of Social Psychology, 35*(2), 245-256.

Lee, K. H., Baillargeon, R. H., Vermunt, J. K., Wu, H. X., & Tremblay, R. E. (2007). Age differences in the prevalence of physical aggression among 5–11-year-old Canadian boys and girls. *Aggressive Behavior*, *33*(1), 26-37.

Lei, P. W., & Wu, Q. (2007). Introduction to structural equation modeling: Issues and practical considerations. *Educational Measurement: Issues and Practice, 26*(3), 33-43.

Liebling, A. (1994). Suicide among women prisoners. *The Howard Journal of Criminal Justice, 33*(1), 1-9.

Liebling, A. (1995). Vulnerability and prison suicide. *British Journal of Criminology, 35*(2), 173-187.

Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika, 88*(3), 767-778.

Loeber, R. (1990). Development and risk factors of juvenile antisocial behaviour and delinquency. *Clinical Psychology Review, 10*(1), 1-41.

Loeber, R., & Dishion, T. (1983). Early predictors of male delinquency: a review. *Psychological bulletin, 94*(1), 68.

Loeber, R., & Farrington, D. P. (1998). *Serious and violent juvenile offenders: Risk factors and successful intervention*. Sage Publication.

Loeber, R., & Farrington, D. P. (2000). Young children who commit crime: Epidemiology, developmental origins, risk factors, early intervention,

and policy implications. *Development and psychopathology, 12*(4), 737-762.

Loeber, R., Farrington, D. P., & Petechuk, D. (2003). *Child delinquency: Early intervention and prevention*. Child Delinquency Bulletin Series, Office of Juvenile Justice and Delinquency Prevention, Washington, DC.
.

Loeber, R., & Hay, D. (1997). Key issues in the development of aggression and violence form childhood early adulthood. *Annual review of psychology, 48*(1), 371-410.

Loeber, R., Stouthamer-Loeber, M., Van Kammen, W., & Farrington, D. P. (1991). Initiation, escalation and desistance in juvenile offending and their correlates. *Journal of Criminal Law & Criminology, 82*(1), 36-82.

Loeber, R., Van Kammen, W., & Fletcher, M. (1996). *Serious, violent and chronic offenders in the Pittsburgh Youth Study: Unpublished data.* Pittsburgh, Pennsylvania: Western Psychiatric Institute and Clinic.

Losel, F. (2002). Risk/need assessment and prevention of antisocial development in young people: basic issues from a perspective of cautionary optimism. In R. Corrado, R. Roesch, S. D. Hart & J. Gierowski (Eds.), *Multiproblem violent youth* (pp. 35-37). Amesterdam, NL: IOS Press/ Nato Series.

Losel, F. (2003). The development of delinquent behaviour. In D. Carson & R. Bull, *Handbook of Psychology in Legal Context* (2nd ed., pp. 245-267). West Sussex: Wiley.

MacCallum, R. C., & Austin, J. T. (2000). Application of structural equation modeling in psychological research. *Annual Review of psychology, 51*(1). 201-226.

Mahmood, K,. & Cheema, M. A. (2004). Empirical Analysis of Juvenile Crime in Punjab, Pakistan. *Pakistan Journal of Life and Social Science, 2*(2), 136-138.

Malik, M., & R. A. Shirazi (2010). An Analytical Review of Juvenile Delinquents In Jails Of Sindh Province: Some Problems and Suggestions Over Come. *Indus Journal of Management & Social Science*, 4(1): 43-56.

Marcus, P., & Alcabes, P. (1993). Characteristics of suicide by inmates in an urban jail. *Psychiatric Services, 44*(3), 256-261.

Maris, R. W. (1991). Introduction. *Suicide and Life-Threatening Behavior, 21*(1), 1-17.

Maris, R. W. (1992). *Assessment and prediction of suicide*. Guilford Press.

Matsueda, R. L., & Anderson, K, K. (1998). The Dynamic of Delinquent Peers and Delinquent Behaviour. *Criminology, 36*(2), 269-308.

