A PSYCHOMETRIC STUDY OF RESILIENCE AND CUSTODIAL ADJUSTMENT AMONG YOUNG PEOPLE IN CUSTODY

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September, 2016

Abstract

This thesis explores the impact of resilience upon adjustment to custody and emotional well-being among incarcerated adolescent males in the United Kingdom. First, the identification and factorial validation of the Resilience Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) was completed as a measure of resilience among incarcerated young males. This suggested that young males in custody had below average levels of resilience. Resilience was found to be associated with positive self-perceptions, positive attitudes towards staff members, along with higher levels of good adjustment, positive behaviour and compliance with rules, fitting with a strength-based approach to treatment planning with offenders. Resilience was also found to be associated with lower levels of anxiety, depression, anger, emotional distress and poor adjustment. Evidence emerged to support compensatory models of resilience, where resilience improved the prediction of emotional well-being beyond that predicted by custodial adjustment. Young people identified as vulnerable by prison staff were found to have significantly lower levels of resilience, although naturally occurring clusters of young people based on their resilience profiles did not emerge when model-based clustering methods were used. As a result, a Composite Measure of Resilience and Vulnerability (CM-RV) was developed that could be utilised in practice to assess markers of resilience and vulnerability among young people in custody. The CM-RV is shown to predict a number of indicators of resilience and vulnerability within custody and concurrent validation of the measure was demonstrated. The results of this thesis have a number of implications for practice. In particular, the importance of young people's relatedness to others is highlighted throughout. Despite the inherent challenges of promoting relatedness within the prison environment, the significant role that it appears to play in helping young people to successfully adjust to the custodial environment suggests that due consideration needs to be given to both its assessment and promotion. The results would also support the design and implementation of resilience promoting interventions to help assist young people to adjust and engage positively during their time in custody.

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Acknowledgements

First and foremost I would like to thank my supervisor, Dr. Jane Clarbour. Our joint interest of young people in custody brought us together nearly 20 years ago and I would not have commenced my PhD without her encouragement. Her confidence in my ability and advice has enabled me to build upon my experiences as a practitioner and embrace the training process of a PhD. I absolutely could not have completed this without her support, and I am indebted to her.

I would also like to thank Dr Joanna Clarke and Dr Gavin Phillips, who have offered insightful suggestions that have helped shape and add direction to my research. Their support, encouragement and belief in me were invaluable. Studying for a PhD on a part-time basis can be a lonely journey and I have been very thankful for the support of Rebecca Milner during the later parts of my research, and only hope that our plan to graduate together works out!

I am also thankful to my employer, the National Offender Management Service (NOMS) for their initial funding of my PhD and to my work colleagues who have supported and encouraged me to continue when things got difficult.

Finally, I would like to thank my friends and family. They have listened to me obsess about balancing the demands of my career and PhD and have supported me throughout. Special thanks go to Neil Wilson and Jenny Monaghan, for their willingness to proofread my final thesis. I would like to thank my mum, whose encouragement and unfaltering belief in my ability to complete what I start has helped me to continue when things were difficult. But most importantly I would like to thank my husband, Rich, and my beautiful daughter, Rose. Rich has lived through my PhD with me and has made the greatest sacrifices to enable me to complete. His support is constant and unwavering. And to Rose, who arrived part way through my studies and provided us with more happiness than we could have imagined. My desire to spend my time with her has been the final push of motivation that I needed.

Declaration

I declare that this thesis represents my own work, except where due acknowledgement is made, and that it has not been previously submitted to this university or any other institution for a degree or other award.

Simon Crouch (Senior Research Fellow, Health Sciences, University of York) provided guidance on how to conduct and interpret the model-based cluster analysis conducted within Chapter 6 using the R programme, for which I am very grateful.

This thesis has been partially reproduced in the below presentations / publications:

Gibson, R. A. & Clarbour, J. (2011). *Resiliency among adolescent offenders*. Paper presented at British Psychological Society's North of England Conference, York, UK.

Gibson, R. A. & Clarbour, J. (2013). *Factorial Validation of the Resiliency Scale for Children and Adolescents (RSCA) among incarcerated adolescent offenders*. Paper presented at the 34th World STAR Conference, Faro, Portugal (1.7.13).

Gibson, R. A. & Clarbour, J. (2015). *Resilience and adjustment to custody in a male adolescent offending population*. Poster presented at the British Psychological Society's Faculty for Children, Young People and their Families Annual Conference 2015 (October, 2015).

Gibson, R. A. & Clarbour, J. (in press). Factorial structure of the Resiliency Scale for Children and Adolescents (RSCA) among incarcerated male adolescent offenders. *Journal of Forensic Practice*.

CHAPTER 1 Literature Review and Thesis Overview

1.1 Thesis Overview

Rates of incarceration of young people have consistently fallen over recent years following sentencing guidelines published in 2009 indicating that youth custody should be reserved for the most serious offences (Sentencing Guidelines Council, 2009). Most recent figures suggest that less than 1000 young people are currently incarcerated within England and Wales (Youth Justice Board, 2016), with the average cost per place standing at £100,000 per annum (Ministry of Justice, 2014). Estimates suggest that 71% of young people released from custody will go on to break the law again within 12 months of release (Ministry of Justice, 2014). Despite this, young people in custody present with a range of pre-existing vulnerabilities (Fazel, Doll & Langstom, 2008; Ulzen & Hamilton, 1998; Cesaroni & Peterson-Badali, 2005) and their incarceration appears to negatively impact upon their emotional well-being, where rates of suicide and self-injurious behaviours are high (Casiano, Katz, Globerman & Sareen, 2013; Radeloff, Lempp, Herrmann, Kettner, Bennefeld-Kertsen & Feitag, 2015).

The aim of the current thesis is to explore the impact of individual level resilience upon adolescent males' adjustment to the prison environment and their emotional well-being. It is a psychometric study that will also utilise objective measures of vulnerability and functioning within custody. It will explore the effects of individual level resilience, and consider whether naturally occurring groups of young people exist based on their resilience profiles. The development and preliminary validation of a composite measure of resilience and vulnerability is also presented.

Chapter 1 will present a discussion of factors that have emerged within the research literature as being related to resilience in children and adolescents. Initially, an overview of the concept of resilience will be presented, along with some discussion of the complexities of comparing research findings given different definitions and measurements used. Differing models and theoretical perspectives that appear relevant to the discussion will then be introduced. A review of the literature regarding the factors which appear to promote resiliency will follow. The discussion will then focus upon resilience and young people who have come into contact with the Criminal Justice System, reviewing the scant literature and raising some issues and questions that may

benefit from further exploration. Finally, based on the literature reviewed an initial working model of resilience will be presented, along with the scope of the current research and research hypotheses.

Chapter 2 considers in further detail some of the methodological issues of conducting research within this area, with a particular focus upon measures designed to quantify individual level resilience. Measures are reviewed in order to determine which measure may be the most suitable for use within the current research. The following issues are considered:

1. The theoretical underpinnings for the development of the measure, and whether it matches the current purpose.
2. The reasons for the development of the measure, and whether this is reflected in the research under investigation.
3. The population used (age, culture, gender, etc.) for the development of the measure, and whether this was matched with the population of interest.
4. The psychometric properties of the measure (i.e., internal consistency, test-retest reliability, responsiveness, validity) and whether it had been sufficiently reported and explored.
5. Whether the measure had been validated for use with the population of interest.

From this review, the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) is identified as the most appropriate measure to utilise within the current research.

Chapter 3 explores the use of the RSCA (Prince-Embury, 2006, 2007) as a measure of resilience with young people in custody, by examining whether the proposed factor structure can be confirmed using confirmatory factor analysis (CFA) techniques. This is an essential stage of the current research, as although empirical validations of the measure have been conducted (e.g., Prince-Embury & Courville, 2008), this has not been completed with young people in custody.

Chapter 4 explores the impact of resilience upon young people's adjustment to the custodial environment, their emotional well-being, mental health and associated

vulnerabilities utilising the three-factor model of the RSCA reported within Chapter 3 and originally proposed by the test author. Young people's experiences of custody and the impact upon resilience is also explored.

Chapter 5 builds upon the results of Chapter 4 by exploring the mechanisms by which resilience acts upon the relationship between risk and outcome. Given some of the challenges that young people appear to experience within custody, exploring the mechanisms by which resilience may affect the risks associated with incarceration may help to uncover potential avenues for intervention efforts. In particular, the effects of resilience upon the relationship between the following are explored: adjustment to custody and emotional well-being, experience of custody and emotional well-being, and emotional well-being and being at risk of suicide / self-injurious behaviour.

Chapter 6 explores whether groups of participants based on their resilience profiles exist within the data. Initially, any differences between young people identified as vulnerable and non-vulnerable by prison staff will be explored, including the ability of the RSCA (Prince-Embury, 2006, 2007) to predict group membership. This will lead onto testing whether naturally occurring clusters of young people exist within the data, based on their resilience profiles. This was of particular interest, given the exploratory nature of the current research and that this method also has the potential to be utilised within practice to help identify those young people with particular resources and/or vulnerabilities within custody.

Chapter 7 presents the development and validation of a composite measure of resilience and vulnerability (CM-RV) for young people in custody. This will include a description of the potential predictive power of the CM-RV and an exploration of its application within forensic practice.

Chapter 8 provides an overview of the results of the thesis, including critical discussion of the theoretical and practical implications. It will also consider how the findings can be utilised to help support and develop the personal resilience of young people in custody.

1.2 What is Resilience?

Research into the developmental trajectory of children raised in disadvantaged environments has emphasised the range of potentially negative outcomes that they may face, such as mental health problems, substance misuse and criminality (Fergusson & Horwood, 2003). Interest in the phenomenon of adaptive adjustment despite negative environmental experiences appears to have been brought about through case examples of children who survived world trauma psychologically undamaged (Weiss, 2008) and studies examining the development of children who experience adversity (Herrman, Stewart, Diaz-Granados, Berger, Jackson & Yuen, 2011), such as being born to parents with schizophrenia (Calhoun, Glaser, Bartolomucci, 2001) and living through war (e.g., Tayara, 2011). This interest marked a shift in focus away from the study of negative outcomes in psychopathology which dominated at the time (Masten & Powell, 2003), to examining strengths and healthy development (Fergus & Zimmerman, 2005). As research within the area has progressed, defining resilient individuals by a lack of psychopathology has progressed to characterising resilience through behavioural competence (Kinard, 1998). Furthermore, interest in the impact of strength based predispositional factors among children, such as positive temperament, have gained interest given evidence for their long-term buffering effects against negative outcomes (e.g., Kim-Cohen, Moffitt, Caspi & Taylor, 2004; Caspi, 2000). However, problems arise when exploring resilience due to the different approaches and definitions of the term, in particular, in terms of differentiating resilience from other concepts, such as coping styles (Harvey & Delfabbro, 2004). Indeed, Rutter (1985, 2006) describes resilience as being unique due to the fact that adversity is not avoided or absent but is actively engaged with and learnt from.

Masten and Powell (2003) define resiliency as "patterns of positive adjustment in the context of significant risk or adversity" (Masten & Powell, 2003, p.4). This definition implies that two conditions need to be satisfied. First, that the individual has experience of either current or past major adversity and second, that their current functioning is adaptive despite such adversity (Coleman & Hagell, 2007). The inclusion of the word 'patterns' in the definition provided by Masten and Powell gives emphasis to identifying the way in which such positive adjustment is achieved. This has been a point raised by a number of researchers, who argue that in order for the study of the

concept of resilience to progress, research needs to go beyond simply identifying protective and vulnerability factors to explore protective mechanisms and processes (e.g., Luthar, 1993; Rutter, 1987).

Despite the definition provided by Masten and Powell (2003) appearing to succinctly characterise resilience, there are numerous difficulties when attempting to define the term given the different ways that researchers have chosen to quantify and measure resilience (Harvey & Delfabbro, 2004; Kinard, 1998). For example, while some have used teacher and parental ratings of resilience (e.g., Eisenberg, Guthrie, Fabes, Reiser, Murphy, Holgren et al., 1997), others have utilised psychometrics designed to measure resilience (e.g., Campbell-Sills, Cohan & Stein, 2006; Tayara, 2011) or the absence of or minimal engagement in antisocial behaviour (e.g., Born, Chevalier, & Humblet, 1997; Murray, 2010; Schofield, Biggart, Ward & Larsson, 2015). Given that this will inevitably lead to variations regarding the prevalence and patterns of resilience, the choices (and impact of these choices), must be clearly outlined and considered (Herrman et al., 2001; Walsh, Dawson & Mattingly, 2010).

Given that the meaning of 'normal functioning' and the behaviours or outcomes measured as indicative of such functioning vary tremendously, comparisons between research studies can be difficult (Harvey & Delfabbro, 2004). Furthermore, adaptive functioning does not necessarily imply that functioning needs to be above what would be considered as 'normal'. Luthar and Cicchetti (2000) refer to 'optimal outcome indicators' as being those that are most relevant to the risk being explored, and for some this may simply be the absence of psychopathology. As the literature is reviewed within the current chapter, some of these issues will become apparent. While the way in which researchers have chosen to define and measure resilience will be outlined, the outcome measures used within studies can vary tremendously, meaning that outcomes other than resilience per se (e.g., lack of antisocial behaviour, adaptive functioning) are used as indicators of it.

Fergusson and Horwood (2003) distinguish between two types of processes by which resilience appears to develop following exposure to risk: protective processes and compensatory processes. While compensatory processes are beneficial whether or not one is exposed to adversity and would be best described by a main effects model, protective processes are only beneficial when exposed to adversity and are thus

explained by an interactive model. For example, for children who are raised in poverty (Dubois, Felner, Meares & Krier, 1994) or institutions (Rutter, 2000), positive experiences within school appear to have greater potential benefit than for children not raised in such environments. This suggests that positive experiences within school would represent a protective, rather than a compensatory, process model. Fergusson and Horwood's description of protective processes appears to mirror the arguments put forward by the early work of Michael Rutter (e.g., Rutter, 1985). Rutter suggests that the development of resilience is related to an individual's ability to successfully engage with adversity rather than avoidance of it (Rutter, 1985), meaning that resilience is an active process (Harvey & Delfabbro, 2004).

As children may exhibit difficulties in some areas of their life and successful adaptation in other areas (Olsson, Bond, Burns, Vella-Brodrick & Sawyer, 2003), doubt has been raised regarding the concept of overall resilience (Luthar, 1993). There is growing evidence to suggest that resilience is a multidimensional construct, and that researchers need to go beyond defining the concept by a number of related protective factors to specify which factors help promote different kinds of resilience. For example, Kim-Cohen and colleagues (2004) explored genetic and environmental processes in the development of children's cognitive (as measured by IQ) and behavioural (avoidance of antisocial behaviour) resilience against socio-economic deprivation. Children's IQ was taken as a proxy measure of cognitive resilience, given evidence to suggest that resilience to such environment adversity is related to cognitive stimulating experiences and emotional warmth (e.g., Linver, Brooks-Gunn & Kohen, 2002). Kim-Cohen and colleagues found that along with genetic influences, an outgoing, sociable temperament was associated with cognitive resilience and mother's emotional warmth was associated with behavioural resilience. Examining functioning across different domains in this way has been highlighted by a number of researchers (e.g., Walsh et al., 2010; Kinard, 1998), with Shiner and DeYoung (2013) suggesting that researchers within different fields of study would benefit from utilising a variety of methods when exploring questions regarding temperament and personality. However, risks appear to work in an additive way, in that the more adversity a child experiences in multiple domains of their life, the more prone they are to have negative developmental outcomes (Fergusson & Horwood, 2003). In order to explore these factors and the process by which resilience develops, it is important to explore the interactions between these factors and those

factors that place an individual at risk (Olsson, Bond, Burns, Vella-Brodrick & Sawyer, 2003). For example, Werner and Smith (1992) have suggested that a child with a positive temperament (i.e., characteristics that tend to elicit positive responses from others) will be more likely to obtain a positive response from others early in development. Olsson and colleagues (2003) have suggested that factors that have the potential to influence across the life span, such as a positive temperament, may be 'seminal' resilience promoting factors.

Given some of these issues, it is important to consider which aspects of resilience will be explored and in what context. It is also important to justify methods chosen and review the potential implications and limitations of the methodologies used.

Prior to exploring which factors have been identified within the literature as being related to resilience outcomes, relevant models and theoretical perspectives will be outlined.

1.3 Models and Theoretical Perspectives

1.3.1 Compensatory, protective and challenge models of resilience.

Models of resilience appear to be summarised under the three headings of compensatory, protective and challenge models (Fergus & Zimmerman, 2005).

Compensatory models propose that resilience promoting factors act in the opposite direction from a risk factor and that increasing the number of these promoting factors will help to offset risk (Masten, 2001). These models describe resilience acting as a mediating variable, where resilience has a direct effect on an outcome, independent of the risk factor (Fleming & Legogar, 2008). While 'pure' assets have a positive impact if they are present but no associated negative impact if absent (e.g., musical talent, Masten et al., 2009), Masten and colleagues (2009) note that many resilience promoting factors appear to sit at one end of a continuum, with risk promoting factors at the opposite, for example, adaptive vs. maladaptive coping strategies. Compensatory models propose that the presence of such assets can help to offset the impact of risk and lead to outcomes that are more positive. Interventions that aim to promote assets that help improve resiliency are based on a compensatory model perspective (Masten, 2001; Masten et al., 2009).

Protective models suggest that resilience promoting factors will reduce or moderate the effects of risk on a negative outcome (Fergus & Zimmerman, 2005). For example, positive experiences of school appear to reduce the impact of living in impoverished environment (Luthar & Cicchetti, 2000). Luthar, Cicchetti and Becker (2000) propose that protective factors may neutralise risk completely or reduce the risk and have labelled these 'protective-stabilising' and 'protective-reactive' models, respectively. For example, an adult mentor may act in a protective-stabilising manner for a young person whose receives no support or monitoring from their parents and is at risk of anti-social behaviour (Fergus & Zimmerman, 2005). Anger management interventions may act in a protective-reactive way for a young person who lives in a community where violence is common, whereby their risk of engaging in violence may reduce but not completely disappear. Masten and colleagues (2009) suggest that individual differences, such as temperament and personality, may act in such a protective-reactive manner and it may be that individual differences in psychological resilience could also act in such a way. For example, individual level resilience may reduce or moderate the effects of risk on a negative outcome. Interventions that target how threat is responded to are based on protective models of resilience.

Challenge models propose a curvilinear relationship between a risk factor and outcome (Fergus & Zimmerman, 2005). That is, whilst low levels of exposure to the risk may not provide an opportunity to develop strategies to negotiate and manage the risk, high levels of exposure may be too difficult to negotiate successfully. However, moderate levels allow an individual to develop strategies and skills to manage and negotiate similar future challenges. Within such models, risks and assets are studied as the same variable, for example, while little or no exposure to conflict at home is unlikely to provide young people with the skills to deal with interpersonal conflicts in the future, high levels of conflict can lead to distress and problems. However, exposure to moderate levels of conflict may enable young people to develop the necessary skills to manage such conflicts (Fergus & Zimmerman, 2005). Rutter (e.g., 1985, 1987) suggests "protection ... resides, not in the evasion of risk, but in the successful engagement with it" (Rutter, 1987, p. 318), and that exposure to risk can present a 'steeling' quality. While Rutter (e.g., 1985, 1987) has suggested that this requires further exploration, challenge theories are unable to explain what levels of risk would provide such an inoculation effect. Furthermore, this level would need to take into

account the individual's capabilities (Rutter, 1987) and therefore such levels are likely to need to vary tremendously between individuals.

The models described above provide a useful means of summarising the main models to date, however they also fail to capture the complexities of human adaptation and functioning (Masten et al., 2009). While some attempt is made within these models to explain the process of resilience, they appear to rely heavily upon those protective and risk factors that have been identified within the literature as being related to resilience. They are limited in being able to explain why and how some individuals manage to achieve positive outcomes despite their experiences of adversity (Rutter, 1987) and in this sense, examining the developmental and contextual processes involved would appear key. Masten and colleagues (2009) have also highlighted how current models are only able to describe resilience as static and fail to account for how such processes are constantly changing, adapting and influencing one another. In particular, the impact of temperament is likely to influence and be impacted upon by interactions with parents, teachers, peers, etc. (e.g., Rutter, 1987; Masten et al., 2009). Furthermore, there is an assumption within these models that it is possible to identify a single outcome. This is despite evidence that suggests that children and young people can demonstrate resilience in some aspects of life and difficulties within others (Olsson et al., 2003; Masten et al., 2009). A number of theoretical perspectives provide some indications to these processes and are described below, although they too are not without their limitations.

1.3.2 Theoretical perspectives. The research literature on resilience describes a number of theoretical perspectives that are relevant to the present discussion. The broaden and build theory of positive emotions by Fredrickson (2001) suggests that the experience of positive emotions acts to broaden an individual's 'momentary thought-action repertoires', increasing the number of thoughts and possible actions that they can draw upon. Fredrickson refers to these as an individual's personal resources, which they can then later rely upon. She also suggests that positive emotions may help to build resilience, as the experience of positive emotions leads to more flexible thinking, which enables people to build a greater repertoire of coping strategies. While the experience of positive emotions may be temporary, the resources that these emotions lead to are more permanent and can be later relied upon (Garland, Fredrickson, Kring, Johnson, Meyer &

Penn, 2010). This appears to fit with both compensatory and protective models of resilience, given the suggestion that the experience of positive emotions help build both resilience and additional coping strategies. The broaden and build theory has a range of empirical support, where induced positive emotions have been shown to broaden the scope of visual attention utilising both behavioural and brain imaging (e.g., Rowe, Hirsh & Anderson, 2010; Schmitz, De Rosa & Anderson, 2009), improve interpersonal relationships (e.g., Waugh & Fredrickson, 2006) and built resilience (Tugade & Fredrickson, 2004). For example, Tugade and Fredrickson (2004) found that individuals identified as highly resilient tended to experience more positive emotions when under stress, suggesting that these emotions helped them to cope with stress. More recently, Garland and colleagues (2010) have outlined how this theory can be applied to the treatment of emotional dysfunctions and psychopathology, given evidence to suggest that interventions that raise positivity, such as loving-kindness meditation, lead to increases in life satisfaction and reductions in depressive symptoms (Fredrickson, Cohn, Coffey, Pek & Finkel, 2008). However, the participants within the Fredrickson and colleagues (2008) study were non-clinical working adults, raising some doubt regarding whether similar results would emerge among clinical samples as Garland and colleagues (2010) suggest. Furthermore, much of the research that has found support for the theory has utilised university students as participants. The inevitable impact of selecting university students limits the generalisability of the research findings, in particular to those who have experienced disadvantage and hardship. While positive psychology approaches are useful for those who belong to or identify as being part of social groups, their application to those who have experienced such adversity is more limited. Concerning Fredrickson's theory, the experience of such adversity is likely to limit thought-action repertoires that can be drawn upon, raising questions regarding how the experience of positive emotions could broaden these repertoires. Therefore, additional evidence is required that supports the theory among individuals who have experienced significant risk or adversity and at the current time this is lacking.

Rutter (e.g., 1987, 2006) has been a proponent of the 'challenge' models of resiliency and has linked the development of resilient traits with stress inoculation theory (Meichenbaum, 1985, 2007), whereby exposing an individual to manageable levels of stress helps facilitate the development of strategies and resilience that can be utilised when experiencing future difficulties. Support for these theories has emerged

within a number of research settings, including in relation to work-related stress, psychopathology symptoms and in animal studies. For example, those exposed to work stress in adolescence appear better able to manage work-related stress in adults (e.g., Mortimer & Staff, 2004) and young adults who had experienced significant emotional neglect but were highly resilient reported lower levels of psychiatric symptoms than those who had experienced low neglect but were also highly resilient (Campbell-Sills et al., 2006). This suggests that the experience of neglect resulted in some strengthening in personal resources that led to greater levels of resilience, a perspective also discussed by Bonanno (2004). Support has also emerged from longitudinal studies of squirrel money development, where young squirrel monkeys experiences of intermittent separations from their mothers has been shown to be associated with fewer indicators of anxiety than those not exposed to such separations (e.g., Lyons, Parker, Katz & Schatzberg, 2009). As noted above, challenge theories are unable to explain what levels of risk would provide such an inoculation effect, given that inoculation to specific risks would be associated with specific levels depending upon an individual's capabilities (Rutter, 1987). Further research is also needed to determine the cognitive and emotional processing that takes place than enables such inoculation processes to emerge. Rutter (2006) has argued that resilience research should take a developmental approach, given that such approaches will be better able to uncover the processes involved.

Self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000) is a theory of intrinsic motivation, well-being and engagement. An individual's growth and development is said to be determined by the three innate needs required for optimal functioning, namely, competence, relatedness and autonomy (Ryan & Deci, 2000). While other theories have emphasised the importance of psychological needs, many suggest that these are learnt (e.g., the need for achievement) while self-determination theory suggests that competence, relatedness and autonomy are basic and universal (Deci & Ryan, 2008). Self-determination theory also appears to fit within a compensatory model, given that the needs required for optimal functioning are described as being innate and will determine growth and development. However, self-determination theory also considers the social environment that thwarts and meet these needs (Ryan & Deci, 2000), meaning that the experience of significant risk or adversity will impact upon motivation, well-being and engagement. Whether needs are met or thwarted is then argued to impact upon causality orientations and life goals. Linked with

self-determination and despite these issues, Brooks (1994) suggests that intervention strategies guided by attribution theory may help children to develop resilience. This theory explores the way in which an individual attributes success or failure as being a result of their own efforts or being driven by external forces. As the way in which an individual attributes control over their lives is linked with self-esteem, Brooks (1994) argues that interventions driven by this theory will help children to develop skills that will enable them to tackle future challenges more successfully. Here, the assertions by Brooks appear to support a protective model of resilience, given that such intervention efforts will support young people to tackle challenges more effectively. There is some evidence to suggest that different factors may be related to resilience for maltreated and non-maltreated children (Cicchetti & Rogosch, 2009), which is further expanded upon within section 1.4.2, and self-determination theory may help to explain the development of positive adaptation in maltreated children (Cicchetti & Rogosch, 2009). Self-determination theory is also relevant to the present discussion given that intrinsic motivation, well-being and engagement could be described as potential outcomes of resilience, and therefore considering how competence, relatedness and autonomy needs are met may help to develop resilience. Furthermore, if these needs are met it is suggested they are able to build upon each other as assets that can be drawn upon when required. However, it could be argued that self-determination theory is more applicable within western societies, where individualism is emphasised. This is a point that is acknowledged by Deci and Ryan (2008) who suggest that autonomy, competence and relatedness are essential for optimal functioning across cultures and that the support for this assertion has been found within the literature. While this may be true, there are also issues regarding the applicability of the theory to minority and disadvantaged groups, where other more basic needs may be thwarted (Maslow, 1943, 1954). Furthermore, others have suggested different needs as being key (for example, Maslow, 1943, 1954; Murray, 1938).

In terms of resilience and young people who have come into contact with the criminal justice system, general strain theory (Agnew, 1992; 2001; 2002) argues that strainful events or conditions (such as violent victimisation) result in pressure to engage in delinquent acts. However, for some individuals, such strainful events can evoke "non-delinquent adaptation" (Hay & Evans, 2006, p.263) if the individual is able to reinterpret the strain so that its psychological impact is minimised (Agnew, 1992).

Agnew identifies a number of factors that can influence the outcome of strains, including self-control and social support. Agnew, Brezina, Wright and Cullen (2002) found that young people with certain personality traits were more likely to react to strains experienced with delinquency (such as impulsivity and poor anger control). This suggests that some adolescents may be better equipped to deal with strains experienced meaning that they are less at risk of delinquency, as they are resilient to such strains. Hay and Evans (2006) explored the effects of criminal victimisation over time and found that later delinquency was related to historical victimisation. They also found that these effects were conditional upon the child's levels of anger, whereby the effects of victimisation on delinquency were partially mediated by anger. These results support general strain theory and also emphasise the potential significance of individual level factors in mediating the impact of strainful experiences, fitting with a protective-reactive model of resilience. However, as highlighted by Hays and Evans, less support has emerged from the literature regarding the influence of other factors suggested by Agnew as influencing whether delinquent or non-delinquent behaviours emerged (Hay & Evans, 2006). Furthermore, general strain theory is mostly concerned with the relationship between delinquency and strain and most evidence to support the theory is in relation to how the experience of strains lead to delinquency, rather than non-delinquency. While some attempts have been made to explore the mechanisms by which non-delinquent behaviour may emerge, this has been more limited. Furthermore, this is a specific theory relating to a single outcome and it is unclear how and whether this theory could be applied to other outcomes explored within resilience research.

A succinct review of the research evidence regarding which factors appear related to resilience will now follow. This will then lead onto exploring the literature regarding resilience and young who have offended and the aims of the current thesis.

1.4 Factors that Promote Resilience

Three broad areas that promote resilience were described by Garmezy (1985) and these areas have consistently been identified within the literature: individual level factors (e.g., cognitive abilities, self-perceptions of competence, positive outlook on life); family and peers (social-level factors, e.g., parenting quality, close relationship with competent adults); and school and the community (societal-level factors, e.g., good school, neighbourhood quality) (Masten, 2001; Masten & Powell, 2003; Olsson et al.,

2003). These factors can be described as either 'assets' of the individual (e.g., cognitive ability) or 'resources' that are external to the individual (e.g., parental support). The emphasis upon both internal and external factors suggests that approaches need to take into account both individual and environmental influences when exploring the way in which resilience develops (Fergus & Zimmerman, 2005). What follows is a review of these factors, with a particular focus upon individual level factors that research has identified as being related to resilience. While social-level and societal-level factors are briefly outlined, genetic and structural brain correlates of resilience will not be explored in depth within the current thesis. While very recent work by Burt and colleagues (2016) has identified the right prefrontal structures of the brain as being involved in this process using MRI scanning, they have also highlighted how other empirical work examining structural brain correlates is absent. Furthermore, they highlight how research with adults has tended to explore functioning among people who do or do not develop Post-Traumatic Stress Disorder (PTSD) following trauma, rather than broader examinations of adversity, which is of more interest within developmental research and the current thesis. Clearly this is an area where future research is required. Furthermore, Newsome and Sullivan (2014) have explored genetic influences on differential responses to adversity and found evidence to suggest that while genetic factors appear related to vulnerability, this strength reduces as resilience develops which appeared more influenced by the environmental factors examined.

1.4.1 Individual level factors. Exploration of the internal, individual level factors that are related to resilience has been the focus of much research and has resulted in a number of qualities being identified as related to levels of resilience. Despite the potential benefits of identifying the presence or absence of these factors in individuals, Luthar and Cicchetti (2000) warn against describing such factors as personality traits that are an inherent characteristic of the individual. They argue that resilience is a dimensional construct where exposure to adversity and positive adjustment represent a dynamic process. They suggest using terms that avoid these connotations, such as resilience profiles or trajectories (Luthar & Cicchetti, 2000), given that this may help non-academic parties interested in resilience research to recognise the dynamic nature of the concept. One of the key individual level factor that has been identified within the literature is effective problem solving and coping strategies.

1.4.1.1 Problem-solving and coping strategies. The employment of effective problem solving strategies has been found to be related to resilience in children (e.g., Masten et al., 1990) and young adults (Campbell-Sills et al., 2006). For example, Campbell-Sills and colleagues (2006) measured resilience using the Connor-Davidson Resilience Scale (CD-RISC, Connor & Davidson, 2003; see Chapter 2 for a review of this measure) and found that task oriented coping was positively related to resilience in young adults while emotion-oriented coping was associated with low resilience. While Campbell-Sills and colleagues acknowledge that being able to flexibly apply such strategies is important, they concluded that having an active, problem-solving approach when experiencing difficulties will promote resilience. More recently McBride and Ireland (2016) explored coping styles, self-efficacy, emotional reactions and resilience on trauma related intrusive thoughts among young males in custody. Greater resilience was found to be associated with more problem- and emotion-focused coping, along with less emotional reaction to intrusive thoughts.

It would appear that being able to effectively appraise and employ appropriate problem and coping skills is one of the central features of resilience (Harvey & Delfabbro, 2004). While an individual demonstrating a resilient profile would do something about their problem, others may cope by avoiding it (Harvey & Delfabbro, 2004). Although there may be occasions when avoidant coping would be an appropriate course of action, following this with an active approach to resolve and learn from the experience may be important in the development of resilience. Rutter (2006) suggests that the ability to successfully cope with difficulties and sources of stress is key to resilience, and suggests that adaptive coping strategies and being able to reappraise the experience is likely to be involved. Furthermore, the recent work of Burt and colleagues (2016) has lent support to the suggestion that the ability to plan plays an important role in resilience (Rutter, 2013), given that the prefrontal cortex was identified as implicated in resilience. This recent work was also consistent with previous research that has highlighted the role of cognitive ability in buffering against stress (Riglin et al., 2016) and the evidence regarding the impact of intellectual abilities upon resilience is outlined below.

1.4.1.2 Intellectual abilities. Good intellectual functioning has been described as one of the most frequently reported qualities that appear related to resilience (Masten &

Coatsworth, 1998). In a study of children who had been neglected or abused, Heller, Larrieu, D-Imperio and Boris (1999) found that good intellectual abilities may lead to more effective problem solving and coping strategies. Results from the research programme Project Competence (see Masten & Powell, 2003, for a description) have highlighted the relationship between general and specific intellectual abilities and resilience. Masten and Coatsworthy (1998) suggested that intellectual abilities could be indicative of normal brain and cognitive development, and could be related to resilience due to the child's ability to better resolve difficulties they face and their ability to attract the attention of teachers at school where supportive relationships develop. The recent work of Burt and colleagues (2016) would support this suggestion, where prefrontal cortext regions were found to be larger in resilient young people. However, there is some argument that in certain contexts, developed intellectual abilities may not be beneficial to the individual. For example, if there are few opportunities to apply their abilities (Luthar & Cushing, 1999) or if this results in an increased awareness of the challenges and stress they face (Efta-Breitbach & Freeman, 2005). However, given the links with effective problem solving and coping strategies, it may be that such skills will buffer the difficulties that developed intellectual abilities may present (Efta-Breitbach & Freeman, 2005). However, Riglin and colleagues (2016) explored the buffering effects of cognitive ability to stress-related depression, and found an effect in girls only, suggesting that cognitive ability may have a greater impact upon girls than boys in buffering against specific risks.

1.4.1.3 Positive self-perceptions and self-esteem. Self-esteem is defined by Frydenberg (2008) as "the degree to which an individual likes him or herself as a person overall" (p. 77), and a positive view of oneself (as defined by high levels of self-esteem) has been consistently identified within the literature as being related to resilience (e.g., Bobanno, 2004; Benetti & Kambouropoulos, 2006). However, self-esteem has been discussed as both a criterion and antecedent of resilience (e.g., Fergusson & Lynskey, 1996; Kinard, 1998), meaning that identifying the role that it plays (for example, mediator vs. moderator) in the process of resilience can be problematic. This may be due to the dynamic and reciprocal nature of self-esteem, with self-esteem both guiding and motivating an individual's actions that will then affect their self-esteem (Brooks, 1994). More recent work by Liu, Wang, Zhou & Li (2014) explored the mediating effects of self-esteem and affect on the association between trait resilience and

psychological adjustment utilising psychometric measures. Here evidence was found to support the arguments that self-esteem mediated the relation between resilience and life satisfaction. However, it is important to note that the cross-sectional nature of the Liu and colleagues (2014) study means that it is difficult to draw any causal conclusions. Furthermore, the sample used for the study were students and such results need to be extended to other groups, in particular to at risk populations.

Some of the difficulties in identifying the process by which self-esteem is related to resilience may be due to possible overlap in the concepts within the research literature. For example, individuals with high levels of self-esteem have also been found to utilise more active and direct means of resolving difficulties that they face, compared to those with low self-esteem (Chapman & Mullis, 1999). This is an issue that has been raised by Block (1996), who highlighted the problem of item overlap in measures used to explore different psychological constructs (see section 1.4.1.8 for further discussion). Despite this, there does appear to be evidence to support the position that positive self-perceptions are related to resilience in both maltreated and non-maltreated children (Cicchetti & Rogosch, 2009).

While the maladaptive coping behaviours of children with low self-esteem serve to intensify difficulties (Brooks, 1994), the experience of success can help facilitate more adaptive coping in the face of challenges (Rutter, 1985). Dumont and Provost (1999) explored resilience, stress and depression in a group of nearly 300 adolescents in the United States of America, where four groups of participants were created depending upon their level of depression and daily stresses. They found the adolescents classified as ‘resilient’ (high on level of daily stresses and low on depression) had higher levels of self-esteem than those classified as ‘vulnerable’ (high on both indices), but not as high as their ‘well adjusters’ (low on both indices). They found that the resilient adolescents also had the best problem solving abilities. It may be that their utilisation of appropriate problem solving strategies helped facilitate further enhancement of their self-esteem (Rutter, 1985; Brookes, 1994).

Such research appears to suggest that a positive belief in your own abilities may be important in the development of resilience. However, the opposite may be true for aggressive children, with studies finding that aggressive children tend to overestimate their abilities as compared to non-aggressive children (e.g., Cairns & Cairns, 1994).

This appears to be a result of what Hughes, Cavell and Grossman (1997) call a protective avoidant information processing style that limits their ability to be responsive to feedback regarding their behaviour. Hughes and colleagues (1997) compared children classified as either aggressive or nonaggressive by their teachers in terms of their competence and relationship quality. They found that aggressive children were more likely to report idealised self-perceptions, where their self-reported levels of competence and acceptance were comparable to or higher than their non-aggressive counterparts when ratings of competence and relationship quality were obtained from external ratings (i.e., mothers, teachers, and peers). Furthermore, this appeared related to higher levels of aggression. Therefore, a belief in one's abilities alone may not always provide an accurate picture of an individual's ability. This may be a particularly important issue to consider when exploring resilience in an adolescent offending population, where levels of aggression are likely to be higher than within a non-offending adolescent population. Baumeister, Smart and Boden (1996) have referred to "The dark side of high self-esteem" (p. 5), suggesting that the likelihood of violence is increased when positive self-concepts are threatened. While high self-esteem has been found to be associated with some positive outcomes (for example, less depression and greater life satisfaction), it has also been associated with being defensive and maladaptive (Baumeister, Smart & Boden, 1998; Jordan, Spencer, Zanna, Hoshino-Browne & Correll, 2003). Bushman and Baumeister (1998) found empirical evidence to suggest that aggression appeared related to threatened egotism rather than self-esteem.

The research exploring the relationship between self-esteem and resilience appears to have relied heavily upon self-report measures of self-esteem (Sandstrom & Jordan, 2008). Therefore what appears to have been explored is the relationship between resilience and explicit self-esteem which is defined by Sandstrom and Jordan (2008) as "an individual's conscious, deliberate and assessable view of self" (p. 507). However, this appears to have been at the expense of considering implicit self-esteem, which is an individual's automatic evaluation of themselves that is not always easily accessible. Kernis (2003) describes secure and fragile high self-esteem, with one form of fragile high self-esteem being when implicit self-esteem is lower than explicit self-esteem. Some empirical support is presented for this suggestion, based on two studies which simulated discrepancies between situational implicit and explicit self-esteem (Kernis, Abend, Goldman, Shrira, Paradise & Hampton, 2005). More recent support for this

form of fragile self-esteem is provided by Sandstrom and Jordan (2008). They utilised the Rosenberg self-esteem scale (Rosenberg, 1965) as a measure of explicit self-esteem and an Implicit Association Test (IAT; Greenwald & Farnham, 2000) as a measure of implicit self-esteem to explore explicit and implicit self-esteem in children. They found a positive association between measures of explicit self-esteem and teacher ratings of aggression, when implicit levels of self-esteem were low. As Kernis (2003) suggests, further empirical work to examine the impact of fragile high self-esteem is warranted.

What remains unclear at this stage is whether explicit and implicit self-esteem have different influences upon resilience. These findings could also raise some doubt as to the broad conclusions that high self-esteem is related to resilience, and highlight some of the challenges of exploring self-esteem with an aggressive population. However, there is evidence to suggest that self-esteem is linked with the experience of positive emotions (e.g., Wood, Heimpel & Michela, 2003), which has also been linked with resilience.

1.4.1.4 Positive emotions. Research has found support for the relationship between resilience and the use of positive emotions to help manage and guide behaviour when dealing with stress and adversity (Tugade & Fredrickson, 2007). Fredrickson (2001) argues within her broaden and build theory that positive emotions (e.g., joy, interest, contentment) contribute to resilience because they broaden the thought action repertoire that is available to individuals under stress. Within this framework, Tugade and Fredrickson (2004) explored the benefits of positive emotions and the relationship with psychological resilience to stressful events. Adult participants were instructed to mentally prepare for a speech that would be videotaped and shown to their peers. They found that individuals identified as high-resilient tended to experience positive emotions when experiencing stress, despite experiencing high levels of anxiety and frustration. That is, their ability to positively appraise the situation did not appear to be a result of not viewing the events as stressful, but more due to a tendency to view stressful events as a challenge that needed to be met. This suggested that positive emotions in resilient individuals helped them to cope with the stress experienced within this study. Research has also found evidence to suggest that when under stress, resilient children score higher on humour generation (Masten, Best & Garmezy, 1990), a strategy that helps to moderate stress and distress in order to cope (Nezu, Nezu & Blisset, 1988). Fredrickson

and colleagues (2008) have demonstrated the positive impact of interventions that raise positivity (loving-kindness meditation) among working adults utilising a randomised controlled trial (RCT) methodology. While the robust methodology employed within this study is a clear strength, these results need to be extended to other interventions and at-risk populations.

Although a detailed investigation of neurological differences is beyond the scope of this thesis, Davidson (2000) has explored the activation of the hemispheres of the brain and found that the right hemisphere appears associated with negative emotion and the left hemisphere associated with positive emotions. Curtis and Cicchetti (2007) explored the activation of the left versus the right hemispheres of the brain to explore whether positive emotions contributed to resilience. Resilience was measured via indicators of adaptive functioning taken from a range of sources including self-report (e.g., Children's Depression Inventory, Kovacs, 1992), peer ratings (e.g., nominations for leader), counsellor (e.g., ratings of aggression, likeability) and school district ratings (e.g., school risk index). Whilst maltreated children with greater relative left hemisphere activation were found to be more resilient, this was not found to be true for non-maltreated children. Cicchetti and Rogosch (2009) suggest that this may represent the development of a positive attribution bias in resilient maltreated children. This appears to have some parallels with the proposal of Rutter (2006) introduced earlier, that positively reappraising difficulties may be linked to resilience.

1.4.1.5 Self-regulation (emotional and behavioural regulation). Self-regulation incorporates aspects of emotional regulation, behavioural regulation and executive functioning (Eisenberg & Morris, 2002). The ability to regulate emotions has been linked to the successful development of a range of areas of functioning, including resilience. Curtis and Cicchetti (2007) found that adult observations of emotional regulation significantly predicted resilience in both maltreated and non-maltreated children. Eisenberg and colleagues (1997) explored positive social functioning, regulation (attentional control and behavioural), emotionality and resilience in a group of children. They found that children who could regulate their attention appeared resilient to stress and Eisenberg and colleagues suggest that this may have resulted in more positive perceptions by their peer group and being viewed as more socially appropriate by adults. However, behavioural regulation was not found to be related to

resiliency, which could emphasise the importance of emotional rather than behavioural regulation for resiliency. This would suggest that how an individual emotionally recovers from a stressful event is important (Eisenberg et al., 1997). However, Eisenberg and colleagues used parent and teacher assessments to measure resiliency in participants where ratings could have been confounded by other attributes of the children. Furthermore, recent research exploring structural brain correlates of resilience by Burt and colleagues (2016) has highlighted the potential role of the prefrontal cortex, an area which has been linked with emotional, behavioural and stress regulation (e.g., Aron, Robbins & Poldrack, 2014; Whelan et al., 2012).

In the study by Campbell-Sills and colleagues (2006) which explored resiliency, personality, coping and psychiatric symptoms in young adults, a strong negative relationship between resilience and neuroticism was found, a construct that includes difficulties controlling emotions and proneness to negative emotions. Curtis and Cicchetti (2007) found that being able to adapt the expression of negative emotion was related to resilience in both maltreated and non-maltreated children.

Cicchetti and Rogosch (2009) discuss differences that have emerged from research findings when examining resilience in maltreated and non-maltreated children, in terms of ego-resiliency, ego-control and self-esteem. The concepts of ego-resiliency and ego-control have been defined and conceptualised by Block and Block (e.g., 1980) as "central personality constructs for understanding motivation, emotion and behaviour" (Letzring, Block & Funder, 2005, p. 396). Ego-control ranges from overcontrolled to undercontrolled, where overcontrolled individuals restrain from expressing their emotions and behavioural responses and undercontrolled individuals may express themselves with little regard as to the appropriateness of their actions and behaviour. Ego-resiliency refers to the ability to adapt this level of control depending upon the situation or context. Cicchetti, Rogosch, Lynch and Holt (1993) found that while ego-resiliency and positive self-esteem predicted resilience in all children within their study (6 to 11 years of age), ego over-control only emerged as a predictor of resilience in maltreated children. Cicchetti and Rogosch (2009) suggest that ego over-control may be a unique protective factor for maltreated children, given that such a style may be better matched to successfully coping within a problematic home environment. In contrast, an under-controlled maltreated child may attract more attention increasing the risk of

further maltreatment. More recent research by Schofield and colleagues (2015) utilised a mixed methods study to explore file information, psychological measures and narrative interviews with 100 young people who were looked after and had offended, looked after and had not offended, or who had offended and were not looked after. The findings highlighted how the experience of maltreatment may result in emotional recognition and social cognition difficulties.

Emotional and behavioural regulation differences may be reflective of temperament differences, which have been shown to have considerable continuity across time and between contexts (Caspi & Silva, 1995; Caspi, 2000), a factor that has also been found to be related to resilience within the literature.

1.4.1.6 Temperament. There is evidence that early temperament differences in children are related to later behaviour and personality (e.g., Rutter, 1987). For example, an 'outgoing temperament' (e.g., confident, interested in novel experiences: Kim-Cohen et al., 2004) has been found to be associated with fewer problems related to anxiety and stress, and more personal strengths (Caspi, Henry, McGee, Moffitt & Silva, 1995). Farrington (1996) and Losel and Farrington (2012) have also maintained that a resilient and 'easy' temperament can help young people to avoid offending and delinquency.

Werner (1984) suggests that a resilient temperament elicits more positive responses from family members, which helps to develop close relationships at a young age. Werner identifies four temperamental characteristics that help children develop such bonds; an active approach toward solving life's problems: a tendency to perceive their experiences constructively; the ability to gain others' positive attention; and the ability to use faith to maintain a positive vision of a meaningful life. The Kauai Longitudinal study (Werner & Smith, 1989) identified a number of children who were described as resilient given their experience of multiple risk factors (e.g., parental psychopathology, family instability) before the age of two and the absence of learning or behavioural problems in later life. These children were described as having positive temperaments by their caregivers (e.g., affectionate, easy to deal with) whilst infants (Werner, 2000). In adolescence, those who had not developed antisocial behaviour or mental health problems were characterised by factors such as having a more internal locus of control, more positive self-concept, were more responsible, nurturing and empathic (Werner, 2000). These findings provide support for the importance of

autonomy, competence and relatedness to social development and well-being, as suggested by self-determination theory (e.g., Ryan & Deci, 2000).

If particular temperaments favour and encourage social interaction with others, these are likely to help children to develop social skills and relationships with others. Kim-Cohen and colleagues (2004) explored the genetic and environmental processes of vulnerability and resilience in children exposed to socioeconomic deprivation, which was measured multi-dimensionally using indexes of socioeconomic status (SES) disadvantage, housing problems and the mother's perception of economic hardship. They explored cognitive and behavioural resilience separately and found that an outgoing, sociable temperament was associated with cognitive resilience. Campbell-Sills and colleagues (2006) explored the relationship between resiliency, personality, coping and psychiatric symptoms in young adults utilising the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003). They found that resiliency was negatively related to neuroticism and positively related to extraversion. High levels of resilience being found to moderate the relationship between historical emotional neglect and current psychiatric difficulties, with those who reported high levels of neglect along with high levels of resilience were found to have the lowest levels of psychiatric symptoms. They linked these findings with the likely positive benefits of extraversion in terms of social interaction, interpersonal closeness and positive outlook.

Three temperament types have been identified by the Dunedin Multidisciplinary Health and Development Study, which explored the development of a complete birth cohort of children from a city in New Zealand (Caspi & Silva, 1995). Temperament differences were identified utilising cluster analysis techniques and although five types were initially identified, two of them (confident and reserved types) have received less attention due to the replicability of the three main temperament styles, referred to as undercontrolled, inhibited and well-adjusted (Caspi, 2000). Furthermore, these three main temperament styles showed much similarity to the temperament types identified by Chess and Thomas (1990). Despite some issues with the cluster analysis methodology utilised by Caspi and colleagues (Caspi & Silva, 1995; Caspi, 2000), the temperament types identified have shown considerable continuity across time and between contexts, emphasising the importance of early temperament differences on later development into adulthood. Children classified as undercontrolled were described as

having more employment difficulties, more contact with the criminal justice system and greater levels of alcohol abuse by age 21. Inhibited children were described as being shy and uncomfortable in social situations. By age 21, they had less social support and greater difficulties with depression. Well-adjusted children were found to cope with testing situations well, including when asked to complete tasks they found difficult. In adulthood, well-adjusted children were described as "normal, average young adults" (Caspi, 2000, p.168). Caspi (2000) emphasises the interplay between the developing child and their environment, where temperament styles become strengthened over time. For example, the well-adjusted child is likely to have parents who are able to adjust to and cope with the challenges that parenthood brings. Children identified as well-adjusted through the Dunedin study represented the largest proportion of the sample (40%; Caspi, 2000) lending support to the argument by Masten (2001) that resilience is a normal process. As discussed earlier (see section 1.4.1.5), for undercontrolled maltreated children, the risks associated with such a temperament style may be even greater (Cicchetti & Rogosch, 2009).

1.4.1.7 Hardiness and mental toughness. Hardiness and mental toughness are also linked with resilience within the literature. Kobasa (1979) first introduced the concept of hardiness when she examined stressful events experienced by company executives and their propensity to become ill. She found a group of executives who experienced a high level of stress but low incidents of illness, and described them as having more hardiness. Horsburgh, Schermer, Veselka and Vernon (2009) describe hardiness as having three components: control (feeling and acting as though you have control over events in your life, i.e., an internal locus of control); commitment (being actively involved in what is happening in and around your life); and challenge, (accepting change and seeing it as a challenge and not a threat).

Beasley, Thompson and Davidson (2003) explored the effects of coping style and cognitive hardiness on general health and psychological functioning. Although a largely correlational method was used making causality difficult to determine, Beasley and colleagues found that cognitive hardiness was the most consistent predictor of decreased scores of psychological and somatic distress. Although this study did not explore the mechanisms by which such hardiness develops, it does suggest that hardiness may be an important concept to consider in relation to resilience.

The early work by Kobasa (1979) exploring this concept has led to the term 'mental toughness' being defined by Clough, Earl and Sewell (2001) within the context of sports psychology. While hardiness is defined by the three concepts described above, Clough and colleagues identified an additional factor as being related to mental toughness, namely confidence. Although this concept has been developed within the context of athletic performance, Horsburgh and colleagues (2009) explored the behavioural and genetic components of mental hardiness and personality in a sample of monozygotic and dizygotic twins. Here, mental toughness was found to be positively correlated with extraversion, openness to experience, agreeableness and conscientiousness and negatively correlated with neuroticism. Gerber and colleagues (2013) have more recently explored whether the concept of mental toughness has relevance outside of sport. They explored if mental toughness was related to adolescents' ability to be resilient to stress and found that mental toughness mitigated the relationship between high stress and depressive symptoms. However, this study utilised a cross-sectional design, meaning that causality is difficult to establish. Furthermore, data was collected via self-report measures only.

1.4.1.8 Item / concept overlap. One major issue which appears to confound the current discussion is the considerable overlap between the concept of resilience and those factors that have been found to be related to it. For example, resilience and high self-esteem have both been found to be associated with more active and direct strategies for resolving difficulties (Chapman & Mullis, 1999). This is an issue that has been raised by Block (1996), who highlighted the issue of item overlap in measures used to explore different psychological constructs. More recently, Shiner and DeYoung (2013) have argued that researchers' choices of the definitions and measures used in the context of temperament and personality research will affect which traits are investigated and incorporated into models. In turn, this is likely to impact on which areas are given attention in future studies.

It could be that some of the findings reported within the literature are an artefact of item / concept overlap. This raises the inevitable question regarding the identification of the higher order construct that explains these findings, and whether this construct is indeed resilience or rather some other concept such as self-esteem or mental hardiness. It will be important to consider the potential impact of such item overlap within the

current study, in an attempt to minimise over- or under-estimating the influence of particular concepts. Given the range of ways that resilience is defined and measured, an important starting point will be to carefully select a means of measuring and defining resilience that is reliable and valid. This will be considered within Chapters 2 and 3 of the current thesis. However, any approach selected will be at the expense of alternative approaches and such limitations will be also need to be recognised and acknowledged.

The following section will now explore the second broad area that has been identified within the literature that promotes resilience, the family and peer group.

1.4.2 Family and peers. Yates, Egeland and Sroufe (2003) emphasise the significance of early experience as providing the foundation by which resilience can develop. In particular, they argue that the interactions that take place between the child and caregiver "scaffold the child's developing capacities for adaptive emotional regulation, social engagement and positive expectations of the social world and of the self" (Yates et al., 2003, p. 258.), which supports attachment theory (Bowlby, 1973). Masten and Coatsworth (1998) describe children as living systems, who function within a number of systems both within and outside of the family environment (e.g., school). As the child experiences and functions within these varying systems, they must adapt to the new demands of their environment. Yates and colleagues (2003) argue that early experiences of consistent and supportive care that result in successful adaptation are then used as a framework for negotiating later experiences that are more complex.

