CARDIFF UNIVERISTY

Using the Implicit Association Test to assess Attachment, Self-Esteem, and Implicit Theories among Sexual Offenders

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A thesis submitted

for the degree of Doctor of Philosophy

School of Psychology

Cardiff University

2013

I dedicate this thesis to the memory of

Bernard Craig

Declaration

This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

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Acknowledgments

First and foremost, I would like to thank Professor Bob Snowden and Professor Nicola Gray for all their support and advice throughout my time at Cardiff University. From giving me my first experience as an undergraduate research assistant, to helping me navigate the various challenges of completing a forensic PhD and progress to the next stage of my career, your guidance has been truly invaluable and I have thoroughly enjoyed working within such a knowledgeable and driven research team.

Thank you to Suzana Amad and Nora Butkute for their help during data collection, you helped me stay sane during those long stretches of recruitment! A huge thank you to all the staff at each prison site. There are too many names that come to mind to list you all here personally, but without your support and guidance I quite literally could not have done this. From finding highly-prized space in the room-booking schedule and putting up with my endless requests for file access, to providing much-needed respite during lunch breaks, you made what could have been a very difficult time one of the best experiences of my PhD. I would also like to thank all the participants who contributed their time to my research, the support staff at Cardiff University who helped make it happen, and Catherine and Chris, owners of the Brantwood B&B in Torquay, for giving me a home-from-home during recruitment.

Special thanks to my amazing cohort of fellow PhDers - Bethan, Christine, Kerry, Laura, James, Ben, and Emma – for all the support, laughter, and memories. Before starting, I imagined myself alone in an office for three years straight. Looking back, I found myself in great company (and quite frequently in Costa!). To all my friends and family, your love and encouragement have kept me going these last three years. Thank you for dealing with my regular freak-outs, supporting me during set-backs, and sharing in my successes, I feel so blessed to have you all in my life.

Last, but by no means least, I would like to thank Alex, my husband (and part-time personal IT technician!), for his unending patience and support. I can honestly say I wouldn't be here without you.

Thesis Summary

According to the principles of evidence-based practice, offender treatment and rehabilitation programmes should target risk factors that are empirically related to offending behaviour. Research shows, however, that several theoretical risk factors for sexual offending fail to demonstrate consistent links with historical offending and/or rates of sexual recidivism. Chapter 1 discusses how the limitations of self-report assessment may contribute to this inconsistency and how alternative *indirect assessment tools* may help circumvent some of these issues by assessing more automated forms of cognition and being more resistant to impression management. Chapter 2 describes the methodology of the current investigation that was designed to examine whether use of the Implicit Association Test (IAT) would provide greater empirical support for three psychosocial risk factors for sexual offending. Specifically, self-report and IAT measures of attachment, self-esteem, and child-sex implicit theories (ITs) were compared in their ability to predict offender status and/or scores on measures of estimated general and sexual recidivism risk.

Chapters 3-5 describe the equivocal evidence surrounding the role of self-reported attachment, self-esteem, and child-sex ITs in sexual offending and how the IAT paradigm was adapted to assess each of these areas of psychosocial functioning. Across each chapter, the current findings replicated previous evidence demonstrating a lack of predictive validity for self-report measures in these domains. Furthermore, the results indicated that use of the current IAT measures did not improve prediction of group membership or estimated risk of recidivism. Chapter 6 describes how such findings suggest that the previous empirical inconsistency regarding these risk factors may not be entirely attributable to the limitations of relying on self-report assessment. With further replication and methodological refinement, the current findings could be taken as additional evidence against retaining these factors as criminogenic treatment needs within conventional sex offender treatment programmes.