Matsueda, R. L., & Heimer, K. (1987). Race, Family structure, and delinquency: A test of differential association and social control theories, *American Sociological Review,* 826-840.

McCarthy, J. D., & Hoge, D. R. (1984). The dynamics of self-esteem and delinquency. *American Journal of Sociology, 90*(2), 396-410.

McCord, J. (1990). Long-term perspectives on parental absence. In L. N. Robins (Ed,). *Straight and devious pathways form childhood to adulthood* (pp. 116-134). Australia: Cambridge University Press.

McCord, J. (1991). Family Relationship, Juvenile Delinquency, and Adult Criminality. *Criminology, 29*(3), 397-417.

McHugh, M., & Snow, L. (2002). Suicide prevention: policy and practice. In G. Towl, L. Snow, & M. McHugh (Eds.), *Suicide in prisons* (pp. 1-25). Oxford: BPS Blackwell.

McLaren, S., & Challis, C. (2009). Resilience among men farmers: the protective roles of social support and sense of belonging in the depression-suicidal ideation relation. *Death studies, 33*(3), 262-276.

Meltzer, H., Jenkins, R., Singleton, N., Charlton, J., & Yar, M. (2003). Non-fatal suicide behaviour among prisoners. *International Review of Psychiatry, 15*(1-2), 148-149.

Menard, S., & Elliott, D. S. (1994). Delinquency bonding, moral belief, and illegal behaviour: A three-wave panel model. *Justice Quarterly, 11*(2), 173-188.

Menard, S., & Morse, B. J. (1984). A structuralist critique of the IQ-delinquency hypothesis: Theory and evidence. *American Journal of Sociology, 89*(6), 1347-1378.

Mills, J. F., & Kroner, D. G. (2001). *Measures of criminal attitudes and associates -User guide*. Unpublished instrument and user guide.

Mills, J. F., Anderson, D., & Kroner, D. G. (2004). The antisocial attitude and association of sex offenders. *Criminal Behaviour and Mental Health, 14*(2), 134-145.

Mills, J. F., Kroner, D. G., & Forth, A. E. (2002). Measures of Criminal Attitudes and Associates (MCAA) Development, Factor Structure, Reliability, and Validity. *Assessment, 9*(3), 240-253.

Miranda, R., Shaffer, D. (2013). Understanding the suicide moment in adolescence. *Annals of the New York Academy of Sciences, 1304*(1), 14-21.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behaviour: a developmental taxonomy. *Psychological Review, 100*(4), 674.

Murphy, J., Houston, J. E., & Shevlin, M. (2007). Principles and application of latent class analysis in psychological research. *The Irish Journal of Psychology, 28*(1-2), 87-96.

Muthén, L. K., & Muthén, B. (2001). *Mplus: Statistical Analysis with Latent Variables. User's Guide*. Los Angeles: Muthén & Muthén.

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes.*Alcoholism: Clinical and experimental research*, *24*(6), 882-891.

Nelson, J. E., Person, H. W., Sayers, M., & Glynn, T. J. (1982). *Guide to drug abuse research terminology*. National Institute on Drug Abuse: Rockville.

Newcomb, M. D., & Bentler, P. M. (1989). Substance use and abuse among children and teenagers. *American Psyhologist, 44*(2), 242.

Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A., & Williams, D. (2008). Cross-national prevalence and risk factors for suicidal ideation plans and attempts. *The British Journal of Psychiatry, 192*(2), 98-105.

Norem-Hebeisen, A., Johnson, D. W., & Johnson, R. (1984). Predictors and concomitants of changes in drug use patterns among teenagers. *The Journal of social psychology, 124*(1), 43-50.

Oakes, P. J., & Turner, J. C. (1980). Social categorization and intergroup behaviour: Does minimal intergroup discrimination social identity more positive. *European Journal of Social Psychology, 10*(3), 295-301.