Studies have emphasised the role that parenting qualities (e.g., warmth, structure and monitoring), intellectual functioning and socioeconomic status have on the development of adaptive behaviours (Bradley, Whiteside, Mundform, Casey, Kelleher & Pope, 1994; Masten, 2001; Masten & Powell, 2003). One of the most consistent protective factors for young people at risk from adversity appears to be the presence of an adult providing consistent care and support (Efta-Breitbach & Freeman, 2005; Masten, Best & Garmezy, 1990). Kim-Cohen and colleagues (2004) found levels of emotional warmth from mothers to be associated with behavioural resilience in children at risk of vulnerability due to socioeconomic deprivation. Furthermore, their findings highlighted the importance of genetic processes to resilience, and they suggested conceptualising resilience as a family as well as an individual process.

Parents who are able to be responsive to their children's emotional needs have also been found to mediate the impact of living in high risk environments (Egeland, Carlson & Sroufe, 1993). Children with early secure attachments and who are supported in the first two years have been found to have a better capacity to deal with difficulties than children who have not experienced such positive attachments and support (Sroufe, Egeland & Kreutzer, 1990). However, for some parents of low socioeconomic status, the impact of living in poverty may make it difficult to be responsive to their child's emotional needs. Low socioeconomic status correlates with a number of risk factors that have an impact on adaptive development, including parenting behaviours (Yates et al., 2003). Bradley and colleagues (1994) explored early indicators of resilience in low birth weight and premature children living in poverty. They found very few children who showed early signs of resiliency, emphasising the potential deleterious effects of poverty. However, they did identify some children who were receiving better care and were living in safer and less crowded home environments, where some protection against later developmental difficulties may be expected.

Feder, Nestler and Charney (2009) completed a review to integrate research findings on resilience, including consideration of the emerging literature regarding genetic and neurobiological perspectives. There appears growing evidence to suggest that a range of factors influenced by genetic factors are related to resilience. For example, Feder and colleagues describe how serotonin transporter genes influence the risk for depression following exposure to stress including maltreatment (e.g., Caspi et al., 2003; Gillespie, Whitfield, Williams, Heath & Martin, 2005). While such research findings are emerging, it will be important for these results to be considered in terms of their theoretical implications.

Cicchetti and Rogosch (2009) highlight that as most children experience some adversity, those who experience abuse and neglect could be described as experiencing "the greatest failure of the caregiving environment" (Cicchetti & Rogosch, 2009, p. 49). Cicchetti and Rogosch (2009) examined the different predictors for resilience with maltreated and non-maltreated children. Their findings were consistent with other research, which has emphasised the relative importance of positive relationships with appropriate others amongst non-maltreated children for the development of resilience (Cicchetti & Rogosch, 2009; Masten & Powell, 2003). For maltreated children, it

appeared that individual level factors were of greater importance, which makes intuitive sense, given maltreated children's likely experience of relationships during their development (Cicchetti & Rogosch, 1997). However, Herrenkohl, Tajima, Whitney and Huang (2005) explored protective factors hypothesised to lower the risk of antisocial behaviour in children who had experienced physical abuse. Their results suggested that similar factors predicted lower antisocial behaviour in both abused and non-abused children, and that these protective factors related to commitment to school, having parents or peers who disapprove of antisocial behaviour, and being involved in a religious community. They concluded that protective factors appear more universal. However, Herrenkohl and colleagues findings may have been a result of their sole focus upon antisocial behaviour and a specific kind of abuse, at the expense of exploring the potential harmful effects of other forms of maltreatment.

Born and colleagues (1997) examined resilience within an incarcerated adolescent offending population, where resilience was defined as engagement in only minor acts of delinquency despite being exposed to multiple social and environmental risk factors (for example, low socio-economic background, unstable family setting). They found that those they classified as resilient had greater social support. However, they found that it was not factors such as socioeconomic status or family delinquency that were related to resiliency, but rather more individual level factors, such as an ability to establish relationships with adults (further details regarding this study, including a critique of it, can be found within section 1.5). Oxford, Harachi, Catalano and Abbott (2001) conducted a longitudinal study with over 900 adolescents that emphasised the particular importance of coming from a 'pro-social' family. They examined the onset of substance misuse, and found that when peer associations were controlled, individuals coming from a pro-social family were less likely to have early onset substance misuse.

Affectionate ties with other members of the family unit may also play an important role for children. For example, secure attachments to grandparents have been shown to have a positive impact upon children and adolescents who experience parental divorce and parental psychopathology (Radke-Yarrow & Brown, 1993; Wallerstein & Kelley, 1980). Support from siblings may also protect children from high risk backgrounds, although Werner (2000) suggests that such support will be most beneficial when combined with parental support, rather than being a substitute for it.

As children grow up, they are likely to spend more time away from the family environment and their relationships with their peers become more and more important (Sullivan, 2006). Clingempeel and Henggeler (2003) explored aggressive juvenile offenders who either persisted or desisted with aggressive acts. Although they explored a very specific population within their study, they found that those who desisted reported more emotional bonding with their peers. Positive peer relationships are associated with a number of indicators of adaptive functioning, including social competence with peers, job competence, self-worth and better mental health (e.g., Masten & Coatsworth, 1995). Positive peer influences may also act as a protective role in terms of emotional support, positive attitude towards school and a negative attitude regarding antisocial behaviour (Herrenkohl et al., 2005; Masten & Coatsworth, 1998). If adaptive functioning despite exposure to risk is taken as a proxy for resilience, as Werner and Smith (1989) do, then peer relationships appear to play a role in this process.

The next section will explore the third broad area that has been identified within the literature that promotes resilience, school and the community.

1.4.3 School and the community. Werner (2000) notes that many studies exploring resilience have identified resilient children as enjoying school. Hetherington and colleagues (Hetherington, Stanley-Ragan & Anderson, 1989) identified that the positive characteristics of the home environment that protected children experiencing parental divorce were similar to those characteristics of the school environment that helped foster resilience, such as clear rules and expectations, structure and organisation. This suggests that settings other than the home environment may provide a refuge and opportunity for children and adolescents to develop resilient characteristics.

Positive experiences of school (e.g., supportive relationships with teachers) have been shown in some studies to be more important for children raised in disadvantaged environments, such as in poverty or institutions (Rutter, 2000). This may be due to the heightened risk of adversity in such individuals, whereby their relative lack of positive experiences outside of school means that school becomes a potent potential area for success. Furthermore, this finding does not appear to be simply an artefact of high intelligence, but due to experiences of success and achievement at school (Rutter, 1987).

A strong commitment to school and being involved in a religious community has been found to lower children's risk of engaging in antisocial behaviour (Herrenkohl et al., 2005), which has been taken as a proxy for resilience within various studies. Jones, Brown, Robinson and Frey (2016) argue that a positive attitude towards school and authority is a preventative factor against offending, and such strengths-based factors are now included in assessments of juvenile risk of offending (Jones et al., 2016). Yates and colleagues (2002) have argued that just as the child's developmental history links with the development of resilience, the context within which the child exists cannot be ignored.

Chaskin (2008) describes both attributes of the community (e.g., level of crime and poverty) and the way in which it functions (e.g., trust and accessibility of resources, such as schools, libraries) as having the potential to contribute to resilience. Resilient communities are defined as "communities that can "act" in response to adversity to protect and promote their well-being" (Chaskin, 2008, p.69). Factors including effective schools, prosocial organisations (such as clubs), and the availability of good public health care have been identified through research to contribute to resilience in children and adolescents (Masten et al., 2009).

The research presented so far has highlighted the range of factors that have emerged as being related to the development of resilience in children and adolescents. This has included a range of factors related to the individual, family, peers, school and the community. There also appears some evidence to suggest that the influence of these factors may be different for children and adolescents who have experienced maltreatment. Given the levels of maltreatment experienced by young people who have come into contact with the Criminal Justice System, these findings may be particularly significant. The following section will explore the limited literature regarding young people who have offended and resilience and will lead onto the aims of the current thesis and hypotheses that will be explored.

1.5 Young People who have Offended and Resilience

When examining the literature on the developmental course of adolescent antisocial behaviour, links have been made with a number of individual, family and social factors that appear to place individuals at greater risk of antisocial behaviour

(Born et al., 1997). Although the similarity of these areas to the resilience literature is striking, the lack of specificity in what leads to specific outcomes is likely to mean that adolescents have multiple overlapping needs (Hagell, 2007). The period of adolescent development may be a particularly important time for resilient traits to be explored, given the transition to adulthood may open up new opportunities for individuals where resilient traits may be utilised. Masten and Powell (2003) describe anecdotal evidence from Project Competence where the transition to adulthood appeared to help some individuals "restructure their environment in ways that favour competence" (Masten & Powell, 2003, p. 11).

In the late 1990s, studies that examined resilience in children who had experienced maltreatment were rare (Kinard, 1998), but more recently interest and research within the area has increased. However, resilience has received limited attention within the forensic literature (Fougere & Daffern, 2011), with few studies examining the possible presence of resilient characteristics among adolescents who have come into contact with the Criminal Justice System. This is despite resilience being described as a critical protective factor for adolescent offenders within structured risk assessment tools (Structured Assessment of Violence Risk in Youth, SAVRY; Borum, Bartel & Forth, 2002; Structured Assessment of Protective Factors for Violence Risk, SAPROF; de Vries Robbé, de Vogel, & de Spa, 2011) and offending being commonplace among young people (Laub & Simpson, 2001; Murray, 2010). However, the difficulties outlined regarding the conceptualisation of resilience outlined within section 1.2 remain. Inconsistent definitions and the use of psychometrically unsound measures (Fougere, Daffern & Thomas, 2015) mean that comparison between research findings is difficult. Furthermore, those who have chosen to examine delinquent behaviours as indicators of behavioural problems are presented with the challenge of choosing which behaviours to examine. Walsh and colleagues (2010) reviewed the literature regarding resilience following childhood maltreatment and noted that no two studies that they examined used the same indicator of delinquency as measures of behavioural competence. Prior to undertaking research in this area, a key starting point will be to identify an appropriate measure of resilience to be utilised in the current thesis. This is undertaken within Chapter 2 and 3 of the current thesis.

Young people who offend are characterised by a high prevalence of psychiatric disorders (Ulzen & Hamilton, 1998; Fazel et al., 2008) learning disorders, are more likely to have come into contact with the child welfare system and are characterised by multiple forms of familial, socio-economic and academic disadvantages (Cesaroni & Peterson-Badali, 2005; Smith & Thornberry, 1995). Maltreatment has been found to be associated with earlier onset of antisocial behaviour, more arrests when adults and more violence (e.g., Maxfield & Widom, 1990; Lansford, Dodge, Pettit, Bates, Crozier & Kaplow, 2002). Maltreated children who fail to access intervention are described as being 38% more likely to commit violent crimes (Widom, 1998). Furthermore, some have argued that young people involved in the criminal justice system are victims first and offenders second (Jacobson, Bhardwa, Gyateng, Hunter & Hough, 2010). Baglivio and colleagues (2014) found evidence to suggest that both male and female juvenile offenders had experience of a range of adverse childhood experiences (ACEs) when they explored nearly 65,000 participants in the US. Specifically, 81% of male participants had experience of family violence, 78% had experience of parental separation or divorce and 65% had experience of household member incarceration. Reoffending rates for young people released from custody are also higher than rates of reoffending for adults (66.5% compared to 48.8%, Ministry of Justice, 2015). Given this, it is important to keep in mind research findings which have suggested different predictors for resilience in maltreated and non-maltreated children (e.g., Cicchetti & Rogosch, 2009), in particular the suggestion that individual level factors may be of greater importance. Resilience may be of specific importance given that strength based factors have been found to have incremental predictive validity against risk of reoffending in an 18-month longitudinal study of 464 young people on probation in Canada (Jones et al., 2016).

Despite the range of adversities that many young people have experienced, there is an increasing emphasis within the youth justice field to ensure that all young people are provided with the opportunities to achieve their full potential. For example, this includes focusing upon the strengths or 'resources' that young people have to help them to avoid further 'risky' behaviours (e.g., substance misuse, offending, etc.). Assessments utilised with young people have an increasing focus upon strengths and protective factors (e.g., SAVRY; Borum et al., 2002; SAPROF; de Vries Robbé et al., 2011), which has also had an impact on the nature of interventions delivered. This

appears to mirror some of the arguments put forward by proponents of positive psychology, including research in the area of resiliency (Campbell-Sills et al., 2006). Arguments have also been made that assessment and intervention with young people who have come into contact with the criminal justice system focuses upon risk factors at the expense of promoting positive outcomes and resilience (e.g., Efta-Breitbach & Freeman, 2005; Robinson, 2015; Maxwell, 2015). Efta-Brietbach and Freeman (2005) suggest that a resiliency based approach may help young people who have committed sexual offences to maintain changes made in treatment to promote more positive behaviours and Robinson (2015) suggests that such changes would be more reflective of the Youth Justice Board's (YJB) preference for a holistic approach. Maxwell (2015) argues that more adequate and equitable distribution of resources across communities will help enable young people involved in the criminal justice system to recognise and build their hidden resilience. Furthermore, as Masten (2001) highlights, "the great surprise of resilience research is the ordinariness of the phenomenon" (Masten, 2001, p.227). However, as noted within section 1.3.2, applying such positive approaches to young people who have experienced such adversity may be problematic. In particular, such approaches may fail to adequately acknowledge the depth of difficulties that such people have experienced, including trauma associated with their offending. Furthermore, while such approaches may add value to assessments and interventions conducted, this should not be at the expense of addressing the unique risks and needs associated with an individual's offending.

Mulvey and colleagues (2004) argue for a shift in the adolescent offending literature from the causes of adolescent offending to uncover the factors that lead young people to desist from crime. They suggest that although much longitudinal research has utilised samples from high-risk schools and communities to explore the developmental trajectories of those who do and do not go on to demonstrate problem behaviours, they do not explore the development of serious offending amongst adolescents, due to the relative small numbers within such samples. In turn, they argue that those working and making decisions about serious adolescent offenders are having to rely on limited information regarding the classification and treatment options available. They suggest that research should focus upon identifying how adolescents within the system get out and stay out, and it may be that exploring the presence and development of resilience within this population would help to answer some of these questions.

Born and colleagues (1997) explored resilience and desistance from offending in a sample of over 350 institutionalised young people in Belgium. They aimed to examine whether it was possible to identify young people within their sample as resilient, working under the assumption that there may still be opportunities for change for these young people. Information was collated retrospectively on each participant based on factors such as the social environment and family context across seven time periods spanning childhood to after their 18th birthday. A five criteria risk threshold was used to categorise individuals into the 'high risk category', where the presence of four out of the five risk criteria led to being classified as high risk (for example, unstable family setting, low socio-cultural background, etc.). Individuals were considered resilient if they committed only minor acts of delinquency despite being exposed to four or more risks. Born and colleagues found that their resilient group were more mature, less aggressive, had better self-control, an ability to establish relationships and more social support. Furthermore, they conformed to the rules and expectations of custody more readily and felt a greater sense of satisfaction at the end of their placement within the institution. Born and colleagues concluded that for their sample, the individual level factors appeared to outweigh family factors in explaining resilience. They also suggested that the offending within the resilient group was more transitory. However, it is unclear from the study conducted by Born and colleagues how the information used to form the risk criteria was gathered and whether this was based on self-report or collateral information. Furthermore, there appears to have been a particular emphasis upon risk associated with family circumstance and the dichotomising of participants into one of two groups (resilient/non-resilient) fails to acknowledge the dynamic nature of resilience. The study also only used the seriousness of participants' delinquent acts as an indicator of resilience when family and social risk factors were present. More recently, Mowder, Cummings and McKinney (2010) found that 'average' resiliency was associated with less serious discipline infractions, less segregation and more educational credits. In this study, resilience was measured utilising the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007), although they failed to consider the stability of the structure of the measure within their sample. Mowder and colleagues (2010) participants were also predominantly female and they failed to consider gender differences within their study. Further issues regarding the chosen cluster analysis techniques utilised by Mowder and colleagues (2010) are outlined within Chapter 6 (section 6.1).

Given the potential protective power of resilience, research has explored the impact of resilience upon risk of offending and recidivism. Benda, Toombs and Peacock (2002) suggested that higher resilience was associated with reduced recidivism in their investigation of 480 male offenders aged between 16 and 40 years of age. While other factors, such as the role of their peers, were found to be more strongly associated with recidivism, this may have been a result of Benda and colleagues use of a five-item scale that was created for use within the study. A non-validated measure of such limited scope is unlikely to capture the full breadth of resilience. Rennie and Dolan (2010) explored protective factors and recidivism among 135 adolescent offenders in the UK and utilised the Structured Assessment of Violence Risk in Youth (SAVRY; Borum et al., 2002). Here, resilient personality traits were the only protective factor to predict reoffending. However, while the SAVRY assessment is a well-validated risk assessment tool that is frequently utilised within practice, a resilient personality is assessed against a list of traits that are either present or absent. Such a method will fail to consider how resilience is dynamic and context specific (e.g., Rutter, 1987), and will be highly dependent upon the skill of the assessor to engage with the young person to assess such traits. More recently, Fougere, Dafferm and Thomas (2015) failed to replicate these findings when exploring resilience and reoffending among young adults (M = 23.53 years). However, their use of the Resilience Scale-14 (Wagnild & Young, 1993) omitted to consider the appropriateness of this measure with their sample (see Chapter 3, section 2.3.1.) and participants were voluntarily engaged with Youth Services, suggesting that levels of motivation may have been a potential confounding variable. When exploring previous incidents of violence among incarcerated adolescents in the US, Priscilla (2016) found no evidence to suggest that resilience was predictive of violence offences. However, given the retrospective non-experimental research design employed, it is difficult to be confident that experiences of the Criminal Justice System and incarceration had not impacted upon resilience.

Murray (2010) conducted a qualitative secondary analysis of interviews with young people who were interviewed for the Quest for Identity study (Murray, 2006) and identified young people as ‘resistors’ if they had never offended. The selection of resistors in this manner highlights the issues discussed within section 1.2 regarding comparisons between research findings, as Murray (2006) and Born and colleagues (1997) have used very different classifications to identify their resilient and resistor

groups. Given the now accepted finding that offending within adolescence is widespread (Laub & Sampson, 2001), Murray suggested that in order for young people to avoid offending they engage in 'active resilience'. This is described as engagement in a variety of strategies to avoid offending including, managing offending peers (e.g., avoiding or restricting contact with offending peers, attempting to reform offending peer), taking temporal leaps (e.g., focusing on future goals and plans), 'othering' offenders (e.g., referring to offenders in derogatory ways) and telling atrocity stories (e.g., stories of the negative impact that offending has had upon others). Therefore, those classified as resilient do not just avoid those who offend, they engage in an active process to maintain their status and identity as non-offenders. However, as Murray notes she did not explore the way in which these young people come to develop the strategies that they employ. It is also unclear within Murray's study whether more socially tolerated offending and anti-social behaviour committed by young people would impact upon them being classified as resilient. For example, many young people engage in underage smoking and drinking of alcohol. However, given that such behaviours are viewed as 'normal' behaviours within adolescence, they are often not classified as offending. Murray's resilient group may have engaged in some, low-level, socially accepted anti-social behaviour but managed to remain resistant to other, more serious offending. Furthermore, defining resilience by the absence of offending may be at the expense of exploring the possible presence of resilient traits in those who do offend. It also fails to acknowledge that resilience is context specific (Rutter, 1987), is likely to change over time as children and adolescents develop (Kinard, 1998) and that offending is age (Moffitt, 1993) and context specific. For example, Clingempeel and Henggeler (2003) studied aggressive juvenile offenders who either persisted or desisted with aggressive offending five years later. They found that those who desisted demonstrated greater 'resilience' as they achieved positive outcomes in many aspects of their lives, not just in terms of the absence of aggression.

McBride and Ireland (2016) explored the impact of resilience, coping styles, self-efficacy and emotional reactions on trauma related intrusive thoughts among young males in custody. This study provided support regarding the extent of disadvantage experienced by incarcerated young people, with over 90% of participants indicating that they had experience of at least one traumatic event. Resilience was found to be related to more problem and emotion-focused coping, along with less emotional reaction to

intrusive thoughts. Resilience was also found to be predicted by self-efficacy and emotional reaction to intrusions. However, this study only utilised self-report measures and future research should consider utilising multiple methods of evaluation to ensure that issues of common method bias do not confound findings.

Despite these issues, the limited research conducted to date suggests that the long-term trajectory for young people with resilient characteristics may be more positive. Resilience in young people who have offended appears associated with greater maturity, less aggression, better self-control, greater social support, the ability to establish relationships with others, better rule conformation, less time in segregation, more educational achievement and less emotional reaction to intrusive trauma related thoughts (Born et al., 1997; Mowder et al., 2010; McBride & Ireland, 2016). It suggests that their involvement within the Criminal Justice System may be more limited to adolescence (e.g., Benda et al., 2010), following the adolescence-limited theory of offending first suggested by Moffitt (1993), and their response to incarceration may be more positive.

Research exploring resilience appears to have the potential to influence the direction of interventions within the juvenile justice system, given that it could provide direction for such interventions based on empirical knowledge within the field (Luthar & Cicchetti, 2000). Although primary prevention efforts may maximise success, if difficulties have emerged the resilience approach would still emphasise focusing upon areas of strength to encourage positive change (Luthar & Cicchetti, 2000). In fact, Luthar and Cicchetti (2000) argue for the value of interventions at all developmental stages, with different interventions likely to suit each developmental stage. There is also some evidence to support the efficacy of such intervention attempts. For example, Kelley, Pransky & Sedgeman (2014) describe an intervention that draws on strengths and builds resilience among trauma exposed young people. They present evidence regarding the interventions efficacy among young people in the community and residential facilities, suggesting that this may be a promising intervention for young people in custody.

1.6 The Current Thesis

Given the research evidence reviewed, it seems appropriate to consider an initial working model of resilience. As noted by Fergus and Zimmerman (2005), resilience can be confused with other terms, such as positive adjustment and coping, an issue further compounded by the range of definitions used. However, the literature reviewed within the current chapter would suggest that resilience is distinct from these other concepts as a process used to overcome risk or adversity. Other concepts appear to represent either an outcome of resilience, such as positive adjustment, or an asset that is an element in the resilience process, such as self-esteem. The development and acquisition of such assets assists with the development of resilience, although different assets are likely to be more influential in helping individuals to respond positively with different risks. Therefore, the dynamic nature of resilience is viewed as a quality that means that it is possible for resilience to be demonstrated in some circumstances but not others. However, resilience is also a general adaptational process.

It would appear that few studies have examined the presence of resilient characteristics among adolescents who have come into contact with the Criminal Justice System. Therefore, the current thesis presents one of the first large-scale studies to explore such characteristics among young people in the United Kingdom. In particular, it is the first to the author's knowledge to specifically examine the impact of resilience upon young people's adjustment to custody and their emotional well-being. Given the range of adversity experienced by young people involved in the Criminal Justice System, there is a need to consider effective mechanisms to identify and support young people who experience incarceration given their heightened vulnerabilities to psychological distress (Brown & Ireland, 2006; Schwalbe, Gearing, MacKenzie, Brewer & Ibrahim, 2013). The current thesis is a psychometric study of individual level resilience and custodial adjustment among incarcerated adolescent males in the United Kingdom. In this context, the possible presence of resilient traits and characteristics within this population will be explored. There is a lack of research exploring the possible positive assets and resources that young people who have offended may possess; meaning that research to explore possible means of strengthening such resources is overdue. Given the potential protective power of resilience, this is of importance. While not undermining the significance of social- and societal-level factors,

the current research will focus upon individual level factors. There is evidence to suggest that such factors may be of greater importance for those who have experienced maltreatment and the limited research exploring resilience among young people who have offended has also suggested that individual level factors are worthy of further exploration. In addition, the current research may help to uncover avenues to help strengthen and develop such resources, and within the constraints of the prison environment, interventions aimed at individual level factors may be more realistic. For ease, individual level resilience will be referred to as resilience throughout the thesis.

While individual level factors will be the focus of the current research, it will be important to consider the environmental demands of custody and young people's responses to it, given that research has found different patterns of coping strategies among incarcerated young people (Ireland, Boustead & Ireland, 2005) and the dynamic nature of resilience. Hetherington and colleagues (1989) found that the positive characteristics of the home environment that protected children experiencing parental divorce were similar to those characteristics of the school environment that helped foster resilience. This suggests that settings other than the home environment may provide a refuge and opportunity for children and adolescents to develop resilient characteristics. Rutter (1987) has argued that with a change in circumstance, levels and patterns of resiliency may change. Furthermore, environmental change could present some individuals with a potential 'turning point' that could interrupt a negative chain reaction (Hagell, 2007; Tayara, 2011). It may be that improving an individual's ability to successfully engage with their environment would enable them to cope better with it, which may in turn promote resiliency. Born and colleague's (1997) work with young people in custody suggested that if a youth is removed from their social environment for a sufficient amount of time, this can lead to feelings of guilt, attachment to others and positive feelings about their placement to increase. If a placement could provide opportunities for success and mastery, such individuals may be better able to cope with future challenges (Rutter, 1985). While the challenges of the prison environment (e.g., levels of violence / conflict and distance from home) may appear counter-productive to such opportunities, these same challenges may mean that any attempt to promote resilience within custody is imperative.

It would also appear important to give consideration to the impact of childhood experiences, in particular maltreatment, upon resilience within the context of the current research. Much research exploring resiliency amongst children from adverse environments has explored those factors that have the potential to be modified through intervention (Wyman, 2003). Within the current research, a similar approach will be taken, given the focus upon individual level factors that may be strengthened or targeted within custody. However, it is important to note that this will be at the expense of exploring the influence of other factors, such as biological and genetic factors. For example, this is despite the research evidence suggesting that maltreatment can have an impact on brain development, functioning and neuroendocrine regulation (Cicchetti & Rogosch, 2009) and that childhood traumatic brain injury is a predictor of future offending in adults (McKinlay, Randolph, McLellan, Roger, Clarbour & MacFarlane, 2014).

Effective problem solving strategies were highlighted as being related to resilience, with Rutter (2006) suggesting that these are key to resilience. Fredrickson (2001) suggests that positive emotions are related to more flexible thinking and a greater repertoire of coping strategies. While research has explored coping strategies and resilience, this does not appear to have been explored in relation to young people who have offended and resilience. However, this may provide an indication as to strategies used to help cope with the demands of incarceration, and will be explored further within Chapter 7.

1.6.1 Research hypotheses. The overarching aim of the current research is to explore the impact of resilience upon adjustment to the custodial environment and emotional well-being within it. Based on the literature reviewed and theoretical models discussed, the following broad hypotheses will be explored as part of the current research. More specific hypotheses will be outlined as relevant to each chapter.

1. Working under a similar assumption made to that by Born and colleagues (1997) that there still remains opportunities for change in young people who have offended, it is hypothesised that despite engagement in offending and delinquent behaviour it will be possible to identify some young people as having more resilient characteristics than others.

2. Building on the definition of resilience provided by Masten and Powell (2003), it is hypothesised that levels of resilience will be negatively associated with indictors of mental health vulnerabilities (e.g., depression and anxiety).
3. Building on the work of Born and colleagues (1997) and Mowder and colleagues (2010) who found resilience to be associated with less aggression, better self-control and compliance with rules, it is hypothesised that resilience will be associated with fewer incidents of externalising behaviours (such as aggression) and more positive indicators of behaviour within custody.
4. Building on the work of Fredrickson (2001) who suggests that positive emotions are related to more flexible thinking and a greater repertoire of coping strategies, it is hypothesised that resilience will be associated with positive self-perceptions, positive well-being and better adjustment to the custodial environment.
5. Building on the 'challenge' models of resiliency and the seminal work of Rutter (e.g., 1987) who suggests that exposure to manageable levels of stress can help facilitate the development of coping strategies, it is hypothesised that with greater time and/or experience within custody, levels of resilience and emotional well-being will improve.

These hypotheses will be further expanded upon within the chapters of the current thesis. Given the exploratory nature of the research undertaken as part of this thesis, additional hypotheses will be generated in the following chapters as results emerge and are considered.

Given the range of ways that resilience has been defined and measured within the literature, prior to exploring the hypotheses outlined above it will be important to carefully select a means of defining and measuring resilience among young people in custody that is reliable and valid and Chapter 2 will present a critical review of measures of resilience.

CHAPTER 2 A Review of Psychometric Measures of Resilience

2.1 Introduction

Some of the challenges and issues of conducting research into resilience have been highlighted within the preceding chapter. These have been discussed by a number of researchers within the field, who have emphasised the difficulties in comparing research studies, given that much research exploring the concept of resilience does not directly measure it (Luthar & Cushing, 1999). For example, resilience has been inferred through the absence of or minimal engagement in antisocial behaviour (e.g., Born et al., 1997; Murray, 2010) and teacher and parental ratings (e.g., Eisenbery et al., 1997).

The aim of the current chapter is to further outline some of the methodological issues of conducting research within this area. This will help to put the current thesis, and chosen methodologies, in context. The literature reviewed within the previous chapter suggested the examination of individual level resilience among young people in custody would be appropriate. The purpose of the present chapter is to review the literature to identify psychometric measures currently available for use in the assessment and evaluation of resilience among adolescents. Each measure is described and critically evaluated, in terms of its construction, psychometric properties and appropriateness for use with young people in custody.

2.1.1 Methodological issues. When reviewing the literature regarding resilience within the preceding chapter, it became apparent that the range of conceptualisations and assessment instruments mean that resilience is a difficult concept to define. What appears problematic is determining which domains of functioning, at what developmental stage and at what levels are appropriate (Walsh et al., 2010). Furthermore, if the context within which adverse circumstances are also to be considered, the situation appears to become increasingly complex. For example, Luthar, Doernberger and Zigler (1993) found that children identified as resilient in one behavioural domain often displayed difficulties in another, suggesting that researchers need to specify what individuals are protected against, for example, substance misuse, offending.

Despite such calls, this appears particularly problematic given the range of individual differences experienced and it is likely to be extremely difficult to develop a

theory of resilience that takes into account the unimaginable range of developmental experiences. Given this, Luthar and Cushing (1999) argue for the increased use of descriptive profiles within resilience research due to the multifaceted nature of resilience. This also suggests that examining resilience within a specific context will also be important, lending support for the aim of the current research.

2.1.1.1 Common method variance. Given that much research within the field of resilience does not directly measure the construct, but implies its presence by measuring other related constructs, such as the absence of psychopathology (Luthar & Cushing, 1999), it is important to consider the issue of common method variance. Common method variance is defined by Podsakoff, MacKenzie, Lee and Podsakoff (2003) as "variance that is attributable to the measurement method rather than to the constructs the measures represent" (Podsakoff et al., 2003, p. 879). This kind of variance is described by Podsakoff and colleagues as affecting both the strength of relationships between constructs and whether such relationships are inflated or deflated. While Cote and Buckley (1987) examined the influence of common method variance across a number of disciplines, Williams, Cote and Buckley (1989) examined this within the applied psychology literature. They concluded that 25% of the variance within the studies they examined could be accounted for due to method variance. Common method variance continues to be a challenge for researchers, where techniques for detecting and controlling for its impact have only recently been developed and evaluated (Chin, Thatcher, Wright & Steel, 2013).

There are a range of sources of such variance, which are helpfully summarised within the Podsakoff and colleagues paper (2003) described above. Some of these include effects due to using a common source or rater, such as reliance upon self-report psychometric data, item characteristics, such as complex language being used and the context within which measures are taken, such as the time. Given the range of potential sources of such method variance, Podsakoff and colleagues suggest that likely biases are identified to ensure that means of minimising their potential impact are considered and utilised.

In relation to the research reviewed in the preceding chapter, some of the relationships that have emerged between constructs said to be indicative of resilience may be due to such common method bias. Furthermore, the context within which such

constructs are measured may produce different results. For example, while popularity among peers has been used as an indicator of resilience (e.g., Masten & Coatsworthy, 1995), Luthar and MacMahon (1994) found that this characteristic was also elevated among disruptive bullies. Therefore, it is important that such issues are considered and appropriately accounted for. If this is not possible, then researchers should raise and discuss the potential confounding influence of such method biases when drawing conclusions.

Possible variance that may be accounted for due to the methodologies employed within the current thesis will need to be explored, discussed and accounted for. Although some issues regarding this will be considered at the end of the current chapter, this will also be considered within Chapter 8.

2.1.2 Measures of resilience. A detailed discussion regarding some of the potential limitations of the use of psychometric measures is beyond the scope of the current discussion. However, it is important to note some of the potential shortcomings of their use in resilience research. In particular, Luthar and Cushing (1999) suggest difficulties interpreting the outcomes of such measures in real terms, given that 'high' scorers may not be competent in real terms, just identified as more competent on some measures than other participants. The range of ways in which resilience has been defined is also reflected in the range of measures available, with many of these measures exploring the resources identified as being reflective of resilience (Ahern, Kiehl, Sole & Byers, 2006). Many measures have therefore explored the personal characteristics and coping styles of individuals, such as self-efficacy, optimism and perseverance (Smith, Dalen, Wiggins, Tooley, Christopher & Bernard, 2008).

Ahern and colleagues (2006) conducted a review of instruments that measure resilience. They explored a number of psychometric tools designed to assess resilience in terms of their psychometric properties to identify the most appropriate for use with adolescents. While measures appropriate for adolescents were the target for the review, they chose to evaluate instruments in all populations and did not clearly define the age range for adolescents within the paper. Through conducting a literature search strategy, Ahern and colleagues identified six instruments assessing resilience for inclusion within their review. These were the Baruth Protective Factors Inventory (BPFI; Baruth & Carroll, 2002), the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson,

2003), the Resilience Scale for Adults (RSA; Friborg, Hjemdal, Rosenvinge & Martinussen, 2003), the Adolescent Resilience Scale (ARS; Oshio, Kaneko, Nagamine & Nakaya, 2003), the Brief-Resilient Coping Scale (BRCS; Sinclair & Wallston, 2004) and the Resilience Scale (RS; Wagnild & Young, 1993). A 1 to 3 scoring system was used to rate each instrument following a review of its development, psychometric properties and applications. A score of 1 was given when it was concluded that additional psychometric testing and research studies were required for the instrument to be applied to an adolescent population. A score of 2 was given when information was available about the instruments performance with other populations, but further study was needed to apply it with adolescents. A score of 3 was given when the psychometric properties were acceptable and application of the instrument had been made to a variety of populations, including adolescents. It is unclear from the paper how many of Ahern and her colleagues completed this rating assessment. Only one instrument was identified as meeting the highest rating criterion, the Resilience Scale (Wagnild & Young, 1993). This appeared to be mainly due to the larger number of studies using the scale among an adolescent population. Some challenges to this conclusion are discussed in section 2.3.1. of the current chapter.

Windle, Bennett and Noyes (2011) have conducted a more recent review of resilience measurement scales for use with general and clinical populations. They suggest some weaknesses in the assessment conducted by Ahern and colleagues, and utilised a system to review measures that has been developed by Terwee and colleagues (2007). This method has been developed to determine the quality of measures developed within the health status field. Windle and colleagues identified 19 measures, which included refinements of earlier measures developed. The quality assessment was initially completed by one researcher, and then checked by another. The Connor-Davidson Resilience Scale (25 item version, Connor & Davidson, 2003), the Resilience Scale for Adults (Hjemdal, Friborg, Martinussen & Rosenvinge, 2001) and the Brief Resilience Scale (Sinclair & Wallston, 2004) were given the highest ratings against the quality ratings, which assessed the validity, internal consistency, reproducibility, responsiveness and interpretability of the measures. However, for the purposes of the current discussion, it is important to note that all the measures above were developed for use with adult populations and although some have been utilised with adolescent populations, such populations were not used in the original development of the

measures. Windle and colleagues also found that none of the measures developed for use with adolescents achieved the highest ratings for criterion validity, reproducibility, responsiveness or interpretability. Despite this, they suggest that the Resilience Scale for Adolescents (READ; Hjemdal, Friborg, Stiles, Martinussen & Rosenvinge, 2006) may be the most appropriate measure for this age group, given that it was rated highest for content validity and construct validity. The review by Windle and colleagues is described as a methodological review to systematically review the psychometric properties of resilience measurement scales. Despite their methodology reporting to have utilised eight electronic databases and the internet in their search, it would appear that not all available measures were identified and included within their review (e.g., Resiliency Scale for Children and Adolescents, RSCA, Prince-Embury, 2006, 2007). Given this and other limitations identified within the Ahern and colleagues and Windle and colleagues reviews, it was necessary to complete a review of the literature for the purposes of the current chapter.

Measures identified as part of the current review which had no published application to adolescents were excluded. For example, the California healthy kids survey (Sun & Stewart, 2007) was excluded given that its development was specifically for primary school children and no applications of the measure to adolescents were identified within the literature. Adolescence was defined widely (12 to 19 years of age) and seven measures were identified within the literature and are included within the current review as potential measures for use within the current research. This review was particularly focused upon the psychometric properties of the measure and the appropriateness of use with an adolescent offending population. Given the lack of research to examine resilience among young people in custody, very few measures appear to have been applied with adolescent offenders. The order of the measures reviewed reflects the date of their original publication.

2.1.3 The Resilience Scale (Wagnild & Young, 1990, 1993; Wagnild, 2009).

The Resilience Scale is described as providing a measure of an individual's ability to respond to adversity with resilience and is available in two formats, a 25- (Wagnild & Young, 1990) and 14-item scale (Waginld, 2009). Example items include, 'when I make plans, I follow through with them' and 'I seldom wonder what the point of it all is'. The response format of both the 25- and 14-item scales are a 7-point Likert type scale. The measure uses total scores, with a higher total score indicating greater resilience. Two

factors of Personal Competence and Acceptance of Self and Life are described, although no scoring of these individual factors is described within the scales user guide (Wagnild, 2009). The scale is a measure of individual level resilience that was originally developed using qualitative research with older women. Psychometric evaluation of the measure was completed on nearly 800 middle and older aged adults, with excellent internal consistency of the measure reported (α.91).

Wagnild and Young (1993) define resilience as moderating the negative impact of stress and promoting adaptation. They argue that the complex nature of resilience involves an interaction between inherited traits and the environment, meaning that it is possible to strengthen resilience (Wagnild, 2009). They suggest that an individual's resilience core is defined by the following characteristics: a purposeful life; perseverance; equanimity; self-reliance; and existential aloneness (or coming home to yourself). These five characteristics form the foundation for the Resilience Scale, which is represented within their model of resilience. This model suggests that the four components of resilience supports (seeking support, taking care of your health, engaging in life and balancing recreation, rest and responsibilities) are related to your resilience core which will determine your response to adversity. However, it is unclear how these four resilient support components correspond to the Resilience Scale, given that only two factors were identified within the initial development of the scale (Wagnild & Young, 1993). This raises doubt regarding the factorial validity of the measure and the model of resilience described.

The measure is described by Wagnild (2009) as "an increasingly reliable and valid tool to measure resilience and the ability to respond to adversity with resilience." (p. 14). Ahern and colleagues (2006) describe it as having been validated for use with a range of ages of participants. Wagnild (personal communication, 25/04/11) also reports that the measure has been utilised with many adolescent populations, although no studies appear to have explored the measure within an adolescent offending population. Published work to date utilising the measure with adolescents has reported Cronbach's alpha statistics ranging from .72 to .91 (Black, Ford-Gilboe, 2004; Rew, Taylor-Seehafer, Thomas & Yockey, 2001; Hunter & Chandler, 1999).

Ahern and colleagues (2006) concluded from their review of resilience measures that the Resilience Scale appeared to be the most appropriate measure for use with

adolescents. As highlighted previously, this appeared mainly as a result of the greater number of studies having utilised the measure with adolescents, rather than the measure being developed specifically for use with adolescents. Furthermore, Windle and colleagues (2011) raise some problems with the Ahern and colleagues' conclusion regarding the Resilience Scale, given that the development of the measure utilised qualitative information from older women. In addition, they also highlighted the work by Streiner and Norman (2008) who suggest that if a measure is to be used for a specific population, then this population should be involved in the development of the measure. If this is not possible, then work should be conducted to validate the measure with other populations.

When considering the face validity of the measure for use with adolescent offenders, the language used in many of the items would appear simple and appropriate for the current population. However, some items may benefit from further simplification to help maximise comprehensibility (e.g., the item 'I have self-discipline'). Windle and colleagues (2011) also suggest that additional information is required regarding the measure's criterion validity, the test-retest reliability and its responsiveness. Given these issues (i.e., the development of the measure within the context of adult resilience, concerns regarding the language for some of the items and the doubt regarding the factorial validity of the measure), the measure was not selected for use in the current research.

2.1.4 The Resiliency Scale (Jew, Green & Kroger, 1999). The Resiliency Scale is a 49-item measure that uses a five-point Likert type scale for responses which is described as providing a measure of the skills and abilities thought to render children resistant to psychological harm. The measure is based on the work by Mrazek and Mrazek (1987) and their cognitive appraisal theory of resiliency, which outlined twelve skills and abilities utilised by resilient people when they experience stress. Example items include, 'Life is ok' and 'I know I'll make it', measuring three factors of Future Orientation, Active Skill Acquisition and Independence / Risk-taking. The internal consistencies of the three factors ranged from .68 to 95 and a good test-retest period of four months was used, although this revealed reliabilities which were poor to unacceptable (.57, .48 and .36, respectively). Jew and colleagues (1999) provide some evidence regarding the discriminate validity of the Future Orientation and Active Skill Acquisition factors, where scores on these factors were significantly different for young

people who had experienced drug/alcohol abuse and had been in trouble with the police. However, no further reported use of the measure has been identified within the literature as part of the current review. Furthermore, the poor test-retest reliability of the measure suggests that additional psychometric validation of the measure is warranted and therefore this measure was not selected for use in the current research.

2.1.5 The Connor-Davidson Resiliency Scale (CD-RISC; Connor & Davidson, 2003). The CD-RISC scale is a 25-item scale that is measured on a five-point Likert type scale, with higher scores being reflective of higher resilience. Example items include, 'When things look hopeless, I don't give up' and 'Things happen for a reason'.

The scale was developed as a measure of an individual's ability to cope with stress, and the authors of the measure have drawn from the work of Kobasa (1979) and Rutter (1985) when constructing items for the scale. Participants were drawn from a range of samples, the largest of which was from the general population (N = 577). The other samples were all drawn from health-related backgrounds and included primary care outpatients, psychiatric outpatients in private practice, those taking part in a study of generalised anxiety disorder, and participants taking part in clinical trials for Post-Traumatic Stress Disorder (PTSD).

The data from the general population was subjected to an exploratory factor analysis using an orthogonal rotation, which resulted in a five-factor solution, which was interpreted as reflecting: Personal Competence, High Standards and Tenacity (factor 1, 8 items); Trust in One's Instincts, Tolerance of Negative Affect and Strengthening Effects of Stress (factor 2, 7 items); Positive Acceptance of Change and Secure Relationships (factor 3, 5 items); Control (factor 4, 3 items); and Spiritual Influences (factor 5, 2 items). However, their use of an orthogonal rotational method suggests that they did not anticipate their factors to correlate, which is questionable given the likely relationship between the factors extracted from the measure, although these were not reported (Burns & Anstey, 2010). Furthermore, given that very few items loaded onto factors 4 and 5, there is likely to have been insufficient items as indicators for the factors (Hau & Marsh, 2004). In fact, subsequent research exploring the measure has failed to confirm the factor structure (e.g., Campbell-Sills & Stein, 2007; Jorgensen & Seedat, 2008). Burns and Anstey (2010) have also highlighted that

some of the items within the CD-RISC cross-load, which could suggest that further work is conducted to explore and confirm the underlying structure of the measure. Despite this, Connor and Davidson (2003) report near excellent internal consistency for the full scale (α = .89) and a high level of agreement for the test-retest stability (.87). They also demonstrated the ability of the CD-RISC to measure clinical improvement following treatment.

Campbell-Sills and Stein (2007) explored the CD-RISC with undergraduate participants, where two samples were used to explore the factor structure and a third was used to confirm it. They were unable to replicate the original five-factor structure described by Connor-Davidson and suggested that a 10-item version of the measure captured the central aspects of resilience in a one-factor solution. They reported good internal consistency of the 10-item version and concluded that the measure has excellent psychometric properties. Burns and Anstey (2010) tested the competing models proposed along with exploring whether the measure was independent of measures of positive and negative affect. Their findings supported the position of Campbell-Sills and Stein (2007), that the CD-RISC was best explained by a one-factor solution. However, they suggest further changes in the form of a 22-item version of the measure. However, Burns and Anstey (2010) noted that the differences between the 10-item and 22-item versions of the measure "are not substantial ... recognise that a shorter item pool is more efficient and user-friendly within the context of a large battery of survey questionnaires" (Burns & Anstey, 2010, p. 530).

Windle and colleagues (2011) gave the CD-RISC one of the highest ratings for psychometric properties within their review, although they also suggest that the theoretical underpinnings of the measure would benefit from further exploration. When considering the appropriateness of the measure for use within the current study, it is important to note that the development of the measure was within the context of health and with adults. Despite this, the measure is reported to have been used widely with school aged children and adolescents (Davidson, personal communication, 16/05/11), and there has been some use of the measure with adult offenders in relation to suicidal behaviour in Italy (e.g., Carli et al., 2010). Whilst this is positive, there remains some concern regarding the breadth and detail of information obtained from the CD-RISC, given that the measure appears to tap a single, unitary construct. Given that the current study is one of the first in the UK to explore the concept of resilience within young

people in custody, it will be important for any chosen measure to reflect as many components of resilience as possible. Given the additional concerns raised regarding the theoretical underpinnings of the measure, that the measure does not appear to have been validated with adolescents (although it has been used with adolescents), and the concerns that have been raised regarding the complexity of language used on some items (e.g., 'Not easily discouraged by failure'), the measure was not selected for use in the current research.

2.1.6 Adolescent Resilience Scale (Oshio, Kaneko, Nagamine & Nakaya, 2003). The Adolescent Resilience Scale was developed to measure the psychological features of resilience among Japanese youth aged 19 to 23 years of age (Ahern et al., 2006). It is a 21-item scale that uses a five-point Likert type scale. Example items include, 'I think I have a high level of interest and curiosity' and 'I cannot endure adversity'. It measures the factors of Novelty Seeking, Emotional Regulation and Positive Future Orientation. Although Ahern and colleagues suggest that the measure has acceptable reliability and validity, Windle and colleagues (2011) raise concerns regarding the lack of theoretical grounds for the selection of the factors said to be reflective of resilient characteristics within the scale. For example, while there is evidence that Emotional Regulation and Future Orientation are related to resilience (e.g., Curtis & Cicchetti, 2007), the inclusion of Novelty Seeking is less clear. In addition to this there are no clinical applications of the measure reported (Windle et al., 2011). While the internal consistency of the measure is acceptable (α .77 to .85), no details have been reported regarding the test-retest stability of the measure. Furthermore, some of the items appear to be attempting to measure more than one concept (e.g., 'I think I have a high level of interest and curiosity').

While it is positive that the measure has been developed and designed for adolescents, this was with older adolescents and young adults and there appears to be no reported use of the measure outside of Japan, meaning that cultural differences would need to be considered (Sanchez, Spector & Cooper, 2006). The complexity of the language used in the items would also be of concern for the current population. Taken together, these concerns meant that this measure was not selected for use within the current research.

2.1.7 Resilience Scale for Adolescents (READ; Hjemdal, Friborg, Stiles, Martinussen & Rosenvinge, 2006).

The READ (Hjemdal et al., 2006) was developed based on the Resilience Scale for Adults (RSA; Friborg. Hjemdal, Rosenvinge & Martinussen, 2003; Hjemdal, Friborg, Martinussen & Rosenvinge, 2001). It is a 28-item measure to reflect the factors of Personal Competence (8 items), Social Competence (5 items), Structured Style (4 items), Family Cohesion (6 items) and Social Resources (5 items) utilising a five-point Likert type response format. Example items include, 'I reach my goals if I work hard' and 'I feel comfortable with my family'.

Friborg, Hjemdal, Rosenvinge and Martinussen (2003) completed a review of the resilience literature and identified the three key components of resilience which were discussed within Chapter 1; namely, individual-level, family and peers, and school and the community factors. They argue that few measures adequately assess these factors but focus upon individual level factors only. Hjemdal, Aune, Reinfjell, Stiles, and Friborg (2007) reassert this argument when discussing the development of the READ and suggest that measures of resilience should take into account and explore all three categories of resilience. They describe the Resilience Scale for Adolescents (READ) as being one of the few measures to incorporate all three categories of resilience. Hjemdal and colleagues (2006) based the READ on their earlier RSA, which they describe as having been developed using both exploratory and confirmatory factor analyses. The authors describe adapting the 41 items from the RSA and asking seven adolescents to review the items. This resulted in the chosen response format and the items being simplified, which resulted in 39-items being included in the initial development of the READ. Given that the items were based on the RSA, the authors expected to find the same five-factor solution. Responses from 421 adolescents (between 13 and 15 years of age) were divided and a structural equation post hoc modelling approach was used. The first group was used as an exploratory sample to fit the model and the second group was used to cross-validate the fit of the model. Dividing the sample in this manner means that the *N* to item ratio would have been significantly compromised for the first stage of these analyses. Furthermore, the assumption that the same underlying components of resilience among adults map onto resilience processes in adolescents requires further empirical support than the authors provide. Factor analytic techniques should have been utilised initially, given that the authors are attempting to develop an entirely new measure.

Hjemdal and colleagues (2007) explored the READ as a predictor of depressive symptoms within 13 to 15 year old males and females. Their results supported the use of the READ as a predictor of depressive and social anxiety symptoms. They also explored the predictive value of the READ in a parental format to determine whether a range of sources of information regarding resilience improved prediction. They found that adolescents were better placed to provide information regarding their resilience than their parents, appearing to lend further support to the READ being a useful self-report measure of resilience in young people. The measure was also found to have acceptable internal consistency (α .69 to 94) although no test-retest analyses were conducted.

A number of shortcomings in the original development of the READ were noted by Von Soest, Mossige, Stefansen and Hjemdal (2010). These included the relatively narrow age range (13 to 15 years of age) of participants, the insufficient sample size given the number items within the scale and the development of the measure only utilised confirmatory factor analyses, as items were based on the earlier developed Resilience Scale for Adults (RSA, Hjemdal et al., 2001). Von Soest and colleagues (2010) have gone on to further validate the READ using a large-scale sample of nearly 7,000 older adolescents (18 – 20 years of age). Within this study, the scale was subject to exploratory and confirmatory factor analysis and a modified 28-item version of the scale emerged. This version was also found to have acceptable internal consistency (α .69 to 79) although again no test-retest analyses were conducted.

To date the only published work using the READ has been with Norwegian participants and Sanchez and colleagues (2006) have noted some of the methodological problems of utilising measures developed in one country, given the possibility that translated items "… don't do a good job of reflecting the construct universally" (Sanchez et al., 2006, p. 197). Examination of the items from the English version of the READ would appear appropriate, although it is important to note that no published research has explored whether the structure and psychometric properties of the measure stand-up to scrutiny within the United Kingdom. Despite this, Windle and colleagues (2011) suggest that the READ may be the most appropriate measure for adolescents, given that it was rated highest for content validity and construct validity. However, there remains issues with the development of the measure being solely dependent upon a measure designed to assess resilience among adults. Furthermore, there are also issues

with whether the small number of items in each subscale could adequately measure the full range of intended domains to encompass individual, family and peers, and school and the community, as intended.

2.1.8 Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007). The Resiliency Scales for Children and Adolescents (RSCA, Prince-Embury, 2006, 2007) is a 64-item scale that is measured on a five-point Likert type scale. Example items include 'if I try hard, it makes a difference' and 'I feel calm with people'. The scale examines an individual's strengths and vulnerabilities across three scales of Sense of Mastery (20 items), Sense of Relatedness (24 items) and Emotional Reactivity (20 items). There were four phases to the development of the measure, the first involved construct identification, item development and factor analysis. Principal axis method of extraction with varimax rotation was used using a sample of nonclinical and clinical participants (N = 926). The second phase involved exploring the relationships of the three factors in clinical and nonclinical samples. The third phase involved the development of the Resource and Vulnerability Indexes, which can be utilised as summarises of the critical components of the measure. The Resource Index is calculated by taking the mean of the Sense of Mastery and Sense of Relatedness factors. The Vulnerability Index is the standardised Resource Index, minus the Emotional Reactivity standardised score. The final phase involved validating the RSCA with younger children.

Prince-Embury (2006, 2007) suggests that the concept of resilience in children and adolescents is multidimensional and that the different facets are hierarchically arranged. The measure is theoretically based on much of the work by Masten (e.g., 2001), who argues that resilience is part of normal development and the author of the RSCA defines resiliency as "the degree to which an individual's personal resources match or exceed their reactivity to internal or external stress" (Prince-Embury, 2006, 2007, p. 1). The measure is designed to assess the normal personal qualities or attributes of a child or adolescent which have been identified as being related to the ability to cope with stress and adversity. The scales are described by Thorne and Kohut (2007) as having been developed in several phases, using a number of normal, clinical and nonclinical samples in the piloting such as adolescents with depression, conduct disorder and a community sample. The internal consistency of the three main scales and indexes has also been found to be high (α .94 to .97), while the test-retest reliabilities

have also been found to be good (all ≥ .81, Prince-Embury, 2007). Kumar, Steer and Gulab (2010) describe the RSCA as appearing to be a reliable and valid means of assessing resiliency.