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Chapter 1: Risk Factors for Sexual Offending: The Potential Role of Automatic Cognitive Processing

1.1 The Impact of Sexual Offending

As with many other forms of violent crime, sexual offending attracts a significant amount of public interest and concern, particularly as the victims of such crimes tend to be women or children. Whilst recent estimates indicate a slight decline in rates of sexual offending against both adults and children (Radford et al., 2011; Office for National Statistics, 2012), an alarming number of individuals continue to be victimised each year. For example, according to the Ministry of Justice (2013), there were an estimated 473,000 adult victims of actual or attempted sexual crime between the years of 2009 and 2012, representing around 1.5% of the population within England and Wales. Similarly, a recent NSPCC report estimated that 1.2% of children under the age of 11 had experienced some form of sexual abuse in their lifetime, with 0.6% experiencing such abuse within the last 12 months, whilst as many as 16.5% of children aged 11-17 reported a lifetime experience of sexual abuse, with 9.4% reporting abuse within the last 12 months (Radford et al., 2011). In addition, it is widely acknowledged that such reports are likely to underestimate the true incidence of sexual crime, as many cases remain unreported by victims (Chaplin, Flatley, & Smith, 2011).

Victims of sexual abuse are known to experience a range of physical and psychological problems as a result of such abuse. For example, childhood sexual abuse has been linked with a range of psychiatric disorders, personality disorders, and increased rates of substance misuse (e.g., Paolucci, Genuis, & Violato, 2001; Putnam, 2003). When experienced in conjunction with other forms of childhood

adversity, such abuse can even increase the risk of long-term health problems, including cancer and heart/lung disease (Felitti et al., 1998). Such extensive costs to the individual, as well as their families and society at large, highlight the importance of determining why sexual offences occur, and what can be done to prevent further victimisation.

1.2 Risk Factors for Sexual Offending

1.2.1 Theorising about risk factors.
As a highly heterogeneous population, sexual offenders are known to demonstrate a wide variety of intra- and inter-personal deficits. Various theories have been developed to explain how such deficits might motivate the offending behaviour of distinct sexual offender subgroups. For example, whilst some offenders are considered to be motivated by generalised behavioural impulsivity or disinhibition (e.g., Ward, Hudson, & Keenan, 1998), others are argued to possess offence supportive belief systems, or maladaptive biases in cognitive processing, that increase the likelihood of sexual offending (e.g., Mann & Beech, 2003). Others are thought to have experienced difficulty establishing and maintaining positive interpersonal relationships, leading to reduced self-esteem, elevated emotional loneliness, and increasingly deviant attempts to satisfy their need for intimacy (e.g., Marshall, 1989). Finally, a certain percentage of offenders are considered to be motivated by genuine deviant sexual interests, either towards inappropriate targets (i.e., children), or inappropriate methods of sexual satisfaction (i.e., coercive sex; Abel et al., 1987).

Crucially, theorising has progressed beyond the identification and listing of individual risk factors for sexual offending, to consideration of how different deficits might co-occur and interact within individual offenders. For example, the influential Pathways Model used a theory-knitting approach to propose that deficits in four key

psychological mechanisms (intimacy and social skill deficits, sexual scripts, emotional dysregulation, and cognitive distortions) lead offenders down one of four *pathways* to sexual offending (Ward & Siegert, 2002). Rather than simply categorising offenders into one discrete pathway, however, Ward and Siegert (2002) argue that, regardless of their core pathology, all sexual offenders possess deficits in each of the four key mechanisms to at least some degree. They also acknowledge the potential for offenders to present with multiple core pathologies/deficits, by proposing a fifth pathway where individuals demonstrate significant dysfunction in all four mechanisms simultaneously.

Crucially, the extent to which each deficit is present within an individual sexual offender determines their particular motivation for offending, giving rise to the marked heterogeneity seen in both clinical presentation and offence characteristics among these offenders. More recently, the Integrated Theory of Sexual Offending (ITSO) elaborated on the work of Ward and Siegert (2002) by suggesting biological and ecological influences interact to produce the precise combination of psychosocial deficits displayed by an individual offender. Critically, according to such multi-factorial models, there are no one-size-fits-all explanations of sexual offending. The behaviour of an individual offender can only be understood by identifying their particular combination of deficits and the unique motivations for offending that result from such difficulties.

1.2.2 The search for empirical support. In line with the principles of evidence-based practice, clinicians and researchers alike have sought to validate such theoretical models with empirical evidence. Such efforts are driven by the influential Risk-Need-Responsivity (RNR) model, first outlined by Andrews, Bonta, and Hoge (1990). The RNR model currently represents the only empirically

validated model of offender rehabilitation (Polaschek, 2012) and states that interventions should target higher rather than lower risk offenders (*risk*), be mindful of variation in how different offenders respond to service provisions (*responsivity*), and, crucially, focus on targeting *criminogenic* treatment needs (*need*). Criminogenic needs are defined as dynamic (changeable) aspects of the offender or their circumstances that are empirically linked to risk of recidivism.