Obst, P., & White, K. M. (2005). Three-dimensional strength of identification across group memberships: A confirmatory factor analysis. *Self and Identity,* 4(1), 69–80.

Obst, P., Smith, S. G., & Zinkiewicz, L. (2002). An exploration of sense of community, Part Dimensions and predictors of psychological sense of community in geographical communities. *Journal of Community Psychology,* 30(1), 119-133.

Odgers, C. L., Moretti, M. M., Burnette, M. L., Chauhan, P., Waite, D., & Reppucci, N. D. (2007). A latent variable modeling approach to identifying subtypes of serious and violent female juvenile offenders. *Aggressive behavior*, *33*(4), 339-352.

Oetting, E. R., & Beauvais, F. (1990). Adolescent drug use: findings of national and local surveys. *Journal of consulting and clinical psychology*, *58*(4), 385-394.

Oser, C. B. (2006). The Criminal Offending–Self-Esteem Nexus Which Version of the Self-Esteem Theory Is Supported. *The Prison Journal, 86*(3), 344-363.

Osgood, D. W., Wilson, J. K., O'malley, P. M., Bachman, J. G., & Johnston, L. D. (1996). Routine activates and individual deviant behaviour. *American Sociological Review,* 635-655.

Osgood, D. W., McMorris, B. J., & Potenza, M. T. (2002). Analyzing multiple-item measures of crime and deviance I: Item response theory scaling. *Journal of Quantitative Criminology*, *18*(3), 267-296.

Pabon, E., Rodriguez, O., & Gurin, G. (1992). Clarifying peer relation and delinquency. *Youth & Society, 24*(2), 149-165.

Paracha, S., Jehanzeb, S., Mehmood, A., & Yoshie, O. (2009). *Virtual reality intervention: A promising deterrent to youth deviancy in Pakistan.* Paper presented at the Computer, Control and Communication, Karachi, Pakistan, 17-18 February 2009.

Parent, D. G., Dunwoth, T., McDonald, D., & Rhodes, W. (1997). *Key legislative issues in criminal justice: Transferring serious juvenile offenders to adult courts*. Washington, DC.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk. *Psychological bulletin, 102*(3), 357.

Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behaviour. In M. Gauvain & M. Cole (Eds.), *Reading on the Development of Children* (pp. 263-271). NY: Freeman.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys: Vol. 4.* Eugene.

Petraitis, J., Flay, B. R., & Miller, T. Q. (1995). Reviewing theories of adolescent substance use: organizing pieces in the puzzle. Psychological bulletin, 117(1), 67-86.

Pihl, R. O., Perterson, J., & Finn, P. R. (1990). Inherited predisposition to alcoholism: characteristics of sons of male alcoholics. *Journal of Abnormal Psychology, 99*(3), 291.

Postmes, T., & Branscombe, N. R. (2002). Influence of long-term racial environmental composition on subjective well-being in African Americans. *Journal of Personality and Social Psychology, 83*(3), 735.

Prothrow-Stith, D. (1987). *Violence prevention curriculum for adolescents*. Newton, MA: Education Development Center.

Quay, H. C., & Peterson, D. (1983). *The Revised Behavior Problem Checklist*. Coral Gables, FL: University of Miami Department.

Ramaswamy, V., DeSarbo, W. S., Reibstein, D. J., & Robinson, W. T. (1993). An empirical pooling approach for estimating marketing mix elasticises with PIMS data. *Marketing Science, 12*(1), 103-124.

Raykov, T. (1998). Coefficient alpha and composite reliability with interrelated nonhomogeneous items. *Applied Psychological Measurement*, 22(4), 375–385.

Reckless, W. C. (1961). A new theory of delinquency and crime. *Federal Probation, 25*, 42-46.

Reicher, S., Cassidy, C., Wolpert, I., Hopkins, N., & Levine, M. (2006). Saving Bulgaria's Jews: An analysis of social identity and the mobilisation of social solidarity. *European Journal of Social Psychology 36*(1), 9-72.