Prince-Embury and Courville (2008) examined the scale structure of the measure, where they compared a one-, two- and three-factor solution among 9- to 18-year old children and young people (N = 650) used for the development of the measure. The three-factor solution emerged as the best fit to the data, which is described as providing evidence for the construct validity of the measure. However, from the results reported it would appear that Prince-Embury and Courville did not attempt to fit an item-based model to the data and used the ten subscales of the measure as indicators of the factors. While such a method is theoretically sound, given difficulties confirming a factor structure when the measure has measure has many items (Floyd & Widaman, 1995; Hau & Marsh, 2004), their failure to attempt to fit an item-based model to the data raises doubt regarding the hierarchical structure and stability and structure of the subscales of the measure.

Research has found support for the use of the RSCA in screening for psychological vulnerability in adolescents. Prince-Embury (2008) explored the relationship between the RSCA and the Beck Youth Inventory-II (BYI-II; Beck, Beck, Jolly & Steer, 2005), a scale used to explore depression, anxiety, anger and disruptive behaviours in youth. While positive associations were found between psychological symptoms (as measured by the BYI-II) and the RSCA Vulnerability Index and Emotional Reactivity scores, negative associations were found with the Sense of Mastery and Sense of Relatedness scores. However, given the methodology employed within this study it was not possible to explore whether resilience was able to predict psychological vulnerability and, in turn, how such vulnerability impacted upon resilience. More recent research by Prince-Embury (2010) has explored the RSCA in young people with psychiatric disorders. Here, scores on the RSCA for the clinical sample were in the predicted direction, suggesting that young people with psychiatric disorders had lower personal resources and higher emotional reactivity. However, again the nature of these associations was not explored, meaning that any causal and protective processes require further investigation. Despite this, this study confirmed the scales appropriateness for use with young people diagnosed with psychiatric disorders,

such as depressive disorder and conduct disorder. The index scores and global scales were found to have good to excellent reliability (.82 to .97).

Kumar and colleagues (2010) additionally explored the personal resiliency profiles of 100 children and adolescents admitted as psychiatric inpatients. They identified four profiles based on scores of the RSCA which had different levels of self-reported symptoms, as measured by the BYI-II (Beck at al., 2005). Prince-Embury and Steer (2010) have gone on to further explore these profiles, using a larger sample of outpatient clinical young people (N = 285) and normative samples (N = 641). They identified three resiliency profiles within the normative sample (high resiliency, average resiliency and low resource vulnerability) and four in the clinical sample (average resiliency, low resource vulnerability, high vulnerability and very high vulnerability). The clinical profiles matched those described by Kumar and colleagues (2010), suggesting that the profiles identified may generalise to other samples of young people with clinical diagnoses. However, Prince-Embury and Steer (2010) failed to explore evidence for the validity of the clusters against other well-established measures, an important step in the validation process of any cluster solution (Aldenderfer & Blashfield, 1984).

Recent research has also been published regarding the use of the RSCA with juvenile offenders (Mowder et al., 2010). Mowder and colleagues explored the positive characteristics and vulnerabilities of over 200 juvenile offenders using the RSCA. K-means cluster analysis identified four cluster profiles, some of which appeared to have similarities with those identified by Prince-Embury and Steer (2010) in normative and clinical samples. These clusters differed on a number of internal and external variables and were labelled as very high vulnerability, high vulnerability, low resource vulnerability and average resiliency. However, issues regarding the cluster analysis methodology used within these studies is outlined within Chapter 6 (section 6.1). Mowder and colleagues also failed to explore whether the factor structure held up within the population, which would appear to be an important starting point for such a study. Despite this, Mowder and colleagues report excellent internal consistency of the three factors (.91 to .94). The sample used for the study was also predominantly female and gender differences were not explored.

Information regarding the reliability, responsiveness and construct validity of the RSCA would appear to support the use of the measure for the purpose of the current study. The measure has been designed for specific use with children and adolescents and the research conducted by Mowder and colleagues (2010) would suggest that this may be a reliable measure for use with young people in custody. However, confirmation that the structure of the RSCA is applicable to male adolescent offenders would appear overdue.

2.1.9 Child and Youth Resilience Measure (CYRM; Ungar et al., 2008).

The CYRM was originally developed as a 58-item measure of resilience. It was developed by members of the International Resilience Project with the aim of developing a measure of resilience that is "culturally and contextually relevant" (Ungar et al., 2008, p. 166). The authors note that much of the work to explore resilience has focused upon western populations and definitions of resilience. They suggest that definitions of resilience within the literature tend to be focused upon individual capabilities at the expense of considering the relationship between individuals and their environments. With this in mind, researchers from 11 countries assisted with the development of the scale and through face to face consultations they identified 32 domains which were identified as common across countries that were related to the development of resilience. An academic within each country then ran two focus groups, one with youths and one with adults to explore the most important factors that young people use to thrive when facing adversity. This generated questions for inclusion in the measure, which were merged into one 58-item measure based on team consensus. Sixty or more young people within each site completed the measure, which resulted in a substantial sample size (N = 1,451). The authors describe conducting two exploratory factor analyses, but it would appear that their assumption regarding the presence of four factors within the data (Individual, Relational, Community and Culture) meant that they failed to consider alternative factor solutions. While they suggested adequate reliability for these factors (Individual [24 items, .8], Relational [7 items, .66], Community [15 items, .79] and Culture [12 items, .71]), they report that no valid factor emerged. Furthermore, no test-retest statistics are provided.

The CYRM was then shortened to a 28-item scale with the aim of identifying the most important aspects of resilience across four population groups, while retaining the resilience factors of Individual, Relational and Community (Ungar et al., 2008;

Ungar & Liebenberg, 2011; Liebenberg, Ungar & Van de Vijver, 2012). Example items from the 28-item measure included 'I cooperate with people around me' and 'My caregivers stand by me during difficult times'. Liebenberg and colleagues (2012) have validated this 28-item version among two Canadian samples (N = 497), where good internal consistency (α .79 to .83) and test-retest statistics emerged, although the time period of 3 to 5 weeks between administration was insufficient (.58 to .77). However, Ungar and colleagues (2008) still raised some issues with the measure, in particular that young people across cultures appeared to interpret items in different ways.

Windle and colleagues (2010) suggested that the CYRM requires further application and validation and the work by Liebenberg and colleagues (2012) described above attended to some of these issues. However, the extremely high correlations between the factors of the 28-item measure within the final Confirmatory Factor Analytic (CFA) model suggests that the measure may in fact be tapping a unitary resilience factor. Further work needs to be conducted regarding the application of the CYRM, in particular in terms of the discriminative and predictive validity of the measure. Although some of the arguments for the need for the development of the CYRM appear very valid, until additional work has been completed it was not felt appropriate for use within the current study.

Appendix A provides a summary of each measure identified, the psychometric properties, and whether the measure was developed and/or has been used with adolescents in the past. This has been included as a summary of each measure reviewed.

2.2 Summary and Conclusions

The current review has identified seven measures that have been developed to assess resilience that could be applied to adolescents, and the appropriateness of their use within the current research has been reviewed. It is clear from this review that no 'gold' standard is available for assessing resilience among young people in custody. In fact, it would appear that there is no such measure for assessing resilience across populations (Windle et al., 2011). Issues identified in relation to the appropriateness of measures have included the complexity of language used, insufficient psychometric validation completed and the use limited to a single country. The following have emerged as important considerations to make within such a review:

1. The theoretical underpinnings for the development of measure, and whether this matches with the current purpose.
2. The reasons for the development of the measure, and whether this is reflected in the research area.
3. The sample used for the development of the measure (e.g., age, culture, gender) and whether this is matched with the sample of interest.
4. The psychometric properties of the measure (i.e., internal consistency, test-retest reliability, responsiveness, validity) and whether they have been sufficiently reported and explored.
5. Whether the measure has been validated for use with the population of interest.

After considering each measure in relation to the issues summarised above, the Resiliency Scale for Adolescents (READ; Hjemdal et al., 2006) and the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) emerged as potential measures for use within the current study. While there appears no reported use of the READ outside of Norway, work published to date utilising the RSCA has only been completed within the U.S. and in Lebanon (Tayara, 2011). However, given that the READ has been translated to English, there may be particular issues regarding the construct validity of items (Sanchez et al., 2006) which may not be an issue for the RSCA. Furthermore, there is also no data available regarding the test-retest stability of the READ. Despite this, the READ does provide a measure of the three key components of resilience while the RSCA focuses only upon exploring individual, psychological resilience. However, the relevance of the factor relating to Social Resources, for example, may be of less interest among young people in custody. The psychometric properties of the RSCA appear strong, with a range of normal, clinical and nonclinical samples used in the piloting of the measure (Thorne & Kohut, 2007). The RSCA is also the only measure to date that has been utilised with adolescent offenders, where there is evidence that it was able to distinguish between different profiles of adolescent offenders, with excellent internal consistency (Mowder et al., 2010). Taken together, this would suggest that the RSCA would be the most appropriate measure to utilise for the current research and that it would not be necessary to develop and validate a new measure for the purpose of the current thesis.

Although the RSCA is limited to exploring individual-level factors associated with resilience, the literature reviewed within the previous chapter suggested that

individual-level factors may be of particular importance, and relevance, among young people in custody. Consideration will also be given to utilising a range of sources of information which may help to minimise the potential impact of common method variance within the current study, particularly in relation to variance due to using a common source or rater.

Whilst the current discussion has focused upon exploring the measurement of resilience using already established measures of resilience, it is important to acknowledge some of the potential limitations of such an approach. In particular, this methodology is unlikely to provide information regarding the process of adaptation and the development of resilience within the current population. However, this method will provide a means of exploring resilience in one of the first large scale studies to explore resilience in relation to adjustment to custodial environment among young people in custody within the UK. It will also provide details of the pattern and profile of resilience utilising a widely available measure of resilience, which will enable comparisons with previous and future research.

Prior to an examination of resilience and adjustment to custody, the following chapter will explore the use of the RSCA as a measure of resilience within this population, by examining whether the structure can be confirmed in young males in custody, as this prerequisite validation has yet to be undertaken.

CHAPTER 3 Factorial Validation of the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) using Confirmatory Factor Analysis Techniques[1]

3.1 Introduction

The preceding chapters have presented an overview of the resilience literature and some initial arguments as to why exploring resilience among young people in custody is of importance. Following this, a review of some of the methodological issues regarding the measurement of resilience has been presented, with an evaluation of resilience measures to determine which would be the most appropriate for use within the current research.

This chapter reports on an empirical study which aimed to explore the use of the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) as a measure of resilience with young males in custody, by examining whether the proposed factor structure can be confirmed with this population. Although empirical validations of the measure have been conducted (e.g., Prince-Embury & Courville, 2008), this has not been conducted previously with young males in custody. Prior to exploring the possible presence, and influence, of personal resilient characteristics within this population, it is important to have a sound measure that can be utilised within research and practice. If a measure is to be used with a specific population, it is important for such a measure to be validated using a sample drawn from that population (Streiner & Norman, 2008). Given the protective potential of resilience for young people (Borum et al., 2002), the availability of such a tool would benefit practitioners during assessment and treatment planning with young people at risk of, or following, contact with the Criminal Justice System. Prince-Embury and Courville (2008) report on the structure of the RSCA, where they concluded that their confirmatory factor analysis (CFA) provided support for a three-factor model. Prince-Embury and Courville (2008) used the ten resiliency subscales as indictors for the three factors (a technique known as parcelling; West, Finch & Curran, 1995; Marsh, Hau, Balla & Grayson, 1998; Hau & Marsh, 2004) most likely due to difficulties of utilising CFA when a measure contains many items.

[1] A paper based on the results of this Chapter has been accepted for publication (Gibson, R. A., & Clarbour, J. (in press). Factorial structure of the Resiliency Scale for Children and Adolescents (RSCA) among incarcerated male adolescent offenders. *Journal of Forensic Practice*.

Research has found support for the use of the RSCA in screening for psychological vulnerability in adolescents for psychological symptoms in normal young people and those diagnosed with psychiatric disorders (Prince-Embury, 2008; Prince-Embury & Steer, 2010). Research has also been published regarding the use of the RSCA with young people in custody in the US by Mowder and colleagues (2010) who explored the positive characteristics and vulnerabilities of over 200 young people using the RSCA. Participants were found to have below average levels of Sense of Mastery and Sense of Relatedness and above average levels of Emotional Reactivity.

The RSCA has been designed for specific use with children and adolescents and the research conducted by Mowder and colleagues (2010) would suggest that the measure is able to distinguish between different profiles of young people in custody. However, confirmation that the structure of the RSCA is applicable to young people in custody would appear overdue and the aim of this study was to explore the factor structure of the measure among incarcerated adolescent males in the UK using CFA techniques. This study described is the first CFA study of the RSCA within the UK. CFA techniques are the preferred method over exploratory techniques when there is knowledge of the underlying structure of a measure from theoretical or empirical information (Bryne, 2001; Tabachnick & Fidel, 2014). Relationships between observed (e.g., responses to a measure) and latent (unobserved, e.g., emergent factors) variables are specified by the researcher and this structure is tested to determine whether the hypothesised relationships are valid. The concurrent validity of the RSCA was also explored utilising a previously well-validated measure, namely the Beck Youth Inventory, 2nd Edition (BYI-II -II; Beck et al., 2005), where it was expected that high correlations would be found between the RSCA factors and the subscales of the BYI-II. Specifically, it was hypothesised that the strengths assessed by the RSCA (namely, Sense of Mastery and Sense of Relatedness) would be positively related to BYI-II Self-Concept, and negatively related to BYI-II Anxiety, Depression, Anger and Disruptive Behaviour. It was also hypothesised that RSCA Emotional Reactivity would be negatively related to BYI-II Self-Concept and positively related to BYI-II Anxiety, Depression, Anger and Disruptive Behaviour.

3.2 Method

3.2.1 Participants. Participants were drawn from an opportunity sample of young people incarcerated within a single male young offender institution (YOI) in the North of England. The initial sample consisted of 426 young people. Some cases were deleted for missing information (see section 3.3.1 for further information) which resulted in a total sample size of 366. The mean age of participants was 209 months (*SD* = 7.61), which corresponds to 17 years and 5 months. The majority of participants (78%) were serving a determinate sentence having been charged or convicted of more than two offences (*M* = 2.68, *SD* = 2.22). The average length of sentence was 23.39 months (*SD* = 21.15). Nineteen young people were serving indeterminate sentences (e.g., indeterminate sentence for public protection, life), with no release date[2].
The majority of participants were sentenced (61%); 27% were remanded to custody by the courts and were awaiting conviction, and 1% had been sentenced but were also on remand for additional offences. Information was unavailable for 11% of participants.

The majority of participants (44.3%) were in custody for a violent offence and had an average of 4.51 previous convictions (*SD* = 3.75). Table 3.1 provides a breakdown of participants' primary index offence (for a full breakdown of offence types, please see Appendix B).

[2] Young people were serving indeterminate sentences for a range of offences, including violent offences (e.g., robbery, murder) and sexual offences (e.g., rape). Each young person serving such a sentence will have been set a tariff by the sentencing judge, which specifies the minimum amount of time that they must serve prior to applying for parole. Their release depends upon a successful application for release to the Parole Board.

Table 3.1.

Offence type of main offence

Offence type	Frequency	Percentage
Violence	162	44.3
Acquisitive	81	22.1
Breach	37	10.1
Sexual	32	8.7
Motoring	12	3.3
Public order	8	2.2
Drugs	7	1.9
Arson	7	1.9
Other	1	0.3
Missing	19	5.2

3.2.2 Measures.

3.2.2.1 The Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007). The RSCA is a 64-item self-report measure that has three factors, Sense of Mastery (MAS, 20 items), Sense of Relatedness (REL, 24 items) and Emotional Reactivity (REA, 20 items). MAS has three subscales of Optimism (e.g., 'Life is fair', 7 items), Self-Efficacy (e.g., 'I do things well', 10 items) and Adaptability (e.g., 'I can learn from my mistakes', 3 items). REL has four subscales of Sense of Trust (Trust, e.g., 'I like people', 7 items), Perceived Access to Support (Support, e.g., 'I have a good friend', 6 items), Comfort with Others (Comfort, e.g., 'I feel calm with people', 4 items) and Tolerance of Differences (Tolerance, e.g., 'I can calmly tell others that I don't agree with them', 7 items). REA has three subscales of Sensitivity (e.g., 'It is easy for me to get upset', 6 items), Recovery (e.g., 'When I get upset, I stay upset for about

an hour', 4 items) and Impairment (e.g., 'I get so upset that I lose control', 10 items). The response format of the measure is a 5-point Likert type scale (0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often and 4 = Almost always). Raw scores for the three factors (MAS, REL and REA) can be converted into standardised T scores, with a mean of 50 and a standard deviation of 10 (Prince-Embury, 2006, 2007). The Resource Index (RI) is the standardised average of the MAS and REL T scores. The Vulnerability Index (VI) is calculated by subtracting the RI from the REA T score. Score rankings (i.e., high, above average, average, below average and low) are provided for the MAS, REL, REA, RI and VI T scores within the RSCA manual. Low scores fall below 40, below average scores fall between 41 and 45, average scores fall between 46 and 55, above average scores fall between 56 and 59, and high scores fall above 60. The ten subscales are converted into scaled scores, with a mean of 10 and a standard deviation of 3. Low scores fall below 4, below average scores fall between 5 and 7, average scores fall between 8 and 12, above average scores fall between 13 and 15, and high scores fall above 16. As outlined within Chapter 2, section 2.3.6., the internal consistency of the three main factors (MAS, REL and REA) and indexes (RI and VI) have been found to be high (α .94 to .97), while the test-retest reliabilities have also been found to be good (all ≥ .81, Prince-Embury, 2007).

3.2.2.2 The Beck Youth Inventory, 2nd edition (BYI-II; Beck et al., 2005). The BYI-II is a 100-item self-report measure comprising subscales of Self-Concept, Anxiety, Depression, Anger and Disruptive Behaviour. The internal consistency for each of the five scales is reported as ranging from .86 to .96 across the six age groups used for the development of the measure (Beck et al., 2005). With the current sample (*N* = 366), the internal consistency of the five factors was found to be excellent (Self-Concept .92, Depression .94, Anxiety .94, Anger .92 and Disruptive Behaviours .94).

3.2.3 Procedure.

3.2.3.1 Ethics. Ethical approval for the study was granted by the Department of Psychology at the University of York. While consent was sought directly from participants, consent was also gained from the Governor of the establishment who acts as loco parentis for young people within the institution.

Prior to the main study being conducted, issues regarding the safeguarding of potential participants were considered. Given the particularly vulnerable nature of the participants

invited to take part, it was essential to consider whether the design of the study would impact upon the emotional well-being of participants. As a result, the methodology described below was initially piloted to explore the impact and to ensure that all necessary safeguards were put in place.

A subsample of participants invited to take part in the current study had been identified as vulnerable by those involved in their case management. These young people were assessed as being unable to cope with the regime of a 'normal' young offender's institution and as a result lived in a 48-bed specialist unit within the main institution (for further information, please see Chapter 6, section 6.2.1.). Young people on one spur of the unit (N = 12) were asked to complete the questionnaires prior to the main study taking place. Following their participation, the researcher asked the young people for their views regarding their participation and whether they felt that the safeguards put in place were sufficient. The rationale behind this decision was that if the young people identified as particularly vulnerable were able to participate and experienced minimal adverse consequences, then safeguards were sufficient. Of those young people who agreed to take part, one young person expressed emotional distress following their participation within the study. When this was explored with them, they expressed a desire to return to home and that they were experiencing difficulties being away from family members. Discussions with staff members revealed that this young person had been experiencing these feelings for some time prior to their participation. Staff members who worked with this individual did not feel that the young person's involvement in the study had exacerbated these feelings. Given this, it was felt that the safeguards in place were sufficient for the study to continue.

Given the number of participants involved in the current study, it was not possible to complete a formal debrief with each participant. As a result, participants were provided with the opportunity to indicate if they had been affected by their participation in the study by ticking a box at the end of the questionnaire. All participants who ticked this box were seen on an individual basis by the researcher to ensure that all appropriate support and safeguards were put in place (n = 26). A greater proportion of young people located on the 48-bed specialist unit requested to be seen following their participation (20% compared to 8%).

3.2.3.2 Procedure. In order to maximise the response rate for the current study, data collection took place over a two-year period within a single young offender institution. Participants on each unit (ranging from 48- to 60-bed units) were approached on separate days to ensure that the researcher could offer assistance to those requiring it. Prior to visiting the unit, contact was made with the unit manager to establish whether they felt there were any young people who should not be invited to take part in the study. In addition to this, if a young person had been identified as being at risk of self-injurious behaviour or suicide (by placement on an Assessment, Care in Custody and Teamwork [ACCT] form[3]), then the researcher examined the nature of the issues and triggers identified as being related to their risk of self-injury and /or suicide. The appropriateness of the young person's involvement in the study was also discussed with the unit manager.

All young people were asked to take part in the study over the lunch-time period, when they return to their cells. The researcher spoke to each potential participant, briefly explaining the purpose of the study, establishing whether the young person would like to take part and whether they felt like they would need any help or assistance to take part. Those who expressed a desire to take part, and where no difficulties had been identified, were provided with written information regarding the study, a consent form, the test forms for completion and an envelope. They were asked to read the information and consent form and to complete if they were willing to take part. They were asked to place their completed forms within the envelope and seal them to ensure confidentiality prior to being collected by the researcher. Each young person was given approximately 1.5 hours to complete the questionnaires. If a young person expressed a desire to take part, but faced some barrier to their participation (e.g., literacy difficulties), then they were seen on an individual basis and given assistance to complete the questionnaires. Forty two (11%) of participants were seen on an individual basis and provided with assistance to complete the questionnaires.

Participants were asked to provide information regarding the length of time they had been in the establishment, how long they had been in custody for their current

[3] The ACCT form is a means of assessing and supporting people in prison who are identified as being at risk of suicide and/or self-injurious behaviour. When the risk is identified, individuals are assessed to determine the issues that have contributed to their risk of suicide and/or self-injurious behaviour and the means of supporting the individual to reduce their risk.

offence (i.e., had they transferred from another establishment) and how many times they had been in prison / custody.

Following this, all returned questionnaires were given a unique identifying number and information regarding their offending and behaviour within custody was collated from file information. Participants were also seen on an individual basis depending upon their response to the item 'I wish I were dead' on the Beck Depression Inventory Youth (BDI-Y), given that the manual for the Beck Youth Inventories states that a rating of 'sometimes' or of greater frequency should be assessed more comprehensively for suicidal ideation (Beck et al., 2005).

3.2.4 Data analysis. Jackson, Gillaspy and Purc-Stephenson (2009) explored the reporting practices of nearly 200 CFA studies published between 1998 and 2006 and have provided guidelines for the reporting of CFA in order to improve practices. To ensure appropriate reporting of the CFA within the current study, the guidelines outlined by Jackson and colleagues have been followed wherever possible (please see Appendix C for an overview of these guidelines).

The models explored within this study were estimated using the maximum likelihood method (ML), which is the most commonly used approach within Structural Equation Modelling (SEM, e.g., Brown, 2006).

The chi-square (χ^2) test assesses whether the specified model under investigation matches with the factor loadings, variances/covariances and error variances within the data (Bryne, 2001). However, it is now well established that the χ^2 is very dependent upon sample size (e.g., Blunch, 2008; Joreskog & Sorbom, 1993), therefore, a range of fit measures have been developed to evaluate the fit of specified models (Bryne, 2001; Floyd & Widaman, 1995). Drawing from previous studies in their review of CFA reporting practices, Jackson and colleagues (2009) suggest the use of a number of fit measures when exploring the fit of models that they describe as performing well. For the purpose of the current study, the root mean square error of approximation (RMSEA), the Tucker-Lewis index (TLI), the comparative fit index (CFI), the Akaike Information Criterion (AIC), along with the chi-square statistic and the degrees of freedom were used. There has been debate over the appropriate cut-off values which should be used when examining these fit measures and although this is beyond the scope of the current discussion, it is important to explicitly state which cut-off scores

will be used within the current study (Jackson et al., 2009). For the RMSEA, values less than 0.05 suggest a good fit, values between 0.05 and 0.08 an acceptable fit, and values greater than 0.10 should not be accepted (Browne & Cudek, 1993; Blunch, 2008). Values for the CFI and the TLI range from zero to 1.00. Although values over .90 were considered to indicate an acceptable model, Hu and Bentler (1999) have suggested a revised cut-off of 0.95 for both the CFI and the TLI. Kline (2011) suggests that the model with the smallest AIC value should be chosen, as this model is most likely to be replicated.

Boomsma (1982) evaluated the use of CFA for studies with a small sample (i.e., *N* = 25-400) and recommended that *N* should be at least 100 but ideally over 200. However, Marsh, Hau, Balla and Grayson (1998) have argued that although concerns about *N* have produced many suggested guidelines, there are no minimum rules that have been systematically supported by empirical research. Kline (2011) suggests that guidelines regarding sufficient sample sizes are problematic given that a number of factors will impact upon requirements. However, a general rule is that as the *N* to item ratio decreases, so do the robustness of the findings and that most journal submissions utilising SEM will be rejected if the sample size is less than 200 (Kline, 2011). As a result, having as large an *N* as possible is recommended given that solutions and the accuracy of estimates is improved by increasing *N* (Kline, 2011; Velicer & Fava, 1998).

In order to investigate the factorial structure of the RSCA various models were tested using the AMOS programme (version 22). In all of the analyses, the estimated parameters were based on the variance-covariance matrix of the items in the scale.

3.3 Results

3.3.1 Data preparation: missing data. Within the current study, missing data was not part of the study design and as a result it was necessary to consider the way in which missing data would be managed. Although Bryne (2001) notes that there are few guidelines to what constitutes a large amount of missing data, she cites Kline (1998) who suggests that missing data should not exceed 10% of the data. Within the current study, the amount of missing values for each item of the RSCA ranged from 2.6% (Item 10, 'I can get past problems in my own way, Item 14, 'I can think of more than one way to solve a problem' and Item 17 'I can let others help me when I need to') to 4.2% (item

56 ‘when I get upset, I stay upset for the whole day’) and therefore did not exceed the guideline by Kline (1998).

As noted by Kline (2011), the issue of how to deal with missing data has generated large debate and is beyond the scope of the current discussion. Kline (2011) suggests that 5% missing on a single variable in large sample sizes to be of little concern. In such cases, he suggests that the chosen method of dealing with such cases is arbitrary, as it is likely to have little impact. A popular method for dealing with missing data is mean substitution, where the sample mean is used to replace missing variables. However, Kline (2011) highlights how this method will reduce the variance within the data and make data “more peaked at the mean” (Kline, 2011, p. 58). The most common approach to dealing with missing data is listwise deletion (Bryne, 2001), which assumes that missing data is missing completely at random (Rubin, 1976; Little & Rubin, 1987). Although there are some issues of concern with this methodology (e.g., reducing sample size), this method was utilised within the current study given that the extent of missing data was less than 5% (and therefore did not exceed the 10% guideline provided by Kline, 1998). Furthermore, Bryne (2001) suggests that listwise deletion is a good choice if only a few cases have missing values and sample sizes are sufficient. Listwise deletion also appears more favourable than pairwise deletion in CFA and SEM (Bryne, 2001; Kline, 2011), given that pairwise methods can mean that “no two terms in a covariance matrix are based on the same subset of cases” (Kline, 2011, p. 57).

Listwise deletion resulted in a total sample of 366 participants for the current analyses.

3.3.2 Data preparation: exploration of assumptions. Prior to examining the structure of the RSCA within the current population, it was essential to first explore the data to determine whether two often ignored assumptions were met. First, that data be of a continuous scale, and second, that data have a multivariate normal distribution (Bryne, 2001). The data from the RSCA met the first assumption given its response format. Unfortunately, it would appear that many researchers fail to explore the second of these assumptions (Bryne, 2001). Breckler (1990) explored SEM methodology within personality and social psychology literature over a ten year period and found that only 10% of studies tested for multivariate normality within their data.

The Kolmogorov-Smirnov (K-S) test compares the scores within a given sample to a normally distributed set of scores with the same mean and standard deviation (Field, 2009, 2013). While there was evidence of some non-normality for MAS, $D(365) = 0.05$, $p<.05$, there is evidence to suggest that maximum likelihood (ML) estimation can be performed on data where there is mild non-normality (Chou, Bentler & Satorra, 1991; Fan & Wang, 1998; Hau & Marsh, 2004). Furthermore, with larger sample sizes non-normality can emerge when scores are only slightly different from the normal distribution (Field, 2009). Given this, Field (2009) suggests that such tests should be used in conjunction with histograms to explore visually the level of non-normality. The visual analysis of the normality histograms appeared fairly normal. Therefore, the non-transformed data was used in subsequent analyses.

3.3.3 The item-based confirmatory factor analysis of the RSCA. Prince-Embury (2006, 2007) suggests that the concept of resilience in children and adolescents is multidimensional and that the different facets are hierarchically arranged. Utilising the subscales from the RSCA as first-order (lower-order) factors allowed the second-order (higher-order) factors of MAS, REL and REA to then be explored. In order to achieve identification within this model, the variance of the three factors was set to zero.

The χ^2 value was highly significant for this model and the goodness of fit measure statistics all suggested an inadequate fit, $\chi^2(1939) = 3857.4$, $p<.01$, CFI = .727, TLI = .707, RMSEA = .072 [.068 - .075], $p<.01$.

Confirming the factor structure of a measure can be difficult when the measure under investigation contains many items (Floyd & Widaman, 1995). While such a structure is often necessary to ensure adequate internal consistency and reliability, it can prove difficult to specify all the correlated error terms between items, meaning that it may not be possible to identify adequate solutions for such lengthy measures (Floyd & Widaman, 1995). Some researchers have suggested the use of item parcels to resolve this issue, where the mean of several items which are conceptually linked is formed and used within models (e.g., West, Finch & Curran, 1995; Marsh et al., 1998; Hau & Marsh, 2004). This method is utilised with the assumption that the item-parcels distribution will be more normal and that reducing the number of items, will improve the item to *N* ratio (Hau & Marsh, 2004). Bandolas and Finney (2001) found in their review of SEM studies that 20% of studies appeared to utilise this method in some way.

Given this, item parcelling would appear a potential solution when normality assumptions have been violated, *N* is relatively small and when the measure under investigation is lengthy.

Hau and Marsh (2004) empirically evaluated the use of item parcels for dealing with non-normality within data with a small *N* in two simulation studies. They confirmed some of the difficulties within SEM when there are less than three indicators for a latent factor, and recommend that item parcels should not be used unless there are sufficient items for at least three parcels per latent factor. They also concluded that maximum likelihood (ML) solutions are robust to violations of normality, even when using a small *N*.

Prince-Embury and Courville (2008) appear to have utilised this method to explore the structure of the RSCA. From the results reported, it would appear that they did not attempt to fit an item-based model to the data and used the ten resiliency subscales as indictors for the three factors. Although there is no discussion regarding the rationale behind this decision in their paper, it may have been due to some of the issues raised with regards to the difficulties of utilising CFA when measures contain many items. Such a method is theoretically sound, as an additional pre-requisite for parcelling is that each parcel is highly correlated, indicating singularity.

3.3.4 The parcel (subscale) confirmatory factor analysis of the RSCA.

Given the proposed hierarchical structure of the RSCA, the RSCA subscales were used to form the basis of the parcels for the next model. Initially, a scree plot was conducted on each of the ten subscales to test for unidimensionality. For seven of the subscales, only one factor had an eigenvalue greater than 1. For the three subscales of Self-Efficacy, Tolerance of Differences and Impairment, two factors had an eigenvalue greater than 1. However, these additional factors explained less than 15% of the variance and only just exceeded the value of 1 (1.02, 1.01 and 1.08, respectively). Visual examination of the scree plots of the subscales also suggested that the data would best be described by one factor.

Each factor of the RSCA has three or more subscales, meaning that there were sufficient indicators for the CFA to proceed (Hau & Marsh, 2004). In addition, the reliabilities for the subscales were all found to be good to excellent in the current sample (Optimism .83, Self-Efficacy .87, Adaptability .75, Trust .83, Access to Support

.83, Social Comfort .87, Tolerance of Differences .79, Sensitivity .75, Recovery .86 and Impairment .91).

The data were subsequently entered into a CFA using the 10 subscales as parcels to explore the fit of the three-factor model. The fit of this model was good, χ^2 (32) = 101.31, p<.01, CFI = .962, TLI = .946, RMSEA = .077 [.060 - .094], p<.01. Figure 3.1 shows the path diagram of this model, showing the standardised factor loadings, factor correlations and squared multiple correlations.

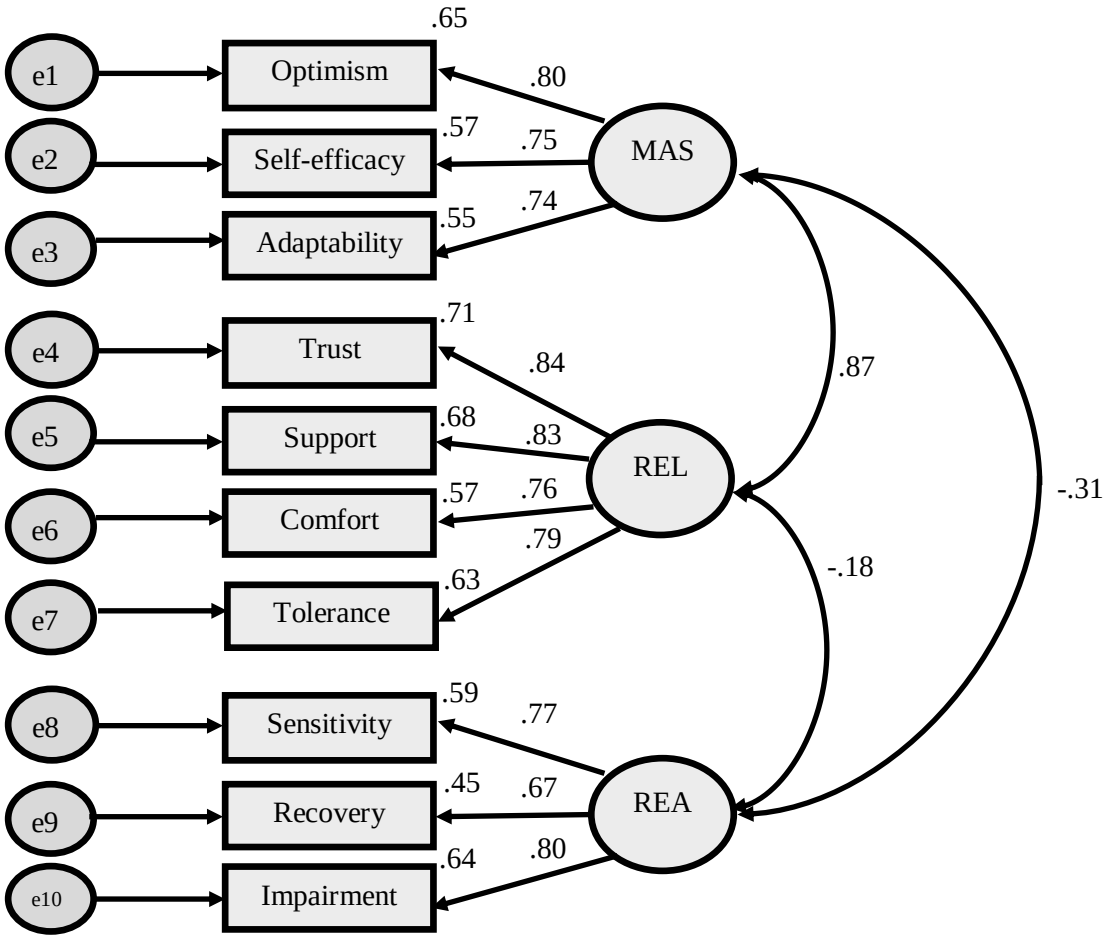


Figure 3.1. Path diagram of the three-factor model showing the standardised factor loadings, factor correlations and squared multiple correlations.

As each subscale was constrained to load onto a single factor, the squared multiple correlation (R^2_{smc}) indicates the proportion of variance of the subscale that is explained by the factor. Kline (2011) suggests that all indicators of a factor should have high standardised loadings (i.e., above .70) and Figure 1 shows that all subscales in the three factor model explain the majority of the variance apart from the Recovery

subscale. The factors of MAS and REL were found to have a strong positive correlation (r = .87), raising some doubt to the discriminant validity of these two factors. While this correlation does not exceed the .90 value that Kline (2011) suggests to be a problem, the possibility that a two-factor model may be a better fit to the data was explored.

In the two-factor model, the subscales of Optimism, Self-Efficacy, Adaptability, Trust, Access to Support, Social Comfort and Tolerance of Differences were constrained to load onto the same factor. This factor would be best described as a general resilience factor. The subscales of Sensitivity, Recovery and Impairment were used as indicators for the second factor, which reflected the REA factor. The fit of this model was found to be acceptable, χ^2 (34) = 153.18, p<.01, CFI = .934, TLI = .913, RMSEA = .098 [.083 - .114], p<.01. Figure 3.2 shows the path diagram of this model, showing the standardised factor loadings, factor correlations and squared multiple correlations.

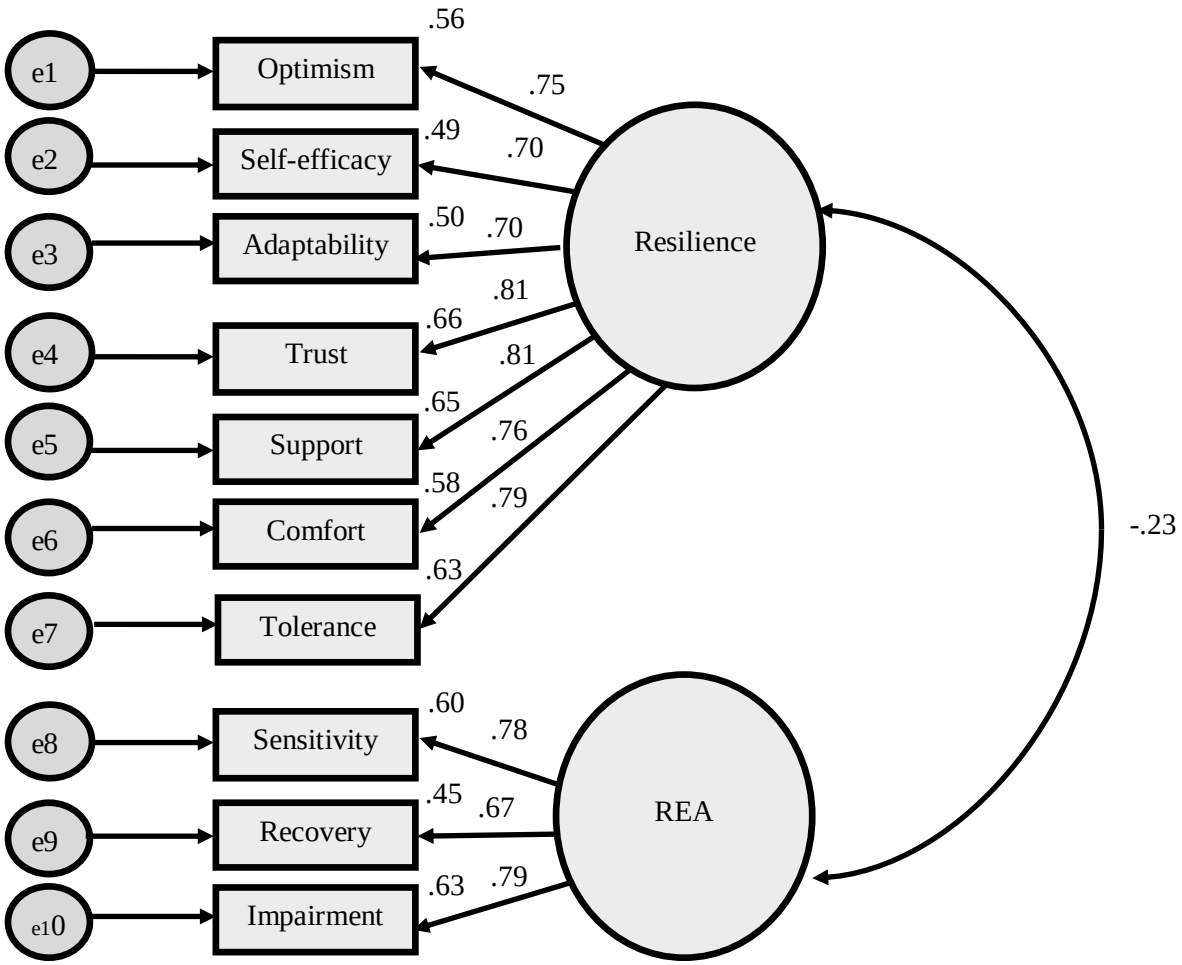


Figure 3.2. Path diagram of the two-factor model showing the standardised factor loadings, factor correlations and squared multiple correlations.

Eight of the subscales in the two-factor model explained the majority of the observed variance. The Self-Efficacy and Recovery subscales explained 49% and 45% of the variance respectively. Apart from the Recovery subscale, all subscales were found to have standardised loadings above .70.

Given these findings, the usefulness of both a two- and a three-factor solution was explored further. Kline (2011) suggests that the model with the smallest AIC value should be chosen, as this model is most likely to be replicated. For the two-factor model, the AIC value was 195.18 while for the three-factor model, the AIC level was 167.31. Although the fit statistics of both models were acceptable, they were better for the three-factor model. In particular, the RMSEA values for the models would suggest an acceptable fit for the three-factor model only (Browne & Cudek, 1993; Blunch, 2008) and the CFI only exceeded the 0.95 cut-off in the three-factor model (Hu & Bentler, 1999). Furthermore, for the subscales of Optimism, Self-Efficacy, Adaptability, Trust and Access to Support, the three-factor model explained a greater proportion of variance of the subscales. Given this, there appears greater statistical support for the three-factor model. Further discussion regarding the high positive correlation found between the MAS and REL factors within the three-factor model is provided within the discussion of this Chapter (see section 3.4).

3.3.5 Exploration of resilience within the current sample. Within the current sample (N = 366), the internal consistency of the three factors was found to be excellent (MAS .91, REL .93 and REA .92).

The means and standard deviations for the raw and standardised scores of the RSCA factors and subscales are presented in Table 3.2.

Table 3.2.

Descriptive statistics for the RSCA raw and standardised factor and subscale scores (N = 366)

	Raw scores	Standardised scores
	Mean (*SD*)	Mean *(SD)*
Mastery (MAS)	49.56 (12.03)	44.81 (9.26)
Optimism	16.85 (4.75)	8.77 (2.77)
Self-efficacy	24.99 (6.61)	8.43 (2.91)
Adaptability	7.72 (2.56)	8.66 (2.55)
Relatedness (REL)	63.35 (15.46)	44.93 (9.30)
Trust	17.90 (5.13)	8.50 (2.76)
Support	17.30 (4.78)	8.74 (3.03)
Comfort	10.67 (3.19)	8.70 (2.91)
Tolerance	17.48 (4.86)	8.55 (2.76)
Emotional Reactivity (REA)	34.24 (14.72)	57.64 (10.11)
Sensitivity	9.74 (4.47)	10.86 (2.72)
Recovery	5.22 (4.01)	11.24 (3.53)
Impairment	19.28 (8.75)	12.98 (3.18)

These scores are described as representing below average levels for MAS and REL and above average levels for REA within the RSCA Manual (Prince-Embury, 2006, 2007). This is similar to the findings reported by Mowder and colleagues (2010) in their sample of adolescent offenders and also the resilience profile of the clinical and adolescent psychiatric inpatients samples of Prince-Embury and Steer (2010) and Kumar and colleagues (2010), respectively.

Table 3.3 shows the factor and subscale correlation matrix using Pearson correlation. This demonstrates a number of significant correlations between the subscales and the factors. In particular, MAS and REL (along with their subscales) are significantly positively correlated, $r = .725$, $p = .000$, while both these factors are significantly negatively correlated with REA, $r = -.250$, $p = .000$, and $r = -.161$, $p = .002$, respectively.

Table 3.3.

Factor and subscale correlation matrix for the RSCA (N = 366)

	REL	REA	Optimism	Self-efficacy	Adaptability	Trust	Support	Comfort	Tolerance	Sensitivity	Recovery	Impairment	RI	VI
MAS	.725**	-.250**	.858**	.916**	.746**	.605**	.614**	.635**	.646**	-.148**	-.166**	-.269**	.926**	-.717**
	[.658, .779]	[-.364, -.126]	[.823, .887]	[.892, .935]	[.674, .805]	[.514, .682]	[.539, .677]	[.553, .707]	[.574, .706]	[-.270, -.024]	[-2.73, -.052]	[-3.82, -.147]	[.906, .942]	[-.775, -.648]
Optimism				.626**	.566**	.592**	.590**	.567**	.518**	-.140**	-.210**	-.238**	.816**	-.644**
				[.533, .699]	[.474, .653]	[.500, .673]	[.515, .666]	[.475, .644]	[.426, .600]	[-.259, -.002]	[-.322, -.077]	[-.351, -.124]	[.771, .855]	[-.711, -.564]
Self-Efficacy					.566**	.476**	.489**	.548**	.579**	-.127*	.097	-.219**	.816**	-.615**
					[.460, 658]	[.368, .568]	[.392, .572]	[.450, .631]	[.499, .645]	[-.243, -.007]	[-.213, .024]	[-.328, -.088]	[.769, .856]	[-.686, -.529]
Adaptability						.519**	.530**	.518**	.582**	-.107*	-.157**	-.259**	.737**	-.592**
						[.416, .609]	[.441, .613]	[.416, .611]	[.490, .657]	[-.219, .009]	[-.272, -.056]	[-.366, -.144]	[.661, .795]	[-.659, -.516]
REL		-.161**	.659**	.604**	.626**	.893**	.881**	.787**	.855**	-.074	-.147**	-.166**	.930**	-.659**
		[-.275, -.042]	[.582, .729]	[.520, .678]	[.536, .697]	[.867, .912]	[.856, .902]	[.736, .829]	[.817, .885]	[-.194, .050]	[-.269, -.036]	[-.277, -.048]	[.913, .944]	[-.725, -.587]
Trust							.721**	.675**	.634**	-.035	-.116*	-.104*	.809**	-.549**
							[.665, .766]	[.598, .739]	[.557, .698]	[-.147, .085]	[-.242, .006]	[-.223, .012]	[.758, .847]	[-.630, -.458]
Support								.568**	.684**	-.081	-.143**	-.132*	.806**	-.573**
								[.481, .641]	[.619, .740]	[-.199, .032]	[-.264, -.025]	[-.244, -.018]	[.767, .840]	[-.648, -.491]
Comfort									.575**	.114*	-.140**	-.183**	.766**	-.577**
									[.479, .656]	[-.226, -.002]	[-.254, -.020]	[-.294, -.067]	[.708, .810]	[-.650, -.492]
Tolerance										-.044	-.113*	-.168**	.809**	-.576**
										[-.164, .076]	[-.233, .000]	[-.277, -.052]	[.765, .845]	[-.641, -.500]
REA	-.239**	.195**	-.229**	-.104*	-.142**	-.182**	-.144**	.816**	.744**	.924**	-.221**	.818**		
	[-.357, -.113]	[-.314, -.065]	[-.340, -.116]	[-.222, .008]	[-.253, -.028]	[-.294, -.069]	[-.257, -.023]	[.779, .850]	[.684, .794]	[.906, .939]	[-.334, -.092]	[.779, .852]		
Sensitivity									.532**	.617**	-.119*	.632**		
									[.444, .611]	[.555, .679]	[-.238, .005]	[.570, .686]		
Recovery										.522**	-.167**	.611**		
										[.426, .606]	[-.282, -.051]	[.547, .670]		
RI												-.741**		
												[.728, .813]		

Notes. ** = p<0.01 level * = p<0.05 level. MAS = Sense of Mastery, REL = Sense of Relatedness and REA = Emotional Reactivity. BCa bootstrap 95% CIs reported in bracket

3.3.6 Concurrent validation. In order to explore the concurrent validation of the RSCA, the relationship between the MAS, REL and REA factors and the BYI-II (Beck et al., 2005) measures of Self-Concept, Anxiety, Depression, Anger and Disruptive Behaviour were explored. This is shown in Table 3.4.

Table 3.4.

RSCA factors (MAS, REL and REA) correlations with the BYI-II (N = 366), with BCa bootstrap 95% CIs reported in brackets

	Self-concept	Anxiety	Depression	Disruptive behaviour	Anger
MAS	.590** [.480, .676]	-.390** [-.520, -.243]	-.471** [-.587, -.339]	-.288** [-.427, -.139]	-.483** [-.587, -.339]
REL	.574** [.478, .660]	-.469** [-.567, -.350]	-.481** [-.584, -.363]	-.217** [-.345, -.080]	-.464** [-.566, -.347]
REA	-.134* [-.261, -.005]	.344** [.233, .447]	.397** [.287, .502]	.348** [.220, .465]	.470** [.367, .573]

Notes. ** = p<0.01 level * = p<0.05 level.

MAS was found to have a strong positive relationship with BYI-II Self-Concept, r = .590, p = .000 and a moderate negative relationship with BYI-II Anxiety, r = -.390, p = .000, Depression, r = -.471, p = .000, Disruptive Behaviour, r = -.288, p = .000 and Anger, r = -.483, p = .000. REL was also found to have a strong positive relationship with BYI-II Self-Concept, r = .574, p = .000, and a moderate negative relationship with BYI-II Anxiety, r = -.469, p = .000, Depression r = -.481, p = .000 and Anger, r = -.464, p = .000. A smaller negative relationship emerged between REL and BYI-II Disruptive Behaviour, r = -.217, p = .000. REA was found to have a small negative relationship with BYI-II Self-Concept, r = -.134, p = .027 and moderate positive relationship with BYI-II Anxiety, r = .344, p = .000, Depression, r = .397, p = .000, Disruptive Behaviour, r = .348, p = .000, and Anger r = .470, p = .000. These findings appear to

provide some evidence of the concurrent validity of the RSCA, which is explored further within the Discussion. These results are in support of the hypotheses made.

Levels of Self-Concept, Anxiety, Depression and Anger all fell in the average severity level range, while Disruptive Behaviour fell in the moderately elevated range as indicated by the BYI-II (Beck et al., 2005).

3.4 Discussion

The aim of the current study was to determine whether the structure of the RSCA could be replicated within a sample of young males incarcerated in prison. This has a number of potential implications for practitioners in terms of the identification of those who may benefit from additional support within custody and for assessment and treatment planning. The current study also explored whether the RSCA could be used to provide a psychometrically validated and consistent measure of resilience among adolescent offenders, since this has been lacking to date. Given the potential protective nature of resilience among adolescents, this appears of value. The results of the current study would suggest that it has not been possible to confirm the factor structure of the RSCA at the item level. As a result, following Prince-Embury and Courville (2008) the subscales of the three factors were used as item parcels and the three-factor model was found to be an acceptable fit to the data, although a two-factor model also emerged as acceptable. While statistical analysis suggested that there was greater support for the three-factor model, consideration of which model best fits with research evidence and conceptualisations of resilience is provided below. Despite this, the internal structure of the measure as originally proposed by Prince-Embury (2006, 2007) has been replicated among young males in custody and suggests that this measure can be utilised with this population, although some doubt is raised as to the use of the subscales within the current population. Practitioners should use some caution when interpreting the results of the lower level subscales and should instead focus upon the outcomes from the three main factors of Sense of Mastery, Sense of Relatedness, and Emotional Reactivity when considering the results of the RSCA for assessment and treatment planning with this population until additional research is conducted.

The RSCA is a measure of the personal and individual characteristics of resilience in children and adolescents. While three broad areas of individual, family and social components have been consistently identified within the literature, the Sense of

Relatedness factor of the RSCA is described as being a measure of "feeling securely connected to individuals in a social context" (Prince-Embury, 2007, p.11), rather than a measure of the quantity or quality of interpersonal relationships and support. Therefore, it seems important to consider the importance of this construct for the current population. Born and colleagues (1997) found that adolescent offenders identified as resilient had greater social support. However, this was found to be linked with their ability to establish relationships with adults, rather than the extent of the support received or characteristics of the family. Furthermore, there is evidence to suggest that early temperament differences have an impact upon the relationships that children develop with their early caregivers (e.g., Werner, 1984) and that perceptions of parental support acts as an important predictor of emotional problems during adolescence (e.g., Helsen, Vollebergh & Meeus, 2000).

It may also be that young people with supportive interpersonal relationships are better able to develop secure attachments to others (Gilligan, 2000), a skill that they can then draw upon to both develop and maintain relationships in the future. This would certainly fit with attachment theory (Bowlby, 1973), and reflects individual, personal factors. While skills that help to develop and maintain relationships are likely to have a positive impact upon how positive / hopeful young people feel about themselves and their future (as reflected by the Sense of Mastery factor), the developmental pathways of these qualities are likely to be quite distinct, along with the potential treatment pathways. For example, while family systemic therapies may provide one possible avenue of treatment for young people with difficulties engaging and benefitting from supportive family relationships, interventions which focus on the development of problem solving skills may help young people to develop more positive feelings regarding their future and their ability to have positive outcomes.

While the current study has suggested some statistical support for retaining the three-factor structure of the RSCA, there also appears some practical benefit for assessment and intervention planning with this population. There appears to be some evidence to suggest that resilience is influenced by children and adolescents' ability to build and maintain relationships with adults, which is reflected in the Sense of Relatedness factor of the RSCA. These qualities appear to reflect a different set of attributes than those assessed via the Sense of Mastery factor of the RSCA, which appear more reflective of individual strengths. As a result, there appears to be

conceptual support both within the literature and the current study for retaining the three-factor model of the RSCA among adolescent offenders.