As such, a wealth of research has sought to determine whether risk factors highlighted within theoretical accounts of sexual offending are able to distinguish those with and without a history of such offending, or demonstrate significant links with recidivism among convicted offenders (for a recent example, see Barnett, Wakeling, Mandeville-Norden, & Rakestrow, 2012). Meta-analyses attempting to summarise this substantial literature suggest that, whilst support has amassed for certain theoretical risk factors (e.g., deviant sexual interests, antisocial orientation), others demonstrate only weak or inconsistent links with historical offending and/or rates of reoffending (e.g., social skills, loneliness, self-esteem; Hanson & Morton-Bourgon, 2005; Mann, Hanson, & Thornton, 2010).

Why might such disparity exist between theory and evidence concerning risk factors for sexual offending? Perhaps the most straightforward explanation would be to assume that existing theoretical models are misinformed, and that the results of empirical studies highlight factors that, although intuitively and clinically appealing, have no real place in evidence-based offender management and rehabilitation. There are, however, other potential explanations that should be explored before such factors are discounted entirely. Firstly, the observed disparity could be driven by the way in which risk factors are conceptualised within existing theoretical models, with evidence suggesting alternative ways of defining or viewing a particular problem.

For example, Mann et al. (2010) argue that the now contested risk factor of empathy deficits may be better conceptualised as a broader lack of concern for others, a trait that has shown more promising links with sexual recidivism. Alternatively, empirical inconsistency regarding a particular risk factor may be driven by the way in which such factors are traditionally assessed. The vast majority of offender assessments are made using some variant of self-report (e.g., interviews or questionnaires). Whilst such techniques have undoubtedly provided a wealth of information regarding the nature and causes of human behaviour, there are known limitations to the insight they can provide.

1.3 The Limitations of Self-Report

  1.3.1 Automatic versus controlled processing. It has been long suspected that human behaviour is not solely the result of conscious thought and deliberation (e.g., James, 1890), but can also be guided by more instinctive or spontaneous reactions to stimuli or situations (De Houwer, 2006). In recent years, empirical support has accumulated for such ideas, illustrating the diverse ways in which behaviour can be guided by seemingly pre-conscious mental activity. For example, subliminal priming studies demonstrate that people are able to form affective appraisals of stimuli prior to becoming consciously aware of them (e.g., Zajonc, 1980), and that stereotype activation can influence behaviour without conscious awareness (e.g., Bargh, Chen, & Burrows, 1996). Such evidence has resulted in the development of *dual-process theories* of social cognition that are founded on the fundamental assumption that all attitudinal and behavioural outcomes are influenced by two distinct classes of cognitive processing (Chaiken & Trope, 1999). Whilst several different classification schemes have been proposed over the years (for a

review, see Evans, 2008), the terms *controlled* versus *automatic* will be used to describe these two forms of processing throughout the current thesis.

Controlled processing denotes mental functioning that is deliberate, conscious, effortful, and/or voluntary in nature. In contrast, automatic processing is argued to be unintentional, unconscious, effortless, and/or involuntary (the four "horsemen of automaticity"; Bargh, 1994). Given the effortful nature of controlled processing, dual-process theories typically specify conditions when it is not engaged (such as times of emotional arousal, reduced cognitive capacity, or lack of motivation to engage such resources), and behaviour is guided by less demanding, automatic cognitive processes (e.g., the Cognitive-Experiential Self Theory [CEST]; Epstein, 1994; the Motivation and Opportunity as Determinants [MODE] model; Fazio, 1990; the Reflective-Impulsive Model [RIM]; Strack & Deutsch, 2004). As such, the advent of dual-process theories has highlighted that there exist aspects of mental functioning that are not open to conscious awareness, yet have the potential to impact upon attitudes and behaviour, at least within certain circumstances.