Reise, S. P., Moore, T. M., & Haviland, M. G. (2010). Bifactor models and rotations: Exploring the extent to which multidimensional data yield univocal scale scores. *Journal of Personality Assessment*, *92*(6), 544–559.

Reunanen, E., & Suikkanen, R., (1999). *Latent Class Analysis: Wandering in Latent Space.* Konstanz, Germany: University of Konstanz.

Rickman, B. L., & Houfek, J. F. (1995). Toward an interactional model of suicidal behaviours: Cognitive rigidity, attributional style, stress, hopelessness, and depression. *Archives of psychiatric nursing, 9*(3), 158-168.

Rivlin, A., Hawton, K., Marzano, L., & Fazel, S. (2013). Psychosocial characteristics and social networks of suicidal prisoners: towards a model of suicidal behaviour in detention. PloS one 8(7) e68944. doi: 10.1371/journal. pone.0068944

Ryan, R. M., & Lynch, J. H. (1989). Emotional autonomy versus detachment: Revisiting the vicissitudes of adolescence and young adulthood. *Child development,* 340-356.

Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations or relationship to teachers, parents, and friends as predictors of academic motivation and self-esteem. *The Journal of Early Adolescence, 14*(2), 226-249.

Salive, M. E., Smith, G. S., & Brewer, T. F. (1998). Suicide morality in the Maryland state prison system, 1979 through 1987. *Journal of American Medical Association, 262*(3), 365-369.

Salovey, P., & Rodin, J. (1984). Some antecedents and consequences of social-comparison jealousy. *Journal of Personality and Social Psychology, 47*(4), 780.

Satterfield, J. H., Faller, K. J., Crinella, F. M., Schell, A. M., Swanson, J. M., & Homer, L. D. (2007). A 30-year Prospective Follow-up Study of Hyperactive Boyes with Conduct Problems: Adults Criminality. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(5), 601-610.

Schegel, R., d'Avernas, J., Zanna, M., DiTecco, D., & Manske, S. (1987). Predicting Alcohol Use in Young Adult Males: A Comparison of the

Fishbein-Ajzen Model and Jessors' Problem Behaviour Theory. *Drugs & Society, 1*(4), 7-24.

Schofield, P. E., Pattison, P. E., Hill, D. J., & Borland, R. (2003). Youth culture and smoking: Integrating social group processes and individual cognitive processes in a model of health-related behaviours. *Journal of Health Psychology, 8*(3), 291-306.

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics* 6 (2), 461–464. http://dx.doi.org/10.1214/j.accounting,organization, and society/1176344136.

Schwartz, D., McFadyen-Ketchum, S., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Early Behavior Problems as a Predictor of Later Peer Group Victimization: Moderators and Mediators in the Pathways of Social Risk. *Journal of Abnormal Child Psychology, 27*(3), 191-201.

Shahid, M., & Hyder, A. A. (2008). Deliberate self-harm and suicide: a review from Pakistan. *International journal of injury control and safety promotion, 15*(4), 233-241.

Shaw, J. M., & Scott, W. A. (1991). Influence of parent discipline style on delinquent behaviour: The mediating role of control orientation. *Australian Journal of Psychology, 43*(2), 61-67.

Shedler, J., & Block, J. (1990). Adolescent drug use and psychological health: A longitudinal inquiry. *American Psychologist, 45*(5), 612.

Sher, K. J., Walitzer, K. S., Wood, P. K., & Brent, E. E. (1991). Characteristics of children of alcoholics: putative risk factors, substance use abuse, and psychopathology. *Journal of abnormal psychology, 100*(4), 427.

Sherazi, Z. S. (2013, July 30). D I Khan Jailbreak. *Dawn*. Retrieved from Http://www.dawn.com/news/1032777

Shoemaker, D. J. (2009). *Theories of Delinquency: An Examination of Explanation of Delinquent Behaviour: An Examination of Explanation of Delinquent Behaviour* (6th ed.). USA: Oxford University Press.