Higher levels of Sense of Mastery and Sense of Relatedness were found to be associated with positive Self-Concept and lower levels of Anxiety, Depression, Anger and Disruptive Behaviour. This supports some of the findings of Born and colleagues (1997), who found that resilience was associated with less aggression and better self-control, and Mowder and colleagues (2010), who found resilience to be related to less serious discipline infractions. Higher levels of Emotional Reactivity were associated with higher levels of Anxiety, Depression, Anger, Disruptive Behaviour and a small negative relationship with positive Self-Concept. These findings provide some support for the concurrent validity of the RSCA and also for the argument of Prince-Embury (2007) that high levels of Sense of Mastery and Relatedness may serve as a "buffer for negative emotions and disruptive behaviour" (Prince-Embury, 2007, p. 105) and that levels of Emotional Reactivity are associated with negative affect and poor behaviour. The strong positive relationship between Sense of Mastery and positive Self-Concept was unsurprising, given that Self-Concept is a measure of perceived competence, potency and positive self-worth. This also provides further evidence for the concurrent validity of the Sense of Mastery scale of the RSCA. The strong positive relationship between Sense of Relatedness and positive Self-Concept would fit with self-determination theory (e.g., Ryan & Deci, 2000), where autonomy, competence and relatedness are described as necessary conditions for intrinsic motivation, well-being and engagement.

Participants in the current study were found to have below average levels of Sense of Mastery and Sense of Relatedness and above average levels of Emotional Reactivity, which has provided support for previous findings (e.g., Mowder et al., 2010) but also further evidence of the particular difficulties and vulnerabilities faced by this population. However, levels of vulnerability suggested by the RSCA were not borne out in the results from the Beck Youth Inventory (Beck et al., 2005), apart from the Disruptive Behaviour scale which was moderately elevated. This is despite the high correlations between the RSCA and the BYI-II. While this could suggest that the concepts measured by the RSCA are of particular relevance to the current population, this requires further exploration which will be completed within subsequent chapters.

Given the potential protective power of resilience, these findings suggest the need to explore interventions that may help to strengthen individual resilience within this population. However, the complexities and range of adversity experienced by young people in custody mean that complex systemic and relational approaches are likely necessary. For example, adopting systemic practices, such as training for prison staff to help develop skills to encourage relatedness with young people and ensuring they have facility time to spend with them, would appear an important foundation in this process. The potential value of broader systemic principles, such as the principles of the Enabling Environment (Royal College Psychiatrists, 2013), could also be an avenue worthy of attention.

The results of the current study suggest that the RSCA can be utilised with young males in custody in the UK to explore resilience, in particular in relation to screening to identify young people who may benefit from additional support. It may also be utilised by practitioners in assessment and treatment / intervention planning, particularly when they wish to explore the potential protective nature of resilience with young people. However, as noted earlier, some caution should be considered when interpreting scores from the subscales, given that it has not been possible to confirm the structure of the RSCA at an item level.

Of course the present study is not without limitations. The current study is limited to only male participants and it is therefore not possible to suggest that the RSCA would be an appropriate measure for young females in custody. Clearly, this is an area where the current study could be extended. Furthermore, while some evidence has emerged regarding the construct validity of the measure, this requires further exploration. Given issues regarding the reliance upon psychometric measures (such as common method biases, false reports, etc.), it will also be important to consider how the RSCA corresponds to external indicators of functioning and behaviour. For example, are high Emotional Reactivity scores among young people in custody associated with greater discipline infractions within custody? This will be explored further within Chapter 4. Furthermore, while test-retest reliability of the measure was demonstrated during the development of the measure (Prince-Embury, 2006, 2007), this is yet to be explored among young people in custody. The current study has also focused only on the individual level of resilience, and has not considered the impact of social- or societal-level factors. While arguments have been made regarding the rationale for this

decision within Chapter 1, this remains a limitation of the current study. In particular, utilising a psychometric measure of resilience means that it is not been possible to explore the strategies and processes in relation to resilience among young people in custody. While the three-factor structure of the RSCA has been supported by the current study, the current study has not explored whether statistical equivalence in responding has been found between samples. Multi-group confirmatory factor analysis (MGCFA, Tran, 2009) allows the responses of different groups of participants to be examined in order to explore if the same processes are able to explain response patterns between groups. If the current study were to be extended to other groups of young people (for example, young females in custody, young people within mental health residential care), then MGCFA could be utilised to determine if invariance between groups exists, which would provide evidence for the hierarchical structure of resilience proposed within the RSCA. Despite these limitations, the current study provides some support for the structure and use of the RSCA among young people in custody in the UK and in the current thesis.

The following chapter will explore resilience among young males in custody utilising the empirically validated three-factor structure of the RSCA. While this will additionally explore the concurrent validation of the measure, the main focus will be to consider the impact of resilience upon young people's adjustment to the custodial environment, their emotional well-being, mental health and associated vulnerabilities (such as being at risk of suicide and / or self-injurious behaviour) and behaviour within custody.

CHAPTER 4 Resilience, Adjustment to Custody and Emotional Well-Being

4.1 Introduction

The preceding chapter provided support for the factor structure of the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) among incarcerated young males via the use of confirmatory factor analysis. Although both a two- and a three-factor model were found to be acceptable fits to the data, there was greater statistical support for retaining the three-factor structure along with practical benefit for assessment and intervention planning with this population. Support for the concurrent validation of the RSCA was also found.

The current chapter will explore resilience among young males in custody utilising the empirically validated three-factor structure of the RSCA reported within Chapter 3. The purpose of the current chapter will be to explore the impact of resilience upon young people's adjustment to the custodial environment, their emotional well-being, mental health and associated vulnerabilities (such as being at risk of suicide and / or self-injurious behaviour) and behaviour (positive and negative) within custody.

4.1.1 The impact of imprisonment. Being in custody brings with it unique challenges and, for young people, these challenges, or 'pains of imprisonment' (Bartollas, 1982), appear particularly difficult (Brown & Ireland, 2006; Cesaroni & Peterson-Badali, 2010). Research suggests that these challenges are a result of a number of factors relating to the prison environment, such as loss of liberty, being away from family and friends, isolation and bullying, and difficulties due to pre-existing vulnerabilities such as contact with child welfare authorities (Biggam & Power, 1997; Bartollas, 1982; Cesaroni & Peterson-Badali, 2005; Brown & Ireland, 2006; Ireland, 2001). In addition, for a number of young people in custody it may be their first experience of such an environment (Biggam & Power, 1997) and Ireland (2001) has highlighted the particular issues with heightened homesickness among young people in custody, which she found to be associated with anxiety and depression. Young people are likely to need to draw upon both internal and external resources to assist them to cope and adjust with the demands of such an environment. However, some of the contributing factors that have led to their offending (and incarceration) are likely to have also equipped them with few internal and external resources to draw upon. Ireland (2001) found that young people in custody had a greater tendency to use avoidant

coping styles. Ireland and colleagues (2005) have highlighted the particular difficulties experienced by younger prisoners, where their examination of the differences between young (18 to 21 years of age) and juvenile (15 to 17 years of age) found evidence to suggest more limited coping strategies among younger participants. Given the potential protective power of resilience, young people with resilient characteristics may be better able to cope with the demands of the custodial environment. Despite the limited research conducted to date, there is evidence to suggest that resilience may be associated with less aggression, better self-control and compliance with rules (Born et al., 1997; Mowder et al., 2010). Furthermore, being able to identify those young people with lower levels of resilience may enable additional support to be offered to them.

Early work exploring the impact of imprisonment highlighted the difficulties experienced within the initial stages of incarceration (e.g., Wormith, 1984; MacKenzie & Goodstein, 1985), which appears to have become an accepted consequence of prison. Zamble and Porporino (1988, 1990) found evidence to suggest that feelings of anxiety, depression and emotion disturbance were elevated in their sample of sentenced adult male prisoners in Canada. This work followed participants throughout their sentence, finding evidence for reduced emotional distress with time but also reduced motivation and willingness to engage in rehabilitative change. However, a disproportionate number of participants within this study were serving sentences over 10 years and their response to their incarceration may have been different to those serving shorter sentences. Furthermore, the sample size within the study was not large (N = 133), particularly by the last interview, where a quarter of participants had been lost to attrition. Despite this, Liebling (1992) found that reception and the early stages of a sentence were periods of difficulty and uncertainty for all in research conducted with the UK. In one of the few studies to explore coping and distress in adolescent offenders, Brown and Ireland (2006) found support for levels of depression and anxiety reducing over a six-week period. Here, they explored coping and distress in 133 young males in custody within two institutions where reductions in anxiety were predicted by decreases in emotion-based coping and increases in detachment coping. Reductions in depression were also associated with a decrease in emotion-based coping and an increase in detachment. However, the cross-sectional nature of the methodology employed between the two time points within this study does mean that causality is difficult to establish. That is, it is unclear whether depression effected or was impacted by coping styles employed.

However, there has been some challenge to this widely accepted consequence of incarceration. For example, Gullone, Jones and Cummins (2000) explored coping styles and experience of prison as predictors of psychological well-being among 81 male prisoners and found that emotional well-being was not predicted by time spent in prison. However, given that participants in the study were all sentenced (with an average sentence length of over 1.5 years), some of the difficulties with immediate incarceration would not have been captured within this study. Schwalbe and colleagues (2013) more recently explored the impact of length of stay on self-reported mental health problems among incarcerated young people in Jordan and found evidence for the stability of such problems over time. Schwalbe and colleagues (2013) suggest that institutions need to consider both the assessment and treatment of young people in custody given the high prevalence of mental health problems.

Cesaroni and Peterson-Badali (2005) explored whether pre-existing risk factors for psychopathology in young people and custody specific risk factors were related to how well young people would adjust to the custodial environment in Canada. Participants were 113 male youths aged 13 to 19 years of age at the time. They were interviewed using an interview that was developed for the purpose of the study to explore pre-existing risk factors. They also completed the Achenbach's Youth Self-report (Achenbach, 1991) to explore social competence and behavioural issues. They found that both types of risk factors were related to internalising behaviours, although these were only measured via self-report. However, they found that those factors regarding the custodial environment (e.g., having conflicts with others, worry over victimisation) contributed to adjustment to the environment significantly above the pre-existing vulnerabilities that young people entered custody with. Although the design of the study meant it is not possible to make any conclusions regarding causality, the results do highlight the particular importance of the unique challenges of the custodial environment. The results of their study also suggested that there was a group of young people who found adjusting to prison life particularly challenging and their identification at an early stage may ensure appropriate support to be directed towards them.

Cesaroni and Peterson-Badali (2010) extended this research to explore whether these vulnerabilities impacted differently upon initial and then later adjustment to custody. They found that levels of internalising difficulties remained relatively

consistent between their two time points, suggesting some stability in adjustment to custody over time. However, they failed to report effect sizes meaning that the magnitude of this effect is unclear. It is also important to note that although the majority of participants were seen for the first time within three-weeks of reception, participants at follow-up were seen on average after 25 days (with a range of 10 to 90 days). The apparent near overlap between the two time periods may have resulted in an overestimation of the stability in internalising difficulties reported by the authors. Despite this, there were some differences that emerged between the two time periods, suggesting that different variables may be predictive of adjustment at different times during incarceration. In particular, while stress emerged as a predictor of adjustment at the first time period, it was not a strong predictor at the second time period. Furthermore, as participants were in custody for longer, their perceived level of support and how fearful they felt became more important predictors of adjustment. High levels of pre-existing vulnerabilities were related to adjustment difficulties at both time periods, highlighting the particular difficulties that these children and young people face. The study also highlighted the importance of social support between peers and argues that "...positive social interactions, a sense of stability, and a secure environment" (Cesaroni &Peterson-Badali, 2010, p. 121) can help young offenders cope with the demands of incarceration.

Biggam and Power (1997) focused upon the role of social support in relation to psychological distress among incarcerated young people. Although psychological distress was measured only via self-report measures, it included a good range of variables (anxiety, depression and hopelessness). The importance of relationships with staff members was highlighted, with such relationships acting as predictors for psychological distress. This study highlighted the relationship between internalising difficulties and relationships with prison staff, and the perceived quality of these relationships. Given that this study was conducted within one young offender institution however, the environment of the institution and, in particular, the relationships between staff and young people, may mean that the results are unique to the institution investigated.

Gover, MacKenzie and Armstrong (2000) explored the importance of personal and environmental factors upon adjustment to custody in a sample of nearly 4000 juveniles. They found age, history of exposure to family violence, perceived levels of

activity and justice within the institution and the type of facility affected participants' adjustment to custody, as measured by levels of state anxiety. Despite the clear strengths of the Gover and colleagues work (i.e., specifically large sample size and participants being drawn from a range of institutions), the only measure of adjustment used was six items drawn from the state-trait anxiety inventory (Spielberger, Gorsuch & Lushebe, 1970). It would be helpful for such studies to explore the emotional reactions of young people within custody across a range of variables to help determine the possible negative responses to incarceration. This will help enable practitioners to better respond and intervene in such circumstances.

Suicidal and self-injurious behaviour is a stark indicator of difficulties adjusting to the custodial environment. Casiano and colleagues (2013) conducted a review of the literature regarding suicide and deliberate self-injurious behaviour in young people (11 to 22 years of age) in custody. They found literature to suggest that rates of suicide are three to eighteen times higher than in age-matched controls from the general population (Gallagher & Dobrin, 2006; Fazel, Benning & Danesh, 2005), a finding recently replicated among German adolescents within custody (Radeloff et al., 2015). Casiano and colleagues (2013) also found that current feelings of self-injurious behaviours ranged from 9.6% to 52% (Wasserman, McReyonlds, Lucas, Fisher & Santos, 2002; Esposito & Clum, 2002). For young people incarcerated in the UK, rates of suicide and self-injurious behaviour are high. For example, a recent large scale study examining self-harm in prisons in England and Wales found that while young people (under 20 years of age) typically account for approximately 13% of the prison population, 23% of males who self-harmed were under 20 years of age (Hawton, Linsell, Adeniji, Sariaslan & Fazel, 2014). Engagement in such behaviour is suggestive of young people experiencing some of the greatest difficulties adjusting to the custodial environment. Levels of anxiety, depression and hopelessness have consistently been identified as being linked to suicidal ideation and behaviours (e.g., Abram, Washburn, Teplin, King & Dulan, 2008; Lohner & Konrad, 2006). More recently, there have been calls to identify factors that may protect young people in custody from such behaviours (Moore, Gaskin & Indig, 2015), and the potential protective power of resilience is worthy of further exploration. While the previous chapter sought to confirm the factor structure of the RSCA, the results of the concurrent validation also suggested that resilience was negatively associated with indicators of mental health vulnerability, including levels of

anxiety, depression, anger and disruptive behaviour. Taken together, this would suggest that resilience would be negatively associated with suicide ideation and behaviours given the buffering effects of resilience upon negative emotions and distress. This will be further explored within the current chapter.

4.1.2 Adjustment to custody and resilience. Some of the contributing factors that have led young people to offending (and incarceration) are also likely to have equipped them with few internal and external resources to draw upon to deal with challenges they may face. While we better understand the range of adversity that many young people in custody have faced, young people with resilient characteristics may be better able to cope with the demands of the custodial environment due to the possible buffering effects of resilience. Prince-Embury (2006, 2007) argues that the strengths assessed by the RSCA may protect children and adolescents from experiencing negative emotions and engaging in problematic behaviour. Despite the limited research conducted to date, there is evidence to suggest that resilience may be associated with less aggression, better self-control and compliance with rules (Born et al., 1997; Mowder et al., 2010). Furthermore, successful identification of those young people with lower levels of resilience may mean that additional support and intervention efforts can be targeted more appropriately.

Gover and colleagues (2000) suggest that adjustment difficulties, such as high levels of anxiety, are likely to be counterproductive for change. Although the purpose of the imprisonment of young people is beyond the scope of the current research, if we assume that one of the purposes is to provide young people with the opportunity to change, it is essential therefore to have effective mechanisms by which we can reduce such feelings. If institutions can successfully identify those who experience the most difficulties, they may be better able to target interventions and support appropriately.

4.1.3 The current study. The current study will explore resilience among incarcerated young males utilising the empirically validated three-factor structure of the RSCA. The purpose of this chapter will be to explore the impact of resilience upon young people's adjustment to the custodial environment, their emotional well-being, mental health and associated vulnerabilities (including being at risk of suicide and / or self-injurious behaviour). Considering the research evidence reviewed and the definition of resilience provided by Masten and Powell (2003) outlined within Chapter 1, it was

hypothesised that resilience would reduce the potential negative impact of being in custody and distress experienced and that resilience would be predictive of positive adjustment to custody and emotional well-being. Furthermore, building on the work of Fredrickson (2001), it was hypothesised that resilience would be associated with positive self-perceptions, positive well-being and better adjustment to the custodial environment. Given the research evidence to suggest that resilience may be associated with fewer incidents of externalising behaviours (e.g., Born et al., 1997; Mowder et al., 2010), it was also hypothesised that resilience would be associated with fewer incidents of problematic externalising behaviours and more positive indicators of behaviour within custody. Given evidence to suggest that resilience may act as a buffer against negative emotions and distress, it was hypothesised that resilience would be negatively associated with suicide ideation and behaviours. Figure 4.1 provides a summary of the hypotheses outlined above which will be explored and tested within the current chapter.

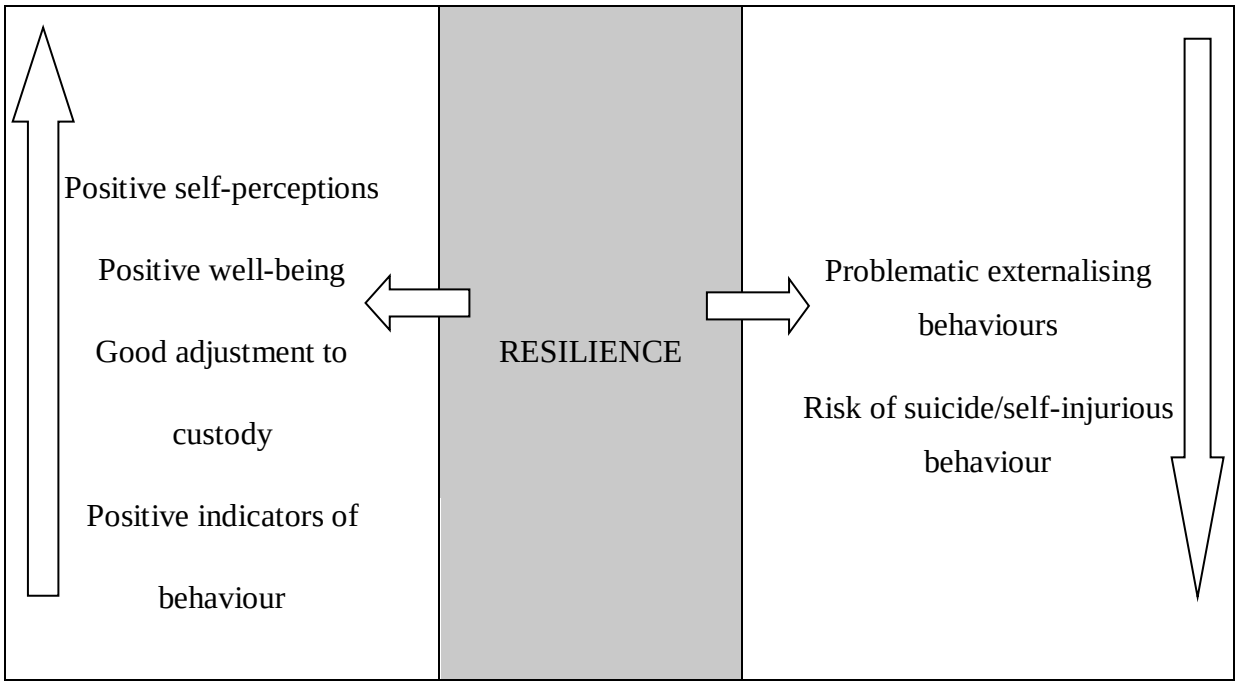


Figure 4.1. Hypothesised model of the impact of individual level resilience upon adjustment to custody and internalising and externalising behaviours.

Participants' experience of custody will also be explored within the current chapter, given evidence to suggest that adjustment to custody is related to length of time served (e.g., Goodstein & Wright, 1991), with the initial periods of custody being associated with heightened vulnerability (e.g., Zamble & Porporino, 1988; Brown & Ireland, 2006). Building on the 'challenge' models of resiliency and the seminal work of

Rutter (e.g., 1987) who suggested that exposure to manageable levels of stress can help facilitate the development of coping strategies, it is hypothesised that with greater time and/or experience of custody, levels of resilience and positive indicators of adjustment to custody and emotional well-being will increase.

It was decided that for the purpose of the current study, participants would be drawn from one institution. Although the potential value of exploring the impact of the different institutional environments was considered, as the focus of the current thesis was upon the impact of personal resilient characteristics, using a single institution was considered a viable option to help minimise the impact of different environments upon the findings. While the Youth Justice Board (YJB) commission and prescribe the regime of the four prisons within England and Wales that hold young people, different management structures and priorities exist across these sites meaning that the environment of each is unique. However, it is important to note that a subsample of participants from the current study had been identified as vulnerable by prison staff and as a result were placed on a separate unit. This unit functions separately from the rest of the institution and has a number of unique characteristics (such as higher staff to prisoner ratio, different structure and regime, access to enhanced activities). Further details regarding this unit, and how such vulnerabilities are assessed are outlined within Chapter 6, section 6.2.1.

4.2 Method

4.2.1 Participants. Participants were the same young people described in Chapter 3, section 3.2.1.

Information regarding participants' contact and experiences with Children's Services was collated from official documentation. As a result, some information was unavailable and the percentages provided are reflective of this. Thirty one (13%) participants had been made subject to a care order (n = 239), 47 (20%) had been remanded into local authority accommodation (n = 238) and 58 (25%) had been placed on the child protection register (n = 241). Child protection register statistics for 2011-2015 (NSPCC, 2016) suggest that in 2015, a total of 57,345 young people were placed on the child protection register in the UK. The Office for National Statistics population estimates for 2016 estimates that approximately 15,354,700 people aged between 0 and

19 years of age reside in the UK. This equates to a rate of approximately 0.004% children in the UK being placed on the child protection register.

4.2.2 Measures. Participants were asked to complete the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) and the Beck Youth Inventory, 2nd edition (BYI-II -II; Beck et al., 2005), full details of which are provided in Chapter 3, section 3.2.2. In addition, participants were also asked to complete a measure of custodial adjustment,

4.2.2.1 The Custodial Adjustment Questionnaire (CAQ; Thornton, 1987, please see Appendix D for a full list of items). The CAQ is a 43-item self-report measure that has four scales: Staff (attitudes towards staff, 10 items), Inmate (attitude towards other incarcerated young people, 11 items), Deviance (deviant behaviour within prison, 10 items) and Distress (emotional distress, 12 items). Scores of the Staff and Inmate scales can be combined to provide an overall score of Good Adjustment, with higher scores indicating higher levels of good adjustment. Higher scores on the Deviance and Distress scales are combined to provide an overall score of Poor Adjustment. Thornton (1987) reports satisfactory internal consistency of the factors (Staff .78, Inmate .63, Deviance .70 and Distress .82). Within the current sample (N = 366), the internal consistency of the four factors was also found to be satisfactory (Staff .81, Inmate .66, Distress .85, Deviance .83, Poor Adjustment.76 and Good Adjustment .79). There are no cut off scores available for this measure.

In addition to the measures described above, participants were also asked to provide information regarding the following:

- Their experience of custody: How long they had been in the establishment; How long they had been in prison for their current sentence (if they had transferred from another establishment, e.g., a prison, a secure training centre (STC) etc.); and how many times they had been to prison / secure units.
- File information: Criminal history; care history (including, looked after child status); behaviour within custody (e.g., number of discipline infractions); and whether they had been identified as being at risk of suicide or self-injurious behaviour (via placement on Assessment, Care in Custody and Teamwork [ACCT] processes; see Chapter 3, section 3.2.3.2 for further information).

4.2.3 Procedure.

4.2.3.1 Data collection. The data was collected as part of the study described in Chapter 3, section 3.2.3.

4.2.3.2 Data analysis. In order to explore the hypotheses outlined, a priori power analyses were conducted using G*Power (Faul, Erdfelder, Lang & Buchner, 2007) to determine the number of participants required to have 80% power for detecting a medium effect size when employing the traditional .05 criterion of statistical significance. In all analyses conducted, sufficient sample sizes were present to obtain 80% power.

An overview of the methods used for dealing with missing data from the RSCA was provided within the preceding chapter (see section 3.3.1). The proportion of missing data within the BYI-II and CAQ was examined for each item and this ranged from 0.3% (CAQ Item 1, 'Some of the staff have been helpful to me') to 8.7% (CAQ Item 42, 'I chat to staff when I get the chance'). The majority of missing data from each item (95.77%) fell below 5%. Little's MCAR (missing completely at random) test was non-significant, $p = .920$, suggesting that the pattern of missing data was random. Given that there was not a large amount of missing data and it appeared to be missing at random, procedures for managing these issues are likely to reveal broadly similar results (Tabachnick & Fidell, 2014). As a result, mean substitution was used to estimate missing values.

Initially, extreme outliers were identified and removed, which resulted in 35 additional cases being removed and a total sample size of 332. A slightly greater proportion of young people identified as vulnerable by prison staff (see Chapter 6, section 6.2.1 for further details) were excluded from analyses following the studies described within Chapter 3 and the current chapter. Prior to any deletions taking place, 26% of participants were identified as vulnerable and 74% of participants were identified as non-vulnerable ($N = 426$). When the excluded participants were examined, 33% were identified as vulnerable and 67% were identified as non-vulnerable ($N = 94$). While the mean sentence length of the excluded participants was also slightly lower ($M = 22.60$ months, $SD = 20.47$) than that of the entire sample ($M = 23.39$ months, $SD = 21.15$), these differences were not felt to have been significant and suggested that the excluded participants were more or less similar to those of the retained participants.

The normality of the data was explored utilising the Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk test. These all suggested that scores on the BYI-II and CAQ were significantly different from normal, apart from for the BYI-II Self-Concept, $D(332) = 0.046$, $p = .093$. However, these statistics can remain significant in large sample sizes as a result of only slight differences from the normal distribution and normality may be less important in large sample sizes (Tabachnick & Fidell, 2014; Field, 2013). Therefore, histograms, Q-Q plots and the value of skewness and kurtosis was also explored. The visual examination of the histograms and Q-Q plots also suggested that there was issues with the distribution of scores. In particular, the values of skewness exceeded 1 for BYI-II Anxiety (1.03), BYI-II Depression (1.09) and CAQ Distress (1.05), suggesting issues with positive skewness in the data. However, Tabachnick and Fidell (2014) suggest that statistically significant skewness in large samples is unlikely to make a significant difference in analyses conducted. They also report the work of Waternaux (1976), where the impact of positive kurtosis disappears in samples with more than a 100 cases and in samples with more than 200 cases where negative kurtosis is present. Furthermore, non-normality and skewness is a problem frequently encountered when working with data from clinical populations (Wright, London & Field, 2011).

Despite this, Kline (2011) suggests that absolute kurtosis figures above 10 would suggest a problem and skewness figures above 3 would be extremely skewed. While none of the variables exceeded 10 for kurtosis, all variables exceeded 3 for skewness, apart from BYI-II Self-Concept (1.33) and CAQ Good Adjustment (-2.04). As a result, the value of transforming the data was explored. Log, square root and reciprocal transformations were all performed. The skewness of BYI-II Anger, BYI-II Distress and CAQ Staff were all improved by the transformations but problems remained with the remaining variables suggesting the use of transformed data may not be a solution. Furthermore, the use of transformed data would mean that it would be more difficult to interpret the results from the BYI-II, given that the scores from the measure are meaningfully interpretable (Tabachnick & Fidell, 2007). Field (2013) suggests that robust procedures may be preferable to the use of transformed data. Robust bootstrapping methods make fewer assumptions of the data (Wright et al., 2011) and as a result, such methods will be used due to some of the issues regarding the data described above. Bootstrapping was originally introduced by Efron (e.g., 1979) and

involves a computer programme taking thousands of bootstrap samples from observed data and using this information to estimate the population distribution (Wright et al., 2011). Efron and colleagues (e.g., Efron & Tibshirani, 1993; DiCiccio, Efron, 1996) have developed this methodology and recommend the use of bias-corrected and accelerated (BCa) bootstrapping, as this method helps to adjust for bias and skewness. Wright and colleagues (2011) suggest that the limits of the confidence intervals come together more quickly with the accelerated method and that the BCa method has improved accuracy. Where the use of bootstrapping was not possible, analyses conducted will be reflective of the non-normality of the data.

4.3 Results

4.3.1 Descriptive statistics. Descriptive statistics for the RSCA are provided within Chapter 3, section 3.3.5. Table 4.1 provides descriptive statistics for the raw scores for the BYI-II and CAQ. The median and interquartile range (IQR) has been chosen for inclusion given the skewness of the data (see section 4.2.3.2).

Table 4.1.

Descriptive statistics for the BYI-II and CAQ raw scores (N = 332)

Measure	Range	Mean (*SD*)	Median (*IQR*)
BYI-II			
Self-concept	0 – 60	37.34 (10.53)	37.00 (14.75)
Anxiety	0 – 60	9.53 (8.66)	7.50 (11.00)
Depression	0 – 60	9.76 (9.09)	8.00 (12.00)
Anger	0 – 57	13.40 (9.84)	13.00 (13.77)
Disruptive behaviour	0 – 60	15.37 (9.48)	14.00 (14.00)
CAQ			
Staff	0 – 10	6.31 (2.60)	6.50 (5.00)
Inmate	0 - 6	3.19 (1.51)	2.00 (2.00)
Distress	0 – 16	3.74 (3.06)	4.00 (4.00)
Deviance	0 – 10	3.07 (2.71)	3.00 (4.00)
Poor adjustment [a]	0 – 19	6.26 (3.86)	6.00 (6.00)
Good adjustment [b]	0 - 16	10.05 (3.10)	10.00 (5.00)

[a] CAQ Poor Adjustment = CAQ Distress + CAQ Deviance, [b] CAQ Good Adjustment = CAQ Staff + CAQ Inmate.

Table 4.2 provides the descriptive statistics for the standardised scores of the BYI-II (standardised scores are not available for the CAQ).

Table 4.2.

Descriptive statistics for the BYI-II standardised scores (N = 332)

BYI-II	Range	Mean (*SD*)	Median (*IQR*)
Self-concept	8 – 70	46.63 (10.92)	46.00 (16.00)
Anxiety	38 – 78	47.90 (9.21)	45.00 (13.00)
Depression	41 – 78	50.66 (8.81)	49.00 (12.25)
Anger	38 – 74	49.92 (9.02)	50.00 (13.00)
Disruptive behaviour	39 – 100	60.03 (12.94)	58.00 (19.00)

Participants' median scores were explored in relation to the interpretation guidance provided within the BYI-II manual. Scores for Self-Concept, Anxiety, Depression and Anger all fell in the average range. Scores of Disruptive Behaviour fell in the moderately elevated range.

4.3.2 Correlations. Chapter 3, section 3.3.5 reported the RSCA factor and subscale correlation matrix using Pearson correlation. Table 4.3 shows the correlation matrix using Spearman's correlation coefficient of the RSCA with the BYI-II and CAQ, with bias corrected and accelerated bootstrap confidence intervals (BCa CIs) reported in square brackets.

Table 4.3.

Correlation matrix using Spearman's correlation coefficient of the RSCA with the BYI-II and CAQ (N = 332) with BCa bootstrap 95% CIs reported in brackets

	BYI-II Self-Concept	BYI-II Anxiety	BYI-II Depression	BYI-II Anger	BYI-II Disruptive behaviour	CAQ Staff	CAQ Inmate	CAQ Distress	CAQ Deviance	CAQ Poor Adjustment	CAQ Good Adjustment
MAS	.569**	-.224**	-.388**	-.366**	-.288**	.265**	.065	-.271**	-.163**	-.323**	.255**
	[.516, .665]	[-.329, -.100]	[-.479, -.279]	[-.457, -.271]	[-.388, -.194]	[.163, .364]	[-.001, .055]	[-.377, -.166]	[-.272, -.048]	[-.422, -.213]	[.155, .351]
REL	.533**	-.262**	-.348**	-.347**	-.194**	.234**	.302**	-.311**	-.028	-.280**	.334**
	[.451, .607]	[-.371, -.150]	[-.442, -.243]	[-.440, -.245]	[-.309, -.076]	[.133, .332]	[.199, .391]	[-.409, -.209]	[-.140, .078]	[-.398, -.167]	[.242, .422]
REA	-.119*	.321**	.367**	.443**	.274**	-.067	-.046	.308**	.143**	.311**	-.089
	[-2.32, .002]	[.220, .412]	[.267, .461]	[.343, .538]	[.171, .379]	[-.170, .037]	[-.155, .066]	[.211, .404]	[.028, .250]	[.201, .416]	[-.188, .016]
RI	.611**	-.259**	-.397**	-.384**	-.254**	.274**	.214**	-.318**	-.094	-.319**	.328**
	[.540, .680]	[-.356, -.148]	[-.488, -.292]	[-.466, -.293]	[-.346, -.163]	[.175, .367]	[.107, .325]	[-.412, -.213]	[-.201, .013]	[-.417, -.214]	[.230, .423]
VI	-.419**	.383**	.494**	.531**	.337**	-.191**	-.145**	.393**	.155**	.398**	-.232**
	[-.509, -.318]	[.292, .464]	[.405, .566]	[.453, .566]	[.240, .428]	[-.290, -.090]	[-.258, -.038]	[.297, .485]	[.040, .270]	[.267, .491]	[-.328, -.129]
BYI-II Self-Concept		-.226**	-.384**	-.274**	-.250**	.088	.153**	-.224**	-.059	-.233**	.142**
		[-.333, -.117]	[-.479, -.287]	[-.374, -.177]	[-.353, -.141]	[-.020, .209]	[.047, .254]	[-.321, -.115]	[-.164, .041]	[-.332, -.136]	[.030, .262]
BYI-II Anxiety			.771**	.628**	.233**	-.021	-.400**	.663**	-.070	.459**	-.197**
			[7.13, 8.16]	[551. .694]	[.124, .334]	[-.132, .091]	[-.491, -.308]	[.528, .680]	[-.176, .033]	[.365, .548]	[-.300, -.092]
BYI-II Depression				.665**	.335**	-.099	-.371**	.609**	-.030	.441**	-.242**
				[5.93, .727]	[.223, .436]	[-.203, .016]	[-.465, -.266]	[.528, .680]	[-.146, .071]	[.344, .525]	[-.337, -.131]
BYI-II Anger					.552**	-.202**	-.242**	.454**	.235**	.495**	-.269**
					[.459, .634]	[-.310, -.077]	[-.336, -.143]	[.355, .546]	[.126, .331]	[.401, .578]	[-.367, -.161]
BYI-II Disruptive behaviour						-.218**	.032	.113*	.547**	.418**	-.152**
						[-.321, -.111]	[-.065, .137]	[.001, .213]	[.457, .623]	[.325, .507]	[-.251, -.040]
CAQ Staff							.143**	-.096	-.270**	-.266**	.888**
							[.037, .250]	[-.197, .002]	[-.364, -.165]	[-.365, -.166]	[.862, .909]
CAQ Inmate								-.386**	.267**	-.155**	.552**
								[-.481, -.284]	[.164, .365]	[-.272, -.033]	[.466, .630]
CAQ Distress									-.073	.719**	-.256**
									[-.179, .028]	[.663, .768]	[-.342, -.166]
CAQ Deviance										.572**	-.106
										[.480, .653]	[-.210, .006]
CAQ Poor Adjustment											-.294**
											[-.394, -.188]

The relationship between RSCA MAS and the BYI-II and CAQ were all in the direction predicated in the model outlined in Figure 4.1. MAS was significantly positively correlated with BYI-II Self-Concept, r_s = .57 [.516, .665], p = .000, CAQ Staff, r_s = .27 [.163, .364], p = .000 and CAQ Good Adjustment, r_s = .26 [.155, .351], p = .000. MAS was also significantly negatively correlated with BYI-II Anxiety, r_s = -.24 [-.329, -.100], p = .000, BYI-II Depression, r_s = -.39 [-.479, -.279], p = .000, BYI-II Anger, r_s = .37 [-.457, -.271], p = .000, BYI-II Disruptive Behaviour r_s = .28 [-.388, -.194], p = .000, CAQ Distress, r_s = -.27 [-.377, -.166], p = .000 and CAQ Poor Adjustment, r_s = -.32 [-.422, -.213], p = .000. This suggests that higher scores on the RSCA MAS are associated with better adjustment to custody and more positive emotional well-being among young incarcerated males.

The relationship between RSCA REL and the BYI-II and CAQ were all in the direction predicated in the model outlined in Figure 4.1. REL was significantly positively correlated with BYI-II Self-Concept, r_s = .53 [.451, .607], p = .000, CAQ Staff, r_s = .23 [.133, .332], p = .000, CAQ Inmate, r_s = .30 [.199, .391], p = .000 and CAQ Good Adjustment, r_s = .33 [.242, .422], p = .000. REL was also significantly negatively correlated BYI-II Anxiety, r_s = -.26 [-.371, -.150], p = .000, BYI-II Depression, r_s = -.35 [-.442, -.243], p = .000, BYI-II Anger, r_s = -.35 [-.440, -.245], p = .000, CAQ Distress, r_s = -.31 [-.409, -.209], p = .000 and CAQ Poor Adjustment, r_s = -.28 [-.398, -167], p = .000. This suggests that higher scores on the RSCA REL are associated with better adjustment to custody and more positive emotional well-being among young incarcerated males.

REA was significantly positively correlated with BYI-II Anxiety, r_s = .32 [.220, .412], p = .000, BYI-II Depression, r_s = .37 [.267, .461], p = .000, BYI-II Anger, r_s = .44 [.343, .538], p = .000, BYI-II Disruptive Behaviour, r_s = .27 [.171, .379], p = .000, CAQ Distress, r_s = .31 [.211, .404], p = .000, CAQ Deviance, r_s = .14 [.028, .250], p = .009 and CAQ Poor Adjustment, r_s = .31 [.201, .416], p = .000. While these relationships were in the predicted direction, no relationship emerged between RSCA REA and CAQ Staff, Inmate and Good Adjustment. Furthermore, while a significantly negative relationship appeared to emerge between REA and BYI-II Self-Concept, r_s = .12 [-2.32, .002], p = .030, the BCa confidence intervals pass through zero suggesting that this is non-significant. This suggests that higher scores on the RSCA REA are

associated with poorer adjustment to custody and emotional well-being among young incarcerated males.

The Resource Index (RI) shares many of the same relationships that the MAS and REL factors do, which is unsurprising given that the RI provides a means of summarising these factors. However, it suggests that the RI may be a useful means of summarising the strengths assessed within the RSCA. The Vulnerability Index (VI) was significantly positively correlated with BYI-II Anxiety, r_s = .42 [-.509, -.318], p = .000, BYI-II Depression, r_s = .49 [.405, .566], p = .000, BYI-II Anger, r_s = .53 [.453, .566], p = .000, BYI-II Disruptive Behaviour, r_s = .34 [.240, .428], p = .000, CAQ Distress, r_s = .39 [.297, .485], p = .000, CAQ Deviance, r_s = .16 [.040, .270], p = .001 and CAQ Poor Adjustment, r_s = .40 [.267, .491], p = .000. The VI was significantly negatively correlated with BYI-II Self-Concept, r_s = -.42 [-.509, -.318], p = .000, CAQ Staff, r_s = -.19 [-.290, -.090], p = .000, CAQ Inmate, r_s = -.15 [-.258, -.038], p = .003 and CAQ Good Adjustment, r_s = -.23 [-.328, -.129], p = .000. This suggests that higher scores on the RSCA VI are associated with poorer adjustment to custody and emotional well-being among young incarcerated males.

4.3.3 The predictive power of resilience. The results presented above suggest that resilience is associated with more positive indicators of adjustment to custody and emotional well-being in participants. While a number of substantial correlations emerged, there was no evidence of multicollinerarity (i.e., r > .9) between variables. In order to explore the hypothesis that resilience would predict adjustment to custody and emotional well-being, a number of analyses were completed and the results of which are summarised below. For each, multiple regression was used and MAS, REL and REA were chosen as predictor variables where the forced entry method was used given the lack of research conducted to date. The first two analyses conducted explored whether MAS, REL and REA predicted levels of CAQ Good and Poor adjustment. The next set of analyses explored whether MAS, REL and REA predicted BYI-II Self-Concept, Anxiety, Depression, Anger and Disruptive Behaviour. Given some of the issues within the data already described (see section 4.2.3.2), robust bootstrapping methods were used. The variance inflation factor (VIF) and tolerance statistics from analyses conducted were all within acceptable guidelines, (Bowerman & O'Connell, 1990; Menard, 1995), lending further support to the lack of multicollinerarity within the data.

The Durbin-Watson statistic, which tests for independent errors, was also found to be acceptable in all analyses.

Given the number of analyses conducted, tables outlining the unstandardized regression coefficients (with 95% bias corrected and accelerate confidence intervals based on 1000 bootstrap samples), standard errors (based on 1000 bootstrap samples), the standardised regression coefficients and significance level of each analysis conducted can be found in Appendix E (Tables E1 – E7).

The first two analyses conducted tested if resilience could significantly predict participants' levels of CAQ Poor and Good Adjustment. The results of the first analysis indicated that the predictors of MAS, REL and REA explained 19% of the variance in CAQ Poor Adjustment, R^2 = .19 F(3, 331) = 25.73, p = .000. It was found that MAS, β = -.223, p = .002, and REA β = .273, p = .001, significantly predicted CAQ Poor Adjustment. REL did not significantly predict CAQ Poor Adjustment, β = -.088, p = .293. This analysis suggested that Sense of Mastery (MAS) and Emotional Reactivity (REA) significantly predicted levels of CAQ Poor Adjustment among young males in custody. In the second analysis, the results indicated that the predictors of MAS, REL and REA explained 13% of the variance in CAQ Good Adjustment, R^2 = .13 F(3, 331) = 16.16, p = .000. It was found that REL, β = .31, p = .000 significantly predicted CAQ Good Adjustment. MAS, β = .06, p = .404, and REA β = -.02, p = .648, did not significantly predicted CAQ Good Adjustment. This analysis suggested that Sense of Relatedness (REL) significantly predicted levels of CAQ Good Adjustment among young males in custody.

The next set of analyses conducted tested if resilience could significantly predict participants' emotional well-being, as reflected by their level of BYI-II Self-Concept, Anxiety, Depression, Anger and Disruptive Behaviour. The results indicated that the predictors of MAS, REL and REA explained 40% of the variance in BYI-II Self-Concept, R^2 = .40 F(3, 331) = 74.66, p = .000. It was found that MAS, β = .42, p = .000, REL β = .28, p = .000 significantly predicted BYI-II Self-Concept. REA, β = .04, p = .412, did not significantly predicted BYI-II Self-Concept. This analysis suggested that Sense of Mastery (MAS) and Sense of Relatedness (REL) significantly predicted levels of BYI-II Self-Concept among young males in custody.

MAS, REL and REA explained 16% of the variance in BYI-II Anxiety, R^2 = .16 F(3, 331) = 21.42, p = .000. It was found that REL, β = -.29 p = .000 and REA, β = .28, p = .000 significantly predicted BYI-II Anxiety. MAS, β = .05, p = .513, did not significantly predict BYI-II Anxiety. This analysis suggested that Sense of Relatedness (REL) and Emotional Reactivity significantly predicted levels of BYI-II Anxiety among young males in custody.

MAS, REL and REA explained 26% of the variance in BYI-II Depression, R^2 = .26 F(3, 331) = 37.99, p = .000. It was found that MAS, β = -.18 p = .008, REL, β = -.21 p = .002 and REA, β = .30, p = .000, significantly predicted BYI-II Depression. This analysis suggested that Sense of Mastery (MAS), Sense of Relatedness (REL) and Emotional Reactivity (REA) significantly predicted levels of BYI-II Depression among young males in custody.

MAS, REL and REA explained 28% of the variance in BYI-II Anger, R^2 = .28 F(3, 331) = 43.36, p = .000. It was found that MAS, β = -.17 p = .011, REL, β = -.18, p = .005 and REA, β = .37, p = .000, significantly predicted BYI-II Anger. This analysis suggested that Sense of Mastery (MAS), Sense of Relatedness (REL) and Emotional Reactivity (REA) significantly predicted levels of BYI-II Anger among young males in custody.

MAS, REL and REA explained 12% of the variance in BYI-II Disruptive Behaviour, R^2 = .12 F(3, 331) = 15.26, p = .000. It was found that MAS, β = -.25 p = .001 and REA, β = .22 p = .000 significantly predicted BYI-II Disruptive Behaviour while REL, β = .03, p = .639 did not. This analysis suggested that Sense of Mastery (MAS) and Emotional Reactivity (REA) significantly predicted levels of BYI-II Disruptive Behaviour among young males in custody.

In summary, the results of these analyses suggest that resilience is able to partially predict levels of adjustment to custody and emotional well-being in young people in custody. In particular, Sense of Mastery (MAS) is able to predict CAQ Poor Adjustment and BYI-II Self-Concept, Depression, Anger and Disruptive Behaviour. Sense of Relatedness (REL) is able to predict CAQ Good Adjustment and BYI-II Self-Concept, Anxiety, Depression and Anger. Finally, Emotional Reactivity (REA) is able to predict CAQ Poor Adjustment and BYI-II Anxiety, Depression, Anger and Disruptive Behaviour.

4.3.4 Behaviour within custody.

4.3.4.1 Incentive and earned privilege's (IEP). Participants' status on the Incentive and Earned Privilege's (IEP)[4] system was used to provide an indication as to their compliance with the rules and expectation of custody. Participants were placed on either basic, standard or enhanced levels of this scheme and this information was available for the majority of participants (N = 240). However, given that only 11 participants were on the basic level of the IEP scheme when they took part in the research, this group of participants was excluded from the analyses, resulting in a sample size of 229. A one way ANOVA was used to determine if resilience differed between participants on standard or enhanced level on the IEP system.

Levene's test was non-significant for the three subscales of MAS, REL and REA, suggesting that the homogeneity of variance assumption can be assumed.

[4] The Incentives and Earned Privileges system, which was introduced in 1995, is a tool employed in prisons to help promote positive behaviour. Those within a prison can earn benefits in exchange for positive behaviour, such as engaging with the sentence planning process, being free from discipline infractions, attending allocated activities etc. The system operates under a three-tiered system (basic, standard and enhanced).

Table 4.4.

One-way ANOVA to explore differences across the RSCA between participants on the standard and enhanced level of the IEP system (N = 229)

	Standard *N* = 146	Enhanced *N* = 83				
	Mean (*SD*)	Mean (*SD*)	*t* (227)	*p*	BCa bootstrap 95% CIs	*r*
MAS	48.84 (11.46)	52.78 (9.04)	-2.69	.008	-6.46, -1.47	0.18
Optimism	17.08 (4.51)	17.55 (3.67)	-0.82	.411	-1.56, 0.51	0.05
Self-efficacy	24.08 (6.43)	26.72 (5.49)	-3.15	.002	-4.08, -1.21	0.20
Adaptability	7.69 (2.38)	8.51 (2.29)	-2.52	.012	-1.46, -0.20	0.16
REL	64.10 (14.31)	68.52 (12.11)	-2.37	.019	-7.77, -1.18	0.16
Trust	18.32 (4.47)	19.06 (4.22)	-1.23	.222	-1.88, 0.35	0.08
Support	17.25 (4.62)	18.88 (3.98)	-2.69	.008	-2.81, -0.54	0.18
Comfort	10.82 (3.06)	11.52 (2.72)	-1.74	.084	-1.42, -0.01	0.11
Tolerance	17.71 (4.63)	19.06 (3.78)	-2.26	.025	-2.46, -0.24	0.15
REA	34.80 (13.79)	32.47 (14.44)	1.21	.228	-1.76, 6.18	0.08
Sensitivity	9.84 (4.09)	9.52 (4.62)	0.55	.583	-0.92, 1.48	0.04
Recovery	5.05 (3.90)	5.06 (3.91)	-0.02	.982	-1.09, 0.98	0.00
Impairment	19.91 (8.24)	17.89 (8.71)	1.75	.082	-0.47, 4.48	0.12
RI	44.90 (8.11)	47.74 (6.52)	-2.73	.007	-4.92, -1.05	0.18
VI	13.15 (13.09)	8.78 (12.89)	2.45	.015	0.90, 8.46	0.16

Participants on the Enhanced level of the IEP scheme had significantly higher levels of MAS, $t(227) = -2.69$, $p = .008$, Self-Efficacy, $t(227) = -3.15$, $p = .002$, Adaptability, $t(227) = -2.52$, $p = .012$, REL, $t(227) = -2.37$, $p = .019$, Perceived Access to Support, $t(227) = -2.69$, $p = .008$, Tolerance of Differences, $t(227) = -2.26$, $p = .025$ and Resource Index, $t(227) = -2.73$, $p = .007$. They also had significantly lower levels on the Vulnerability Index, $t(227) = 2.45$, $p = .015$.

4.3.4.2 Placement on basic. Participants were asked to indicate the number of times that they had been placed on the basic level of the IEP scheme, and 306 participants responded. However, there were issues with the distribution of scores, in particular in relation to the skewness and kurtosis of the data and therefore Spearman's correlation coefficient was used to explore the relationship between resilience and placement on basic. There was no significant relationship between the number of times participants reported having being placed on the basic level of the IEP scheme and MAS, $r_s = .02$ [-.095, .128], $p = .714$, REL, $r_s = .00$ [-.113, .112], $p = .996$, and REA, $r_s = .04$ [-.152, .081], $p = .531$.

4.3.4.3 Discipline infractions. Serious breaches of the prison rules result in prisoners being placed on adjudication. Offences for which people are accused are investigated and punishments are set out by an adjudicating Governor. Where the alleged offence is so serious that punishment of additional days would be appropriate if the prisoner is found guilty, the case will be referred to an independent adjudicator (District Judge). If a criminal offence has been committed, the investigation is referred to the local police. Information was available for 240 participants regarding the number of proven discipline infractions they had. However, there were issues with distribution of scores, in particular in relation to the skewness of the data and therefore Spearman's correlation coefficient was used to explore the relationship between resilience and discipline infractions. There was no significant relationship between the number of proven discipline infractions and MAS, $r_s = -.00$ [-.127, .127], $p = .961$, REL, $r_s = .02$ [-.112, .147], $p = .784$, and REA, $r_s = .02$ [-.113, .156], $p = .785$.

4.3.4.4 Care and separation unit (CSU). Participants were asked to indicate the number of times that they had been placed within the Care and Separation Unit (CSU), and 302 participants responded. Participants would be placed within the CSU for a number of reasons, such as punishment following a proven discipline infraction and to

maintain the good order or discipline within the establishment. Again, there were issues with distribution of scores, in particular in relation to the skewness and kurtosis of the data and therefore Spearman's correlation coefficient was used to explore the relationship between resilience and the number of times placed within the CSU. There was no significant relationship between the number of times participants reported to have been within the CSU and MAS, r_s = -.09 [-.199, .023], p = .106, REL, r_s = -.03 [-.122, .067], p = .622, and REA, r_s = .05 [-.071, .165], p = .430.

4.3.5 Experience of custody.

4.3.5.1 Length of time within institution. Participants were asked to indicate the length of time that they had been in the institution and the majority responded (N = 323), with most indicating that they had been incarcerated for between two and four months (n= 98). In order to explore the hypothesis that with greater time within custody levels of individual resilience and positive indicators of adjustment and emotional well-being will increase, participants were divided into one of three groups based on the length of time they reported to have been in custody; less than one month (n= 89), one to six months (n = 148) and six months and over (n = 86).

Given that within grouped data, assumptions of the data are applied to the groups and not the overall sample (Tabachnick & Fidell, 2014), the normality of the data within the three groups was explored utilising the Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk test. These tests raised some potential issues with a number of the subscales from the RSCA, although no issues were identified with the scores on MAS, REL and REA. Histograms, Q-Q plots and the value of skewness and kurtosis was also explored for each group. For the RSCA, the visual examination of the histograms and Q-Q plots suggested no major departure from normality and none of the absolute kurtosis or skewness figures exceeded the guideline of Kline (2011, see section 4.2.3.2 for further details). Given the differences in the sample sizes between the groups examined, a number of post-hoc tests were used to explore group differences in relation to the RSCA. In particular, Hochberg's GT2 and Games-Howell were used. An independent analysis of variance (ANOVA) was used to examine whether levels of resilience differed between groups based on the length of time they had been within custody.

Table 4.5.

RSCA means (SD) for the three length of time in custody groups (N = 323)

	Less than 1 month (n = 89)	1-6 months (n = 148)	6 months and over (n = 86)	p value
MAS	49.11 (11.01)	50.64 (11.76)	52.66 (9.31)	.100
Optimism	16.73 (4.22)	17.73 (4.48)	17.53 (3.72)	.200
Self-efficacy	24.82 (6.42)	25.09 (6.50)	26.45 (5.44)	.083
Adaptability	7.56 (2.26)	7.82 (2.64)	8.41 (2.13)	.058
REL	60.31 (14.66)	66.24 (14.91)	66.81 (11.75)	.002
Trust	17.00 (5.21)	19.08 (4.66)	18.34 (4.73)	.004
Support	16.83 (4.84)	17.84 (4.51)	18.15 (3.90)	.115
Comfort	9.98 (2.90)	11.23 (3.19)	11.29 (2.64)	.003
Tolerance	16.51 (4.58)	18.09 (4.80)	18.91 (3.73)	.002
REA	32.54 (15.10)	34.86 (13.97)	30.05 (13.72)	.043
Sensitivity	8.96 (4.01)	10.03 (4.51)	8.92 (4.26)	.079
Recovery	4.97 (4.05)	5.07 (3.93)	4.57 (3.85)	.627
Impairment	18.62 (9.27)	19.77 (8.35)	16.56 (8.62)	.022

This analysis revealed that there was a significant effect of length of time within custody on REL, $F(2, 320) = 6.18$, $p = .002$, $r = .19$, Sense of Trust, $F(2, 320) = 5.57$, $p = .004$, $r = .18$, Comfort with Others, $F(2, 320) = 5.94$, $p = .003$, $r = .19$, Tolerance of Differences, $F(2, 320) = 6.61$, $p = .002$, $r = .20$, REA, $F(2, 320) = 3.17$, $p = .043$, $r = .14$ and Impairment $F(2, 320) = 3.84$, $p = .022$, $r = .15$.