Given their ascribed importance, researchers across a broad range of social-cognitive disciplines have sought to design and validate measures that are able to index more automatic forms of cognitive processing. In most circumstances, self-report measures require the individual to engage in some form of introspection, and allow as much time as needed for them to provide their response. As such, self-report is typically considered to be influenced by controlled rather than automatic

cognitive processes (De Houwer, 2006), suggesting it may fail to assess a crucial component of the cognitive factors driving a particular behaviour of interest.[1]

    1.3.2 Impression management. In addition, researchers relying on self-report have long been aware that individuals are generally motivated to present themselves in the best light possible, and may engage in deliberate dissimulation when answering questions about their personal attitudes or behaviour (e.g., Weber & Cook, 1972). Such impression management may be especially likely within socially sensitive research areas (e.g., offence-related attitudes), or among certain populations (e.g., offenders being questioned to determine their suitability for treatment or parole; Snowden, Craig, & Gray, 2011). Traditionally, such response biases are addressed by administering an additional self-report measure designed to detect attempts to impression manage (e.g., the Balanced Inventory of Desirable Responding [BIDR]; Paulhus, 1988), and then controlling for such tendencies within subsequent analyses. Yet, such approaches have recently been criticised for partialling out variance related to important personality traits (such as empathy, hostility, or denial) that may well be of relevance to the outcomes of interest, particularly among offender samples (Tan & Grace, 2008). As such, alternative assessment procedures that are less susceptible to impression management may still prove preferable within offender research specifically (Snowden et al., 2011), if not social-cognition research more generally (Kim, 2003).

1.4 The Advent of Indirect Measures

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[1] It is acknowledged, however, that under different circumstances (e.g., time pressure, reduced cognitive capacity) self-report measures *could* be considered indicators of automatic functioning (e.g., Ranganath, Smith, & Nosek, 2008) and that mode of assessment is by no means synonymous with the underlying process that is assessed (De Houwer & Moors, 2010).

In an attempt to address such issues, researchers have begun to develop alternative assessment techniques, commonly referred to as *indirect measures* (De Houwer & Moors, 2010).[2] Whilst self-report measures ask people directly how they think or feel about a given research topic, these newly developed measures utilise alternative response parameters, such as reaction time or degree of attentional capture, to indirectly infer a person's attitudes or underlying cognitive structures. For example, if a researcher wanted to assess racial attitudes, they could administer some form of self-report questionnaire, where the respondent would be given sufficient opportunity to engage in controlled cognitive processing and/or impression management. Alternatively, they could use an indirect measurement procedure where respondents are asked to provide rapid categorisation of positive and negative words after being primed with an image of a Black or White individual (the Affective Priming Task [APT]; e.g., Fazio, Jackson, Dunton, & Williams, 1995).

Within the APT, at no point is the participant asked directly whether they prefer Black or White individuals. Instead, their racial attitudes are inferred by comparing response times across the different priming conditions. For example, if an individual was faster to categorise positive words after receiving a Black than White prime, the inference could be made that they possess more positive associations regarding Black than White people. The APT is just one of many indirect measurement paradigms that have been developed within the wider social-cognitive literature, several of which have already been applied to the assessment of

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[2] In line with the reasoning of De Houwer (2006), the current thesis avoids use of the term *implicit measures*, due to such terminology blurring the boundaries between properties of the measurement tool itself and the outcomes it claims to measure. Instead, measurement tools are referred to throughout the manuscript as *direct* versus *indirect* measures and the processes they are considered to index as controlled versus automatic processes.

cognition among sexual offenders in particular (examples include Stroop, Choice Reaction Time, Rapid Serial Visual Presentation and Lexical Decision Tasks; for a recent review, see Snowden et al., 2011).

      1.4.1 The Implicit Association Test. One of the most successful and widely used indirect measures is the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). The IAT is presented to participants as a computerised categorisation task, during which they must make two simultaneous judgements. For example, if an experimenter wanted to examine racial attitudes using an IAT, respondents would be asked to categorise images depicting Black versus White individuals, and words related to love versus hate, as rapidly as possible, using designated response keys. On certain trials, the categories of Black and love would be paired on the same response key (with White and hate paired on the other), whereas on other trials Black and hate categories would be paired together (and White with love).