Siddiqui, Z. (2003). *Family functioning and psychological problems as risk factors in the development of juvenile delinquency* (Unpublished Doctoral dissertation). Institute of Clinical Psychology, University of Karachi, Pakistan.

Siegel, S. (1983). *Classical conditioning, drug tolerance, and drug dependence Research advances in alcohol and drug problems*. Springer.

Simons. R. L., Whitbeck, L. B., Conger, R. D., & Conger, K. J. (1991). Parenting factors, social skills, and value commitments as precursors to school failure, involvement with deviant peers, and delinquent behaviour. *Journal of Youth and Adolescence, 20*(6), 645-664.

Smith, G. M., & Fogg, C. P. (1978). Psychological predictors of early use, late use, and nonuse of marijuana among teenage students. In D. B. Kandel (Ed.), *Longitudinal research on drug use: Empirical finding and methodological issues* (pp. 101-113). Washington, DC: Hemisphere.

Smith, G. M., & Fogg, C. P., & Simmons, R. (1979). Psychological antecedents of teenage drug use. Research in community and mental health: *An annual compilation of research, 1*, 87-102.

Snyder, J., Dishion, T. J., & Patterson, G. R. (1986). Determinants and consequences of associating with deviant peers during preadolescence. *The Journal of Early Adolescence, 6*(1), 29-43.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Journal of Cognitive Education and Psychology, 2*(1), 55-87.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation Approach. *Multivariate Behavioral Research, 25*(2), 173-180.

Stoolmiller, M. (1994). Antisocial behaviour, delinquent peers association, and unsupervised wandering for boys: Growth and change from childhood to early adolescence. *Multivariate Behaviour Research, 29*(3), 263-288.

Sutherland, E., & Cressey, D. (1978). *Principle of criminology.* New York: J.P. Lipping Cott.

Sutherland, E. H., Cressey, D. R., & Luckenbill, D. F. (1992). *Principles of criminology*. Rowman & Littlefield.

Tajfel, H. (1978). *Differentiation between Social Groups: Studies in the Social Psychology of Intergroup Relations*. London: Academic Press.

Tajfel, H. (1978). Individual and groups in social psychology. *British Journal of Social and Clinical Psychology, 18*(2), 183-190.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations, 33*(47), 74.

Tanaka, J. S. (1987). How big is big enough? Sample size and goodness of fit in structural equation models with latent variables. *Child Development*, *58*(1), 134–146.

Tariq, P. N. (1986). Validation of a typology of Pakistan criminal bases on social psychological factors. *Pakistan Journal of Psychological Research, 1*(3), 57-66.

Tarter, R. E., Alterman, A. I., & Edwards, K. L. (1985). Vulnerability to alcoholism in men: A behavioural genetic perspective. *Journal of Studies on Alcohol and Drugs, 46*(4), 329-356.

The Library of Congress Country Studies; CIA World Factbook (2015). Pakistani Prisons. Retreived from http://www.photius.com/countries/pakistan/national_security/pakistan _national_security_prisons.html

Thornberry, T. P., Krohn, M. D., Lizotte, A. J., & Chard-Wieschem, D. (1993). The role of juvenile gangs in facilitating delinquent behaviour. *Journal of research in Crime and Delinquency, 30*(1), 55-87.

Tonry, M., Ohlin, L. E., & Farrington, D. P. (1991). *Human development and criminal* behaviour. Springer Sciences & Business Media.

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*(1) 1-10.

Turner, J. C. (1982). Towards a cognitive redefinition of the social group. *Social identity and intergroup relations,* 15-40.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherall, M. S. (1987). *Rediscovering the social group: A self-categorization theory. Contemporary Sociology.* Cambridge, MA, US: Basil Blackwell.