Participants who had been in prison for less than one month were characterised by significantly lower levels of REL, $p = .009$, $r = .20$, Sense of Trust, $p = .006$, $r = .21$, Comfort with Others, $p = .006$, $r = .20$, and Tolerance of Differences, $p = .024$, $r = .17$, than participants who had been in prison for one to six months. They were also characterised by having significantly lower levels REL, $p = .004$, $r = .24$, Comfort with Others, $p = .010$, $r = .23$, and Tolerance of Differences, $p = .001$, $r = .28$, than participants who had been in prison for longer than six months. Participants who had been in prison for one to six months were characterised by significantly higher levels of REA, $p = 0.29$ $r = .17$, and Impairment, $p = .012$, $r = .19$, than participants who had been in prison for longer than six months.

The normality of the BYI-II and CAQ data within the three groups was also explored utilising the Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk test. These tests raised potential issues with all of the variables within the three groups, apart from the BYI-II Self-Concept variable. Histograms, Q-Q plots and the value of skewness and kurtosis was also explored for each group and suggested that it would not be possible to proceed with further parametric tests to explore any differences between groups in relation to adjustment to custody and emotional well-being. Therefore, the Kruskal-Wallis test was used. Median values (rather than means), are reported given that these values are more appropriate when reporting the results of non-parametric tests (Field, 2013).

Table 4.6.

BYI-II and CAQ median and interquartile range (IQR) for the three length of time in custody groups (N = 323)

	Less than 1 month (*n* = 89)	1-6 months (*n* = 148)	6 months and over (*n* = 86)		
	Median (*IQR*)	Median (*IQR*)	Median (*IQR*)	*H* (2)	*p*
BYI-II					
Self-Concept	34.00 (15.00)	37.00 (15.00)	40.50 (16.00)	13.16	.001
Anxiety	11.00 (13.25)	6.00 (10.00)	6.36 (11.00)	12.40	.002
Depression	12.00 (13.50)	6.00 (10.00)	5.00 (10.00)	20.31	.000
Anger	12.00 (16.25)	10.72 (14.00)	11.00 (12.32)	2.54	.281
Disruptive behaviour	14.00 (9.73)	14.00 (15.00)	13.00 (12.41)	0.49	.783
CAQ					
Staff	6.00 (4.00)	7.00 (4.00)	6.00 (5.00)	10.74	.005
Inmate	3.00 (2.25)	4.00 (2.00)	4.00 (2.00)	13.70	.001
Distress	4.00 (5.50)	2.00 (3.00)	1.00 (4.00)	26.30	.000
Deviance	1.00 (3.00)	3.00 (5.00)	3.50 (4.00)	30.65	.000
Poor Adjustment	7.00 (6.00)	6.00 (7.00)	5.50 (5.00)	2.00	.369
Good Adjustment	10.00 (3.25)	11.00 (5.00)	9.00 (4.25)	12.00	.002

This analysis revealed that there was a significant effect of length of time within custody on BYI-II Self-Concept, Anxiety and Depression and CAQ Staff, Inmate, Distress, Deviance and Good Adjustment.

Pairwise comparisons with adjusted *p*-values showed that participants who had been in prison for less than one month were characterised by significantly lower levels of CAQ Inmate, $p = .001$, $r = .24$, and CAQ Deviance, $p = .000$, $r = .25$, and significantly higher levels of BYI-II Anxiety, $p = .003$, $r = .21$, BYI-II Depression, $p = .001$, $r = .24$, and CAQ Distress, $p = .000$, $r = .26$, than participants who had been in prison for one to six months. They were also characterised by significantly lower levels of BYI-II Self-Concept, $p = .001$, $r = .27$, CAQ Inmate, $p = .024$, $r = .20$ and CAQ Deviance, $p = .000$, $r = .41$, and significantly higher levels of BYI-II Anxiety, $p = .013$, $r = .22$, BYI-II Depression, $p = .000$, $r = .32$, and CAQ Distress, $p = .000$, $r = .37$, than participants who had been in prison for six months or more.

Participants who had been in prison for one to six months had significantly higher levels of CAQ Staff, $p = .004$, $r = .21$, and CAQ Good Adjustment, $p = .004$, $r = .21$, than participants who had been in prison for six months or more.

Taken together, these results highlight the particular difficulties that young people experience during the initial periods of incarceration. In particular, it would appear that during this time young people experience difficulties within their relationships with others, characterised by issues of trust, feeling connected, finding comfort and feeling able to express differences with others. This appears particularly in relation to their relationships with their peers. Feelings of anxiety, depression and distress are greater, along with poorer self-perceptions during the initial month of incarceration.

The results also suggest that with greater time within custody, levels of deviant behaviour increase. However, given the content of this scale (for example, item 19: 'I have damaged prison property in here'), young people will have more opportunity to engage in such behaviour with greater time. Results also suggest that young people who had served over six months had more negative perceptions of staff members.

4.3.5.2 Previous experience of prison. File information was collated regarding whether participants had been to prison before ($N = 228$). For the majority of participants (72%), this was their first experience of prison. In order to explore the hypothesis that with previous experience of custody, levels of resilience and positive indicators of adjustment to custody and emotional well-being would increase, participants were split into two groups depending upon whether they had been to prison

before. This resulted in 164 (72%) participants being in the ‘never been to prison before (no)’ group and 64 (28%) being in the ‘been to prison before group (yes)’.

The normality of the data within these two groups was explored utilising the Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk test. While these tests raised some potential issues with a number of the subscales from the RSCA, no issues were identified with the scores on MAS, REL and REA. Histograms, Q-Q plots and the value of skewness and kurtosis was also explored for each group and the visual examination of the histograms and Q-Q plots suggested no major departure from normality and none of the absolute kurtosis or skewness figures exceeded the guideline of Kline (2011, see section 4.2.3.2 for further details). A between-subject t-test was used to examine whether previous experience of custody had an impact upon individual level resilience, the results of which are presented within Table 4.7. The data were checked for homogeneity of variance using Levene’s test which was non-significant, suggesting that homogeneity of variance assumption can be assumed.

Table 4.7.

RSCA means (SD) for previous experience of prison groups (N = 228)

	No (n = 164)	Yes (n= 64)				
	Mean (*SD*)	Mean (*SD*)	*t* (226)	*p*	BCa bootstrap 95% CIs	*r*
MAS	50.74 (10.74)	49.23 (11.56)	0.93	.354	-1.74, 4.87	.06
Optimism	17.15 (4.32)	17.61 (4.41)	-0.71	.476	-1.78, 0.81	.05
Self-efficacy	25.51 (6.16)	24.02 (6.27)	1.63	.104	-0.15, 3.17	.11
Adaptability	8.08 (2.41)	7.61 (2.55)	1.30	.195	-0.27, 1.24	.09
REL	66.09 (13.83)	63.84 (14.41)	1.09	.278	-1.88, 6.39	.07
Trust	18.77 (4.45)	18.05 (4.60)	1.09	.277	-0.56, 1.97	.07
Support	17.83 (4.45)	17.34 (4.63)	0.73	.465	-0.83, 1.82	.05
Comfort	11.18 (2.96)	10.88 (3.16)	0.68	.498	-0.63, 1.22	.05
Tolerance	18.31 (4.39)	17.58 (4.59)	1.12	.265	-0.51, 2.08	.07
REA	33.11 (14.46)	34.83 (13.45)	-0.82	.412	-5.96, 2.31	.05
Sensitivity	9.52 (4.50)	10.20 (3.84)	-1.07	.284	-1.90, 0.55	.07
Recovery	4.82 (3.84)	5.53 (3.95)	-1.24	.216	-1.91, 0.55	.08
Impairment	18.77 (8.56)	19.09 (8.36)	-0.26	.795	-2.86, 2.16	.02
RI	46.21 (7.78)	44.99 (8.07)	1.05	.294	-1.00, 3.66	.07
VI	10.71 (13.33)	13.13 (13.13)	-1.23	.221	-6.57, 1.69	.08

These results suggest that previous experience of custody had no impact on participant's individual level resilience.

The normality of the data from the BYI-II and CAQ within these two groups was also explored. As has been noted previously, this suggested that it would not be possible to proceed with parametric tests to explore any differences between the groups

and therefore the Mann-Whitney test was used, the results of which are presented within Table 4.8. Again, median values are reported.

Table 4.8.

BYI-II and CAQ medians and interquartile range (IQR) for previous experience of prison groups (N = 228)

	No (n = 164)	Yes (n = 64)			
	Median (*IQR*)	Median (*IQR*)	*U*	*p*	*r*
BYI-II					
Self-Concept	38.00 (16.00)	37.00 (12.75)	4733.00	.250	.07
Anxiety	6.00 (12.00)	7.50 (9.75)	5378.00	.771	.02
Depression	7.00 (12.00)	7.46 (10.75)	5224.00	.957	.00
Anger	11.50 (13.00)	10.50 (16.00)	5266.50	.967	.00
Disruptive behaviour	14.00 (12.54)	15.34 (14.00)	6377.00	.012	.17
CAQ					
Staff	6.50 (4.75)	6.00 (4.75)	4544.00	.113	.10
Inmate	4.00 (2.00)	4.00 (2.00)	5364.00	.793	.02
Distress	2.00 (4.00)	2.00 (4.00)	5879.50	.148	.10
Deviance	3.00 (4.00)	3.00 (5.00)	5902.00	.140	.10
Poor Adjustment	5.00 (5.00)	7.00 (5.00)	5941.50	.120	.10
Good Adjustment	10.00 (4.00)	10.00 (5.75)	4885.50	.416	.05

These analyses suggest that participants who had been in prison before had significantly higher levels of BYI-II Disruptive Behaviour than those who had not been to prison before, $U = 6377$, $z = 2.52$, $p = .012$, $r = .17$.

4.3.6 Risk of suicide and self-injurious behaviours. Young people identified as being at risk of suicide and/or self-injurious behaviour within custody are supported

through the Assessment, Care in Custody and Teamwork (ACCT) processes (see Chapter 3, section 3.2.3.2 for further information). File information indicating the number of times participants had been placed on an ACCT form was available for the majority of participants (*N* = 240). Most participants (*n* = 183, 76%) had not been placed on ACCT in the past but of those who had, the majority had been so on only one occasion (*n*= 29). In order to explore the hypothesis that individual level resilience would be negatively associated with suicide ideation and behaviours, Spearman's correlation was used (see Table 4.9). This method was selected as appropriate given the non-normality in the data regarding number of times placed on ACCT.

Table 4.9.

Correlation matrix using Spearman's correlation coefficient of the RSCA with number of times placed on ACCT (N = 240)

	Number of times placed on ACCT
MAS	-.182** [-.308, -.046]
Optimism	-.122 [-.246, .010]
Self-efficacy	-.200** [-.320, -.062]
Adaptability	.066 [-.191, .064]
REL	-.136* [-.249, -.004]
Trust	-.155** [-.274, -.022]
Support	-.101 [-.224, 0.29]
Comfort	-.163** [-.283, -.025]
Tolerance	-.081 [-.202, .045]
REA	.140* [.014, .267]
Sensitivity	.107 [-.014, .231]
Recovery	.101 [-.021, .223]
Impairment	.115 [-.019, .245]
RI	-.175** [-.300, -.038]
VI	.198** [.067, .316]

Notes. ** = p<0.01 level * = p<0.05 level. BCa bootstrap 95% CIs reported in brackets

These analyses suggested support for the hypothesis made, with MAS, r_s = -.18 [-.311, -.033], p = .005, and REL, r_s = -.14 [-.257, .002], p = .035, being negatively associated with number of times placed on ACCT and REA, r_s = .14 [.014, .267], p = .030, being positively associated with number of times placed on ACCT, although the strength of these relationships was small.

4.4 Discussion

The aim of the current chapter was to explore the personal resilient characteristics of young males in custody, with a particular focus upon their adjustment to the custodial environment and emotional well-being. Figure 4.1 summarised a number of hypotheses that have been explored within the current chapter, with a number of these having been supported by the data described. These hypotheses will be reviewed first, followed by hypotheses regarding the impact of custodial experience upon resilience and the relationship between resilience and suicidal ideation and behaviours.

Higher levels of Sense of Mastery and Sense of Relatedness were found to be associated with positive self-perceptions, positive attitudes towards staff members, along with higher levels of good adjustment. Higher levels of Sense of Mastery and Sense of Relatedness were also found to be associated with lower levels of Anxiety, Depression, Anger, Emotional Distress and Poor Adjustment. These results further highlight the relationship between the Sense of Mastery and Sense of Relatedness factors, which Prince-Embury (2006, 2007) acknowledges are highly related. Furthermore, it also provides support for the argument of Prince-Embury that high levels of Sense of Mastery and Relatedness may serve as a "buffer for negative emotions" (Prince-Embury, 2006, 2007, p. 105). Higher levels of Sense of Relatedness were also found to be associated with positive attitudes towards other young people and higher levels of Sense of Mastery was also found to be associated with less self-reported Disruptive Behaviour. Results also suggested that the Resource Index of the RSCA may be a useful means of summarising the strengths associated with the RSCA, although the potential practical benefit of assessing such strengths separately remains (see Chapter 3, section 3.4). These findings appeared to fit with self-determination theory (Ryan & Deci, 2000; Deci & Ryan, 2000, as both Sense of Mastery and Sense of Relatedness

appear related with improved functioning and well-being, which Deci and Ryan argue are related to the universal needs of competence, relatedness and autonomy.

Higher levels of Emotional Reactivity were associated with higher levels of Anxiety, Depression, Anger, self-reported Disruptive Behaviour, Emotional Distress, self-reported Deviant Behaviour and Poor Adjustment. Higher levels of Emotional Reactivity were also associated with more negative self-perceptions. However, levels of Emotional Reactivity were not found to be associated with positive regard for staff or other young people and overall Good Adjustment. This suggests that levels of Emotional Reactivity are not associated with young people's perceptions of the quality of their relationships with either members of staff or other young people and is associated with more negative emotions, such as anxiety and depression. This was also supported by the positive association that emerged between Emotional Reactivity and placement on ACCT, although this effect size was small. General strain theory (Angew, 1992, 2002) suggests that some individuals will be at greater risk of delinquency as a result of difficulties minimising the psychological impact of strains experienced. Some support for this has emerged given that Emotional Reactivity was found to be related to a range of factors that are associated with difficulties coping. However, the results also suggest that that this does not necessarily extend to relationship quality among young people with a history of delinquent behaviour, suggesting also some constraints to general strain theory.

Prince-Embury (2006, 2007) suggests that Emotional Reactivity will be associated with poor behaviour and although a relationship did emerge with self-reported Disruptive Behaviour, no relationship emerged with indicators of problematic externalising behaviours (i.e., placement on the basic level of the IEP scheme, discipline infractions or time spent in the Care and Separation Unit). This is in contrast to previous research conducted and also raises some doubt that levels of Emotional Reactivity are associated with poor behaviour in young people in custody. While it could be argued that official reports of behaviour may underestimate poor behaviour (Power, Dyson & Wozniak, 1997), a good range of official and self-report indicators of behaviour were used within the current study. This appears to suggest that Emotional Reactivity is more associated with internalising rather than externalising difficulties among young people in custody.

Levels of self-reported Anger were found to be highly positively correlated with levels of Anxiety and Depression in the current study. Results also suggested that levels of Emotional Reactivity were predictive of Anxiety, Depression and self-reported Anger. Gomez (1998) explored how maladjustment (as measured by self-reported levels of depression and anxiety) were related to and predicted by impatience-aggression, competitiveness and avoidant coping among adolescents. Gomez (1998) found that impatience-aggression was positively correlated with avoidant coping and maladjustment, with impatience-aggression and avoidant coping also positively predicting maladjustment. The results of the current study lend support to this finding, although no measure of coping styles has been included in the present study. The current results suggest that high levels of anxiety and depression are likely to co-occur with high levels of anger among young people in custody, and can be predicted by levels of Emotional Reactivity. Given that the Emotional Reactivity factor is a measure of "… the extent to which the youth experiences himself or herself maintaining an even keel when emotionally aroused." (Prince-Embury, 2007, p.13) and is not a measure of anger reactivity alone, these results also extend previous research. It is also interesting to note that recent research by Defoe, Farrington and Loeber (2013) suggested delinquency to be the cause of depression using cross-lagged panel models, using longitudinal data. This could suggest that addressing maladjustment within this population will need to consider attending to both internalising and externalising difficulties.

The current results have also served to extend previous research, by exploring the hypothesis that resilience would be predictive of adjustment to custody and emotional well-being. Support for this hypothesis was found, where evidence emerged to suggest that the RSCA was predictive of indicators of emotional well-being and adjustment to custody, in particular levels of Self-Concept, Depression and Anger. These results suggest that resilience may buffer how young people adjust to the custodial environment and that the RSCA may be used as an indicator of young people's abilities to manage with the demands of custody. If concerns are highlighted, then interventions to promote resilience could help to develop young people's abilities to manage such demands. This would have the potential to assist young people to avoid some of the 'pains of imprisonment' identified.

The finding that Emotional Reactivity was not found to be predictive of positive self-perception is of note when viewed in the context of the significant negative relationships between Emotional Reactivity and both the Sense of Mastery and Sense of Relatedness factors reported within Chapter 3. In particular, the BYI-II Self-Concept inventory is described as exploring the self-perceptions of competence, potency and self-worth (e.g., "I like myself", "I feel proud of the things I do"), which appears to have a number of parallels with the Sense of Mastery factor of the RSCA. This suggests that while Sense of Mastery is related to positive self-concept, they are distinct concepts and their measurement in young people in custody may be particularly useful.

Given the research evidence to suggest that resilience may be associated with fewer incidents of externalising behaviours (Born et al., 1997; Mowder et al., 2010), it was also hypothesised that resilience would be associated with fewer incidents of problematic externalising behaviours and more positive indicators of behaviour within custody. Support was found for the second part of this hypothesis, whereby participants who were on the Enhanced level of the IEP scheme were found to have higher Sense of Mastery and Sense of Relatedness, although as previously described no difference emerged in levels of Emotional Reactivity. Furthermore, no relationship emerged between resilience and placement on the basic level of the IEP scheme, discipline infractions or time spent in the Care and Separation Unit (CSU). This is in contrast to previous research conducted and as previously mentioned raises some doubt that levels of Emotional Reactivity are associated with poor behaviour, and that Sense of Mastery and Sense of Relatedness may buffer against such behaviour (Prince-Embury, 2006, 2007) in young people in custody. In fact, the current results suggest that the strengths of the RSCA (i.e., Sense of Mastery and Sense of Relatedness) are more reflective of positive behaviour and compliance with rules among young people in custody. It may also be that discipline infractions are not a valid indicator of how well a young person is adjusting to the custodial environment (Cesaroni & Peterson-Badali, 2005). Whichever is true, these results naturally lend themselves to a strength-based approach, whereby the positive behaviours associated with the resources of the RSCA have been emphasised rather than the absence of negative behaviours. Again, this appears to fit with self-determination theory (Ryan & Deci, 2000; Deci & Ryan, 2000), as indicators of positive adjustment within custody was associated with relatedness and a sense of competence, optimism and adaptability. It also suggests that interventions aimed at

strengthening such resources may help young people within custody to engage in positive behaviours and comply with the expectations and rules of custody. This, in turn, is likely to lead to greater privileges within custody, greater resettlement opportunities (such as Home Detention Curfew [HDC] and Release on Temporary Licence [ROTL]) and a better chance of early release (if eligible).

Given evidence to suggest that adjustment to custody is related to length of time served, it was hypothesised that with greater time and/or experience of custody, levels of individual resilience and positive indicators of adjustment to custody and emotional well-being would increase. Some support for this hypothesis emerged, in particular where Sense of Relatedness (and the associated subscales of Comfort with Others and Tolerance with Differences) were found to be significantly lower within the early periods of custody. The particular challenges experienced by young people within the initial periods of custody within their relationships was highlighted by the finding that positive regard for other inmates was also significantly lower within the early periods of custody. This suggests that within the initial periods of custody, young people find feeling securely connected to other people, in particular other young people, particularly challenging. This lends support to the research conducted by Cesaroni and Peterson-Badali (2010), who highlighted the particular importance of social support with peers assisting young people to cope with the demands of incarceration.

There was also evidence of greater distress within the early periods of custody, with levels of anxiety, depression and emotional distress being elevated. Chambers, Power, Lousks and Swanson (2000) also found evidence for an association between such distress and poor relationships with peers, and research has highlighted the importance of positive peer relationships for young people in custody (Livingston & Chapman, 1997). With greater time within custody (i.e., over six months), more positive self-perceptions emerged although positive regard for staff members was found to reduce. These results lend further support to the early work of Zamble and Porporino (1988) and Liebling (1992), and more recent work of Brown and Ireland (2006), who highlighted the particular difficulties people in prison face during the initial periods of incarceration. It may be that early experiences of the challenges of custody also serve a steeling effect, as suggested by challenge models of resilience (e.g., Rutter, 2000). That is, with time young people are able to develop strategies to cope with the demands of incarceration. This requires further exploration.

Biggam and Power (1997) highlighted the particular importance of young people's relationships with prison staff and it is interesting to note that positive regard for staff members was found to be lower in young people who had spent a greater amount of time within the institution. Related to this, young people who had been to custody previously were also found to have higher levels of Disruptive Behaviour. This raises some doubt as to whether young people with experience of custody will draw on the relationships with staff members to help them manage feeling of distress. Whether this finding is related to the level and extent of young people's offending behaviour (with young people serving longer sentences and being sentenced to custody on more than one occasion representing the more serious offender) was not explored within the current analysis. However, the current results suggest that such individuals may be more difficult to engage with and less willing to seek the support and advice of staff members. Coupled with the finding that young people who have spent a greater amount of time within the institution reported engaging in more deviant activities, it may be that such individuals are more difficult to engage in meaningful activities and rehabilitative attempts.

If personal resilient characteristics help young people to manage with the demands of custody, the way in which this takes place will be important to consider. As noted in Chapter 1, a number of models of resilience have been proposed within the literature which suggest that resilience may act in a number of ways upon outcomes. Given that the mechanisms of resilience may impact upon intervention efforts within custody, the effects of resilience upon length of time served and adjustment to custody and emotional well-being will be further explored within Chapter 5.

Unexpectedly, previous experience of prison did not appear to impact upon levels of resilience, which remained relatively stable between groups. Previous experience of prison only resulted in significantly higher levels of self-reported disruptive behaviour, which may possibly have tapped into greater engagement in antisocial and criminal behaviour by this recidivist group. This suggests that previous experience of custody had little impact upon young people's ability to adjust to the custodial environment and their emotional well-being. It also suggests that considering such previous experience as protective may be mistaken and could result in a failure to recognise vulnerability among such young people.

It was hypothesised that individual level resilience would be negatively associated with suicidal ideation and behaviours given the arguments that resilience acts as a buffer against negative emotions and distress. This hypothesis was supported, with Sense of Mastery and Sense of Relatedness found to be negatively associated with the number of times young people had been placed on an ACCT and Emotional Reactivity found to be positively associated. However, these effect sizes were relatively small and no conclusions regarding causation can be drawn given the correlational design employed. While factors associated with suicidal ideation, such as anxiety and depression have been consistently identified in the literature, the findings here suggest that personal resilient characteristics may help to protect young people. However, these results do not provide any indication as to the mechanisms by which this occurs, which is essential if we are to better understand the way in which resilience assists young people to cope with the demands of incarceration. This will be explored further within Chapter 5.

Prince-Embury (2006, 2007) suggests that the strengths measured by the Sense of Mastery and Sense of Relatedness factors are conceptually similar to the ego resiliency concept of Block and Block (1980), which is described as a set of relatively stable traits. Although only a cross-sectional design has been used, the results here support assertions made regarding the dynamic nature of resilience (e.g., Luthar & Cicchetti, 2000). It also suggests that despite investigating the impact of resilience within a single context, young people appear to draw upon a range of dynamic characteristics that assist them to adjust and manage with the demands of incarceration. While it would be useful to explore the stability of personal resilient characteristics over time within this environment, this is beyond the scope of the current research. Caspi (2000) describes the continuities in temperament observed within the Dunedin Multidisciplinary Health and Development Study. However, what is also emphasised is the interplay between temperament and the environment, where continuities of personality are expressed in predictable and meaningful ways in response to situations and contexts. While the current results suggest that resilience within the context of adjusting to the custodial environment may be more dynamic, strategies employed by young people may continue to be reflective of their general tendency to deal and manage with adversity.

4.4.1 Preliminary summary model. From the results of the current chapter, the following model is presented as a preliminary summary model of the impact of personal resilient characteristics upon adjustment to custody and emotional well-being. The results presented within the current chapter suggest that resilience predicts emotional well-being and adjustment to custody. Results also suggest that resilience is related to positive behaviour and compliance with the rules and expectations of custody, rather than the absence of negative compliance.

Figure 4.2. Preliminary summary model of Resilience, Adjustment to Custody and Emotional Well-being

The following chapters aim to build upon the results presented within the current chapter. Next, an examination of the effects of resilience will be explored in relation to the length of time within custody and suicidal ideation and behaviours. Following this, young people identified as 'vulnerable' and 'non-vulnerable' by prison staff will be explored which will lead onto exploring the possible presence of naturally occurring groups of young people utilising cluster analysis techniques. This method of data analysis will be used as it enables groups of participants to be identified with similar resilience and vulnerability characteristics, whilst also maximising the difference between any groups found. This method also has the potential to be utilised within practice, to help identify those young people with particular resources and/or vulnerabilities within custody. Following this, the creation of a composite measure of resilience and vulnerability will be explained and validated utilising a cognitive coping strategies measure.

CHAPTER 5 Exploring the Mechanisms of Resilience

5.1 Introduction

The previous chapter explored the impact of personal resilient characteristics upon adjustment to custody and emotional well-being. Evidence emerged to suggest that resilience is predictive of emotional well-being and adjustment to custody. Furthermore, resilience also emerged as related to positive behaviour and compliance with the rules and expectations of custody. If resilience is able to help young people cope with the demands of incarceration, it will be important to also understand the way in which it does this. As noted within Chapter 1, a number of models of resilience have been proposed within the literature. Protective models of resilience suggest that resilience moderates or reduces the effects of risk on a negative outcome (Fergus & Zimmerman, 2005). Masten and colleagues (2009) suggest that individual differences such as temperament and personality may act in such a protective-reactive manner. For example, Campbell-Sills and Stein (2007) explored resilience characteristics among undergraduate students and found evidence that resilience moderated the relationship between childhood maltreatment and distress. Within the current thesis, the impact of individual differences in personal resilience is the focus and therefore the exploration of the possible moderating effects of resilience within this context is appropriate. Compensatory models of resilience describe resilience having a direct effect on an outcome, independent of the effect of the risk factor (Fleming & Legogar, 2008). In order to examine the unique, direct effects of resilience upon the relationship between risk and outcome, multiple regression will be used (Fergus & Zimmerman, 2005). Given that any evidence regarding the mechanisms by which resilience operates may impact upon intervention efforts to promote resilience, it is important to explore this as part of the current research.

Fergus and Zimmerman (2005) suggest that many researchers have failed to consider resilience theory when designing research, but that the testing of models of resilience will help to further our understanding of resilience processes. It is anticipated that the current study will not only serve as an instigator for further research to explore resilience processes in this way, but also to begin to explore resilience within a population that is rarely the focus of such studies. Furthermore, the outcome of the current study may also be important when intervention efforts to promote resilience are

designed for young people in custody, although this is beyond the scope of the current thesis.

5.1.1 The current study. The current study aims to build upon the results of Chapter 4 by exploring the mechanisms by which resilience acts upon the relationships between risk and outcome. The results of the preceding chapter suggested that the strengths assessed by the RSCA (Prince-Embury, 2006, 2007) may act as a buffer against some of the negative consequences of incarceration, such as anxiety and emotional distress, while emotional reactivity was associated with indicators of heightened vulnerability, particularly in relation to negative emotions. Given some of the challenges that young people appear to experience in custody (see Chapter 4, section 4.1.1.), exploring the way in which resilience impacts risk may help to uncover potential avenues for intervention efforts. Given that poor adjustment to custody appears associated with heighted vulnerability, the mechanism by which resilience impacts upon the relationship between adjustment to custody and emotional well-being will be explored within the current chapter.

The results from the previous chapter also suggested that with greater time within custody, levels of anxiety, depression and emotional distress ease and more positive self-perceptions emerge. Positive regard for other young people also improved with time, along with greater levels of self-reported deviance. Participants who had been in prison for one to six months were also found to have more positive regard for staff members and higher levels of CAQ Good Adjustment as measured by the CAQ (Thornton, 1987) than participants who had been incarcerated for six months or more. Therefore, the mechanisms by which resilience impacts upon the relationship between experience of custody and these variables will be explored.

Also explored will be the mechanisms by which resilience impacts upon the relationship between emotional well-being and being at risk of suicide / self-injurious behaviour. The results of the previous chapter suggested that resilience was associated with the number of times that young people had been identified as being at risk of suicide and/or self-injurious behaviours, although the analyses conducted did not explore the mechanisms by which this occurred. As described within Chapter 4, section 4.1.1., levels of anxiety and depression have consistently been identified as being linked to suicidal ideation and behaviours (e.g., Abram et al., 2008; Lohner & Konard, 2006)

and therefore the impact of resilience upon the relationship between emotional well-being and being at risk of suicide / self-injurious behaviour will be explored.

Difficulties have arisen when testing moderating and mediating models due to researchers being unclear about the differences, unsure of how to test such models and therefore misinterpretation (Baron & Kenny, 1986; Kim, Kaye & Wright, 2001; Preacher & Hayes, 2004, 2008). A moderator model is one in which a moderator variable affects the relationship between two other variables (Field, 2013). To test for moderation, the PROCESS command developed by Hayes and Preacher (e.g., Hayes, 2012; Preacher & Hayes, 2004, 2008) was used.

5.2 Method

5.2.1 Participants. Participants were the same male adolescent offenders described in Chapter 3, section 3.2.1. Methods used to identify and delete outlying cases were described within Chapter 4, section 4.2.3.2., which resulted in a total sample size of 332.

5.2.2 Measures. Participants were asked to complete the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007), the Beck Youth Inventory, 2nd edition (BYI-II -II; Beck et al., 2005) and the Custodial Adjustment Questionnaire (CAQ; Thornton, 1987), full details of which are provided in Chapter 3 section 3.2.2. and Chapter 4 section 4.2.2.1. Details regarding length of time served within custody and the number of times participants had been identified as being at risk of suicide and/or self-injurious behaviour (via placement on Assessment, Care in Custody and Teamwork [ACCT] processes; see Chapter 3 section 3.2.3.2 for further information) were collated from self-report and official documentation. Due to the nature of applied research, some file information was missing and this is outlined in Chapter 3 section 3.2.1 and Chapter 4 section 4.2.1.

5.2.3 Procedure.

5.2.3.1 Data collection. The data was collected as part of the study described in Chapter 3, section 3.2.3.

5.2.3.2 Data analysis. Given the number of analyses that were conducted on the same data set, it is important to acknowledge the increased possibility of making a Type I error. As a result, Bonferroni correction was used to reduce this risk and adjusted *p*

values are outlined prior to the results of analyses described. A $p < .003$ or $p < .006$ criterion of statistical significance was applied accordingly.

In order to explore the hypotheses, a priori power analyses were conducted using G*Power (Faul et al., 2007) to determine the number of participants required to have 80% power for detecting a medium effect size (.05) when applying the .003 criterion of statistical significance. This revealed that in order for an effect of this size, a total of 40 participants would be required. A second priori power analysis was then conducted applying a $p < .006$ criterion of significance to determine the number of participants required to have 80% power for detecting a medium effect size. This revealed that in order for an effect of this size, a total of 36 participants would be required. Therefore in all analyses conducted, sufficient sample sizes were present to obtain 80% power. It is important to note that given the large sample used within the current study, it may be possible to detect smaller effect sizes (Sullivan & Feinn, 2012). As a result, it will be important to consider whether such results are meaningful when interpretations are made. Given the number of analyses conducted, only the details of significant findings will be reported for ease of interpretation.

Robust bootstrapping methods were used given some of the issues within the data already described (Chapter 4, section 4.2.3.2). As described elsewhere (Chapter 4, section 4.3.3), there was no evidence of multicollinerarity (i.e., $r > .9$) between variables which is a necessary condition for multiple regression. The variance inflation factor (VIF) and tolerance statistics from analyses conducted were all also within acceptable guidelines, (Bowerman & O'Connell, 1990; Menard, 1995), lending further support to the lack of multicollinerarity within the data. The Durbin-Watson statistic, which tests for independent errors, was also found to be acceptable in all analyses.

5.3. Results

5.3.1 The effects of resilience upon the relationship between adjustment to custody and emotional well-being.

5.3.1.1 Moderation analyses. In order to explore the potential moderating effects of resilience upon the relationship between adjustment to custody and emotional well-being, it was necessary to complete a number of analyses. The predictor variables were specified as CAQ Good Adjustment and CAQ Poor Adjustment. BYI-II Anxiety, Depression and Anger were used as outcome variables, as separate indicators of

emotional well-being. The potential moderating effects of resilience was explored using MAS, REL and REA factors. This resulted in a total of 18 analyses. The adjusted *p* value of .003 was therefore used.

The interaction effects of all analyses conducted were shown to be non-significant, indicating that resilience did not moderate the relationship between adjustment to custody and emotional well-being.

5.3.1.2 Multiple regression analyses. In order to explore whether the addition of resilience improved the prediction of emotional well-being beyond that predicted by custodial adjustment, hierarchical multiple regression was conducted. A number of analyses were completed, the results of which are summarised below. For each, custodial adjustment (CAQ Good and Poor Adjustment) was entered as a predictor variable in the first block. Resilience (RSCA MAS, REL and REA) was entered in the second block. Variables associated with emotional well-being (BYI-II Anxiety, Depression and Anger) were used as outcome variables, resulting in three analyses being conducted.

The results of the first analysis indicated that custodial adjustment explained 25% of the variance in BYI-II Anxiety, R^2 = .25 $F(2, 329) = 54.66$, p = .000. After Step 2, with resilience added to the prediction of BYI-II Anxiety, 30% of the variance in BYI-II Anxiety was explained, ΔR^2 = .054 $F(3, 326) = 8.37$, p = .000. These results suggest that adding resilience to the prediction of BYI-II Anxiety resulted in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that CAQ Poor Adjustment, b = 0.85 [0.63, 1.10], p = .001, REL, b = -0.14 [-0.23, -0.06], p = .001 and REA, b = 0.10 [0.4, 0.16], p = .001 all made a significant contribution to the prediction of BYI-II Anxiety. Coefficients for this analysis are shown in Appendix F (Table F1).

The results of the second analysis indicated that custodial adjustment explained 26% of the variance in BYI-II Depression, R^2 = .26 $F(2, 329) = 58.31$, p = .000. After Step 2, with resilience added to the prediction, 35% of the variance in BYI-II Depression was explained, ΔR^2 = .10 $F(3, 326) = 16.28$, p = .000. These results suggest that adding resilience to the prediction of BYI-II Depression resulted in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that CAQ Poor Adjustment, b = 1.02 [0.77, 1.25], p = .001, CAQ Good Adjustment, b =

-0.30 [-0.54, -0.06], p = .015 REL, b = -0.10 [-0.18, -0.02], p = .022 and REA, b = 0.13 [0.07, 0.18], p = .001, all made a significant contribution to the prediction of BYI-II Depression. Coefficients for this analysis are shown in Appendix F (Table F2).

The results of the third analysis indicated that custodial adjustment explained 28% of the variance in BYI-II Anger, R^2 = .28 F(2, 329) = 64.57, p = .000. After Step 2, with resilience added to the prediction, 39% of the variance in BYI-II Anger was explained, ΔR^2 = .11 F(3, 326) = 19.34, p = .000. These results suggest that adding resilience to the prediction of BYI-II Anger resulted in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that CAQ Poor Adjustment, b = 0.78 [0.54, 1.03], p = .001, CAQ Good Adjustment, b = -0.32 [-0.64, -0.03], p = .05, and REA, b = 0.19 [0.13, 0.25], p = .001, all made a significant contribution to the prediction of BYI-II Anger. Coefficients for this analysis are shown in Appendix F (Table F3)

These analyses suggest that the addition of resilience improved the prediction of emotional well-being among young people in custody beyond that predicted by custodial adjustment. In particular, young people's Sense of Relatedness and Emotional Reactivity improved the prediction of levels of BYI-II Anxiety and Depression. Emotional Reactivity also improved the prediction of levels of BYI-II Anger.

5.3.2 The effects of resilience upon the relationship between experience of custody and adjustment to custody.

5.3.2.1 Moderation analyses. In order to explore the potential moderating effects of resilience upon the relationships between length of time within custody and adjustment to custody, it was necessary to complete a number of analyses based on the significant results reported within the previous chapter. The moderating effects of resilience upon the relationship between length of time within custody and CAQ Staff, Inmate, Distress, Deviance and Good Adjustment as the outcome variables were explored. The predictor was the length of time within custody. The effect of resilience was explored using levels of RSCA MAS, REL and REA, resulting in a total of fifteen moderation analyses being conducted. The adjusted p value of .003 was used. The interaction effects of all analyses conducted were shown to be non-significant, indicating that resilience did not moderate the relationship between length of time within custody and adjustment to custody.

5.3.2.2 Multiple regression analyses. In order to explore whether the addition of resilience improved the prediction of adjustment to custody beyond that predicted by length of time within custody, hierarchical multiple regression was conducted. For each analysis, length of time within custody was entered as the predictor variable in the first block. Resilience (RSCA MAS, REL and REA) was entered in the second block. Variables associated with adjustment to custody (CAQ Poor Adjustment and Good Adjustment) were used as outcome variables, resulting in two analyses being conducted.

The results of the first analysis indicated that length of time within custody explained less than 1% of the variance in CAQ Poor Adjustment, R^2 = .00 F(1, 328) = 0.87, p = .350. After Step 2, with resilience added to the prediction, 19% of the variance in CAQ Poor Adjustment was explained, ΔR^2 = .19 F(3, 325) = 25.02, p = .000. These results suggest that length of time within custody did not predict CAQ Poor Adjustment but resilience did. Examining the bootstrap confidence intervals for each predictor revealed that MAS, b = -0.08 [-0.13, -0.02], p = .005, and REA, b = 0.08 [0.05, 0.11], p = .001, both made a significant contribution to the prediction of CAQ Poor Adjustment. Coefficients for this analysis are shown in Appendix F (Table F4)

The results of the second analysis indicated that length of time within custody explained none of the variance in CAQ Good Adjustment, R^2 = .00 F(1, 328) = 0.16, p = .689. After Step 2, with resilience added to the prediction, 14% of the variance in CAQ Good Adjustment was explained, ΔR^2 = .14 F(3, 325) = 17.28, p = .000. These results suggest that length of time within custody did not predict CAQ Good Adjustment but resilience did. Examining the bootstrap confidence intervals for each predictor revealed that only REL, b = 0.07 [0.03, 0.11], p = .001, made a significant contribution to the prediction of CAQ Good Adjustment. Coefficients for this analysis are shown in Appendix F (Table F5).

These analyses suggest that length of time served within custody does not predict custodial adjustment. However, resilience was able to predict custodial adjustment, confirming the results of the analyses conducted within Chapter 4, section 4.3.3.

5.3.3 The effects of resilience upon the relationship between experience of custody and emotional well-being.

5.3.3.1 Moderation analyses. The moderating effects of resilience upon the relationship between length of time within custody and BYI-II Self-Concept, Anxiety and Depression as outcome variables was explored. The predictor was the length of time within custody. The effect of resilience were explored using levels of RSCA MAS, REL and REA, resulting in a total of nine moderating analyses being conducted. The adjusted *p* value of .006 was used. The interaction effects of all analyses conducted were shown to be non-significant, indicating that resilience did not moderate the relationship between length of time within custody and emotional well-being.

5.3.3.2 Multiple regression analyses. In order to explore whether the addition of resilience improved the prediction of emotional well-being beyond that predicted by length of time within custody, hierarchical multiple regression was conducted. A number of analyses were completed, the results of which are summarised below. For each, length of time within custody was entered as the predictor variable in the first block. Resilience (RSCA MAS, REL and REA) was entered in the second block. Variables associated with emotional well-being that emerged from the results described within Chapter 4 as changing with length of time in custody (BYI-II Self-Concept, Anxiety and Depression) were used as outcome variables, resulting in three analyses being conducted.

The results of the first analysis indicated that length of time within custody explained 4% of the variance in BYI-II Self-Concept, $R^2 = .04$ $F(1, 328) = 12.14$, $p = .001$. After Step 2, with resilience added to the prediction, 41% of the variance in BYI-II Self-Concept was explained, $\Delta R^2 = .38$ $F(3, 325) = 69.82$, $p = .000$. These results suggest that adding resilience to the prediction of BYI-II Self-Concept resulted in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that length of time within custody, $b = 0.70$ [0.14, 1.34], $p = .018$, MAS, $b = 0.40$ [0.27, 0.53], $p = .001$ and REL, $b = 0.19$ [0.09, 0.28], $p = .001$, made a significant contribution to the prediction of BYI-II Self-Concept. Coefficients for this analysis are shown in Appendix F (Table F6)

The results of the second analysis indicated that length of time within custody explained 4% of the variance in BYI-II Anxiety, $R^2 = .04$ $F(1, 328) = 12.53$, $p = .000$.

After Step 2, with resilience added to the prediction, 18% of the variance in BYI-II Anxiety was explained, ΔR^2 = .15 F(3, 325) = 19.22, p = .000. These results suggest that adding resilience to the prediction of BYI-II Anxiety resulted in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that length of time within custody, b = -0.76 [-1.25, -0.20], p = .005, REL, b = -0.16 [-0.24, -0.08], p = .001 and REA, b = 0.16 [0.10, 0.22], p = .001, made a significant contribution to the prediction of BYI-II Anxiety. Coefficients for this analysis are shown in Appendix F (Table F7).

The results of the third analysis indicated that length of time within custody explained 7% of the variance in BYI-II Depression, R^2 = .07 F(1, 328) = 22.88, p = .000. After Step 2, with resilience added to the prediction, 29% of the variance in BYI-II Depression was explained, ΔR^2 = .23 F(3, 325) = 34.97, p = .000. These results suggest that adding resilience to the prediction of BYI-II Depression resulted in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that length of time within custody, b = -1.09 [-1.60, -0.57], p = .001, MAS, b = -0.15 [-0.25, -0.04], p = .012, REL, b = -0.10 [-0.18, -0.02], p = .012 and REA, b = 0.18 [0.12, 0.23], p = .001, made a significant contribution to the prediction of BYI-II Depression. Coefficients for this analysis are shown in Appendix F (Table F8).

These analyses suggest that the addition of resilience improved the prediction of emotional well-being (BYI-II Self-Concept, Anxiety and Depression) among young people in custody beyond that predicted by length of time served in custody. In particular, young people's Sense of Mastery and Sense of Relatedness improved the prediction of BYI-II Self Concept and Depression. Sense of Relatedness and Emotional Reactivity improved the prediction of levels of BYI-II Anxiety.

5.3.4 The effects of resilience upon the relationship between emotional well-being and risk of suicide and/or self-injurious behaviour.

5.3.4.1 Moderation analyses. The moderating effects of resilience upon the relationship between emotional well-being and risk of suicide and/or self-injurious behaviour was explored. Emotional well-being (as defined by BYI-II Self-Concept, Anxiety, Depression, Anger and Disruptive Behaviour) was specified as the predictor, while the number of times participants had been identified as being at risk of suicide and/or self-injurious behaviour (via their placement on ACCT) was the outcome. The

moderating effect of resilience was explored using levels of MAS, REL and REA, resulting in a total of fifteen moderation analyses conducted. The adjusted *p* value of .003 was used. The interaction effects of all analyses conducted were shown to be non-significant, indicating that resilience did not moderate the relationship between emotional well-being and the number of times placed on ACCT.

5.3.4.2 Multiple regression analyses. In order to explore whether the addition of resilience improved the prediction of risk of suicide and/or self-injurious behaviour (via the number of times placed on an ACCT) beyond that predicted by emotional well-being, hierarchical multiple regression was conducted. Emotional well-being (BYI-II Self-Concept, Anxiety, Depression, Anger and Disruptive Behaviour) were entered as predictor variables in the first block. Resilience (RSCA MAS, REL and REA) were entered in the second block.

The results of the this analysis indicated that emotional well-being explained 6% of the variance in number of times placed on an ACCT, $R^2 = .06$ $F(5, 234) = 3.04$, $p = .011$. After Step 2, with resilience added to the prediction, 7% of the variance in number of times placed on an ACCT was explained, $\Delta R^2 = .01$ $F(3, 231) = 0.47$, $p = .704$. These results suggest that adding resilience to the prediction of number of times placed on an ACCT did not result in a significant increase in R^2. Examining the bootstrap confidence intervals for each predictor revealed that none made a significant contribution to the prediction of number of times placed on an ACCT. Coefficients for this analysis are shown in Appendix F (Table F9).

5.4 Discussion

The current study aimed to explore the mechanisms by which resilience impacts on risks and outcomes across three areas among young people in custody. First, the effects of resilience upon the relationship between adjustment to custody and emotional well-being were explored. While no evidence of resilience acting as a moderator emerged, results suggested that the addition of resilience improved the prediction of emotional well-being among young people in custody beyond that predicted by custodial adjustment. These findings suggest support for resilience acting in a compensatory manner, given that resilience appeared to have a direct effect on the outcomes explored. In particular, young people's Sense of Relatedness and Emotional Reactivity improved the prediction of levels of BYI-II Anxiety and Depression.

Emotional Reactivity also improved the prediction of levels of BYI-II Anger. These findings suggest that interventions aimed at strengthening resilience promoting factors, such as problem-solving abilities, positive self-perceptions (see Chapter 1, section 1.4 for further details), may help to offset the deleterious impact of difficulties adjusting to custody upon emotional well-being.

It is important to note how central young people's Sense of Relatedness emerged from these analyses. Such strengths improved the prediction of both Anxiety and Depression beyond that predicted by custodial adjustment and also emerged as a significant predictor when changes in emotional well-being were explored in relation to length of time served. This appears to highlight the particular significance of relatedness among young people within custody. Previous research has highlighted the particular importance of positive peer relationships for young people within custody (e.g., Livingston & Chapman, 1997; Cesaroni & Peterson-Badali, 2010) and how reluctant young people can be to seek the support of adults when in need (Cesaroni & Peterson-Badali, 2010). Results reported within previous chapters (e.g., see Chapter 3, section 3.4) appear to lend support to self-determination theory (Ryan & Deci, 2000) where autonomy, competence and relatedness are all described as being necessary conditions for intrinsic motivation, well-being and engagement. The current results appear to provide further support for this argument, where relatedness has emerged as adding to the prediction of emotional well-being when difficulties adjusting to the custodial environment are present. This appears to further highlight the importance of considering how to assist young people to feel securely connected to other people when incarcerated. Unfortunately, this is fraught with challenges, given a range of inherent issues associated with the incarceration of children within England and Wales. For example, with only four Young Offender Institutions (YOIs) across the prison estate, the vast majority of young people will not be located close to home, meaning that maintaining contact with family / carers can be extremely problematic. Furthermore, the high prevalence of ACEs among both male and female offenders (e.g., Baglivio et al., 2014) suggests that such contact may be harmful without complex intervention. There are also issues with the prison estate being able to adopt systemic practices, given reports of public sector prison staff numbers being reduced by 41% between 2010 and 2014 (Howard League for Penal Reform, 2014). Despite all these challenges, consideration needs to be given to assisting young people to develop relatedness in

custody and to also identify young people whose difficulties adjusting to the custodial environment may lead to vulnerability. Given the findings outlined within Chapter 3 that, on average, participants were found to have below average levels of Sense of Relatedness, this would appear of particular importance. This is further explored within Chapters 7 and 8.

Emotional Reactivity was found to add to the prediction of Anxiety, Depression and Anger beyond that predicted by custodial adjustment. This further highlights the issue raised within Chapter 4, section 4.4, where it was suggested that attending to maladjustment among young people in custody will need to consider both internalising and externalising difficulties. Interventions targeting anger reactivity are often favoured by practitioners working with young people in custody. While such approaches may be of benefit, consideration needs to be given to the range of emotional experiences and how such emotions may manifest themselves in both internalising and externalising ways. The current results suggest that general emotional arousal and expression interventions may help to offset some of the negative impact of difficulties adjusting to custody upon emotional well-being.

The current chapter also explored the effects of resilience upon the relationship between experience of custody and factors associated with adjustment to custody and emotional well-being that emerged from the results of the previous chapter. No evidence emerged to suggest that resilience acted to moderate these effects. While no evidence emerged to suggest that length of time served predicted custodial adjustment, length of time served was found to predict Self-Concept, Anxiety and Depression. Here, analyses suggested that addition of resilience improved this prediction beyond that predicted by length of time served. This suggests that the strengthening of resilience may help to protect against some of the negative consequences associated with early incarceration, such as depression and anxiety (Brown & Ireland, 2006).

The effects of resilience upon the relationship between emotional well-being and being at risk of suicide / self-injurious behaviour was also explored. No evidence emerged to suggest that resilience impacts upon these relationships. As outlined within Chapter 4, section 4.1.1., suicidal and self-injurious behaviour among young people within custody is perhaps the most striking indicator of difficulties adjusting to the custodial environment. While the results from the current analyses suggest that

resilience adds to the prediction of emotional well-being beyond that predicted by custodial adjustment, the current results suggest that the potential protective power of resilience is lost when adjustment difficulties are so extreme. While significant correlations between resilience and the number of times placed on ACCT in the predicted direction were reported within Chapter 4, section 4.3.7., only small effect sizes emerged. Furthermore, it was reported within Chapter 3, section 3.3.3 that overall participants had below average levels of Sense of Mastery and Sense of Relatedness and above average levels of Emotional Reactivity based on the standardised scores described by Prince-Embury (2006, 2007). It may be that no effect of resilience has emerged given that levels of resilience were below average among participants and perhaps with greater levels of resilience across participants, an effect may have emerged. The following chapter will explore the possible presence of naturally occurring clusters of resilience across participants using cluster analysis techniques, where it may be possible to identify a sub-sample of participants with comparatively higher levels of resilience.

The results presented within the current chapter suggest that although resilience may not directly moderate the influence of specific risks, it provides an overall boost to well-being for these high risk individuals. However, the lack of evidence regarding the moderating effects of resilience is somewhat surprising. While further work needs to be undertaken, including replication of the current results (Open Science Collaboration, 2015), it is important for such null results to be reported and considered. As outlined by Rosenthal (1979) in his seminal paper regarding the 'file drawer problem', the failure to report null results could have a significant impact upon the combined significance of research.

Masten (2001) and Masten and colleagues (2009) describe two main approaches within the study of resilience, variable-focused and person-focused approaches. The results presented so far have largely focused upon a variable-focused approach to explore the patterns between variables of interest. The following chapter will build up the results presented so far to utilise a person-focused approach. Here, participants identified as either vulnerable or non-vulnerable by those involved in their case management will be explored. Any patterns of naturally occurring clusters of young people, based on their resilience profiles, will also be explored utilising cluster analysis techniques.

CHAPTER 6 A Person-Centred Examination of Resilience and Vulnerability among Young People in Custody

6.1 Introduction

Results presented to date have explored the level and profile of personal resilient characteristics among young people in custody, with a particular focus upon adjustment to the custodial environment and emotional well-being. A preliminary summary model of the impact of personal resilient characteristics upon adjustment to custody and emotional well-being was proposed within Chapter 4 (Figure 4.2, section 4.4.1). This model served to summarise some of the findings from the study described, where results suggested that resilience was predictive of emotional well-being and adjustment to the custodial environment. Results also suggested that resilience is related to positive behaviour and compliance with the rules and expectations of custody. The previous chapter sought to explore the mechanisms by which resilience impacts upon the relationship between risk and outcome across three scenarios related to custodial adjustment. Evidence emerged to suggest that resilience adds something to the prediction of emotional well-being, lending support to compensatory theories of resilience.

The current chapter aims to build upon the results presented so far based on a variable-focused approach by now going on to utilise a person-centred approach. The overall aim of the current chapter is to explore whether groups of participants based on their resilience profiles exist within the data. Initially, any differences between participants identified as vulnerable by prison staff will be compared to their peer group within the prison. Such examination will include the ability of the RSCA (Prince-Embury, 2006, 2007) to predict group membership. Alternative methods of identifying groups of participants based on their profile and pattern of resilience will then be explored utilising cluster analyses techniques. This method of data analysis will enable groups of participants to be identified with similar resilience and vulnerability characteristics, whilst also maximising the difference between groups. This was of particular interest, given the exploratory nature of the current research and the desire to identify the underlying structure of resilience among young people in custody (Hair, Black, Babin, Anderson & Tatham, 2006). This method also has the potential to be

utilised within practice, to help identify those young people with particular resources and/or vulnerabilities within custody.