      Categorisation response times would then be compared across these two conditions to infer the nature of racial attitudes held by the respondent. For example, if an individual was faster to respond when images of Black people were paired with love than hate, it would be assumed they had a more positive automatic attitude towards Black than White people. In contrast, if they were faster to respond when images of Black people were paired with hate, it would be assumed they had more positive automatic attitudes towards White than Black people. The rationale behind this procedure is that individuals should be faster to respond when strongly associated constructs are paired on the same response key, than when they are separated across response keys. As such, the IAT is argued to index cognitive

associations held by the respondent, and may have the potential to circumvent some of the aforementioned pitfalls of self-report (Greenwald et al., 1998).

   1.4.1.1 The IAT and automatic processing. Within several of the most influential dual-process models, associative properties are considered the hallmark of automatic processing (e.g., the RIM; Strack & Deutsch, 2004), suggesting the IAT may be ideally suited to assess such functioning. Yet, other dual-process models, such as the Associative-Propositional Evaluation model (APE model; Gawronski & Bodenhausen, 2006), suggest that these terms are not strictly synonymous, and others have cautioned against simply assuming indirect measures tap into automatic processing, without formally examining the way in which such processes can be considered automatic (De Houwer, 2006). It is important to note that cognitive processes are no longer expected to satisfy all four horsemen of automaticity in an all-or-nothing fashion (i.e., unintentional, unconscious, effortless, and/or involuntary; Bargh, 1994). Instead, different processes are thought to vary in the precise criteria they satisfy and are only required to satisfy one such criterion in order to be considered automatic. For example, in physiological terms, individuals are typically aware of the startle reflex invoked by a loud, unanticipated noise, but this response would still be considered automatic due to its involuntary nature. In contrast, well-learned or habitual behaviours, such as driving or walking, are voluntary, but still considered automatic due to requiring minimal attention or awareness to perform (Bargh, 1994).

   The precise operating mechanisms of the IAT continue to be debated, especially regarding the extent to which respondents are consciously aware of the attitudes assessed by these measures. Gawronski, Etienne, Lebel, and Peters (2007) highlight that, just because the IAT procedure does not presuppose conscious

awareness for task completion, this does not logically imply that the associations it assesses are necessarily unconscious in nature. Initially, evidence that IAT scores often diverge from those obtained on corresponding self-report measures was taken as indicative of their ability to assess unconscious associations. Yet, additional evidence suggests that such divergence may be accounted for by alternative influences, such as measurement error, or a lack of conceptual correspondence between self-report and IAT measures (Gawronski et al., 2007). In light of such evidence, researchers are cautioned that, to date, there has been little systematic investigation of whether participants are in fact aware of the attitudes assessed by indirect measures such as the IAT, and so claims to such effect should be avoided until this is rectified empirically (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009).

Regarding the criteria of being unintentional or involuntary, to date, empirical studies have only examined whether respondents are able to alter or avoid the expression of attitudes on the IAT (such studies regarding IAT fakeability are reviewed below in section 1.4.1.2). De Houwer et al. (2009) note that no known study has yet examined whether IAT effects are dependent on having the proximal goal to engage in evaluative processes altogether. Until such studies are conducted, it cannot be claimed with confidence that processes assessed by the IAT are automatic in the sense of being unintentional or involuntary.

A small number of studies do provide evidence that processes assessed by the IAT meet the automaticity criterion of efficiency. For example, during one investigation, engaging participants in a secondary task that increased mental load and reduced the availability of cognitive resources was found to have no impact on IAT effects (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002). In another,

whilst the overall magnitude of IAT effects was increased by engaging in a secondary task, their relationship with self-reported attitudes remained unaffected (Schmitz, Teige, Voss, & Klauer, 2005). Whilst further research is undoubtedly warranted in this area (De Houwer et al., 2009), these preliminary findings suggest that processes assessed by the IAT may be considered automatic in terms of their efficiency, or resource-independence. As such, it may be able to provide a "unique perspective on real-life behaviours" (De Houwer, 2006, p. 25), including those related to sexual offending.