Van Knippenberg, D., & Ellemers, N. (2003). Social Identity and Group Performance: Identification as the Key to Group-Oriented Effort. In S. A. Haslam, D. V. Knippenberg, M. J. Platow, & N. Ellemers (Ed.), *Social identity at work: Developing theory for organizational practice* (pp. 29- 42) New yourk, NY 10017: Psychological Press.

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions practices and recommendations for organizational research. *Organizational research methods 3*(1), 4-70.

Van Orden, K. A., Cukrowicz, K. C., Witte, T. K., & Joiner, T. E. (2012). Thwarted belongingness and perceived burdensomeness: Construct validity and psychometric properties of the Interpersonal Needs Questionnaire. *Psychological Assessment, 24*(1), 197.

Van Orden, K. A., Lynam, M. E., Hollar, D., & Joiner, T. E. (2006). Perceived burdensomeness as an indicator of suicide symptoms. *Cognitive Therapy and Research, 30*(4), 457-467.

Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T.
E. (2008). Suicidal desire and the capability for suicide: Tests of the
interpersonal-psychological theory of suicidal behavior among
adults. *Journal of Consulting and Clinical Psychology*, *76*(1), 72-83.

Walters, G. D. (1990). *The criminal lifestyle: Patterns of serious criminal
conduct*. Newbury Park, CA: Sage.

Walters, G. D. (1998). The Lifestyle Criminality Screening Form. *Journal
of Offender Rehabilitation,* 27:3-4, 9-23, DOI:
10.1300/J076v27n03_02

  http://dx.doi.org/10.1300/J076v27n03_02

Walters, G. D. (2002). The Psychological Inventory of Criminal Thinking
Styles (PICTS): A review and meta-analysis. *Assessment, 9*(3), 278-
291.

Walters, G. D. (2003). Changes in criminal thinking and identity in novice
and experienced inmates: Prisonization revisited. *Criminal Justice and
Behaviour, 30*(4), 399-421.

Walters, G. D. (2005a). The Psychological Inventory of Criminal Thinking
Style. Part I: Reliability and preliminary validity. *Criminal Justice
and Behaviour, 22*(3), 307-325.

Walters, G. D. (2005b). The Psychological Inventory of Criminal Thinking Style. Part II: Identifying Simulated Response Sets. *Criminal Justice and Behaviour, 22*(4), 437-445.

Walters, G. D (2006b). Proactive and reactive composite scales for the Psychological Inventory of Criminal Thinking Styles. *Journal of Offenders Rehabilitation,* 42(2), 23-36.

Wegge, J., VanDick, R., Fisher, G. K., Wecking, C., & Moltzen, K. (2006). Work motivation organisational identification and well-being in call centre work. *Work & Stress, 20*(1), 60-83.

Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counselling Psychologist, 34*(5), 719-751.

White, T. W., Schimmel, D. J., & Frickey, R. (2002). A comprehensive analysis of suicide in federal prison: a fifteen-year review. *Journal of Correctional Health Care, 9*(3), 321-343.

Wolff, N., Shi, J., & Siegel, J. (2009). Understanding physical victimization inside prisons: Factors that predict risk. *Justice Quarterly, 26*(3), 445-475.

World Health Organization (2008). Suicide Statistics: Introduction Retrieved June 2 2014 from http://wwwwhoint/mental_health/prevention/suicide/suicideprevent/en/printhtml

Woznica, J. G., & Shapiro, J. R. (1990). An analysis of adolescent suicide attempts: The expendable child. *Journal of Paediatric Psychology, 15*(6), 789-796.

Yoshikawa, H. (1994). Preventive as cumulative protection: effects of early family support and education on chronic delinquency and its risks. *Psychological bulletin, 115*(1), 28.

APPENDICES

Appendix 1.1 Letter Requested for Permission to Collect the Data from Prisons.

Appendix 1.2 Letter of permission from Mr. Fasihuddin, a senior officer of the Police Service of Pakistan (PSP)

Appendix 1.3 Approval letter from Ethics Committee University of Huddersfield

Appendix 1.4 Letter of Permission from Minister of Prisons and Jail