Given that even within random data, cluster techniques will be able to identify clusters of cases that appear similar, an essential first step is to ensure that there is a theoretical argument for the clustering of cases (e.g., Henry, Tolan & Gorman-Smith, 2001). For the current purposes, the results presented so far have suggested that young people's patterns of resilience within custody differ and are reflective of fluctuations within their emotional well-being and adjustment to the custodial environment. Furthermore, effective means of identifying real groups of young people who differ in their resilience profiles may mean that interventions can be targeted at those in most need, ensuring that resources are utilised effectively. Prince-Embury and Steer (2010), Kumar and colleagues (2010) and Mowder and colleagues (2010) have all utilised cluster analysis techniques to explore patterns of resilience using the RSCA. These results have suggested that real groups of children and adolescents exist with different profiles of resilience and that the treatment and intervention planning with these groups should reflect these differences. Given these potential implications, any evidence for the presence of such clusters requires further exploration and replication (Open Science Collaboration, 2015).

Prince-Embury and Steer (2010) explored clusters within a normative and outpatient clinical sample of young people drawn from four US census regions. Three cluster groups of high resiliency, average resilience and low resource vulnerability were identified, with the majority of participants falling within the average resiliency group. In the clinical sample, four cluster groups emerged of average resiliency, low resource vulnerability, high vulnerability and very high vulnerability, with the majority of participants falling within the high vulnerability group. These individuals were characterised as having below average levels of MAS and REL and high REA, suggesting interventions aimed at coping behaviours, relating to others and managing emotional reactivity would be appropriate. The profiles for the clinical sample showed much the same characteristics as those identified by Kumar and colleagues (2010), who explored the profile of resilience among psychiatric inpatients. Mowder and colleagues (2010) also identified four resiliency profiles when they explored the resiliency profiles of a predominantly female sample of young people in custody within the US. While three of the groups emerged as similar to the clinical profiles described by Prince-

Embury and Steer (2010) and Kumar and colleagues (2010), the fourth group showed more similarity to the normative low resource vulnerability group described by Prince-Embury and Steer (2010). That is, this fourth group showed higher levels of emotional reactivity than the low resource vulnerability group of the Prince-Embury and Steer (2010) study.

While the sample used by Kumar and colleagues was limited to a small sample size and being predominantly caucasian, the study by Prince-Embury and Steer used a much larger sample which was used for the development of the measure. However, the studies by Prince-Embury and Steer and Mowder and colleagues would have benefitted from exploring the evidence for the validity of the clusters against other well-established measures as external validation criteria (Aldenderfer & Blashfield, 1984). Although they considered background, clinical characteristics and the behaviour of the cluster groups (for example, parental education, gender, offending information), it would have been useful to establish whether the findings of Kumar and colleagues regarding the different levels of emotional well-being across the cluster groups could have been replicated. This would have been possible for Prince-Embury and Steer, given that Prince-Embury (2007, 2006) used a range of other measures during the development and validation of the measure. Despite this, the consistency of the clusters identified within these studies is encouraging and all authors make suggestions regarding treatment planning and intervening with these different groups. Further evidence of the consistency of these profiles would lend support to the use of this methodology to identify young people who would benefit from particular treatment pathways and additional support, where necessary. It would also be interesting to determine whether the cluster profiles identified by Mowder and colleagues could be replicated within the current sample, given that their sample was predominantly female. Table 6.1 provides a summary of the results of the studies described.

Table 6.1.

Summary of cluster analysis studies conducted to date utilising the Resiliency Scale for Children and Adolescents (RSCA, Prince-Embury, 2006, 2007)

Author (date)	Sample type and *N*	Summary of findings
Prince-Embury & Steer (2010)	<u>Normative sample</u> Were drawn from four U.S. census regions and matched U.S. census by race and parental education (*N* = 641, females = 320, males = 321) <u>Clinical sample</u> Required one DSM-IV-TV defined disorder to have been diagnosed within the last three months (*N* = 285, females = 140, males = 145)	Identified three cluster groups in normative sample: 1. High resiliency (31%, high MAS, above average REL and below average REA) 2. Average resiliency (44%, average MAS, REL and REA) 3. Low resource vulnerability (25%, low MAS and REL, and average REA) Identified four cluster groups in the clinical sample: 1. Average resiliency (23%, average MAS, REL and REA) 2. Low resource vulnerability (26%, low MAS and REL, and average REA) 3. High vulnerability (31%, below average MAS and REL and high REA) 4. Very high vulnerability (20%, low MAS and REL, and above average REA)
Kumar, Steer & Gulab (2010)	Psychiatric inpatients admitted to an inpatient child and adolescent psychiatric unit of a general hospital (*N* = 100, females = 60, males = 40).	Identified four cluster groups: 1. Average resiliency (29%, average MAS, REL and REA) 2. Low resource vulnerability (29%, below average MAS, average REL and high REA) 3. High vulnerability (25%, low MAS and REL, and above average REA) 4. Very high vulnerability (17%, low MAS and REL, and high REA)
Mowder, Cummings & McKinney (2010)	Juvenile offenders incarcerated in a maximum-security juvenile correctional facility for boys and girls (*N* = 215, female = 164, male = 51).	Identified four cluster groups: 1. Very high vulnerability (15%, low MAS and REL, and high REA) 2. High vulnerability (30%, average MAS and REL, and high REA) 3. Low resource vulnerability (26%, low MAS and REL, and above average REA) 4. Average resiliency (29%, average MAS, REL and REA)

Notes. MAS = Sense of Mastery, REL = Sense of Relatedness and REA = Emotional Reactivity.

It is important to highlight some issues with the cluster analysis procedures used in the studies described above. The process by which researchers decide upon the number of possible clusters within data is extremely subjective (Aldenderfer & Blashfield, 1984; Burns & Burns, 2008) and there appears no accepted means of determining this accurately and reliably (Aldenderfer & Blashfield, 1984). While examining the dendrogram and the agglomeration schedules assists with this stage of the analysis and appears the most popular method of identifying the optimal number of clusters (Aldenderfer & Blashfield, 1984; Clatworthy, Buick, Hankins, Weinman & Horne, 2005), this method is particularly subjective and Everitt and colleagues (Everitt, Landau & Leese, 2001) highlight how this methodology can be influenced by the expectations of the researcher. Furthermore, it is important to be open to the idea that no cluster solution may best describe the data. As Henry and colleagues (2005) have highlighted, "Little statistical guidance exists for choosing one solution over another on the basis of their relative fit to the data" (Henry et al., 2005, p. 125). Mowder and colleagues (2010) suggested that a solution of two to five clusters would best describe their data and stated that a four cluster solution was selected "…based on the theoretical interpretation of the clusters and the model's performance in stability, reliability and validity assessments" (Mowder et al., 2010, p. 328). Although they present this information for their chosen four-cluster solution, no detail is provided of the alternative cluster solutions and their stability, reliability or validity. Prince-Embury and Steer (2010) and Kumar and colleagues (2010) both utilised Sarle's (1983) cubic clustering criterion to determine the number of clusters. When Milligan and Cooper (1985) explored a range of stopping rules for determining the number of clusters in a data set, Sarle's (1983) cubic clustering criterion was found to perform relatively well although it did have a tendency to choose clusters with too many solutions.

Fraley and Raftery (1998) explored the problem of determining the structure of clustered data when there is no prior knowledge of the number of clusters. They suggest that model-based clustering using Bayesian Information Criterion (BIC) allows numerous models to be compared simultaneously and selection of the best model is achieved through utilising the BIC. Yeung, Fraley, Murua, Raftery and Ruzzo (2001) explored the performance of such model-based approaches to cluster analysis using synthetic and real gene expression data sets. They found that the model-based approaches had superior performance on synthetic data and on real data showed comparable performance but with the advantage of suggesting the number of clusters

and an appropriate model. More recent research has utilised this method within psychological research (e.g., Mun, Von Eye, Bates & Vaschillo, 2008; Mun, Windle & Schainker, 2008), where the use of the BIC as an objective fit measure has been utilised.

6.1.1 The current study. The current study will explore any differences between participants identified as vulnerable and non-vulnerable by prison staff, including the ability of the RSCA (Prince-Embury, 2006, 2007) to predict group membership. First, it was hypothesised that young people identified as vulnerable by prison staff would present with lower levels of resilience than those identified as non-vulnerable. It was also hypothesised that young people identified as vulnerable would present with more behavioural indicators of vulnerability, such as increased frequency of placement on an ACCT form (see Chapter 3, section 3.2.3.2.). Second, it was hypothesised that the RSCA would be predictive of such group membership, utilising logistic regression. Despite some of the limitations of the research described above, it was hypothesised that utilising model-based clustering methods would identify quantifiably different clusters of young people based on their patterns of resilience. It was hypothesised that these different clusters of individuals would correspond to the cluster groups identified by Mowder and colleagues (2010), namely, average resiliency, very high vulnerability, high vulnerability and low resource vulnerability.

6.2 Method

6.2.1 Participants. Participants were the same young people described within Chapter 3, section 3.2.1. Methods used to identify and delete outlying cases were described within Chapter 4, section 4.2.3.2., which resulted in a total sample size of 332.

Staff members involved in the case management of young people (e.g., caseworker or Youth Offending Team [YOT] worker) sentenced to custody can refer any young person to a 48-bed Enhanced Support Unit (ESU), if they believe that the young person has complex needs that could not be met within the normal location of a Young Offenders Institution (YOI). Young people assessed as having such complex needs may do so in terms of: being a high risk to themselves and/or others, have physical or mental health needs, intellectual difficulties, communication needs and substance misuse difficulties (Ministry of Justice, undated. For full details of the referral criteria for the unit, please see Appendix G). Referrals are made to the Youth Justice Board's placement team who finalise any placement decision. A sub-sample of

participants (n = 82) were young people identified by those involved in their case management as having such complex needs and were living on a dedicated 48-bed unit within the larger YOI. Given the heightened vulnerability of these young people, these young people will be referred to as 'vulnerable', while young people not living on this unit will be referred to as 'non-vulnerable'. However, as highlighted earlier in this thesis within Chapter 1, section 1.5 and Chapter 3, section 3.4, it is important to recognise the range of adversity that many young people in custody have experienced and the label 'non-vulnerable' has only been selected for use for ease of interpretation.

6.2.2 Measures. The measures used for the purpose of the current study are outlined within Chapter 3, sections 3.2.2 and Chapter 4, 4.2.2.1.

6.2.3 Procedure.

6.2.3.1 Data collection. The data was collected as part of the study described in Chapter 3, section 3.2.3 and Chapter 4, section 4.2.3.1.

6.2.3.2 Data analysis. In order to explore the first hypothesis, a priori power analysis was conducted using G*Power (Faul et al., 2007) to determine the number of participants required to have 80% power for detecting a medium effect size (.05) when applying the traditional .05 criterion of statistical significance within a between subjects ANOVA. This suggested that in order for an effect of this size, a total of 128 participants would be required.

Given that within grouped data, assumptions of the data are applied to the groups and not the overall sample (Tabachnick & Fidell, 2014), the normality of the data within the vulnerable and non-vulnerable groups were explored utilising the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk tests. While there was no evidence of non-normality among the vulnerable participants data, there was some evidence of non-normality in MAS scores among the non-vulnerable participants from the K-S test, $D(250) = .060$, $p = .032$. Given that these tests can be significant in large samples even with only small deviations from normality (Field, 2013), the histograms, Q-Q plots and vales of kurtosis and skewness were also examined. The visual analysis of the normality histograms appeared normal and levels of kurtosis and skewness did not exceed the suggested levels of Kline (2011, see Chapter 4, section 4.2.3.2) and therefore no transformation was felt necessary. With regards to the distribution of scores from the BYI-II and CAQ, there was a range of issues regarding non-normality, none of which

were rectified when transformations were conducted. As a result, any differences between groups on these measures were explored using non-parametric testing.

In order to explore the second hypothesis, a priori power analysis was also conducted using G*Power to determine the number of participants required to have 80% power for detecting a medium effect size (.05) when applying the traditional .05 criterion of statistical significance when using logistic regression. This suggested that in order for an effect of this size, a total of 165 participants would be required. Given that logistic regression makes fewer assumptions of the data, issues of non-normality, linearity and equal variances between groups are unlikely to impact upon results (Tabacknick & Fidell, 2014) and were therefore not considered as part of the data analysis.

It was not possible to complete a priori power analysis to determine the number of participants required in order to explore any differences between cluster groups identified, given that it was not known how many groups would be identified in advance. However, recent research utilising cluster analysis techniques have had similar sample sizes to the current study (e.g., Valmaggia et al., 2013) suggesting that there would be sufficient power for detecting a medium effect size when applying the traditional .05 criterion of statistical significance.

Cluster analysis is an exploratory data reduction tool which can be used to make sense of a large amount of data by organising data into clusters of cases that appear similar (Burns & Burns, 2008). Although similar to factor analysis in that cluster analysis is a data reduction technique, cluster analysis reduces the number of cases (as opposed to variables) into smaller clusters that are similar to each other and dissimilar to cases in other clusters (Burns & Burns, 2008). Participants' RSCA factor scores (MAS, REL and REA) were used as the basis for the clustering. While some have argued for the use of standardised scores in cluster analysis (e.g., Bourdeaudhuij & van Oost, 1998; Henry et al., 2001), the use of non-standardised scores for model-based clustering does not appear to change the outcome of the analyses (Mun et al., 2008). Furthermore, the use of non-standardised scores would also facilitate ease of interpretation.

There is large variability in the reporting practices of cluster analyses and some have suggested that reporting practices are unsatisfactory (Clatworthy et al., 2005). Guidelines provided by Aldenderfer and Blashfield (1984) suggest that the following

details should be provided in any reporting of cluster analysis and these will be adhered to within the current study. Specifically, they indicate that researchers should provide detail of:

I. Which computer programme has been used to perform the analysis;
II. Which similarity measure has been used;
III. Which cluster method has been used;
IV. Which procedure has been used to determine the number of clusters; and
V. How evidence for the validity of the clusters has been completed.

The cluster analysis was conducted using the R programme. The R programme has a number of functions to conduct such analyses, including hierarchical agglomerative, partitioning and model based approaches (Kabacoff, 2014). In particular, the use of the R package to conduct model based analyses allows use of maximum likelihood estimation and Bayesian information criterion (BIC) to help select the best model. A further advantage of model-based clustering is that cluster models are created that vary in size (number of individuals allocated to clusters), orientation and shape (Mun et al., 2008). A key to the different types of models is provided in Appendix H.

While Ward's method appears to be the most preferred method of clustering, this method tends to favour clusters of similar size and spherical shape (Mun et al., 2008). In model-based clustering, the model is chosen according to the highest BIC value (Kabacoff, 2014). While this method helps to introduce an external criterion for the best fitting model, evidence for the validity of any cluster solution needs to be explored to ensure that the chosen cluster solution is of value (Clatworthy et al., 2005). Model-based clustering uses the expectation-maximisation algorithm for maximum likelihood (ML) estimation (Mun et al., 2008). All subsequent analyses to explore the validity of the cluster solution were conducted using SPSS version 22 and 23.

Aldenderfer and Blashfield (1984) describe five techniques that are often used for validating cluster models:

I. Cophenetic correlation;
II. Significance tests on variables used to create clusters;
III. Replication;
IV. Significance tests on independent variables; and
V. Monte Carlo procedures.

Aldenderfer and Blashfield (1984) criticise both the cophenetic correlation method and the use of significance tests on the variables used to create the clusters. The replication method is more useful as they suggest that an unstable cluster solution is unlikely to be useful but highlight that a "successful replication does not guarantee the validity of the solution" (Aldenderfer & Blashfield, 1984, p. 65). However, validating a cluster solution using significance tests on external variables is described as a better means of validating a model, as this enables the researcher to test the cluster model against external validation criteria. Monte Carlo methods involve creating a data set with the same characteristics as that used to create the cluster model but with no clusters and then using this data to create and explore the cluster solution. Given the complexity of the Monte Carlo methods, validation using significance tests on external variables will be used for validating the cluster models within the current research.

6.3 Results

6.3.1 Comparison of vulnerable and non-vulnerable participants.

Table 6.2 shows the means and standard deviations for the RSCA factor and subscales for the vulnerable and non-vulnerable participants.

Table 6.2.

RSCA factor and subscale means and standard deviations for non-vulnerable and vulnerable participants (N = 332)

RSCA factors and subscales	Non-vulnerable (n = 250)		Vulnerable (n = 82)				
	Mean	*SD*	Mean	*SD*	*t*	*p*	*r*
MAS	51.38	10.68	48.39	11.81	-2.14	.033	0.12
Optimism	17.67	4.13	16.51	4.41	-2.17	.031	0.12
Self-efficacy	25.81	6.10	24.04	6.67	-2.23	.027	0.12
Adaptability	7.90	2.39	7.84	2.47	-0.20	.839	0.01
REL	66.02	13.45	60.39	15.68	-3.15	.002	0.17
Trust	18.78	4.43	16.84	5.29	-3.27	.001	0.18
Support	18.04	4.17	16.45	5.01	-2.84	.005	0.15
Comfort	11.07	2.95	10.12	3.18	-2.48	.014	0.14
Tolerance	18.12	4.48	16.98	4.57	-2.01	.046	0.11
REA*	33.18	14.12	32.56	14.57	-0.34	.733	0.02
Sensitivity*	9.51	4.13	9.10	4.80	-0.75	.455	0.04
Recovery*	4.81	3.92	5.38	3.81	1.15	.250	0.06
Impairment*	18.86	8.56	18.09	8.60	-0.71	.476	0.04
Vulnerability Index (VI)	10.50	13.03	12.97	15.03	1.44	.152	0.08
Resource Index (RI)	46.46	8.63	43.60	7.44	-2.90	.004	0.16

Note: *Higher scores are suggestive of more problematic emotional reactivity

Vulnerable participants were characterised as having significantly lower levels of MAS, Optimism, Self-Efficacy, REL, Sense of Trust, Perceived Access to Support,

Comfort with Others and Resource Index than non-vulnerable participants. These findings suggest that partial support for the hypothesis that vulnerable participants will have lower levels of resilience has been found.

The scores for the vulnerable and non-vulnerable participants were explored in relation to the interpretation guidance provided within the RSCA manual. Vulnerable participants were characterised as having *below average* MAS (T score = 44) and REL (T score = 43) and *above average* REA (T score = 57). Non-vulnerable participants were characterised as having *average* MAS (T score = 46), *average* REL (T score = 47) and *above average* REA (T score = 57).

Figure 6.1 shows the non-vulnerable and vulnerable groups mean scores for MAS, REL and REA, with error bars showing the 95% confidence intervals (CIs).

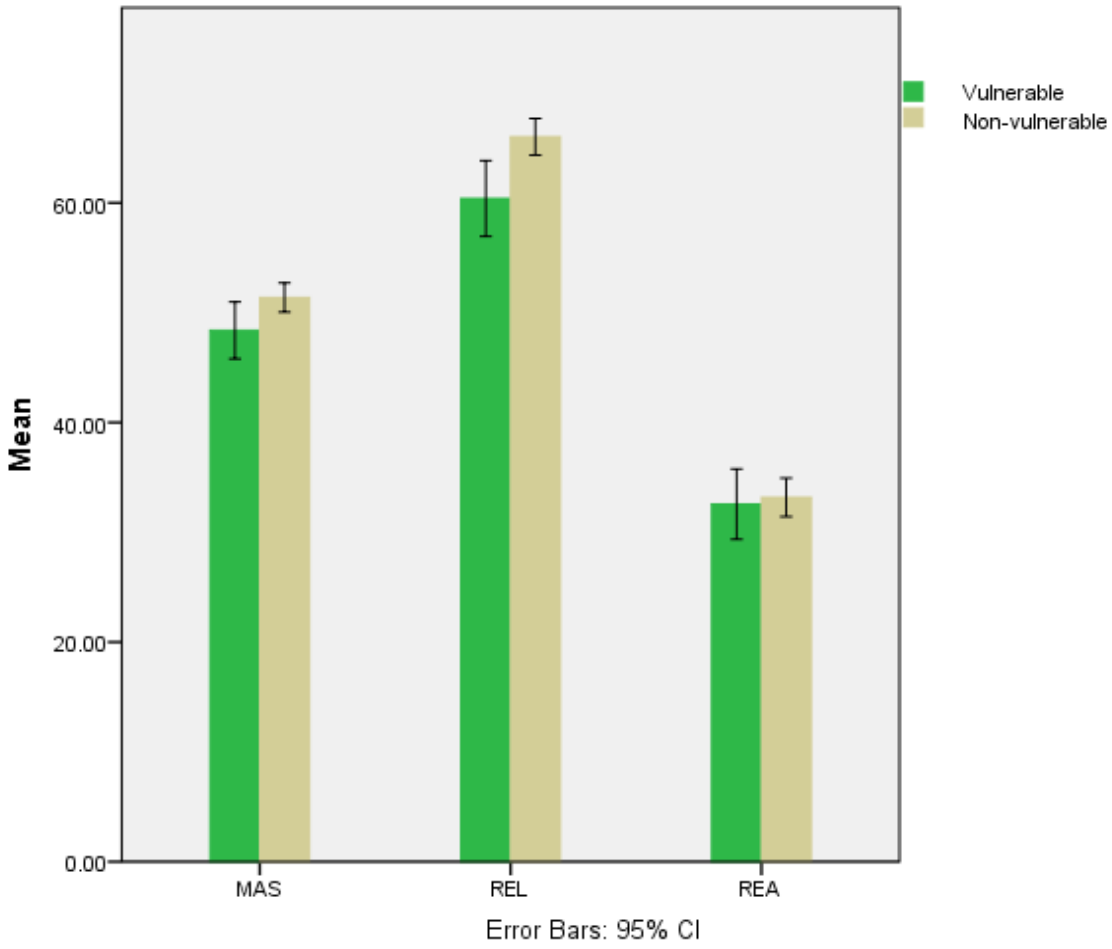


Figure 6.1. Vulnerable and non-vulnerable groups mean scores for MAS, REL and REA (95% CIs)

In order to explore the differences between the vulnerable and non-vulnerable participants further, differences between groups based on responses to the BYI-II (Beck

et al., 2005) and CAQ (Thornton, 1987) were examined using the Mann-Whitney U test and are shown in Table 6.3.

Table 6.3.

BYI-II and CAQ medians and interquartile range (IQR) for the non-vulnerable and vulnerable participants (N = 332)

	Non-vulnerable (N = 250)		Vulnerable (N = 82)				
	Median	*IQR*	Median	*IQR*	*U*	*p*	*r*
BYI-II							
Self-Concept	37.34	14.00	35.00	16.00	12093.00	.014	.13
Anxiety	6.00	10.25	12.00	13.50	6793.50	.000	.25
Depression	7.00	10.00	11.00	15.00	7125.50	.000	.23
Anger	11.00	13.00	17.00	13.00	7981.50	.003	.17
Disruptive	15.00	14.00	13.33	12.25	10993.50	.324	.05
CAQ							
Staff	6.00	4.00	7.00	4.00	7925.00	.002	.17
Inmate	4.00	2.00	4.00	2.00	11113.00	.243	.06
Distress	2.00	3.00	4.00	6.00	7499.00	.000	.20
Deviance	3.00	4.00	2.00	3.25	11648.00	.061	.10
Poor adjustment[a]	5.50	6.00	7.00	6.00	9115.50	.131	.08
Good adjustment[b]	10.00	4.00	10.00	4.00	8850.50	.062	.10

[a] CAQ poor adjustment = CAQ distress + CAQ deviance

[b] CAQ good adjustment = CAQ staff + CAQ inmate

Vulnerable participants were characterised as having significantly lower levels of BYI-II Self-Concept and significantly higher levels of BYI-II Anxiety, Depression and Anger and CAQ Staff and Distress than non-vulnerable participants. These results were particularly marked in relation to BYI-II Anxiety and Depression and CAQ Distress, suggesting that vulnerable participants were faced with particular difficulties managing internalising difficulties.

6.3.1.1 Behavioural indictors of vulnerability. Two behavioural indicators of vulnerability were examined, frequency of placement upon ACCT and number of proven discipline infractions. Vulnerable participants were found to have been placed on ACCT on significantly more occasions (M = 1.02, SE = 0.20) than non-vulnerable participants (M = 0.29, SE = 0.06). This difference, 0.73, BCa 95% CI [0.37. 1.16], was significant $t(238) = 4.81$, $p = .000$, which represented a moderate effect size, $r = .30$.

Vulnerable participants were found to have fewer proven discipline infractions (M = 2.25, SE = - 0.38) than non-vulnerable participants (M = 3.00, SE = 0.01). This difference, - 0.76, BCa 95% CI [- 1.63, 0.14], was non-significant $t(238) = - 1.55$, $p = .123$, which represented a small effect size, $r = .10$. Calculating the required sample size for this finding to have reached significance utilising G*Power (Faul et al., 2007) suggested that a total sample of 620 would have been required.

6.3.2 Predictive potential of the RSCA in relation to vulnerable and non-vulnerable group membership. In order to explore the hypothesis that the RSCA would be predictive of vulnerable and non-vulnerable group membership, logistic regression was used.

In order to build an initial model, explore competing models and determine which model best fitted the data, the three factors of the RSCA (and the interaction between them) were entered hierarchically into a logistic regression. Given that the results presented so far have emphasised the significance of young people's Sense of Relatedness, in the initial model, REL was entered first and was found to be significant, $\chi(1) = 9.72$, $p = .002$, suggesting that REL significantly predicted group membership. The addition of MAS, $\chi(1) = 0.001$, $p = .977$, REL, $\chi(1) = 0.689$, $p = .406$, and the interactions between MAS, REL and REA did not significantly improve the model. These initial analyses suggested that the model with REL predicting group membership should be proceeded with.

The Wald statistic, which indicates whether the *b* coefficient for a predictor is significantly different from zero, for REL was significant, $\chi^2 = 9.395$, p = .002. Given that the odds ratio is greater than one, this suggests that as REL increases, the odds of being classified as non-vulnerable increase. However, the model explained only 4% (Nagelkerke R^2) of the variance in being identified as vulnerable or non-vulnerable. Coefficients of the model are shown in Table 6.4.

Table 6.4.

Coefficients of the model predicting whether a young person was identified as vulnerable or non-vulnerable by prison staff (95% BCa bootstrap confidence intervals based on 1000 samples)

	b	*p*	95% CI for Odds Ratio		
			Lower	Odds	Upper
Constant	-0.67				
	[-1.75, 0.51]				
REL	0.03	.003	1.01	1.03	1.05
	[0.01, 0.05]				

Note. R^2 = .03 (Cox & Snell), R^2 = .04 (Nagelkerke).

A receiver operating characteristic (ROC) analysis was conducted in order to provide a graphical plot of the performance of REL in predicting vulnerable vs. non-vulnerable group membership (see Figure 6.2).

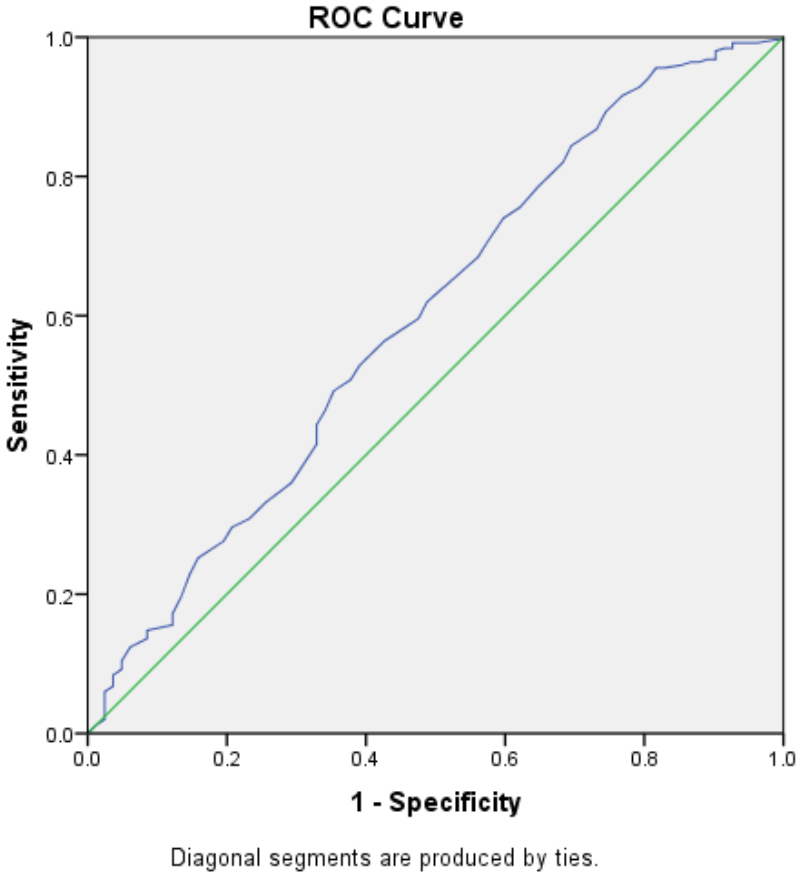


Figure 6.2. ROC curves showing discrimination between vulnerable and non-vulnerable participants based on levels of REL

The area under the ROC curve (AUC) ranges from 0.5 to 1.0, with larger values indicating a better fit. The AUC was .599 [.526, .672], p = .007, suggesting that REL was able to classify young people as either vulnerable or non-vulnerable better than chance. According to Swets' (1988) interpretation guidelines, AUC figures between 0.5 and 0.7 suggest low accuracy, figures between 0.7 and .09 suggest moderate accuracy and figures above 0.9 suggest high accuracy. This suggests low accuracy for the current model.

6.3.3 Model-based cluster analysis. Initially, the general heterogeneity of participants was considered. As outlined within Chapter 3, section 3.3.5, overall young people's levels of MAS and REL fell within the below average range and REA fell in the above average range. While these scores were normally distributed, the range of scores suggested levels of MAS, REL and REA all ranged from low (T scores ≤ 40) to high (T scores ≥ 60) suggesting diverse patterns of resilience existed among participants. A similar large range of scores also emerged in terms of young people's

mental health vulnerabilities (as suggested by their scores on the BYI-II) and custodial adjustment (as suggested by their scores on the CAQ).

In order to explore the hypothesis that quantifiably different clusters of young people based on their patterns of resilience would be identified and that these different clusters of individuals would correspond to the cluster groups identified by Mowder and colleagues (2010), participant's scores on the MAS, REL and REA factors of the RSCA were analysed in a model-based cluster analysis using the R programme. This was conducted in order to determine whether heterogeneity existed with regards to the pattern and profile of resilience and vulnerability among participants.

Figure 6.3 shows the results of the model-based clustering where the BIC values for the different cluster models are shown[5].

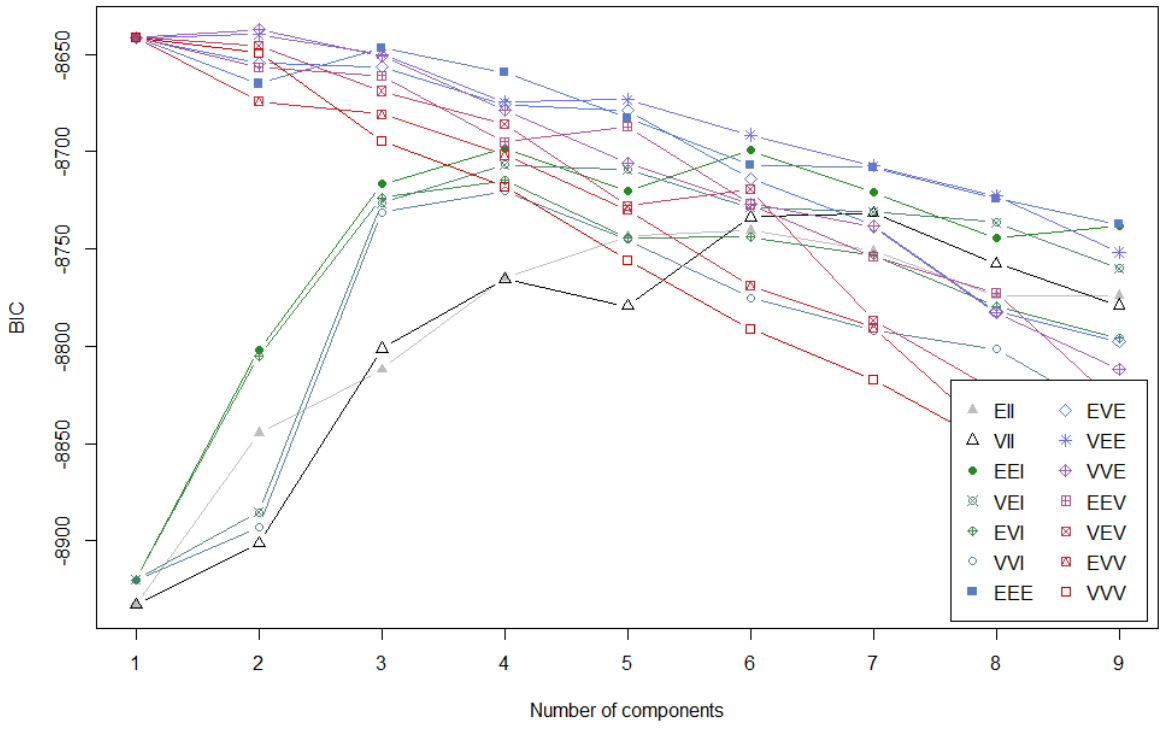


Figure 6.3. Bayesian Information Criterion (BIC) for the different cluster models

Figure 6.3 suggests that a 2 cluster VVE model was the best fitting model to the data, with a BIC of -8637.31. VVE models reflect a cluster solution characterised by ellipsoidal and equal orientation clusters. This model has two clusters, with 135

[5] Please refer to Appendix H for details of the different models outlined within the legend of Figure 6.3.

participants in the first group and 197 in the second. However, it is clear from Figure 6.3 that a number of other models had a very similar BIC value. In particular, there is some support to suggest that one group (i.e., no clusters) exists within the data, with eight models with one cluster having a BIC value of -8641.38. It is important for researchers to be open to the fact that the best fitting model for their data may be that no clusters exist, and one of the major advantages of model-based clustering is that the external criteria of the BIC helps to avoid researcher bias. Raftery (1995) suggests that a difference of 0 to 2 would be weak support for the best fitting model, 2 to 6 would be positive support, 6 to 10 would be good support and values above 10 would be very strong support. The difference between the best two fitting models for the current data is 4.07, suggesting that there is some positive support for the two-cluster model. However, given the similarity in the BIC values for a number of models from the current analyses, the usefulness of this model requires careful consideration.

Initially, the profile of resilience and vulnerability across the two clusters was examined and is shown in Table 6.5.

Table 6.5.

Comparison of the two-cluster model on the RSCA (N = 332)

	Cluster 1 (*n* = 135)		Cluster 2 (*n* = 197)		*t*	*p*
	Mean	*SD*	Mean	*SD*		
MAS	50.47	12.86	50.83	9.59	-0.30	.768
REL	64.91	16.30	64.52	12.61	0.25	.798
REA	32.31	18.58	33.46	10.21	-0.72	.471

As can be seen from Table 6.5, no significant differences emerged between the two cluster groups based on their scores from RSCA. The fourth stage suggested by Aldenderfer and Blashfield (1984) for validating cluster models is to explore any differences between groups on independent variables. These analyses suggested that no differences emerged between the two cluster groups on any of the variables from the BYI-II or the CAQ (please see Appendix I).

While the BIC value of the VVE two cluster model suggested some positive support for a two-cluster model (Raftery, 1995), the analyses described above show that no significant differences emerged between the two groups. This suggests that there is no support for the existence of naturally occurring clusters of the participants based on the pattern and profile of resilience. Therefore, the hypothesis that quantifiably different clusters of young people based on their patterns of resilience would be found was rejected. Furthermore, the hypothesis that any such clusters would correspond to the cluster groups identified by Mowder and colleagues (2010) was also therefore rejected.

6.4 Discussion

The current study utilised a person-focused approach (Masten, 2001; Masten et al., 2009) to explore whether groups of participants based on profiles of resilience and vulnerability exist within the data. Initially, differences between participants identified as vulnerable and non-vulnerable by prison staff were explored, along with the ability of the RSCA (Prince-Embury, 2006, 2007) to predict group membership. It was hypothesised that young people identified as vulnerable by prison staff would present with lower levels of resilience than those identified as non-vulnerable and that the RSCA would be predictive of such group membership. It was also hypothesised that utilising model-based clustering methods would identify quantifiably different clusters of young people based on their patterns of resilience. It was hypothesised that these cluster groups would correspond to the cluster groups identified by Mowder and colleagues (2010), namely, average resiliency, very high vulnerability, high vulnerability and low resource vulnerability.

Results suggested that quantifiable differences exist between vulnerable and non-vulnerable participants in relation to their resilience. In particular, vulnerable participants were found to have significantly lower levels of Sense of Mastery and Sense of Relatedness than non-vulnerable participants. They were also found to have significantly lower levels of Optimism, Self-Efficacy, Sense of Trust, Perceived Access to Support, Comfort with Others and Resource Index than non-vulnerable participants. These findings lend support to the hypothesis made, and suggest that young people identified as vulnerable were experiencing difficulties with feelings of competence, mastery, efficacy and optimism. They were also experiencing difficulties with their relational ability, in particular in relation to perceived support, sense of trust and comfort with others. These vulnerabilities appeared summarised within the lower Resource Index experienced by these young people. These findings also lend some

support to self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000) which argues that well-being will be dependent upon the three innate needs of competence, autonomy and relatedness. Here, difficulties with feelings of competence, mastery, efficacy, optimism and relational ability were found to be heightened among vulnerable participants, suggesting that poor emotional well-being was associated with the innate needs described by Ryan and Deci (2000). However, as noted within the limitations discussion, it is not possible to make any causal conclusions given the nature of this study.

Interestingly, no differences emerged between the vulnerable and non-vulnerable groups in terms of their Emotional Reactivity, despite the strong negative relationship between both the Sense of Mastery and Sense of Relatedness factors and the Emotional Reactivity factor (see Chapter 3, section 3.3.3). In fact, both groups of participants had higher than average levels of Emotional Reactivity, which is similar to the findings reported by Mowder and colleagues (2010) in their sample of young people in custody in the US. These findings highlight the particular vulnerabilities that many young people in custody appear to have in relation to their ability to tolerate, recover and not be impaired by their experience of strong emotions. These findings suggest partial support for the hypothesis that vulnerable participants will have lower levels of resilience.

The particular difficulties faced by young people identified as vulnerable by prison staff were also highlighted by the findings that they had significantly lower levels of Self-Concept and significantly higher levels of Anxiety, Depression, Anger, positive regard for staff members and Distress than non-vulnerable participants. These results were particularly marked in relation to levels of Anxiety, Depression and Distress, suggesting that vulnerable participants were faced with particular difficulties managing internalising difficulties. These results suggest that young people identified as vulnerable had heightened mental health vulnerability and poorer emotional well-being, providing further support to assertions of self-determination theory. The difficulties faced by vulnerable young people were further highlighted by their more frequent placement on ACCT, suggesting that young people identified as vulnerable were more frequently identified as being at risk of suicide and/or self-injurious behaviour and required additional support to manage this risk. While no differences emerged between groups based on the number of proven discipline infractions they had accumulated to date, these results provide some support that staff involved in the case management of

young people in custody were able to identify those whose vulnerabilities meant that they would benefit from the regime of the enhanced support unit described within section 6.2.1.

The current findings have suggested that there were quantifiable differences between these two groups of young people, and add some weight to the assessments made by staff members in assessing vulnerability. However, no differences emerged between the groups based on their levels of Emotional Reactivity, despite evidence to suggest that emotional and behavioural regulation difficulties can have potentially negative short- and long-term consequences (e.g., Clingempeel & Henggeler, 2003). Furthermore, the lack of robust assessment procedures to determine suitability for the unit mean there is a heavy reliance upon the skills of the staff members making such referrals. While many have worked with young people within custody for a number of years, these staff members are not trained clinicians and results suggest that vulnerability is being considered in terms of internalising difficulties alone. While this would certainly fit with the aims of the unit, a possible lack of knowledge regarding the complexities of vulnerability among young people in custody may mean that comorbid externalising difficulties are not considered. For example, White (1999) has highlighted evidence regarding the relationship between Attention Deficit / Hyperactivity Disorder (ADHD), anxiety and neuroticism, and suggests that treatment needs to consider comorbid difficulties if long-term success is to be achieved. Furthermore, recent research has highlighted how aggression, ADHD symptoms and depression in young boys (aged 10) predicts later features of personality difficulties (Vaillancourt et al., 2014).

The offending sample reported here and by Mowder and colleagues (2010) both have elevated levels of Emotional Reactivity compared to the normal samples described by Prince-Embury and Steer (2010). If elevated levels of Emotional Reactivity are a feature of this population, it is unlikely that staff will consider such difficulties as a marker for vulnerability, despite evidence to suggest that emotional and behavioural regulation difficulties can have potentially negative short- and long-term consequences (e.g., Clingempeel & Henggeler, 2003; Vaillancourt et al., 2014). The impact of emotional and behavioural regulation difficulties upon behaviour displayed within custody may mask such vulnerability, as staff members pay attention to the management of such externalising behaviours. Considering vulnerability in terms of internalising difficulties alone could be at the expense of considering the vulnerabilities

also associated with externalising behaviours. If this is true, other means of assessing resilience and vulnerability among young people within custody may help to identify those young people who experience the greatest difficulties, in terms of both internalising and externalising difficulties. However, the current lack of robust assessment processes to identify vulnerability and needs among young people in custody mean that decisions are made based on the views of staff members involved in case management. As Schwalbe and colleagues (2013) have highlighted, the high prevalence of mental health problems among incarcerated young people suggests that institutions need to consider both the assessment and treatment of young people in custody. Most recent statistics report that there are 1,012 young people currently in custody (April 2016 Youth Custody Data, Ministry of Justice and Youth Justice Board for England and Wales, 2016). The dedicated 48-bed unit described within section 6.2.1 should therefore be reserved for the most vulnerable 5% of the population. The following chapter will describe the development of a composite measure of resilience and vulnerability which could be utilised to compliment current processes to identify young people who may benefit from such additional support.

In order to explore the hypothesis that the RSCA would be predictive of vulnerable and non-vulnerable group membership, logistic regression was used. This suggested that levels of REL made a significant contribution to whether young people were identified as vulnerable by prison staff. This suggests that while differences emerged between young people identified as vulnerable and non-vulnerable across a number of variables, only their feelings of relatedness were able to predict such group membership. While this effect was small and only provided low accuracy of discrimination according to Swets's guidelines for interpretation, this does lend further support for the arguments made within Chapters 4 and 5, where the importance of young people's sense of relatedness to their adjustment to the custodial environment has been highlighted. It also suggests that for young people within custody, relatedness may have a particular role to play in promoting well-being offering some support to the arguments made by Ryan and Deci (2000). However, it could also suggest that some of the innate needs outlined within self-determination theory as being key for well-being may be more important within certain circumstances than others. The current study suggests that the absence of such strengths is predictive of placement upon an enhanced support unit which is reserved for the most vulnerable. Given that the overall aim of this unit is to "… provide a safe, secure and supportive environment for young people…"

(Keppel Placement Protocol, Ministry of Justice, undated, p. 2, see Appendix G), this unit may be in a better position to consider some of the systemic processes that may assist with the development of relatedness. However, given the apparent heterogeneity among young people in custody this should not be at the expense of the remaining 95% of young people currently in custody within England and Wales, despite the significant challenges that this may present (see Chapter 5, section 5.4).

The hypothesis that quantifiably different clusters of young people would be identified utilising model-based cluster analysis was not supported and therefore no evidence emerged to support the cluster groups identified within previous research (e.g., Mowder et al., 2010). Any arguments for the emergence of 'real' clusters of individuals have to be supported by arguments regarding the usefulness of such clusters (Mun et al., 2008) and the results presented suggest that the two cluster model is not useful. While previous research has argued for the usefulness of previously identified cluster solutions in terms of treatment and intervention planning with children and adolescents (e.g., Mowder et al., 2010; Prince-Embury & Steer, 2010), the failure to replicate these findings and the limitations of the cluster analysis methods utilised within previous research raises doubt regarding the findings of Mowder and colleagues (2010) and Prince-Embury and Steer (2010). The failure of the current study to replicate these findings using the more robust method of model-based clustering also suggests that researchers need to carefully plan research activities ensuring that the most robust methods are utilised. This is especially important given the potential implications for the intervention and treatment planning with vulnerable children and adolescents.

The results here also raise doubt regarding the ability to find homogeneity in the current population. While some homogeneity may exist among young people in custody in terms of their resilience, the range of potential individual differences that exist within the population may mean that identification of distinct groups is unrealistic. This suggests that how decisions are made regarding young people's vulnerability within custody need to be carefully considered. This is especially true given the fact that some young people are diverted from 'mainstream' prison accommodation to the unit described within section 6.2.1. While differences have emerged between vulnerable and non-vulnerable young people, the evidence that levels of emotional reactivity are not being considered as part of these vulnerability assessments suggests that other means of assessing resilience and vulnerability may be required. Furthermore, the lack of a robust methodology for assessing young people's potential suitability for the enhanced support

unit described in section 6.2.1.requires further attention, especially given that this limited resource should be reserved for the most vulnerable 5% of young people in custody within the UK. The following Chapter will describe the development of a composite measure of resilience and vulnerability which may assist practitioners with some of these decisions.

The current study is not without limitations. As explored within Chapter 4, the initial periods of incarceration appear associated with functioning difficulties and the current study did not explore or control for the amount of time young people had been in prison. Furthermore, while significant differences emerged between vulnerable and non-vulnerable young people based on the frequency of placement on ACCT, given that one of the suitability criteria for the enhanced support unit is current self-harm or suicidal behaviour (see Appendix G), this difference is not surprising, and exploring young people's vulnerabilities across other indicators of vulnerability and functioning may have also been helpful. The cross-sectional nature of the current study means that it is also not possible to draw any causal conclusions. In particular, it is not possible to conclude whether the differences that emerged between the vulnerable and non-vulnerable participants resulted in their different locations within the establishment or were a consequence of it. The literature would also suggest that resilience is both time and context dependent and it was not possible to explore the possible development of resilience within either the vulnerable or non-vulnerable participants. This may be particularly valuable to explore among those young people who are initially assessed as vulnerable but then transition to a standard location with time. Analyses conducted suggested some support for the hypothesis that resilience would be predictive of vulnerable and non-vulnerable group membership. However, Sense of Relatedness explained a small proportion of the variance suggesting that other factors not explored within the current study are important in relation to group membership. While no evidence emerged regarding the presence of naturally occurring clusters of young people based on their resilience, naturally occurring clusters may have emerged if other variables were used as the basis for the clustering. For example, differences between vulnerable and non-vulnerable young people were particularly evident in terms of self-reported Anxiety, Depression and Distress. Utilising these variables as the basis for clustering may have revealed naturally occurring groups of young people. This is worthy of further exploration given that different groups of young people within custody are offered very different regimes and support depending upon their level of

assumed vulnerability. However, given the apparent heterogeneity within the sample that has emerged as part of the current analyses, it could also be argued that categorising young people based on their vulnerability fails to adequately acknowledge and recognise the inherent vulnerability of all young people within custody, arguments which are further expanded upon within Chapter 8.

The following chapter describes the development of a composite measure of resilience and vulnerability and will explore the validity of this measure against a range of indicators of vulnerability and functioning.

Chapter 7 The Development of a Composite Measure of Resilience and Vulnerability (CM-RV) for Young People in Custody

7.1 Introduction

The results presented so far have suggested that the assessment of resilience within young people in custody may be of value when considering adjustment to custody and emotional well-being. Results have also suggested that resilience is related to positive behaviour during custody and that strategies to promote resilience may help enable young people to comply with the rules and expectations of custody. However, results have also highlighted the particular vulnerabilities experienced by young people in custody, with distress and poor emotional well-being being particularly problematic within the early periods of incarceration. Self-reported levels of Emotional Reactivity were found to be highly positively related to, and predictive of, levels of Anxiety and Depression within Chapter 4. Findings have also suggested that addressing maladjustment among young people in custody requires attending to both internalising and externalising difficulties. However, current processes to identify needs and vulnerabilities in young people lack robustness and appear to focus upon internalising difficulties alone. Arguments were made within Chapter 6 regarding the need for more robust assessments of resilience and vulnerability to be considered. While previous research has suggested that the use of clustering techniques may assist with this process, the results presented within Chapter 6 raise doubt regarding the methodologies used, conclusions drawn and therefore usefulness of such techniques for practitioners. Taken together, the results presented so far suggest that alternative means of assessing resilience and vulnerability in practice may be warranted.

The measures utilised within the current thesis have been particularly revealing regarding the profile of resilience and vulnerability among young people in custody. However, it is unrealistic to expect that such lengthy measures would be routinely used within practice. A number of the variables that have been explored have been intercorrelated, particularly variables related to resilience and emotional well-being. Given these arguments, a composite measure (Roger, Birks, Forbes, Najarian & Nash, 1999) to measure resilience may be of benefit within forensic practice.

The aim of the current chapter is to describe the development of such a composite measure, to explore the predictive power of such a measure and possible avenues where it could be applied within practice.

7.2 Method

7.2.1 Participants. Participants were the same male adolescent offenders described within preceding chapters (N = 332). A subsample of participants (n = 61) from the current study also completed the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij & Spinhoven, 2002), details of which are provided below. The mean age of these participants was 209 months (SD = 7.87), which corresponded to 17 years and 5 months and matched that of the main sample. These participants were serving on average a 22 month sentence (SD = 18.98). These details broadly matched that of the main sample.

7.2.2 Measures. Measures used in the creation of the composite measure were the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007), the Beck Youth Inventory, 2nd edition (BYI-II -II; Beck et al., 2005) and the Custodial Adjustment Questionnaire (CAQ; Thornton, 1987) details of which are provided in Chapter 3, section 3.2.2 and Chapter 4, section 4.2.2.1. In addition, information regarding vulnerability (including risk of suicidal ideation and behaviours) and IEP level were used to validate the composite measure (please refer to Chapter 4 for further details).

In order to explore the concurrent validation of the composite measure, the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2002) was used. The CERQ is a questionnaire designed to measure an individual's cognitive coping strategies. The measure was developed as a means of measuring an individual's thoughts in relation to a stressful event recently experienced. While other coping measures explore both cognitive and behavioural aspects of coping, Garnefski and colleagues have developed the CERQ as a means of exploring the cognitive aspects of coping. It is a 36-item measure that measures nine different coping strategies comprising: Self-blame (Item 1, "I feel that I am the one to blame for it"), Acceptance (Item 2, "I think that I have to accept that this has happened"), Rumination (Item 3, "I often think about how I feel about what I have experienced"), Positive Refocusing (Item 4, "I think of nicer things than what I have experienced"), Refocus Planning (Item 5, "I think of what I can do best"), Positive Reappraisal (Item 6, "I think I can learn something from the situation"), Putting Into Perspective (Item 7, "I think that it all could have been much worse"), Catastrophizing (Item 8, "I often think that what I have experienced is much worse than what others have experienced") and Other Blame (Item

9, “I feel that others are to blame for it”). Responses are made on a five-point Likert type scale. A range of normative comparison groups is available within the CERQ manual, including early adolescents (13 to 15 years of age, N = 586) and late adolescents samples (16 to 18 years of age, N = 979). The internal consistency of the measure in the late adolescence sample (the best match to the current sample) ranged from acceptable (Self-blame .68) to good (Rumination .79).

A subsample of participants (N = 61) from the current study also completed the CERQ (further details are provided within section 7.2.1.) and the internal consistency of the measure within this sample was found to be good apart from Positive Refocusing, which was somewhat lower (Self-blame .68, Acceptance .70, Rumination .82, Positive Refocusing .54, Refocus on Planning .82, Positive Reappraisal .82, Putting Into Perspective .74, Catastrophizing .78 and Other Blame .80).

7.2.3 Procedure.

7.2.3.1 Data collection. The data was collected as part of the study described in Chapter 3, section 3.2.3.

7.2.3.2 Data analysis. The methods utilised within the current research for dealing with missing values was outlined within Chapter 3, section 3.3.1 and Chapter 4, section 4.2.3.2. Data was therefore available from 332 participants with no missing values, which met the guideline of having at least 300 cases for Exploratory Factor Analysis (EFA) provided by Tabachnick and Fidell (2014).

The distributions of all of the items from the RSCA, BYI-II and CAQ (207 items) were examined for normality. For the RSCA, there were some issues with negative skewness on items from the MAS and REL factors and positive skewness on items from the REA factor. For the CAQ and BYI-II, there were issues with both negative and positive skewness on some items. Kline (2011) suggests that absolute kurtosis figures above 10 would suggest a problem and skewness figures above 3 would be extremely skewed. None of the absolute skewness or kurtosis values exceeded the guidelines suggested by Kline (2011) and given that these measures are already published and in use, no deletion or transformations were made at this stage (Tabachnick & Fidell, 2007).

The RSCA is scored on a 5-point Likert type scale, the BYI-II on a 4-point Likert type scale and the CAQ on a dichotomous true-false basis. Given that the

correlation matrix takes into account different measurement scales (Field, 2013), this matrix was utilised in the analyses. However, any items used in a final composite measure of resilience and vulnerability would need to be transformed to ensure that the same measurement scale is used for ease of administration and scoring.

The correlation matrix was explored to identify any items that had many correlations below .3 or above .8 (Field, 2013) and none were identified. The correlation matrix showed numerous correlations between the items, suggesting that patterns in responses would be anticipated (Tabachnick & Fidell, 2007, 2014). The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO, Kaiser, 1970) was found to be acceptable (.779), suggesting that the sample size was adequate for the factor analysis. KMO values were also calculated for each item and eight items fell below the .5 acceptable figure (Kaiser, 1974) and were therefore removed from further analyses (one item from the RSCA 'I get very upset when people don't like me', one item from the BYI-II self-concept 'I am good at telling jokes', one item from the BYI-II disruptive behaviour 'I like to hurt animals' and five items from the CAQ 'some of the staff have been helpful to me', 'I feel poorly at the moment', 'I can respect most of the staff here', 'The staff don't really care about the young people here' and 'I chat to staff when I get the chance'). This raised the overall KMO value (.806) and two additional items were removed from the analysis, which now fell below the .5 acceptable figure for the KMO value of sampling adequacy (two items from the CAQ, 'I would trust staff with a secret' and 'staff here seem to dislike me'). Removal of these two items again raised the KMO value (.817), which now fell in the 'meritorious' guideline stated by Hutcheson and Sofroniou (1999). Most of the values in the negative anti-image correlation matrix were small, a further requirement for an EFA (Tabachnick & Fidell, 2007, 2014). This resulted in 196 items for inclusion in the EFAs.

7.3 Results

Given that three measures were used as the basis for the development of the composite measure, initially, issues regarding bloated specifics (Cattell & Kline, 1977) were considered. This relates to measures that are so specific that they are of little psychological value (Cattell, 1957) and the inclusion of very similar items in a measure would lead to such issues. Items were explored in relation to the range of questions asked and whether very similar items appeared in any of the measures. This revealed

some similarity between a number of items, as outlined within Table 7.1. The items that best reflected the theme identified were retained.

Table 7.1.

Examination of items for issues of bloated specifics (Cattell & Kline, 1977)

Theme	Item	Item selected
Worry	I worry (BAIY15)	CAQ17
	I worry when I am in (prison name) (BAIY3)	
	I worry a lot in here (CAQ17)	
Sleeping difficulties	I have problems sleeping (BAIY16)	BDIY5
	I have trouble sleeping (BDIY5)	
Doing things well	I do things well (BSCIY8)	RSCA5
	I do things well (RSCA5)	
Liking self	I am happy about me (BSCIY20)	BSCIY3
	I like myself (BSCIY3)	

BSCIY = Beck Self-Concept Inventory Youth, BAIY = Beck Anxiety Inventory Youth, BDIY = Beck Depression Inventory Youth, BANIY = Beck Anger Inventory Youth, BDBIY = Beck Disruptive Behaviour Inventory Youth, CAQ = Custodial Adjustment Questionnaire, RSCA = Resiliency Scale for Children and Adolescents.

Initially, a principal axis factor analysis was conducted on the remaining 202 items from the RSCA, BYI-II and CAQ. While it was anticipated that any factors extracted would correlate, both orthogonal and oblique rotations were explored. Principle components analysis was used prior to principal axis factoring (PAF) to estimate the number of factors to extract. Forty-nine factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 74% of the variance, with the first factor explaining 16% of the variance. Given that Kaiser's criterion has been shown to extract too many factors (Child, 1990), the scree plot was used as a guide in preference to Kaiser's criterion. The scree plot was somewhat ambiguous, with points of inflexion at both the three and six factor points (see Appendix J).

Based on the scree plot, a number of solutions were explored using PAF up to a six-factor solution. All used the minimum loading criteria of .30. However, all were excluded apart from a three-factor solution due to a high number of cross-loading items suggesting that simple structure had not been achieved and that the factors extracted did

not adequately discriminate between factors. For example, for the six-factor solution only one item solely loaded onto Factor 6 and some factors had a paucity of items suggesting that it would not be possible to identify the construct label for that factor (Kline, 1998)

For the three-factor solution, the solution using oblique (direct oblimin) rotation suggested only small correlations between the factors, suggesting that an orthogonal (varimax) rotation was preferable. The orthogonal rotation resulted in a solution comprising 182 items, with 71 items that loaded on to Factor 1, 63 items on to Factor 2, and 48 items on to Factor 3. The highest loading items on Factor 1 suggested a label of *Internalising Difficulties* (e.g., 'I feel sad', 'I feel like crying' and 'I feel empty inside'), the highest loading items on Factor 2 suggested a label of *Satisfaction with Self and Others* (e.g., 'I do things well', 'I am a good person' and 'I can depend on people to treat me fairly') and the highest loading items on Factor 3 suggested a label of *Externalising Behaviour* (e.g., 'I hurt people', 'I swear at adults' and 'I break the rules'). However, given that a number of items double loaded, all items that loaded closely on more than one factor were excluded due to failing to discriminate between factors. This resulted in five items being excluded due to similar loadings upon Factor 1 and Factor 3 ('I think people are against me', 'I feel like exploding', 'people make me mad', 'I worry I might lose control' and 'I think people try to control me'). None of these deleted items loaded in the top 20 items from Factor 1 or 3. There were also five items that cross-loaded negatively upon Factor 1 and positively upon Factor 2 (e.g., 'I like my body' and 'no matter what happens, things will be alright') and two items that cross-loaded negatively upon Factor 3 and positively upon Factor 2 (e.g., 'I can learn from my mistakes' and 'I tell the truth'). These items all loaded higher onto Factor 2 and were retained as part of Factor 2 given that they appeared more conceptually linked with Satisfaction with Self and Others. The remaining ten items cross-loaded considerably higher on one factor and therefore were retained as part of that factor. This resulted in a solution comprising 177 items, 68 items on Factor 1, 63 items on Factor 2 and 46 items on Factor 3. The internal consistency of the three factors following this was excellent (Factor 1 = .954, Factor 2 = .958 and Factor 3 = .938).

While the high internal consistency of the three factors was positive, it was felt that the number of items on each factor needed to be substantially reduced for the factors to meet the aim of providing a composite measure suitable for use with young people in custody (i.e., it should not be overly long). As suggested by Rogelberg and

Luong (1998), response rates and data quality are likely to be improved when participants are motivated to complete measures and a shorter measure is one factor that is likely to influence motivation. While it is common practice to select items with factor loadings above .30 (Kline, 1998), researchers have also used higher factor loading cut-offs for the selection of items to reduce length (e.g., Stanton, Sinar, Balzer & Smith, 2002). While Stevens' (2002) critical values of loadings would suggest that in the current sample a loading on .298 would be statistically meaningful, as an initial starting point items that loaded less than .40 onto each factor were discarded. This resulted in a total of 143 items being retained, 53 on Factor 1, 57 on Factor 2 and 33 on Factor 3.

7.3.1 Composite measure development. Stanton and colleagues (2002) have provided guidelines and suggested strategies for reducing the length of self-report measures and suggested that three item quality aspects of internal, external and judgmental qualities should be explored. They suggest creating a scoring system for the three quality indices and scoring each item, where those items with the highest scores would be selected. Given that the development of the composite measure includes items from the RSCA, BYI-II and CAQ, it was not possible to explore item correlations with other relevant scales to complete an exploration of the external quality of the items. However, Stanton and colleagues (2002) suggest that combining item quality indices with professional judgement "appears to work best to maintain a network of external correlative relations and internal consistency" (Stanton & colleagues, 2002, p. 187). Therefore the internal and judgemental qualities of items were explored.

7.3.1.1 Internal quality of items. Corrected item-total correlations were examined to explore the correlation between each item and all other items, with .1 being a small effect, .3 being a moderate effect and .5 being a large effect (Field, 2013). All items were scored on a scale of 1 to 5 depending upon the corrected item-total correlations (1 = above .1, 2 = above .2, 3 = above .3, 4 = above .4 and 5 = above .5). While very high correlations (e.g., .8) could suggest issues of multicollinearity, item-total correlations did not exceed .74 for any items suggesting no major issues.

7.3.1.2 Judgemental quality of items. Chartered and Registered Forensic Psychologists with experience of working with adolescent offenders (N = 3) and University academics (N = 2) with experience of scale construction were asked to provide their expert opinion on the quality of each item. These experts were provided with information regarding each item structured by its relevant factor. They were

provided with the following instructions, "We are interested in your views regarding the quality of each of the items below and how well you think it will capture Internalising Difficulties (e.g., depression, anxiety, distress), Satisfaction with Self and Others, and Externalising Behaviour (e.g., anger, aggression) in young people in custody. The definition of quality has intentionally been left rather general so please define it as you see fit. Items marked with a * would be reverse scored, e.g., I am having an easy time in here (item from Internalising Difficulties) would be scored in the opposite way to other items". Again, items were scored on a scale of 1 to 5 (1 = poor quality, 3 = medium quality and 5 = high quality).

7.3.1.3 Selection of final items for composite measure of resilience and vulnerability (CM-RV). The mean quality rating from the experts for each item was combined with the internal quality rating to provide a total score, where the maximum was 10. Scores for each item were divided into quartiles; only items that fell into the upper quartile for total quality rating were retained. This resulted in a total of 41 items being retained, 12 on Factor 1, 19 on Factor 2 and 10 on Factor 3.

Initially, a scree plot was plotted for each of the three factors to test for unidimensionality. The scree plots indicated a single factor solution for all three factors, although eigenvalues indicated two-factor, four-factor and three-factor solutions respectively for Factors 1 to 3, details of which are provided below. For Factor 1 (Internalising Difficulties), the first factor extracted explained 44% of the variance with an eigenvalue of 5.27. The second factor only just exceeded the value of 1 (1.10) and explained only 9% of the variance. Visual examination of the scree plot also suggested that the data would be best described by a single factor.

For Factor 2 (Satisfaction with Self and Others), four factors had an eigenvalue over 1, although the first factor accounted for 36% of the variance and the remaining three factors accounted for 9%, 7% and 6% respectively. Again, visual examination of the scree plot suggested that the data would be best described by a single factor.

For Factor 3 (Externalising Behaviour), three factors had an eigenvalue that exceeded 1, although the first factor accounted for 44% of the variance. The second and third factors accounted for 16% and 11% of the variance. Again, visual examination of the scree plot suggested that the data would be best described by a single factor.

Despite this and the significant reduction in the number of items, the internal consistency of the final three factors remained high (Factor 1 α = .87, Factor 2 α = .90 and Factor 3 α = .85). The factor loadings of each item on the three factors extracted in the final CM-RV, rotated to an orthogonal (Varimax) terminal solution, is shown in Appendix L.

7.3.1.4 Scoring of the CM-RV. Given that the measures used to create the CM-RV used different scoring systems, it was necessary to convert these to a single scoring system. This would ensure ease of completion and scoring, and also ensure that all items had the same potential variation in the final CM-RV. A 5-point Likert type scale was selected for the CM-RV (0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often, 4 = Almost Always) given research experience to suggest that incarcerated young people will often find it difficult to select an option when a dichotomous scoring system is used (e.g., True or False, Yes or No). Furthermore, there is some evidence to suggest that dichotomous scoring systems can lead to lower internal consistency and lower convergent correlations with other measures (e.g., Stőber, Dette & Musch, 2002). A 5-point Likert type scale is the scoring system used within the RSCA, so no transformations on the RSCA items took place. For the BYI-II, the 4-point Likert type scale was transformed to the 5-point Likert type scale and for the CAQ, the dichotomous scoring was transformed to the 5-point Likert type scale, where the following formula was used[6]:

$$Y = \frac{(\mathrm{B} - \mathrm{A}) * (\mathrm{x} - \mathrm{a})}{(\mathrm{b} - \mathrm{a}) + A}$$

Spearman correlations amongst the three factors were computed. This was a result of the significant positive skewness of Factor 1 (Internalising Difficulties). This showed that the three factors were all moderately correlated (see Table 7.2). Descriptive statistics for the CM-RV are provided within Table 7.3.

[6] A = new minimum value, B = new maximum value, a = old minimum value and b = old maximum value

Table 7.2.

Spearman correlation of the CM-RV factors (N = 332), with bias corrected and accelerated bootstrap confidence intervals (CIs) in square brackets

	Factor 2	Factor 3
Factor 1	-.291**	.219**
	[-.387, -.183]	[.102, .324]
Factor 2		-.266**
		[-.373, -.168]

Key: Factor 1 = Internalising difficulties, Factor 2 = Satisfaction with Self and Others, Factor 3 = Externalising behaviour.

Table 7.3.

Descriptive statistics for the CM-RV (N = 332)

	Range of possible scores	Mean	Median	*SD*
Factor 1	0 – 48	8.07	5.33	8.08
Factor 2	0 - 76	48.04	48.33	10.55
Factor 3	0 – 40	15.79	15.00	7.74

Key: Factor 1 = Internalising Difficulties, Factor 2 = Satisfaction with Self and Others, Factor 3 = Externalising Behaviour.

7.3.2 Validation of the CM-RV. In order to validate the CM-RV, it was important to explore whether the CM-RV was able to predict markers of resilience and vulnerability among young people within custody. Three external markers were used: frequency of placement on ACCT; whether or not young people had been identified as 'vulnerable' by those involved in their case management (see Chapter 6 for further details); and whether they were on the Enhanced level of the IEP scheme. Robust bootstrapping methods were used in all of the analyses described below, given the non-normality of Factor 1 (Internalising Difficulties).

7.3.2.1 Frequency of placement on ACCT. A forced entry method multiple regression was used and the three CM-RV factors were used as predictor variables and frequency of placement on ACCT was used as the dependent variable. The results indicated that the three factors explained 8% of the variance in the frequency of placement on ACCT, $R^2 = .08$ $F(3, 331) = 6.49$, $p = .000$. It was found that Factor 1 (Internalising Difficulties), $\beta = .235$, $p = .001$ significantly predicted frequency of placement on ACCT. Factor 2 (Satisfaction with Self and Others), $\beta = -.064$, $p = .348$ and Factor 3 (Externalising Behaviour), $\beta = .037$, $p = .563$ did not. Linear model predictors of the model are shown in Table 7.4.

Table 7.4.

Linear model of predictors of frequency of placement on ACCT, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	0.19	0.09		.035
	(0.01, 0.37)			
Factor 1	0.04	0.01	.27	.007
	(0.01, 0.06)			
Step 2				
Constant	0.55	0.34		.103
	(-0.12, 1.17)			
Factor 1	0.03	0.01	.24	.020
	(0.01, 0.06)			
Factor 2	-0.01	0.01	-.07	.237
	(-0.02, 0.01)			
Step 3				
Constant	0.45	0.42		.285
	(-0.37, 1.25)			
Factor 1	0.02	0.01	.24	.030
	(-0.03, 0.07)			
Factor 2	0.07	0.01	-.06	.312
	(0.04, 0.10)			
Factor 3	-0.01	0.01	.04	.652
	(-0.03, 0.02)			

Note. R^2 = .071, p = .000 for Step 1, ΔR^2 = .004, p = .310 for Step 2 and ΔR^2 = .001, p = .563 for Step 3. Factor 1 = Internalising Difficulties, Factor 2 = Satisfaction with Self and Others, Factor 3 = Externalising Behaviour.

7.3.2.2 Identification as vulnerable by prison staff using logistic regression. In order to build an initial model, explore competing models and determine which model best fitted the data, the three factors of the CM-RV (and the interaction between them) were entered hierarchically into a logistic regression. In the initial model, Factor 1 was entered and was found to be significant, $\chi(2) = 30.82$, $p = .000$, suggesting that this factor (Internalising Difficulties) significantly predicted group membership (i.e., vulnerable vs. non-vulnerable). When Factor 2 (Satisfaction with Self and Others) was added into the model, this did not significantly improve the model, $\chi(2) = 0.48$, $p = .490$. The addition of Factor 3 (Externalising Behaviour) significantly improved the model, $\chi(2) = 8.95$, $p = .003$. The addition of the interaction between the three factors did not significantly improve the model (Factor 1 x Factor 2, $\chi(2) = 1.02$, $p = .312$, Factor 1 x Factor 3, $\chi(2) = 0.01$, $p = .933$, Factor 2 x Factor 3, $\chi(2) = 0.16$, $p = .690$). These initial analyses suggested that the model with Factor 1 and Factor 3 should be proceeded with. This model was found to be highly significant, $\chi(2) = 38.77$, $p = .000$. The odds ratio for Factor 1 (Internalising Difficulties) is less than one, suggesting that as scores in Factor 1 increase, the odds of being classified as non-vulnerable decrease. The odds ratio for Factor 3 (Externalising Behaviour) is greater than one, suggesting that as scores in Factor 3 increase, the odds of being classified as non-vulnerable increase. The model explained 16% (Nagelkerke R^2) of the variance in being identified as vulnerable or non-vulnerable. Coefficients of the model are shown in Table 7.5.

Table 7.5.

Coefficients of the model predicting whether a young person was identified as vulnerable or non-vulnerable by prison staff (95% BCa bootstrap confidence intervals based on 1000 samples)

	b	*p*	95% CI for Odds Ratio		
			Lower	Odds	Upper
Constant	1.23				
	[0.61, 1.91]				
Factor 1	-0.10	.001	0.86	0.91	0.94
	[-0.14, -0.07]				
Factor 3	0.05	.003	1.02	1.05	1.09
	[0.02, 0.09]				

Note. R^2 = .11 (Cox & Snell), R^2 = .16 (Nagelkerke). Factor 1 = Internalising Difficulties and Factor 3 = Externalising Behaviour.

7.3.2.3 Placement on Enhanced level of the IEP scheme. In order to build an initial model, explore competing models and determine which model best fitted the data, the three factors of the CM-RV (and the interaction between them) were entered hierarchically into a logistic regression, with placement on standard or enhanced level on the IEP scheme as the dependent variable. In the initial model, Factor 1 (Internalising Difficulties) was entered and was found to be non-significant, $\chi(2)$ = 0.42, p = .519. When Factor 2 (Satisfaction with Self and Others) was added into the model, this significantly improved the model, $\chi(2)$ = 9.99, p = .002. The addition of Factor 3 (Externalising Behaviour) did not significantly improved the model, $\chi(2)$ = 1.66 , p = .198. The addition of the interaction between the three factors did not significantly improve the model (Factor 1 x Factor 2, $\chi(2)$ = 0.01, p = .930, Factor 1 x Factor 3, $\chi(2)$ = 0.00, p = .957, Factor 2 x Factor 3, $\chi(2)$ = 0.22, p = .639). These initial analyses suggested that the model with Factor 2 should be proceeded with. This model was found to be significant, $\chi(2)$ = 10.17, p = .001. The odds ratio for Factor 2 (Satisfaction with Self and Others) is greater than one, suggesting that as scores in Factor 2 increase, the odds of being on the Enhanced level of the IEP scheme increase. The model explained 6% (Nagelkerke R^2) of the variance in being placed on the standard or enhanced level of the IEP scheme. Coefficients of the model are shown in Table 7.6.

Table 7.6.

Coefficients of the model predicting whether a young person was on the standard or enhanced level of the IEP scheme (95% BCa bootstrap confidence intervals based on 1000 samples)

	b	*p*	95% CI for Odds Ratio		
			Lower	Odds	Upper
Constant	-2.69				
	[-4.27, -1.39]				
Factor 2	0.04	.002	1.02	1.04	1.07
	[0.02, 0.08]				

Note. R^2 = .04 (Cox & Snell), R^2 = .06 (Nagelkerke). Factor 2 = Satisfaction with Self and Others.

7.3.3 Model comparison between the CM-RV and RSCA. The results presented suggest that the CM-RV may be a useful screening instrument for use in forensic practice given that it has been able to predict markers of resilience and vulnerability among young people in custody. In order to consider this further, a model comparison was conducted between the CM-RV and the RSCA in order to determine which instrument may be of greater use. Chapter 6, section 6.3.2 explored the predictive potential of the RSCA in relation to vulnerable and non-vulnerable group membership utilising logistic regression. The analyses conducted suggested that REL significantly predicted group membership, explaining 4% of the variance. This suggests that the CM-RV was a better predictor of group membership than the RSCA. Two further external markers of vulnerability (frequency of placement on ACCT and placement on the Enhanced level of the IEP scheme) used to validate the CM-RV were used to explore how well the RSCA was able to predict markers of resilience and vulnerability, the results of which are described below.

There was no evidence of multicollinearity in the data given that there was no large correlation (r > .9) between the three RSCA factors (MAS, REL and REA) that were used as predictor variables (Field, 2013).

7.3.3.1 Frequency of placement on ACCT. A forced entry method multiple regression was used and the three RSCA factors were used as predictor variables and frequency of placement on ACCT was used as the dependent variable. The results indicated that the three factors explained 5% of the variance in the frequency of placement on ACCT, R^2 = .05 $F(1,236) = 3.89$, p = .010. It was found that MAS, β =-.185, p = .005 significantly predicted frequency of placement on ACCT. REL, β = -.047, p = .610 and REA, β = .115, p = .075 did not. This suggests that only MAS was able to significantly predict the number of times that young people were placed on an ACCT. These results also suggested that the CM-RV, in particular the Internalising Difficulties factor, was a better predictor of frequency of placement on ACCT. Linear model predictors of the model are shown in Appendix K (Table K1).

7.3.3.2 Placement on Enhanced level of the IEP scheme. In order to build an initial model, explore competing models and determine which model best fitted the data, the three factors of the RSCA (and the interaction between them) were entered hierarchically into a logistic regression, with placement on standard or enhanced level on the IEP scheme as the dependent variable. In the initial model, MAS was entered and was found to be significant, $\chi(2)$ = 7.19, p = .007. When REL was added into the model, this did not significantly improved the model, $\chi(2)$ = 0.40, p = .527. The addition of REA did also not significantly improved the model, $\chi(2)$ = 0.74 , p = .389. The addition of the interaction between the three factors did not significantly improve the model (MAS x REL, $\chi(2)$ = 3.42, p = .064, MAS x REA, $\chi(2)$ = 2.24, p = .135, REL x REA, $\chi(2)$ = 0.33, p = .565). These initial analyses suggested that the model with MAS should be proceeded with. The model explained 4% (Nagelkerke R^2) of the variance in being placed on the standard or enhanced level of the IEP scheme. These results also suggested that the CM-RV was a better predictor of being placed on standard or enhanced level of the IEP scheme than the RSCA. Coefficients of the model are shown in Appendix K (Table K2).

7.3.4 Determining cut-off scores for the CM-RV. The results presented so far suggest that the CM-RV may be a useful screening instrument for use in forensic practice. In particular, the comparison with the RSCA would suggest that the CM-RV may be of greater use in practice when screening for markers of resilience and vulnerability.

The CM-RV explained 16% of the variance in young people being identified as vulnerable by staff members and this was used as a marker of vulnerability to determine if cut-off scores for the CM-RV could be developed for use within practice. While such screening instruments will never produce perfect results in practice, a cut-off point based on the findings of logistic regression reported within section 7.3.2.2 was explored. A receiver operating characteristic (ROC) curve analysis explores the sensitivity and specificity of a screening instrument graphically. Sensitivity (SE; true positives, i.e., positive prediction value) are plotted on the vertical axis versus 1-specificity (SP; true negatives, i.e., negative prediction value) on the horizontal. Given that SE and SP are inversely proportional, researchers have to consider the importance of each when deciding upon an appropriate cut-off score. Within the current analyses, maximising SE was felt appropriate given that the aim of the analyses was to explore the CM-RV as a screening instrument for the identifying vulnerability.

The area under the curve (AUC) is the proportion of the graph's area beneath the ROC curve and provides an indication as to the accuracy of the prediction. As outlined within Chapter 6, section 6.3.2, Swets' (1988) has provided guidelines regarding the interpretation of the AUC regarding accuracy which will also be applied here. The Youden index (Youden, 1950) is a summary measure of the ROC curve that provides a means of identifying an optimal cut-off point where sensitivity and specificity is maximised (Fluss, Faraggi & Reiser, 2005). The Youden index is easy to calculate given that additional information, such as decision error costs, are not required (Fluss et al., 2005).

A receiver operating characteristic (ROC) curve analysis was conducted in order to provide a graphical plot of the performance of Factor 1 (Internalising Difficulties) and Factor 2 (Externalising Behaviour) in predicting vulnerable vs. non-vulnerable group membership (see Figures 7.1 and 7.2, respectively).

ROC analyses for Factor 1 (Internalising Difficulties) and Factor 2 (Externalising Behaviour) were conducted separately, given that higher scores on Factor 1 (Internalising Difficulties) were associated with an increased chance of being classified as vulnerable by prison staff and lower scores on Factor 2 (Externalising Behaviour) was associated with a decreased chance. Figure 7.1 and 7.2 show the ROC curve for Factor 1 and Factor 2, respectively.

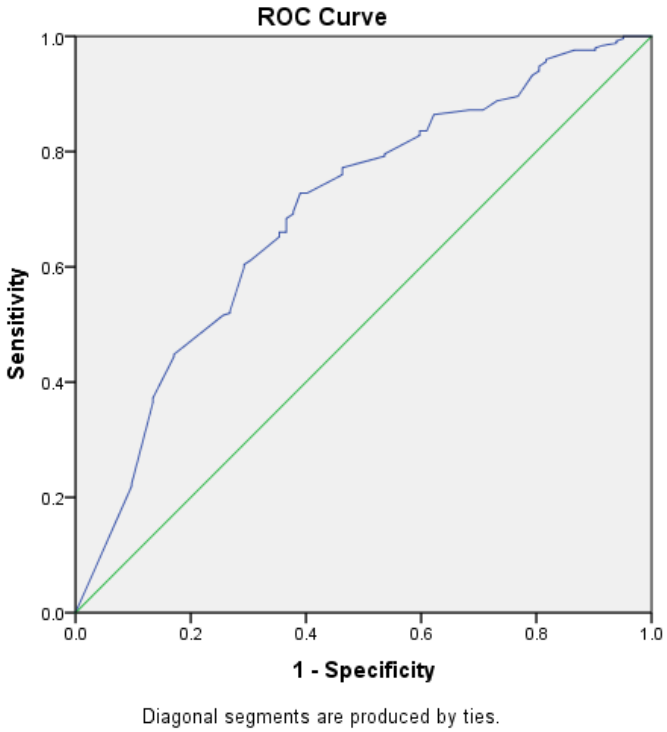


Figure 7.1. ROC curve showing discrimination between vulnerable and non-vulnerable participants based on Factor 1 (Internalising Difficulties)

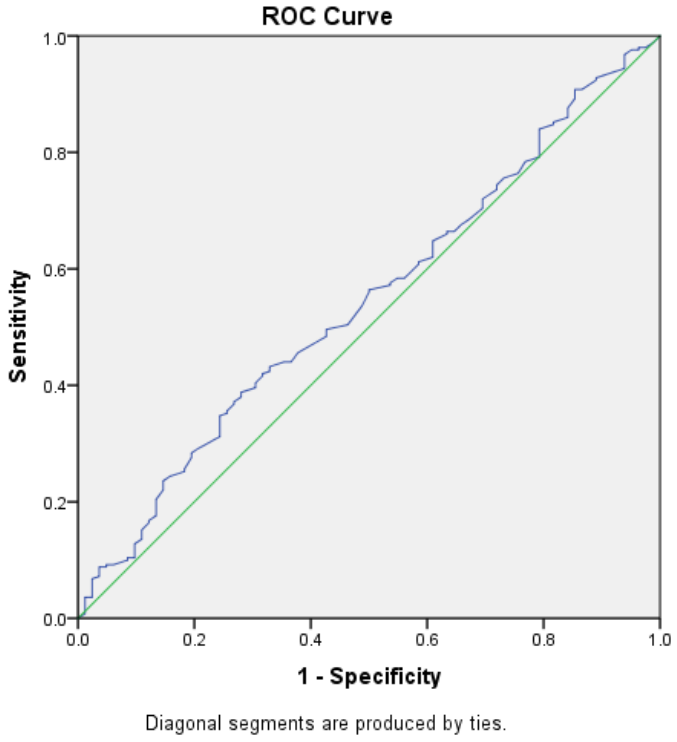


Figure 7.2. ROC curve showing discrimination between vulnerable and non-vulnerable participants based on Factor 2 (Externalising Behaviour)

For Factor 1 (Internalising Difficulties), the AUC was .696 [.629, .762], p = .000, suggesting that Factor 1 was able to classify young people as either vulnerable or non-vulnerable better than chance. According to Swets' (1988) interpretation guidelines, this fell on the border between low accuracy and providing accuracy for some purposes. For Factor 2 (Externalising Behaviour), the AUC was .544 [.474, .614], p = .230, suggesting that Factor 2 offered low accuracy according to Swets (1988).

The Youden Index was calculated for Factor 1 (Internalising Difficulties) scores only, given that only these scores provided some accuracy in identifying vulnerable and non-vulnerable young people. The Youden index suggested that a sum score of ≥ 9.43 maximised sensitivity and specificity, J = .338. This appeared to provide the best trade-off between SE (.728) and SP (.610) while maximising the SE over SP. When applying this cut-off, 61% of young people classified as vulnerable were correctly identified and 73% of young people classified as non-vulnerable were correctly identified.

7.3.5 Concurrent validation of the CM-RV. In order to explore the concurrent validation of the CM-RV, the relationship between the three factors and young people's cognitive coping strategies was explored utilising the CERQ (Garnefski, et al., 2002).

Spearman's correlation was used, the results of which are displayed in Table 7.7. The pattern of correlations between the CM-RV factors and the variables of the CERQ were largely consistent with expectations. Internalising Difficulties (Factor 1) was found to be positively and highly correlated with Self-blame, Rumination and Catastrophising. Modest positive correlations were also found with Other Blame, Acceptance and Positive Refocusing. The correlation with Acceptance and Positive Refocusing was somewhat surprising, but suggests that Factor 1 was moderately related to young people's thoughts regarding acceptance of a stressful experience and attempts to refocus onto more positive thoughts.

Satisfaction with Self and Others (Factor 2) was found to be positively and highly correlated with Positive Refocusing, Refocus Planning, Positive Reappraisal and Putting into Perspective. A modest positive relationship also emerged with Acceptance. This suggests that the latent variable measured by this factor of the CM-RV is related to adaptive cognitive coping strategies. Interestingly, no relationship emerged with the maladaptive coping strategies assessed within the CERQ and Factor 2, suggesting that

the Satisfaction with Self and Others factor may be a useful means of briefly assessing such strengths within young people in custody.

Externalising Behaviour (Factor 3) was found to be negatively correlated with Positive Reappraisal and moderately negatively correlated with Refocus Planning and Putting into Perspective. However, no relationships emerged between this factor and the maladaptive coping strategies assessed by the CERQ. Instead, these more problematic coping strategies appeared to be associated greater with the Internalising Difficulties assessed by Factor 1. These findings also lend support to the finding that the Satisfaction with Self and Others and the Externalising Behaviour factors are negatively associated.

Table 7.7.

Correlation matrix using Spearman's correlation coefficient of the CM-RV factors with the CERQ (N = 61)

	Self-blame	Acceptance	Rumination	Positive refocusing	Refocus planning	Positive reappraisal	Putting into Perspective	Catastrophizing	Other blame
Factor 1	.387**	.249*	.541**	.264*	.193	-.050	-.172	.514**	.304*
	[.129, .625]	[-.044, .501]	[.316, .735]	[.074, .449]	[-.048, .418]	[-.260, .151]	[-.356, .027]	[.314, .668]	[.055, .517]
Factor 2	.216	.249*	.206	.498**	.500**	.527**	.403**	.060	.188
	[-.030, .421]	[.047, .440]	[-.097, .427]	[.214, .691]	[.301, .666]	[.347, .675]	[.132, .614]	[-.246, .327]	[-.156, .465]
Factor 3	.052	.034	-.022	-.172	-.282*	-.351**	-.250*	.037	-.074
	[-.169, .286]	[-.229, .298]	[-.257, .229]	[-.379, .072]	[-.491, -.040]	[-.526, -.153]	[-.444, -.007]	[-.217, .292]	[-.329, .241]

Notes. ** = p<.01 level, * = p<.05 level. Factor 1 = Internalising Difficulties, Factor 2 = Satisfaction with Self and Others, Factor 3 = Externalising Behaviour. BCa bootstrap 95% CIs reported in brackets.

7.4 Discussion

The aim of the current chapter was to explore whether it would be possible to create a psychometrically sound composite measure of resilience and vulnerability for use with young people in custody. The results within preceding chapters have suggested that the assessment of resilience within young people in custody may be of value when considering adjustment to custody and emotional well-being. Results have also suggested that resilience is related to positive behaviour during custody and that strategies to promote resilience may help enable young people to comply with the rules and expectations of custody. However, results have also highlighted the particular vulnerabilities experienced by young people in custody, with distress and poor emotional well-being being particularly problematic within the early periods of incarceration. Furthermore, little evidence emerged of the presence of naturally occurring clusters of young people based on their resilience profiles within Chapter 6, suggesting that alternative means of assessing resilience and vulnerability in practice may be warranted. The measures utilised within the current study have been particularly revealing. However, it is unrealistic to think that such lengthy measures would be routinely used within practice. As a result, the creation of a composite measure for this purpose has been created and described within the current Chapter.

The initial exploratory factor analysis suggested the presence of between three and six underlying factors within the data and examination of these competing factor solutions suggested a three-factor solution best described the data and may be of greater practical use. The resulting three-factor solution may also have been anticipated, given evidence regarding the continuity and consistency of the three broad behavioural dimensions originally identified by Caspi and colleagues (Caspi, 2000; Newman, Caspi, Moffitt & Silva, 1997) and confirmed within subsequent research exploring emotional behaviour among young offenders (Clarbour, Rogers, Miles & Monaghan, 2009). Furthermore, the highest loading items on each factor were examined and the factors were labelled as Internalising Difficulties, Satisfaction with Self and Others and Externalising Behaviour, which appear to correspond to the three behavioural styles of inhibited, well-adjusted and undercontrolled identified by Caspi (2000). The internal consistency of these factors was excellent. However, the measure was very lengthy and in order for the measure to serve its intended purpose, it was necessary to significantly reduce the number of items. Utilising the strategies outlined by Stanton and colleagues

(2002) for reducing the length of self-report measures, items with the highest internal and judgemental qualities were retained which resulted in a 41-item Composite Measure of Resilience and Vulnerability (CM-RV) reflecting the three original factors.

Results suggest that the CM-RV was able to predict a number of markers of resilience and vulnerability in young people in custody. In particular, the Internalising Difficulties factor was shown to be predictive of placement on ACCT and being identified as vulnerable by prison staff. The Satisfaction with Self and Others factor was shown to be predictive of placement on the Enhanced level of the IEP and the Externalising Behaviour factor was shown to be predictive of being identified as vulnerable by prison staff, although the accuracy of classification was low when explored. Despite this, while the RSCA explained a small amount of the variance in being identified as vulnerable or non-vulnerable (4%, see Chapter 6, section 6.3.2), the CM-RV explained a greater proportion (16%). Furthermore, the Internalising Difficulties factor of the CM-RV classified young people as either vulnerable or non-vulnerable better than chance, with a classification just falling into providing accuracy for some purposes, according to Swets's (1988) interpretation guidelines. Youden's Index (Youden, 1950) was also used to create an optimal cut-off score for the Internalising Difficulties factor which could be applied within practice.

The classification of young people as either vulnerable or non-vulnerable has been used as a means of evaluating the potential use of the CM-RV within forensic practice. However, this is based on the assumption that young people's vulnerabilities (and therefore suitability for the unit described within Chapter 6, section 6.2.1) are accurately assessed. While some evidence emerged within Chapter 6 to support the assessments made by staff members, arguments were also made regarding the need for robust assessments to assess the range of vulnerabilities that young people may present with. Given the absence of a definitive marker of vulnerability, the application of the CM-RV requires further exploration.

The CM-RV factors shared a number of relationships with cognitive coping styles, providing further validation evidence for the measure but also further insight into the underlying factors of the measure. Exploring the CM-RV factors relationships with coping styles was appropriate given evidence to suggest that young people in custody have limited coping strategies and a tendency to favour strategies which have

traditionally been viewed as less adaptive (Ireland, 2001; Ireland et al., 2005). Internalising Difficulties was found to be associated with a number of maladaptive coping strategies, including Blaming Self, Rumination, Catastrophizing and the Blaming of Others. Coupled with the findings described above, this would suggest that the use of the CM-RV may enable young people with a range of vulnerabilities to be identified. This may be particularly important, given that maladaptive coping strategies are unlikely to assist young people to cope with the inevitable challenges adjusting to the custodial environment. However, associations also emerged between Internalising Difficulties and more helpful coping strategies (Acceptance and Positive Refocusing) and intervention efforts to strengthen such strategies may help to protect young people against some of the rigours of incarceration.

Satisfaction with Self and Others was found to be associated with being able to refocus on something positive and making plans, reflecting on the positive outcomes of difficulties experienced, being able to keep things in perspective and being accepting. Interestingly, no relationships emerged with the maladaptive coping strategies assessed within the CERQ, suggesting that the Satisfaction with Self and Others factor may be a useful means of briefly assessing such strengths within young people in custody. While there is an understanding of the challenges and risks associated with incarceration, little is known about which factors may protect young people in custody (Moore et al., 2015) and the CM-RV could be utilised to help assess one such potential factor. These findings also lend support to the broaden and build theory of positive emotions (Fredrickson, 2001), suggesting that positive thoughts regarding self and others were associated with a greater repertoire of adaptive coping strategies.

The Satisfaction with Self and Others factor also fits with the theoretical perspective of self-determination theory (e.g., Ryan & Deci, 2000), where autonomy, competence and relatedness are described as necessary conditions for intrinsic motivation, well-being and engagement. Within the current study, competence could be inferred from the evidence to suggest that adaptive coping strategies were associated with positive feelings in relation to self and others. With the evidence that this factor was also predictive of placement on the Enhanced level of the IEP, it may be that the promotion of such characteristics will help enable young people to engage to make the best use of their time in custody. Use of the CM-RV would be a quick and easy means to assess these characteristics. However, it is important to acknowledge the issues raised

previously regarding the complexities and range of adversity experienced by young people in custody, in particular in relation to the high prevalence of adverse childhood experiences (ACEs; Baglivio et al., 2014), including contact with the child welfare system (Cesaroni & Peterson-Badali, 2005). As argued within Chapter 3, interventions to promote relatedness in young people who may have experienced abuse and neglect may need to consider relational approaches in both individual and systemic ways, given early experiences of relationship formation. However, if custodial environments could adopt systemic practices that would encourage and nurture positive relationships and recognise and reward positive behaviour, this may help to develop young people's satisfaction with self and others. Unfortunately, although current practices are intended to encourage and reward such behaviour, there appear a greater number of sanctions available for dealing with negative behaviour. Recent reviews undertaken into the Incentive and Earned Privileges (IEP) schemes within prisons have seen a rhetoric reflective of this (for example, 'Toughening up prisoner privileges', UK Government, 2013). Furthermore, with recent reports of public sector prison officer numbers being reduced by 41% over a four year period (2010-2014; Howard League for Penal Reform, 2014), such systemic approaches are unlikely to be funded, implemented or successful.

The Externalising Behaviour factor was found to be negatively associated with being able to refocus on something positive, refocus on making plans and being able to keep things in perspective. These results suggest that while problematic coping strategies appeared to be associated with Internalising Difficulties, Externalising Behaviour was associated with the absence of adaptive coping strategies. Again, this appears to lend support to the broaden and build theory of positive emotions (Fredrickson, 2001). This inverse relationship may also be explained by the Externalising Behaviour factor tapping into the personality traits of impulsivity, given the well-established link that has emerged from research between impulsivity and criminal behaviour (e.g., Loeber & Blanc, 1990; Bechtold, Cavanagh, Shulman & Cauffman, 2014; Shin, Cook, Morris, McDougle & Groves, 2016). In contrast, those scoring higher on the Internalising Difficulties factor may be less impulsive, which would fit within the framework of Gray's theory of personality (e.g, Gray, 1981; 1987), which suggests that behavioural activity is controlled by the behavioural inhibition and activation systems. However, this requires further exploration within subsequent research.

Further validation of the CM-RV is now required in order to explore its potential use within practice. In particular, while some evidence has emerged regarding the concurrent validation utilising the CERQ, this was on a relatively small sample and therefore requires additional validation. Furthermore, work needs to be undertaken to gain further insight into the psychometric properties of the measure and the stability of the structure. Despite this, the CM-RV does appear to be a useful means of briefly assessing resilience and vulnerability among young people in custody. In particular, it may help to identify young people with particular vulnerabilities who may require additional support to help them cope with the demands of incarceration. Although the test-retest reliability of the measure has not been assessed, the CM-RV could also be utilised in future as a means of evaluating the impact of interventions aimed at promoting resilience (such as the unit described within Chapter 6).

Chapter 8 General Discussion and Conclusions

8.1 Introduction

The aim of the current thesis was to explore the impact of resilience upon adjustment to the custodial environment and emotional well-being among young males incarcerated within the UK. Within this context, the presence of resilient traits and characteristics has been explored. There has been a lack of research exploring the possible assets and resources among young people who offend, meaning that research to explore the possible means of strengthening such resources is overdue. Given the potential protective power of resilience and theoretical arguments regarding its potential buffering effects (e.g., Masten & Powell, 2003), an examination of resilience in relation to custodial adjustment was an important and necessary step in developing our understanding of resilience.

While interest in resilience has increased, research exploring the impact of resilience within the forensic literature has been limited (Fougere & Daffern, 2011). This is despite resilience being described as a critical protective factor against violence risk in young people (Borum et al., 2002). Furthermore, inconsistent definitions of resilience and the use of psychometrically unsound measures (Fougere et al., 2015) have hampered efforts to progress understanding. Despite this, there have been calls to move towards promoting positive outcomes in young people who have come into contact with the criminal justice system (e.g., Efta-Breitbach & Freeman, 2005; Robinson, 2015). The limited research conducted to date has suggested that resilience may be associated with less aggression, better self-control and compliance with rules within custody (Born et al., 1997; Mowder et al., 2010).

The results presented within Chapter 3 provided support for the factor structure of the Resiliency Scale for Children and Adolescents (RSCA; Prince-Embury, 2006, 2007) among incarcerated young males via the use of confirmatory factor analysis. Identifying (Chapter 2) and validating (Chapter 3) an appropriate measure of resilience for use among young people in custody was an important starting point for the current thesis. The study described within Chapter 3 is the first to be conducted with young people in custody in the UK and the concurrent validation of the RSCA described within Chapter 3 showed support for the measure. While the results suggested that a two-factor model may have also been appropriate, there was more statistical support for

retaining the original three-factor model of Sense of Mastery, Sense of Relatedness and Emotional Reactivity. Furthermore, there appeared additional benefits for practitioners of retaining the three-factor model to assist treatment and intervention planning with young people in custody. These findings helped to address the issue raised by Fougere (2015) and colleagues regarding the use of psychometrically unsound measures within resilience research. Furthermore, they provided a setting for the impact of resilience upon adjustment to custody to be further explored.

8.2 Resilience among Young People in Custody

Overall, young people emerged as having below average levels of Sense of Mastery and Sense of Relatedness and above average levels of Emotional Reactivity (Chapter 3). This suggested that young people within custody were characterised by fewer resources and more heightened levels of reactivity when experiencing difficult emotions compared to 'normal' adolescents. Higher levels of Sense of Mastery and Sense of Relatedness were found to be associated with positive self-perceptions, positive attitudes towards staff members, along with higher levels of Good Adjustment. Higher levels of Sense of Mastery and Sense of Relatedness were also found to be associated with lower levels of Anxiety, Depression, Anger, Distress and Poor Adjustment. These results supported Prince-Embury's (2006, 2007) assertion that high levels of Sense of Mastery and relatedness may serve as a "buffer for negative emotions" (Prince-Embury's, 2006, 2007, p. 105). Results also suggested that the Resource Index of the RSCA may be a useful means of summarising the strengths associated with the RSCA, although the potential practical benefit of assessing such strengths separately remained (see Chapter 3, section 3.4). Evidence also emerged to support arguments regarding the dynamic nature of resilience (e.g., Luthar & Cicchetti, 2000, Rutter, 2007), despite only a cross-sectional design being used, given that significant differences emerged in levels of resilience based on the length of time that a young person had been incarcerated (Chapter 4).

Emotional Reactivity was found to be associated with higher levels of Anxiety, Depression, Anger, Disruptive Behaviour and a small negative relationship with positive Self-Concept. Given that no relationship emerged between Emotional Reactivity and young people's positive regard for either other young people or staff members, this suggested that Emotional Reactivity was associated with negative

emotions (Chapter 4). While Prince-Embury (2006, 2007) has suggested that Emotional Reactivity is associated with poor behaviour, the current research suggests that among young people in custody, Emotional Reactivity is more associated with internalising difficulties, rather than externalising behaviours. This was supported by the results reported within Chapter 5, where Emotional Reactivity emerged as adding to the prediction of Anxiety, Depression and Anger beyond that predicted by custodial adjustment. These findings suggest that attending to both internalising and externalising difficulties may be important.

The vulnerability suggested by the findings that young people within custody were characterised by fewer resources and more heightened levels of reactivity when experiencing difficult emotions was not borne out when emotional well-being was explored utilising the BYI-II (Beck et al., 2005). Young people emerged as having average levels of Self-Concept, Anxiety, Depression and Anger, and moderately elevated Disruptive Behaviour (Chapter 3). While the BYI-II is an assessment designed to measure emotional and social impairment (Beck et al., 2005), resilience has been described as a normal adaptational process (e.g., Masten, 2001) and the RSCA is described as a tool to assess positive characteristics that may be enhanced through intervention (Prince-Embury, 2007). The studies described within this thesis sought to explore these characteristics further, to consider their importance in relation to young people's adjustment and functioning within a custodial environment. Considering the normal adaptational processes related to resilience revealed vulnerability and a lack of resources where assessment of emotional well-being alone would have not (Chapter 3). The results of the current thesis suggest that the assessment of resilience among young people in custody has a number of implications and applications.

Resilience as a normal adaptational process appears to have a number of parallels to self-determination theory (Ryan & Deci, 2000; Deci & Ryan, 2000), where optimal functioning and well-being are said to be related to the innate needs of competence, relatedness and autonomy. The results from the current thesis have suggested a strong relationship between the Sense of Mastery and Sense of Relatedness factors of the RSCA, and that these qualities are related to more positive indicators of well-being and functioning among young people in custody.

8.3 Adjustment to Custody

It was hypothesised that personal resilient characteristics would help young people to manage with the demands of custody. A key finding appears to have been how the strengths and resources assessed within the RSCA (Sense of Mastery and Sense of Relatedness) fit within a strength-based approach. Prince-Embury (2006, 2007) has suggested that the strengths assessed by the RSCA may help to buffer against poor behaviour. However, rather than being negatively associated with indictors of poor behaviour, the findings reported within Chapter 4 suggested that Sense of Mastery and Sense of Relatedness were reflective of positive behaviour and compliance with rules within custody. Again, this appears to fit with self-determination theory (Ryan & Deci, 2000; Deci & Ryan, 2000), as improved functioning within custody was associated with relatedness and a sense of competence, optimism and adaptability, and also supports the results of previous research (e.g., Born et al., 1997).

There have been calls for an increased focus upon the promotion of positive outcomes and resilience among young people who have come into contact with the criminal justice system (e.g., Efta-Breitbach & Freeman, 2005; Robinson, 2015). While strength-based approaches have gained interest within the forensic literature regarding particular groups of offenders (e.g., Ward & Brown, 2004; Marshall, Marshall, Serran & O'Brien, 2011), this has been more limited among young people, with the exception of young people convicted of sexual offences (e.g., Ayland & West, 2006). While there is an understanding of the challenges and risks associated with incarceration, little is known about which factors may protect young people in custody (Moore et al., 2015) and help them to engage positively. As highlighted by Gover and colleagues (2000), high levels of distress and anxiety are likely to be counterproductive for change, and understanding the processes that may protect young people from such experiences may enable the system to better support them.

The challenges experienced as a result of incarceration are well-known, with evidence suggesting that the early periods of custody are particularly challenging (e.g., Zamble & Porporino, 1988, 1990; Brown & Ireland, 2006). The current thesis has found support for this finding, where levels of Anxiety, Depression and Distress were elevated in young people who had spent less time in custody (Chapter 4). Young people's positive regard for their peers was also lower among young people who had spent less

time in prison. These young people also emerged as having lower levels of Sense of Relatedness, suggesting that within the initial periods of custody, young people find feeling securely connected to other people, in particular other young people, particularly challenging. Rutter (e.g., 1987, 2007) suggests that exposure to manageable levels of stress helps facilitate the development of coping strategies to deal with future difficulties. The results described provide support for such challenge models of resilience, given that well-being and functioning appeared to be improved among young people who had been in custody for longer. However, with greater time within custody, results suggested that positive regard for staff members reduced. Cesaroni and Peterson-Badali (2010) have highlighted the challenges experienced by young people in custody seeking the support of staff when distressed. They suggest that such difficulties are compounded by staff having few means of identifying those in distress or resources available to help those in most need. If young people's regard for staff members reduces with time, this suggests that with time they will be less likely to seek support when needed. While distress appears heightened during the initial period of incarceration, with time in custody other sources of distress may emerge (e.g., incidents of bullying, Ireland, 2000) and being able to identify such periods of distress and heightened vulnerability is key. However, the finding that self-reported disruptive behaviour was greater among those young people who had served a greater time in custody (Chapter 4) suggests that such individuals may be more difficult to engage. This may be a consequence of their poorer relationships with staff but also their disruptive behaviour resulting in poorer perceptions by staff members. Whichever is true, this strengthens the arguments made that means of identifying periods of heightened vulnerability are required.

Rutter (2007) has suggested that uncovering the processes or mechanisms by which resilience assists individuals to deal with challenges they face is of greater importance than identifying risk and protective factors. Fergus and Zimmerman (2005) have suggested that the testing of models of resilience will help to further our understanding of resilience processes in action and this was explored within the study described within Chapter 5. Here, the mechanism by which resilience acts upon the relationship between risk and outcome was explored. The results supported a compensatory model of resilience, where resilience was found to add to the prediction of emotional well-being beyond that predicted by custodial adjustment. While no

support was found for resilience acting in a protective (i.e., moderating) manner when the relationship between experience of custody and factors associated with adjustment to custody and emotional well-being were explored, length of time served was found to be predict emotional well-being. Furthermore, the addition of resilience improved this prediction. Taken together, these results suggest that the strengthening of resilience may help to offset some of the deleterious impact of the early stages of incarceration. However, no evidence emerged to suggest that resilience was predictive of risk of suicide and/or self-injurious behaviour. This suggested that the potential protective power of resilience is lost when adjustment difficulties are so extreme that a young person is at risk of suicide and/or self-injurious behaviour. Despite this, if the strengths associated with resilience are more reflective of positive behaviour, future research may require a greater focus upon such indicators. While a number of indicators of behaviour and compliance within custody were considered throughout the current thesis, the lack of available indicators of positive behaviours among young people in custody has been limiting. The implications of these findings upon interventions designed to promote and strengthen resilience among young people in custody are discussed within section 8.6.

On occasions, there are such concerns regarding young people's ability to manage with the demands of incarceration that they are diverted to a 48-bed unit for young people with multiple and complex needs. Some support was found for the decisions made by prison staff regarding the placement of young people to this unit, where young people were characterised by significantly lower levels of Sense of Mastery, Sense of Relatedness and Self-Concept, and significantly higher levels of Anxiety, Depression, Anger and Distress. These young people were also found to be identified as being at risk of suicide and/or self-injurious behaviours on more occasions. These results suggested that internalising difficulties appeared to be a particular feature of the vulnerabilities associated with these young people. However, given the long term trajectory also associated with externalising difficulties (e.g., Clingempeel & Henggeler, 2003), exploring alternative means of assessing vulnerability appeared to be required. The development of the CM-RV, described in Chapter 7, was partly in response to these findings. Here, the CM-RV showed better predictive ability than the RSCA at identifying young people living on the unit for multiple and complex needs, in particular in relation to the Internalising Difficulties Factor. However, a large proportion of the variance remained unexplained, suggesting that this was being explained by other

factors. Despite this, the CM-RV does appear to provide a quick and succinct means of assessing a range of factors that appear related to both resilience and vulnerability among young people in custody.

The inability to find naturally occurring clusters of young people based on their patterns of resilience within Chapter 6 was initially surprising, given the apparent consistency in such patterns reported within the literature (Prince-Embury & Steer, 2010; Kumar et al., 2010; Mowder et al., 2010). However, the results here utilising the far more robust model-based clustering methodology raise doubt regarding this previous work. It also points to the complexities of identifying groups of young people with similar patterns of resilience and how robust assessment processes that may assist with this process are required. The CM-RV may assist with this process, given how it was able to predict frequency of placement on ACCT and placement on the Enhanced level of the IEP.

8.4 The Importance of Relatedness

The significance of young people's relatedness has been emphasised throughout the thesis. As highlighted within Chapter 1, young people who have come into contact with the criminal justice system are more likely to have experienced a range of adverse developmental experiences, including contact with the child welfare system and multiple forms of familial, socio-economic and academic disadvantage (e.g., Baglivio et al., 2014; Cesaroni & Peterson-Badali, 2005; Stewart et al., 2008; Swanston et al., 2003). This was highlighted by results from the current thesis, where rates of contact with the child welfare system appeared high (Chapter 4). When examining the prevalence of placement on the child protection register, the current participants had a 1 in 4 chance compared to a 1 in 25000 chance in the general population of being placed on the child protection register. The experience of maltreatment represents perhaps the greatest failure of the home environment and evidence has pointed to the importance of individual level factors related to resilience (e.g., Cicchetti & Rogosch, 2009) among those with such experiences. Such experiences will inevitably impact upon young people's experiences of relationships and attachments. Bowlby (1979) suggested that secure attachments and bonds with a caregiver provide children with a 'secure base' that enables children to have the confidence to explore their environment and develop. Bowlby (1973) also suggested that such experiences would have an impact upon

personality development, and behavioural and emotional responses. Ainsworth, Blehar, Waters & Wall (1978) and Ainsworth (1979) identified three attachment styles of secure, anxious/ambivalent and avoidant, and these categories are largely consistent across the literature (Ogilvie, Newman, Todd & Peck, 2014). There is consistent evidence to suggest attachment styles are related to offending, with Ogilvie and colleagues' (2014) recent meta-analysis suggesting that insecure attachments were related to all forms of offending. Ireland and Power (2004) explored attachment styles and bullying behaviour among adult and young offenders and found that those who engaged in bullying and also reported being victimised, had higher avoidant attachments than other bully / victim groups.

Participants within the current research were found to have below average levels of Sense of Relatedness (Chapter 3) and young people identified as vulnerable by prison staff were found to have significantly lower levels of Sense of Relatedness that non-vulnerable young people (Chapter 6). Given the extent of ACEs (e.g., Baglivio et al., 2014) and the inevitable impact upon attachment styles, it is unsurprising that young people within custody will experience difficulties in their ability to feel securely connected to others when incarcerated. Furthermore, the environmental demands of prison may hamper this development, given levels of violence, conflict and bullying, and their likely impact on levels of fear (e.g., Ireland, 2005; Allison & Ireland, 2010). However, what has been revealed through the studies conducted has been the pivotal role that relatedness appears to take in relation to young people's adjustment to custody and their emotional well-being. In Chapter 4, higher levels of Sense of Relatedness was found to be associated with more positive self-perceptions, more positive attitudes towards staff members and other young people, along with higher levels of Good Adjustment. It was also associated with lower levels of Anxiety, Depression, Anger, Distress and Poor Adjustment. Furthermore, Sense of Relatedness was found to be predictive of self-reported Poor and Good Adjustment, Self-Concept, Anxiety, Depression and Anger.

Sense of Relatedness also emerged as central when the effects of resilience were examined within Chapter 5. Here, relatedness improved the prediction of both Anxiety and Depression beyond that predicted by custodial adjustment and also emerged as a significant predictor when changes in emotional well-being were explored in relation to length of time served within custody. These analyses helped to uncover some of the

processes and mechanisms by which resilience assists individuals to deal with the challenges of incarceration (Rutter, 2007). The finding that relatedness appears to work in a compensatory manner provides some insight into this process, which has direct implications on the nature of intervention efforts to boost resilience among young people in custody.

Ryan and Deci (2000) suggest that development and well-being operates within the social conditions within which development and functioning occurs. They suggest that for optimal functioning and well-being, the three innate needs of competence, relatedness and autonomy are key. The results presented within the current thesis have provided support for self-determination theory, and has highlighted the relationship between relatedness, optimal functioning and well-being among young people in custody. Young people on the Enhanced level of the IEP scheme had higher levels of Sense of Relatedness, suggesting that they were complying with the rules and regulations of prison and engaging well (Chapter 4). Levels of Sense of Relatedness were also associated with being identified as being at risk of suicide and/or self-injurious on fewer occasions (Chapter 4), although it failed to have any impact on the relationship between emotional well-being and being at risk of suicide / self-injurious behaviour (Chapter 5). Sense of Relatedness also emerged as the sole significant predictor of being identified as vulnerable by prison staff, although this only accounted for a small proportion of the variance (Chapter 6). However, if we take levels of relatedness as a proxy indicator of the impact of early relationships, then these results also lend support to Bowlby's (1973) assertion that our early experience of relationships will have an impact upon behavioural and emotional responses.

However, self-determination theory also considers the social environments that thwart these needs and suggests that feelings of attachment within relationships will show variability (Deci & Ryan, 2000). This is a key issue in which attachment and self-determination theories differ (Deci & Ryan, 2000). Some support for this was found within Chapter 4, where young people who had been in prison for the shortest amount of time were found to have significantly less positive regard for other young people. However, this finding was not mirrored in their views regarding staff members, where the only difference that emerged was that young people who had been in prison for between one to six months had significantly higher levels of positive regard for staff members than those who had been incarcerated for more than six months. This suggests

some support for self-determination theory and the suggestion that relatedness will show variability between relationships.

8.5 The Assessment of Resilience and Vulnerability among Young People in Custody

Arguments regarding the need for robust, reliable, valid and easy to administer assessments of resiliency and vulnerability were made within Chapter 6. A composite measure of resilience and vulnerability was created to attend to this need and the development and initial validation of it was described within Chapter 7. Three factors emerged from these analyses and were labelled as reflective of Internalising Difficulties, Satisfaction with Self and Others and Externalising Behaviour. A model comparison between the RSCA and the CM-RV conducted within Chapter 7 suggested that the CM-RV was a better predictor of vulnerability and resilience among young people in custody than the RSCA.

When testing the factor structure of the RSCA within Chapter 3, there was some evidence to suggest that both a two- and three-factor model fitted the data. While there was greater statistical, theoretical and practical support for retaining the original three-factor structure, items that related to the Satisfaction of Self and Others loaded onto a single factor during the creation of the CM-RV (Chapter 7). While Prince-Embury (2007) suggests that the developmental pathways for the Sense of Mastery and Sense of Relatedness factors are distinct, she has also acknowledged that they are highly related. This was certainly supported by the exploratory factor analysis described within Chapter 7.

Interestingly, the three factors identified within the CM-RV appear to show similarity to the three temperament styles identified by Caspi and colleagues through the Dunedin Multidisciplinary Health and Development Study (e.g., Caspi & Silva, 1995; Caspi, 2000). Caspi and colleagues have demonstrated consistent replicability of these temperament styles and the three factors which explained the greatest proportion of variance within the CM-RV appear to share some similarities in characteristics with these. The under-controlled temperament has parallels with the Externalising Behaviour factor, the inhibited temperament with the Internalising Difficulties factor and the well-adjusted temperament with the Satisfaction with Self and Others factor. Caspi and colleagues suggest that inhibited children are shy and uncomfortable in society and as

adults had less social support and greater difficulties with depression. Within the CM-RV, the Internalising Difficulties factor significantly predicted placement on ACCT, being identified as vulnerable by prison staff and was related to a number of maladaptive coping strategies. Well-adjusted children were found to cope with testing situations well, and were described as being average in adulthood. The Satisfaction with Self and Others factor was found to significantly predict placement on the Enhanced level of the IEP scheme, and was highly related to a number of adaptive coping strategies. Under-controlled children were described as difficult to manage and by early adulthood were characterised by impulsivity, aggression and interpersonal alienation. By age 21, they had more employment difficulties and more contact with the criminal justice system. The Externalising Behaviour factor of the CM-RV predicted being identified as vulnerable by staff members (although the accuracy of this was low) and was also negatively related with a number of adaptive coping strategies. While a person-centred approach was utilised by Caspi and colleagues to identify these styles, the variable-focused methodology used within the creation of the CM-RV provides support for arguments regarding the continuity of these characteristics across time and contexts, which could be explored in further research.

Fredrickson (2001) has suggested that positive emotions will act to broaden an individual's repertoire of coping strategies and help build resilience, within her broaden and build theory of positive emotions. Given that Satisfaction with Self and Others was found to be associated with a number of adaptive coping strategies, along with no association with more maladaptive strategies, the current results provide some support for this theory. Although the mechanisms by which this occurs requires additional research, positive thoughts regarding self and others appeared associated with a greater repertoire of adaptive coping strategies. If competence can be inferred from these adaptive coping strategies, then the positive feelings regarding the self and others would also support the assertions made within self-determination theory (e.g., Ryan & Deci, 2000).

8.6 Recommendations for Practice

The findings from the current thesis appear to have a number of implications for those working with young people in custody. What follows is a summary of these implications, along with recommendations for practice.

8.6.1 The promotion and development of relatedness among young people in custody.

Given how crucial relatedness has emerged from the results of the current thesis, strategies to promote and develop relatedness among young people in custody appear key. However, the range of adversity experienced by young people in custody mean that complex interventions are likely necessary. For example, interventions to promote relatedness in young people who may have experienced abuse and neglect may need to consider relational approaches in both individual and systemic ways, given early experiences of relationship formation. This may be especially important since therapeutic interventions with family members may be difficult or inappropriate. Adopting systemic practices, such as training for prison staff to help develop skills to encourage relatedness with young people and ensuring they have facility time to spend with them, would appear an important foundation in this process. Some recent initiatives developed within the Young People's Estate, such as the Custody Support Plan (CuSP, Young People's Estate Public Sector Prisons Psychology Services, 2015) have been developed with the aim of promoting positive relationships between young people and staff to ensure that young people are provided with appropriate support. Although the impact of this initiative is yet to be evaluated, it has been rolled out at one young offender institution within England and Wales. The potential value of broader systemic principles (e.g., such as the principles of the Enabling Environment [Royal College of Psychiatrists, 2013]), could also be an avenue worthy of attention.

Unfortunately, this is fraught with challenges, given a range of inherent issues associated with the incarceration of children within England and Wales. For example, with only four Young Offender Institutions (YOIs) across the prison estate, the vast majority of young people will not be located close to home, meaning that maintaining contact with family / carers can be extremely problematic. Furthermore, the high prevalence of ACEs among both male and female offenders (e.g., Baglivio et al., 2014) suggests that such contact may be harmful. While complex intervention, such as systematic family therapeutic interventions, may be appropriate for some, this is provided within only one YOI across England and Wales. There are also issues with the prison estate being able to adopt systemic practices, given reports of public sector prison staff numbers being reduced by 41% between 2010 and 2014 (Howard League for Penal Reform, 2014) and a 24% reduction in prison budgets since the coalition government came into power in 2010 (Travis & Morris, 2014). For example, further implementation

of the CuSP initiative has been delayed due to staffing shortages and establishment's difficulties delivering the regime to young people.

The interim findings of the review of the youth justice system by Charlie Taylor (Ministry of Justice, 2016) has highlighted some of the challenges of creating a youth justice system that would promote relatedness in young people. For example, while staff working with young people in custody have been described as dedicated and determined, they have also been described as lacking in skills, experiences and training to manage the most vulnerable and challenging young people. Furthermore, young people are described as being cared for by staff members that they do not know, given significant staff shortages across the estate. The interim findings of the review by Charlie Taylor has recommended a significant re-design of the youth estate with smaller units. Given that such changes may make adopting systemic approaches to promote relatedness more feasible, the current thesis would support this re-design. Furthermore, while the development of the unit described within Chapter 6, section 6.2.1 for the most vulnerable young people in 2008 was positive, the significant reduction in the numbers of young people in custody over recent years has resulted in some of the most challenging and vulnerable young people in the UK being managed within prison. With places for only 5% of young people within this unit, the vulnerability of the majority of young people cannot be ignored. However, the investment required to make this re-design a reality is significant and it is unclear at the time of writing whether the recommendations within the final review conducted by Charlie Taylor will be considered by the Government and Ministry of Justice. It is also unclear whether the newly appointed Secretary of State for Justice shares the view of the previous minister regarding the need for such a review.

The unit for young people with multiple and complex needs described within Chapter 6, section 6.2.1 should be better placed to consider such issues, given the higher young people to staff ratios and higher funding per place. While this would seem appropriate, given the significantly lower levels of relatedness among young people living on this unit, this should not be at the expense of the remaining 95% of young people currently in custody within England and Wales. Furthermore, the most recent inspection of the unit by HM Chief Inspector of Prisons (2016) raises issues with the deterioration in positive outcomes on the unit. Despite all these challenges,

consideration needs to be given to assisting young people to develop relatedness in custody.

8.6.2 Internalising and externalising difficulties as indicators of vulnerability. The results of the current thesis suggest that vulnerability among young people in custody is largely considered in terms of internalising difficulties. However, high levels of Anxiety and Depression were found to co-occur with high levels of Anger and were predicted by levels of Emotional Reactivity. This suggests that the assessment of vulnerability needs to consider attending to both internalising and externalising difficulties among young people in custody. It also suggests that staff members making assessments regarding young people's vulnerabilities would benefit from additional insight regarding the range of indicators of such vulnerability.

Interventions targeting anger reactivity are often favoured by practitioners working with young people in custody. While such approaches may be of benefit, consideration needs to be given to the range of emotional experiences and how such emotions may manifest themselves in both internalising and externalising ways. The current results suggest that general emotional arousal and expression interventions may help to offset some of the negative impact of difficulties adjusting to custody upon emotional well-being. The CM-RV may offer one means of assessing both difficulties among young people in custody.

8.6.3 Assessing resilience and vulnerability. The assessment of resilience and strengths among young people in custody has been difficult. The lack of validated assessments available for this purpose has hampered the assessment of such strengths by both practitioners and researchers, meaning that little has been known about the presence, and impact, of resilience among young people in custody. The current thesis has provided support for the use of the RSCA among young people in custody, in particular in relation to understanding their responses to the custodial environment. While the current results have suggested that some caution is required when interpreting scores from the subscales of the measure, support has been found for the three factors (Chapter 3). In particular, the findings that the strengths associated with the RSCA were found to be reflective of positive behaviour may be particularly useful in practice.

The CM-RV was introduced as a means of quickly screening for resilience and vulnerability among young people in custody. In particular, this appears to have a

particular application to the assessment of young people's suitability for units described within Chapter 6, section 6.2.1. This appeared especially important given the lack of robust assessment processes for assessing such risks among young people in custody and the lack of naturally occurring clusters of young people based on their resilience profile. Furthermore, the length of the CM-RV would also suggest that it would be quick and easy to administer to young people and serve as a practical screening instrument. With further testing and validation, the use of the CM-RV may enable more robust assessment processes to be introduced within custody to assess resilience and vulnerability. Given the lack of current robust assessments, and findings suggesting that factors such as previous experience of custody are not reflective of vulnerability, this appears imperative.

8.6.4 Resilience promoting interventions. The current results have found some support for the positive impact of resilience on the relationship between adjustment to custody and emotional well-being. This suggests that interventions aimed at strengthening resilience promoting factors, such as problem-solving abilities, positive self-perceptions (see Chapter 1, section 1.4 for further details), may help to offset the deleterious impact of difficulties adjusting to custody upon emotional well-being. These findings provide support for Prince-Embury's (2006, 2007) argument that the strengths assessed by the RSCA will protect young people from the experience of negative emotions, particularly in relation to feelings of depression and anger among young people in custody. Results also suggest that interventions aimed at strengthening resilience may help young people to engage in positive behaviours and comply with the expectations and rules of custody. This, in turn, is likely to lead to greater privileges within custody, greater resettlement opportunities (such as Home Detention Curfew [HDC] and Release on Temporary Licence [ROTL]) and a better chance of early release (if eligible).

8.7 Limitations

This thesis is one of the first to the knowledge of the researcher to examine resilience in relation to custodial adjustment among young people in custody. While a number of strengths exist (e.g., large sample size), the thesis is not without limitations. The current study is limited to only male participants within a single institution, raising doubt regarding the generalisability of the findings to other institutions and young

females in custody. This is clearly an avenue for future research, although the numbers of young females within custody is considerably smaller. It was also difficult to consider all factors that may have impacted upon young people's resilience and adjustment to the custodial environment within the current research. For example, other factors such as fear and homesickness (Ireland, 2001), may be important factors to consider within subsequent research.

The current study has also focused only on the individual level of resilience, and has not considered the impact of social- or societal-level factors. While some of the reasons for this were outlined within Chapter 1, this is clearly a limitation. Exploring the impact of resilience across the range of factors known to be associated is of importance and any future research among young people in custody should consider strategies to encapsulate this.

When exploring the impact of time served, a cross-sectional research design was employed. This is a clear methodological limitation which would have been strengthened through employing a longitudinal methodology. Although attempts were made to collect data longitudinally, the frequent movements of young people within custody, short sentences and fluctuating participant motivation meant that this had to be abandoned. It will be important to replicate the results of the current thesis regarding the apparent dynamic nature of resilience utilising such longitudinal methods.

A further issue was the heavy reliance upon self-report questionnaires. Issues with this methodology include false reports, socially desirable responding and common method variance. While data collection also included the use of file and prison records to help minimise the potential impact of common method variance in particular, the importance of having a sample sufficient in size to complete some of the analyses described (i.e., CFA) was favoured despite these limitations. Furthermore, the test-retest stability of the CM-RV was not explored. Further validation and exploration of the CM-RV is also required.

8.8 Future research

The limitations outlined above suggest a number of avenues of further research required. In particular, it would be helpful to consider whether the findings of the current thesis can be replicated among young people incarcerated within other prisons

within the UK. If so, this would suggest that the recommendations made are relevant across the Young People's Estate.

While an initial validation of the CM-RV has been completed, this requires further work. In particular, the usefulness of the CM-RV as a practical screening instrument and a means of evaluating the outcomes of the unit described within Chapter 6, section 6.2.1 could be considered. Furthermore, if interventions are implemented with a view to promoting resilience among young people in custody, the impact of these could be evaluated utilising the CM-RV.

The relationship between coping styles and resilience among young people in custody was also not explored. While a sub-sample of participants did complete a coping measure, this was utilised to complete an initial validation of the CM-RV. Given the role that different coping styles appear to play in relation to adjustment to incarceration (e.g., Brown & Ireland, 2006) and resilience (e.g., Campbell-Sills et al., 2006) this is an important area for future research to consider.

While some information was collated regarding participants contact with the child welfare system, this appears an important avenue of future research given the high odds of contact observed among participants within the current study. In particular, it would be interesting to explore whether such experiences lead to differences in patterns and profiles of resilience, and how this then impacts upon adjustment to custody and functioning within it.

8.9 Concluding Comments

Young people in custody represent some of the most challenging, and vulnerable, young people within our society. The high prevalence of contact with children's social services suggests that state intervention with many of these young people has been attempted and failed. While the prison system has a responsibility to keep these young people in custody, the state also has a responsibility to meet their needs as children and provide them with the best possible care. As Brown and Ireland (2006) have suggested, environmental and systemic changes to institutions are likely to promote greater change in young people than intervening to promote individual change. While the interim findings of the review of the youth estate has recommended a significant re-design of the youth estate (Ministry of Justice, 2016), the significant

reduction in prison budgets and staffing levels (Travis & Morris, 2014; the Howard league for Penal Reform, 2014) means it is difficult to imagine that such recommendations will come to fruition. Despite this, the prison system has to consider the well-being of young people within their care and consider means of ensuring that the deleterious impact of incarceration is minimised and opportunities for growth and development are harnessed. While the recommendations based on the results of the current thesis will inevitably require significant investment, strengthening young people's resilience may help to offset the potential negative long-term trajectory of their early incarceration.

Appendix A. Overview and psychometric properties of measures identified

Name	Purpose	Ages	Sample size	Items	Scale (and subscales)	Internal consistency	Test-retest	Evidence of development and/or use with adolescents
The Resilience Scale (Wagnild & Young, 1993)	Provides a measure of an individual's ability to respond to adversity with resilience.	Adults	Initial development of the measure based on qualitative study of 24 older women who had experienced a recent loss and 39 caregivers of spouses with Alzheimer's disease (Wagnild & Young, 1991). Initial psychometric evaluation on 782 middle and older-aged adults.	25 and 14 items versions available)	Self-reliance Purposeful life (meaning) Equanimity Perseverance Existential aloneness (coming home to yourself)	.91 (25 item-version, *N* = 782)	None reported	Yes (Cronbach's alpha ranged from .72 to .91)
The Resiliency Scale (Jew, Green & Kroger, 1999).	Measures factors (skills and abilities) thought to render children resistant to psychological harm.	Ranged from 12 to 18 (*M* = 14.8)	392	49	Future orientation Active skill acquisition Independence / risk-taking	Future orientation .91 and .95 Active skill acquisition .79 and 81 Independence / risk-taking .68 and .77	Future orientation .57 Active skill acquisition .48 Independence / risk-taking .36	Yes
Connor-Davidson Resiliency Scale (CD-RISC, Connor &	Measure of an individual's ability to cope	Mean age 43.8 years	806	25	Personal competence, high standards and	.89 (for full scale, *N* = 577)	.87 (N = 24)	Yes

Name	Purpose	Ages	Sample size	Items	Scale (and subscales)	Internal consistency	Test-retest	Evidence of development and/or use with adolescents
Davidson, 2003)	with stress.				tenacity Trust in one's instincts, tolerance of negative affect and strengthening effects of stress Positive acceptance of change and secure relationships Control Spiritual influences			
Adolescent Resilience Scale (Oshio, Kaneko, Nagamine & Nakaya, 2003)	Scale to measure psychological features of resilient individuals.	19 – 23 years (*M* age = 20.2)	207	21	Novelty seeking Emotional regulation Positive future orientation	Total score .85 Novelty seeking .79 Emotional regulation .77 Positive future orientation .81	None reported	Yes
Resilience Scale for Adolescents (READ, Hjemdal, Friborg, Stiles, Martinussen & Rosenvinge, 2006)	Assesses the presence of protective resources	13 – 15 years	425	39 (23 item scale reported using *N* = 6, 723, von Soest,	Personal competence Social competence Family coherence Social resources	Total score .94 Personal competence .85 Social competence .82 Family	None reported	Yes

Name	Purpose	Ages	Sample size	Items	Scale (and subscales)	Internal consistency	Test-retest	Evidence of development and/or use with adolescents
				Mossige, Stefansen & Hjemdal, 2010).	Structured style	coherence .69 Social resources .85 Structured style .78		
Resilience Scale for Adolescents (von Soest, Mossige, Stefansen & Hjemdal, 2010).	Assesses the presence of protective resources	Mean age 18.3 years	6,723	28	Personal competence Social competence Family coherence Social support Structured style	Personal competence .76 Social competence .77 Structured style .69 Family coherence .89 Social resources.79	None reported	Yes
Resiliency Scale for Children and Adolescents (RSCA, Prince-Embury, 2006, 2007)	Assesses the normal personal qualities or attributes of a child or adolescent which are related to their	9 – 18 years	650	64	Sense of Mastery (optimism, self-efficacy and adaptability) Sense of Relatedness (sense of trust, perceived access to support, comfort with	[7]Sense of Mastery .95 Sense of Relatedness .95 Emotional Reactivity .94	[8]Sense of Mastery .86 Sense of Relatedness .86 Emotional Reactivity .81	Yes

[7] Co-efficients for adolescent sample (15 – 18, N = 200) are provided only. Co-efficients for other age bands (9-11 and 12 – 14) were .85 and above (Prince-Embury, 2006, 2007).

[8] Co-efficients for adolescent sample (15 – 18, N = 65) are provided only. Co-efficients for other age bands (9-14) were .71 and above (Prince-Embury, 2006, 2007).

Name	Purpose	Ages	Sample size	Items	Scale (and subscales)	Internal consistency	Test-retest	Evidence of development and/or use with adolescents
	ability to cope with stress and adversity				others and tolerance of differences) Emotional Reactivity (sensitivity, recovery and impairment) Resource Index Vulnerability Index	Resource Index .97 Vulnerability Index .97	Resource Index .89 Vulnerability Index .91	
Child and Youth Resilience Measure – 58 items (CYRM-58, Ungar, Liebenberg, Boothroyd, Kwong, Lee, Leblanc,…& Makhnach, 2008)	A measure of resilience that is culturally and contextually relevant.	12 to 23 years	1,451	58	Individual Relational Community Culture	Individual .84 Relational .66 Community .79 Culture .71	None reported	Yes
Child and Youth Resilience Measure- 28 items (CYRM-28, Ungar & Liebenberg, 2011; Liebenberg, Ungar & Van de Vijver, 2012).	A measure of resilience that is culturally and contextually relevant.	Mean age 16.85 years	497	28	Individual Relational Community	Individual .80 Relational .83 Community .79	Range of .58 to .77 (3 to 5 week period)	Yes

Appendix B. Participants' main offence type

Offence Category	Offence type	Frequency	Percentage
Violence	Murder	12	3.3
	Manslaughter	2	0.5
	Grievous bodily harm (GBH)	7	1.9
	Common assault	3	0.8
	Robbery	79	21.6
	Assault occasioning Actual Bodily Harm (ABH)	16	4.4
	Wounding with intent to do GBH	13	3.6
	Attempted robbery	7	1.9
	Battery	2	0.5
	False imprisonment	2	0.5
	Assault with intent to rob	1	0.3
	Conspiracy to rob	1	0.3
	Attempted murder	7	1.9
	Affray	3	0.8
	Assault	2	0.5
	Wounding	1	0.3
	Kidnapping	1	0.3
	Violent disorder	1	0.3
	Violence against the person	1	0.3
	Putting someone in fear of violence	3	0.8
	Threatening behaviour	1	0.3
Acquisitive	Burglary	60	16.4
	Theft	10	2.7
	Aggravated burglary	4	1.1
	Handling stolen goods	1	0.3

Offence Category	Offence type	Frequency	Percentage
	Going equipped for burglary	1	0.3
	Attempted burglary	2	0.5
Sexual	Sexual assault on a female	7	1.9
	Sexual assault on a male child	1	0.3
	Rape	19	5.2
	Attempted rape	2	0.5
	Rape of as male child under 13	3	0.8
	Indecent behaviour exposure	1	0.3
Drugs	Possession of class A drugs with intent to supply	4	1.1
	Possession of class B drugs with intent to supply	1	0.3
	Producing cannabis	1	0.3
Public Order	Carrying a blade	1	0.3
	Having an offensive weapon in a public place	4	1.1
Breach	Breach of licence	40	10.9
Motoring	Taking vehicle without owner's consent (TWOC)	5	1.4
	Driving a motor vehicle without owner's consent	3	0.8
	Driving whilst disqualified	1	0.3
	Aggravated vehicle taking	4	1.1
Arson	Arson	3	0.8

Offence Category	Offence type	Frequency	Percentage
	Commit arson recklessly	1	0.3
	Arson with intent to endanger life	3	0.8
Missing	Missing	19	5.2

Appendix C. Confirmatory Factor Analysis Reporting Guidelines Checklist (Jackson et al., 2009, p. 23)

Theoretical formulation and data collection

- Theoretical/empirical justification of models tested
- Number and type of models tested (correlated, orthogonal, hierarchical)
- Specification of models tested (explicit relationships between observed and latent variables
- Graphic representation of models tested
- Sample characteristics (justification, sampling method, sample size)
- Identification of equivalent and theoretically alternative methods
- Specification of model identifiably (can models be tested)?

Data preparation

- Screening for univariate and multivariate normality and outliers
- Analysis of missing data and methods for addressing
- Scale of observed variables (nominal, ordinal, interval, ratio; range of values)
- Description of data transformations (include parcelling)

Analysis decisions

- Type of matrix analysed (covariance, correlation)
- Matrix included or available upon request
- Estimation procedure and justification given normality assessment (ML, S-B ML, WLS)
- Scale of latent variables
- Software and version

Model evaluation

- Inclusion of multiple fit indices (e.g., chi-square, df, p; RMSEA, CFI, TLI)

Appendix D. The Custodial Adjustment Questionnaire (CAQ, Thornton, 1987)

Answer all of the following questions true or false, as they apply to you at the moment.

	True	False
1. Some of the staff have been helpful to me	☐	☐
2. I feel poorly at the moment	☐	☐
3. I am sleeping well at the moment	☐	☐
4. I am eating well at the moment	☐	☐
5. I mix a lot with other young people here	☐	☐
6. I enjoy talking to other young people here	☐	☐
7. I would trust staff here with a secret.	☐	☐
8. The thoughts of staying here much longer scares me	☐	☐
9. I am having nightmares at the moment	☐	☐
10. I prefer to keep myself to myself in here	☐	☐
11. It is dangerous to trust other young people here	☐	☐

	True	False
12. I am treated unfairly here	☐	☐
13. Staff here seem to dislike me	☐	☐
14. I have been involved in a fight here	☐	☐
15. I feel as if I am about to explode	☐	☐
16. I can't stand another day in here	☐	☐
17. I worry a lot in here	☐	☐
18. I have broken the rules in here just for the hell of it	☐	☐
19. I have damaged prison property in here	☐	☐
20. I often swear aloud at staff here	☐	☐
21. Staff here order young people about too much	☐	☐
22. Most of the time I am relaxed here	☐	☐
23. Most of the time I am nervous	☐	☐
24. Most of the time I feel bad tempered	☐	☐
25. I am afraid of what might happen to me in here	☐	☐

	True	False
26. Time goes very slowly in here	☐	☐
27. I am having an easy time in here	☐	☐
28. I can respect most of the staff here	☐	☐
29. The staff don't really care about the young people here	☐	☐
30. Staff try to set a good example to the young people here	☐	☐
31. I don't talk much to the young people here	☐	☐
32. I find it easy to trust the other young people here	☐	☐
33. I have made fun of an officer behind their back in the last week	☐	☐
34. I have written on the walls or furniture in the last week	☐	☐
35. Most of the time during the last few days, I have felt unhappy	☐	☐
36. I know the nicknames that other young people have for some of the staff	☐	☐
37. I know of others who would cover up for me if I ever got into trouble here, even at their own cost	☐	☐

	True	False
38. I feel lonely in here at the moment	☐	☐
39. I have pinched something belonging to the prison	☐	☐
40. I have pinched something belonging to another young person	☐	☐
41. It is difficult to talk to staff in here	☐	☐
42. I chat to staff when I get the chance.	☐	☐

Appendix E. The predictive power of resilience (Tables E1 to E7)

Table E1.

Linear model of predictors of CAQ Poor Adjustment, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	12.38	1.00		.001
	(10.40, 14.34)			
MAS	-0.12	1.02	-.34	.001
	(-0.16, -0.08)			
Step 2				
Constant	12.83	1.07		.001
	(10.70, 14.87)			
MAS	-0.10	0.03	-.28	.001
	(-0.15, -0.5)			
REL	-0.02	0.02	-.08	.293
	(-0.06, 0.02)			
Step 3				
Constant	9.35	1.23		.001
	(6.82, 11.56)			
MAS	-0.08	0.03	-.22	.002
	(-0.13, -0.03)			
REL	-0.02	0.02		.226
	(-0.07, 0.02)		-.09	
REA	0.08	0.01	-.27	.001
	(0.05, 0.10)			

Note. R^2 = .12, p = .000 for Step 1, ΔR^2 = .00, p = .252 for Step 2 and ΔR^2 = .07, p = .000 for Step 3.

Table E2.

Linear model of predictors of CAQ Good Adjustment, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	5.97	0.78		.001
	(4.47, 7.58)			
MAS	0.08	0.02	.28	.001
	(0.05, 0.11)			
Step 2				
Constant	4.61	0.78		.001
	(3.13, 6.23)			
MAS	0.02	0.02	.07	.413
	(-0.03, 0.07)			
REL	0.07	0.02	.31	.001
	(0.04, 0.10)			
Step 3				
Constant	4.86	0.98		.001
	(2.82, 6.76)			
MAS	0.02	0.03	.06	.459
	(-0.03, 0.07)			
REL	0.07	0.02	.31	.001
	(0.04, 0.10)			
REA	-0.01	0.01	-.02	.640
	(-0.03, 0.02)			

Note. R^2 = .08, p = .000 for Step 1, ΔR^2 = .05, p = .000 for Step 2 and ΔR^2 = .001, p = .648 for Step 3.

Table E3.

Linear model of predictors of BYI-II Self-Concept, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	8.44	2.34		.001
	(3.98, 13.17)			
MAS	0.57	0.04	.60	.001
	(0.48, 0.66)			
Step 2				
Constant	4.44	2.27		.052
	(-0.14, 8.81)			
MAS	0.39	0.07	.41	.001
	(0.26, 0.52)			
REL	0.20	0.05	.28	.001
	(0.11, 0.30)			
Step 3				
Constant	3.23	2.57		.210
	(-1.69, 8.05)			
MAS	0.40	0.07	.42	.001
	(0.26, 0.53)			
REL	0.20	0.05	.28	.001
	(0.11, 0.30)			
	0.03	0.03	.04	.450
REA	(-0.04, 0.09)			

Note. R^2 = .36, p = .000 for Step 1, ΔR^2 = .04, p = .000 for Step 2 and ΔR^2 = .001, p = .412 for Step 3.

Table E4.

Linear model of predictors of BYI-II Anxiety, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	17.78	2.31		.001
	(13.32, 22.23)			
MAS	-0.16	0.04	-.21	.001
	(-0.25, -0.08)			
Step 2				
Constant	21.11	2.38		.001
	(16.51, 25.87)			
MAS	-0.01	0.06	-.02	.830
	(-0.13, 0.12)			
REL	-0.17	0.05	-.29	.001
	(-0.26, -0.09)			
Step 3				
Constant	13.50	2.49		.001
	(8.41, 18.49)			
MAS	0.04	0.06	.05	.551
	(-0.08, 0.17)			
REL	-0.17	0.05	-.29	.001
	(-0.27, -0.09)			
REA	0.17	0.03	.28	.450
	(0.11, 0.22)			

Note. R^2 = .05, p = .000 for Step 1, ΔR^2 = .04, p = .000 for Step 2 and ΔR^2 = .008, p = .000 for Step 3.

Table E5.

Linear model of predictors of BYI-II Depression, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	24.86	2.35		.001
	(20.14, 29.44)			
MAS	-0.30	0.04	-.39	.001
	(-0.38, -0.21)			
Step 2				
Constant	27.23	2.49		.001
	(21.84, 31.93)			
MAS	-0.19	0.06	-.25	.002
	(-0.30, -0.07)			
RE	-0.12	0.04	-.20	.006
	(-0.21, -0.4)			
Step 3				
Constant	18.80	2.60		.001
	(13.43, 23.79)			
MAS	-0.14	0.05	-.18	.012
	(-0.24, -0.03)			
REL	-0.13	0.04	-.21	.004
	(-0.21, -0.04)			
REA	.183	0.03	.30	.001
	(-.13, .24)			

Note. R^2 = .15, p = .000 for Step 1, ΔR^2 = .02, p = .004 for Step 2 and ΔR^2 = .09, p = .000 for Step 3.

Table E6.

Linear model of predictors of BYI-II Anger, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	29.48	2.26		.001
	(25.54, 34.24)			
MAS	-0.32	0.04	-.37	.001
	(-0.41, -0.24)			
Step 2				
Constant	31.74	2.23		.001
	(27.61, 36.34)			
MAS	-0.22	0.07	-.25	.003
	(-0.36, -0.08)			
REL	-0.12	0.05	-.17	.030
	(-0.22, -0.01)			
Step 3				
Constant	20.27	2.67		.001
	(15.06, 25.35)			
MAS	-0.14	0.07	-.17	.027
	(-0.28, -0.02)			
REL	-0.12	0.05	-.18	.022
	(-0.22, -0.2)			
REA	0.25	0.03	.37	.001
	(0.19, 0.32)			

Note. R^2 = .14, p = .000 for Step 1, ΔR^2 = .02, p = .014 for Step 2 and ΔR^2 = .13, p = .000 for Step 3.

Table E7.

Linear model of predictors of BYI-II Disruptive Behaviour, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	27.12	2.60		.001
	(22.14, 32.35)			
MAS	-0.23	0.05	-.27	.001
	(-0.34, -0.14)			
Step 2				
Constant	26.62	2.56		.001
	(21.72, 32.08)			
MAS	-0.26	0.08	-.30	.001
	(-0.41, -0.11)			
REL	0.03	0.05	.04	.610
	(-0.07, 0.13)			
Step 3				
Constant	19.90	3.54		.001
	(13.12, 26.95)			
MAS	-0.21	0.08	-.25	.007
	(-0.37, -0.07)			
REL	0.02	0.05	.03	.647
	(-0.07, 0.12)			
REA	-0.15	0.04	.22	.002
	(0.07, 0.22)			

Note. R^2 = .08, p = .000 for Step 1, ΔR^2 = .00, p = .598 for Step 2 and ΔR^2 = .05, p = .000 for Step 3.

Appendix F. Exploring the mechanisms of resilience (Tables F1 to F9).

Table F1

Linear model of predictors of BYI-II Anxiety, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	5.89	1.62		.001
	(2.60, 9.07)			
Poor Adjustment	0.99	0.11	.46	.001
	(0.78, 1.22)			
Good Adjustment	-0.26	0.13	-.10	.054
	(-0.51, 0.01)			
Step 2				
Constant	6.22	2.75		.027
	(1.02, 10.97)			
Poor Adjustment	0.85	0.12	.40	.001
	(0.63, 1.10)			
Good Adjustment	-0.15	0.13	-.06	.258
	(-0.40, 0.11)			
MAS	0.11	0.06	.14	.051
	(-0.00, 0.22)			
REL	-0.14	0.04	-.24	.001
	(-0.23, -0.06)			
REA	0.10	0.03	.17	.001
	(0.04, 0.16)			

Note. R^2 = .25, p = .000 for Step 1, ΔR^2 = .05, p = .000 for Step 2.

Table F2

Linear model of predictors of BYI-II Depression, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	6.36	1.60		.001
	(3.27, 9.46)			
Poor Adjustment	1.02	0.12	.47	.001
	(0.77, 1.25)			
Good Adjustment	-0.30	0.12	-.11	.015
	(-0.54, -0.06)			
Step 2				
Constant	12.53	2.74		.001
	(6.88, 17.71)			
Poor Adjustment	0.74	0.13	.34	.001
	(0.50, 0.98)			
Good Adjustment	-0.13	0.12	-.05	.306
	(-0.37, 0.12)			
MAS	-0.08	0.05	-.10	.134
	(-0.17, 0.03)			
REL	-0.10	0.04	-.16	.022
	(-0.18, -0.02)			
REA	0.13	0.03	.21	.001
	(0.07, 0.18)			

Note. R^2 = .26, p = .000 for Step 1, ΔR^2 = .10, p = .000 for Step 2.

Table F3

Linear model of predictors of BYI-II Anger, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	10.95	1.91		.001
	(7.20, 15.00)			
Poor Adjustment	1.13	0.11	.47	.001
	(0.91, 1.35)			
Good Adjustment	-0.46	0.15	-.15	.007
	(-0.78, -0.17)			
Step 2				
Constant	14.52	3.01		.001
	(8.38, 20.35)			
Poor Adjustment	0.78	0.12	.32	.001
	(0.54, 1.03)			
Good Adjustment	-0.32	0.15	-.11	.048
	(-0.64, -0.03)			
MAS	-0.08	0.06	-.09	.207
	(-0.19, 0.05)			
REL	-0.08	0.05	-.12	.073
	(-0.17, 0.00)			
REA	0.19	0.03	.28	.001
	(0.13, 0.25)			

Note. R^2 = .28, p = .000 for Step 1, ΔR^2 = .11, p = .000 for Step 2.

Table F4

Linear model of predictors of CAQ Poor Adjustment, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	6.72	0.54		.001
	(5.66, 7.77)			
Length of time in	-0.14	0.14	-.05	.331
custody	(-0.42, 0.14)			
Step 2				
Constant	9.28	1.20		.001
	(6.82, 11.62)			
Length of time in	0.02	0.14	.01	.921
custody	(-0.25, 0.30)			
MAS	-0.08	0.03	-.22	.005
	(-0.13, -0.02)			
REL	-0.02	0.02	-.09	.204
	(-0.06, 0.02)			
REA	0.08	0.02	.27	.001
	(0.05, 0.11)			

Note. R^2 = .003, p = .350 for Step 1, ΔR^2 = .19, p = .000 for Step 2.

Table F5

Linear model of predictors of CAQ Good Adjustment, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	10.21	0.46		.001
	(9.27, 11.11)			
Length of time in	-0.05	0.12	-.02	.707
custody	(-0.28, 0.21)			
Step 2				
Constant	5.29	1.06		.001
	(9.27, 11.11)			
Length of time in	-0.20	0.12	.09	.095
custody	(-0.28, 0.21)			
MAS	0.02	0.02	.06	.476
	(-0.03, 0.06)			
REL	0.07	0.02	.33	.001
	(0.03, 0.11)			
REA	-0.01	0.01	.27	.595
	(-0.03, 0.02)			

Note. R^2 = .000, p = .689 for Step 1, ΔR^2 = .14, p = .000 for Step 2.

Table F6

Linear model of predictors of BYI-II Self-Concept, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	32.86	1.37		.001
	(30.17, 35.65)			
Length of time in	1.36	0.37	.19	.001
custody	(0.61, 2.14)			
Step 2				
Constant	1.64	2.68		.510
	(-3.62, 6.65)			
Length of time in	0.70	0.30	.10	.018
custody	(0.14, 1.34)			
MAS	0.40	0.07	.42	.001
	(0.27, 0.53)			
REL	0.19	0.05	.26	.001
	(0.09, 0.28)			
REA	0.03	0.03	.04	.370
	(-0.04, 0.09)			

Note. R^2 = .036, p = .001 for Step 1, ΔR^2 = .378, p = .000 for Step 2.

Table F7

Linear model of predictors of BYI-II Anxiety, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	13.24	1.15		.001
	(11.01, 15.55)			
Length of time in	-1.11	0.29	-.19	.001
custody	(-1.68, -0.53)			
Step 2				
Constant	15.42	2.55		.001
	(10.26, 20.19)			
Length of time in	-0.76	0.27	.13	.005
custody	(-1.25, -0.20)			
MAS	0.03	0.06	.04	.618
	(-0.08, 0.15)			
REL	-0.16	0.04	-.27	.001
	(-0.24, -0.08)			
REA	0.16	0.03	.28	.001
	(0.10, 0.22)			

Note. R^2 = .037, p = .000 for Step 1, ΔR^2 = .145, p = .000 for Step 2.

Table F8

Linear model of predictors of BYI-II Depression, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	14.75	1.17		.001
	(12.41, 17.08)			
Length of time in	-1.51	0.29	-.26	.001
custody	(-2.04, -0.93)			
Step 2				
Constant	21.52	2.74		.001
	(16.22, 26.79)			
Length of time in	-1.09	0.26	-.19	.001
custody	(-1.60, -0.57)			
MAS	-0.15	0.05	-.19	.012
	(-0.25, -0.04)			
REL	-0.10	0.04	-.17	.012
	(-0.25, -0.04)			
REA	0.18	0.03	.30	.001
	(0.12, 0.23)			

Note. R^2 = .065, p = .000 for Step 1, ΔR^2 = .228, p = .000 for Step 2.

Table F9

Linear model of predictors of number of times placed on an ACCT, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	0.31	0.34		.358
	(-0.37, 1.01)			
Self-Concept	-0.01	0.01	-.05	.421
	(-0.02, 0.01)			
Anxiety	0.00	0.02	-.00	.991
	(-0.04, 0.04)			
Depression	0.01	0.02	.10	.616
	(-0.03, 0.06)			
Anger	0.02	0.01	.14	.220
	(-0.01, 0.04)			
Disruptive behaviour	0.00	0.01	.02	.811
	(-0.02, 0.02)			
Step 2				
Constant	0.57	0.53		.285
	(-0.40, 1.64)			
Self-Concept	-0.00	0.01	-.01	.961
	(-0.02, 0.02)			
Anxiety	0.00	0.02	.01	.954
	(-0.04, 0.04)			
Depression	0.10	0.02	.08	.683
	(-0.03, 0.05)			

Anger	0.01	0.01	.09	.460
	(-0.02, 0.04)			
Disruptive behaviour	0.00	0.01	.03	.767
	(-0.02, 0.02)			
MAS	-0.01	0.01	-.08	.497
	(-0.03, 0.01)			
REL	0.00	0.01	-.02	.850
	(-0.02, 0.02)			
REA	0.00	0.00	.04	.425
	(-0.01, 0.01)			

Note. R^2 = .061, p = .011 for Step 1, ΔR^2 = .006, p = .704 for Step 2.

Appendix G. Eligibility criteria for Enhanced Support Unit described within section 6.2.1[9]

Young people meeting the following criteria will be eligible for assessment:

1) Either of the following risk factors:

- Currently subject to significant physical threat or harm from peers (as evidenced by prolonged periods in segregation for own protection).

- Physical health problems which impact on the young person's day to day functioning and where the young person's needs can be better met in the complex needs unit (CNU) environment than in alternative provision

2) Or two or more of the following risk factors:

1. Withdrawn, non-communicative or isolated from peers
2. Current self-harm or suicidal behaviour
3. Learning difficulties which impact across more than one area of life such as at school, at home, with peers.
4. Looked after child (LAC) with multiple placement breakdown due to behavioural difficulties
5. Significant difficulty adjusting to or managing in main site locations evidenced by isolation, lack of engagement with the regime, persistent low mood or distress, continued behavioural difficulties
6. Frequent placement in healthcare due to concerns about mental health difficulties which are assessed by the mental health service not to be complex or severe enough to require hospital admission (risk factors 5 and 6 persist despite evidence of first line interventions being tried such as increasing engagement in activity, enhanced support from personal officer/caseworker, mental health interventions)
7. History of complex trauma, abuse or neglect impacting on current functioning
8. Problems with day to day functioning in more than one area i.e. in school, at home, with peers. These may include:

[9]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/388674/Keppel_placement_protocol.pdf.

- Limited independent living skills i.e. using public transport, attending appointments/meetings, organising time, self-care skills
- Problems with understanding and communicating
- Difficulty making and maintaining relationships

Or 3) Be aged 15 years or above and currently held in a secure children's home or secure training centre (STC) within the catchment area.

Appendix H. Key to size, orientation and shape of cluster models

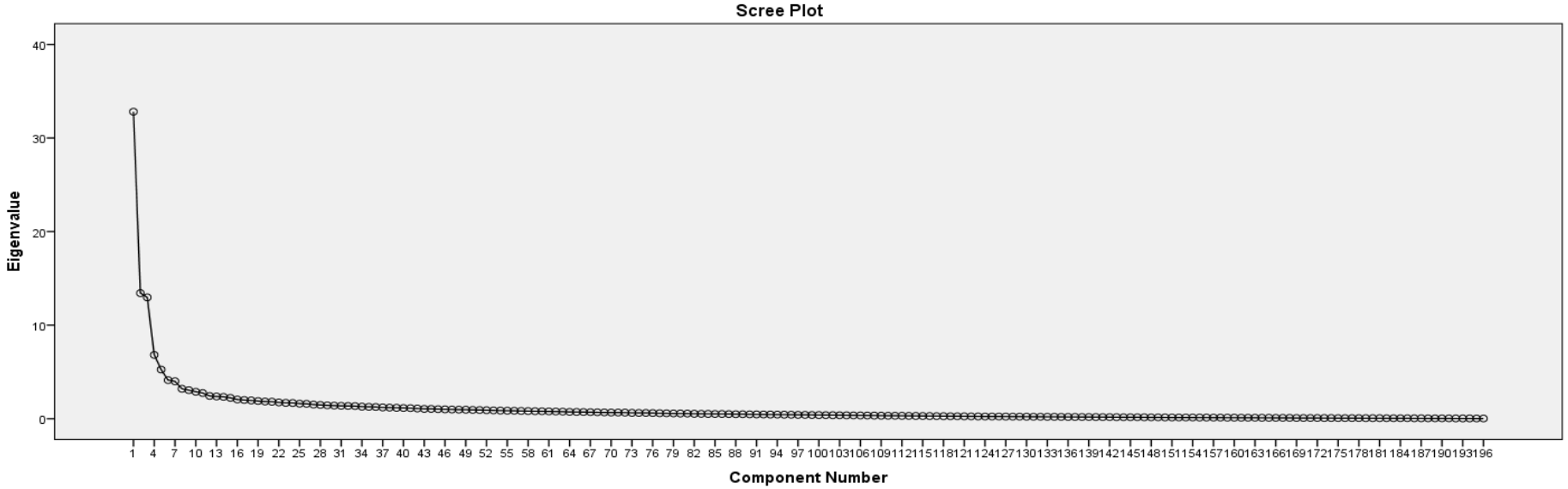
The different types of model are categorized by the shape, volume and orientation of the clusters as follows:

"EII"	=	spherical, equal volume
"VII"	=	spherical, unequal volume
"EEI"	=	diagonal, equal volume and shape
"VEI"	=	diagonal, varying volume, equal shape
"EVI"	=	diagonal, equal volume, varying shape
"VVI"	=	diagonal, varying volume and shape
"EEE"	=	ellipsoidal, equal volume, shape, and orientation
"EVE"	=	ellipsoidal, equal volume and orientation
"VEE"	=	ellipsoidal, equal shape and orientation
"VVE"	=	ellipsoidal, equal orientation
"EEV"	=	ellipsoidal, equal volume and equal shape
"VEV"	=	ellipsoidal, equal shape
"EVV"	=	ellipsoidal, equal volume
"VVV"	=	ellipsoidal, varying volume, shape, and orientation

Appendix I. *Comparison of the two-cluster model on the BYI-II and CAQ (N = 332)*

	Cluster 1 (n = 135)		Cluster 2 (n= 197)		t	p
	Mean	*SD*	Mean	*SD*		
BYI-II						
Self-Concept	38.11	10.82	36.87	10.16	1.06	.291
Anxiety	9.22	8.11	9.65	8.54	-0.46	.643
Depression	9.60	9.00	9.79	8.19	-0.20	.843
Anger	12.97	10.20	13.64	9.01	-0.63	.529
Disruptive behaviour	16.19	10.39	14.82	8.59	1.30	.194
CAQ						
Staff	6.13	2.64	6.43	2.56	-1.02	.309
Inmate	3.62	1.53	3.83	1.50	-1.21	.228
Distress	3.27	3.23	3.11	3.07	0.46	.650
Deviance	3.24	2.80	2.95	2.53	0.98	.326
Poor Adjustment	6.51	4.15	6.06	3.75	1.03	.306
Good Adjustment	9.76	3.35	10.26	3.07	-1.40	.162

Appendix J. Scree plot of items from the RSCA, BYI-II and CAQ using principal components extraction.



Appendix K. Model comparison between the CM-RV and RSCA (Tables K1 to K2)

Table K1.

Linear model of predictors of frequency of placement on ACCT, with 95% bias corrected and accelerate confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples

	b	*SE B*	*β*	*p*
Step 1				
Constant	1.36	0.32		.000
	(0.61, 2.18)			
MAS	-0.02	0.01	-.18	.005
	(-0.03, 0.00)			
Step 2				
Constant	1.44	0.35		.000
	(0.69, 2.18)			
MAS	-0.02	0.01	-.15	.106
	(-0.41, 0.01)			
REL	-0.00	0.01	-.05	.610
	(-0.02, 0.01)			
Step 3				
Constant	1.05	0.41		.011
	(0.24, 1.90)			
MAS	-0.01	0.01	-.14	.126
	(-0.04, 0.01)			
REL	-0.00	0.01	-.04	.683
	(-0.02, 0.02)			
REA	0.01	0.01	.12	.075
	(0.00, 0.02)			

Note. R^2 = .033, p = .005 for Step 1, ΔR^2 = .001, p = .610 for Step 2 and ΔR^2 = .013, p = .075 for Step 3. MAS = Sense of Mastery, REL = Sense of Relatedness, REA = Emotional Reactivity.

Table K2.

Coefficients of the model predicting whether a young person was on the standard or enhanced level of the IEP scheme (95% BCa bootstrap confidence intervals based on 1000 samples)

	b	*p*	95% CI for Odds Ratio		
			Lower	Odds	Upper
Constant	-2.35				
	[-3.80, -1.16]				
MAS	0.04	.009	1.01	1.04	1.06
	[0.01, 0.06]				

Note. R^2 = .03 (Cox & Snell), R^2 = .04 (Nagelkerke). MAS = Sense of Mastery

Appendix L. Composite measure of resilience and vulnerability (CM-RV)

Item	Factor 1	Factor 2	Factor 3
I feel sad	**.824**	-.078	.066
I feel like crying	**.812**	-.039	.023
I feel lonely	**.712**	-.145	.048
I hate myself	**.692**	-.126	.052
I feel no one loves me	**.623**	-.262	.145
I worry a lot in here	**.558**	-.075	-.142
I want to be alone	**.528**	-.206	.116
I worry people might get mad at me	**.517**	-.054	.033
Most of the time during the last few days, I have felt unhappy	**.504**	-.152	.087
I am afraid that I will make mistakes	**.489**	-.015	.169
I wish I were dead	**.479**	-.175	.114
I have trouble sleeping	**.407**	-.259	.143
I can meet new people easily	-.180	**.627**	-.073
I am a good person	-.043	**.616**	-.026
I can make new friends easily	-.192	**.611**	-.013
I can think of more than one way to solve a problem	-.030	**.597**	-.152
I can ask for help when I need to	-.097	**.583**	-.122
I can let others help me when I need to	-.067	**.568**	-.127
Good things will happen to me	-.128	**.563**	-.196
Other people treat me well	-.165	**.556**	.109
People think I'm good at things	-.049	**.549**	.077
If I get upset or angry, there is someone I can talk to	-.193	**.546**	-.167
If at first I don't succeed, I will keep on trying	.024	**.531**	-.208
I am just as good as other kids	-.108	**.529**	.119
If I have a problem, I can solve it	-.177	**.523**	-.157
I do things well	.010	**.520**	-.198
I feel proud of the things I do	-.209	**.514**	-.024
People accept me for who I really am	-.119	**.511**	-.016
If something bad happens, I can ask my parent(s) / carer(s) for help	-.091	**.510**	-.085
I can make good things happen	-.025	**.507**	-.169
I like myself	-.289	**.476**	.141
I break things when I am mad	.119	-.069	**.713**
When I am upset, I hurt someone	.017	-.085	**.641**
When I am upset, I get into trouble	.096	-.067	**.636**
I swear at adults	-.049	-.122	**.621**
When I get mad, I stay mad	.226	-.156	**.599**
I break the rules	-.151	-.080	**.587**
When I am upset, I do the wrong thing	.163	-.052	**.567**
When I get mad, I have trouble getting over it	.217	-.125	**.550**
I get so upset that I lose control	.260	-.040	**.535**
I like getting people mad	-.026	-.006	**.533**

Key: Factor 1 = Internalising Difficulties; Factor 2 = Satisfaction with Self and Others; Factor 3 = Externalising Behaviours. Figures in bold represent factor loadings on final factor.

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