1.4.1.2 The IAT and impression management. As mentioned in the previous section, researchers have begun to examine claims that the IAT is more resistant to faking or impression management than self-report. Research in this area has taken two main approaches: examining the effect of domain social sensitivity on IAT-self-report correlations and examining whether faking is possible and/or more readily detectable on IATs than self-report measures (Gawronski et al., 2007).

It has been proposed that, if the IAT is indeed more resistant to impression management than self-report, the correlation between these two indices should decrease as the research topic increases in social sensitivity (and thus motivation to provide socially desirable responses; Nosek, 2005). Two reviews of cross-domain IAT-self-report correlations have found evidence to support the moderating effects of social desirability on such relations (Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Nosek, 2005). The meta-analysis by Greenwald et al. (2009) also found that social desirability moderated the predictive validity of self-report to a much greater extent than that of the IAT. Yet, other meta-analytic reviews have failed to find such social desirability effects (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005) and Gawronski et al. (2007) review evidence that such motivational issues are

neither necessary, nor sufficient, to influence the relationship between IAT and self-report measures of the same construct. Such ambiguous evidence suggests that the relationship between IAT and self-report measures is more complex than initially imagined and, until better understood, should not be used to draw conclusions on the fakeability of the IAT itself.

Other researchers have examined whether participants instructed to fake a particular attitude within the IAT can be successfully differentiated from those asked to provide honest answers. Overall, findings appear somewhat equivocal at present. Several studies have found participants were unable to modify their IAT scores in line with faking instructions, neither when attempting to fake such attitudes naively, nor when explicitly instructed in how to do so (e.g., Banse, Seise, & Zerbes, 2001; Kim, 2003). Yet, others have reported evidence that participants are able to minimise prejudice, or fake desired attitudes when instructed, especially when they have prior experience with the IAT (e.g., Lowery, Hardin, & Sinclair, 2001; Steffens, 2004). More recent investigations suggest that the success of faking attempts may depend on the direction in which participants are instructed to fake (both in absolute terms, and relative to their baseline performance), that faking success improves with practice, and that faking strategies may be transferred to other IATs once learned (Rohner, Schröder-Abé, & Schütz, 2011). Such findings have clear implications for the utility of IAT measures within clinical or other applied settings and also provide serious challenge to the claim that these measures are immune to impression management.

Perhaps more encouraging, however, are findings that IATs are still less responsive to faking instructions than self-report and that faked scores remain correlated to those obtained before participants were instructed to fake a different

attitude (Steffens, 2004). Additionally, evidence suggests that attempts to fake

within the IAT are statistically detectable, and at least partially correctable, through

the use of scoring indices that account for the increased response time typically

associated with faking on the IAT (e.g., Cvencek, Greenwald, Brown, Gray, &

Snowden, 2010).[3] Finally, it should be noted that existing findings regarding the

fakeability of the IAT are all in relation to participants who have been explicitly

instructed to alter their attitudes in some way. It remains to be seen whether findings

obtained under such circumstances translate to instances of spontaneous

(uninstructed) faking within the IAT. As such, whilst it cannot be said that IAT

measures are immune to impression management as first hoped, current evidence

suggests that they are at least less susceptible to such pressures than self-report and

may prove useful in research settings where social desirability is considered to be a

concern.

1.5 The Current Research

Thus, whilst the IAT is by no means considered a perfect measurement tool,

there is reason to believe it may provide fresh insight concerning the role of certain

risk factors in sexual offending, by virtue of indexing more automated cognitive

processes and demonstrating greater resistance to impression management than the

self-report measures traditionally utilised in this area. As such, the overarching aim

of the current thesis was to determine whether use of the IAT paradigm would

provide greater evidence for the role of certain psychosocial risk factors in the onset

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[3] It is noted, however, that such corrective scoring indices may not prove successful
in all faking situations, as further research has demonstrated that participants may
increase or decrease response times, depending on whether they are attempting to
fake low or high scores within an IAT (Rohner, Schröder-Abé, & Schütz, 2013).
Such findings suggest that, whilst promising, attempts to control for faking within
the IAT may require further refinement to account for such variation.

and maintenance of sexual offending. More specifically, a series of IATs were designed to assess attachment-related functioning, self-esteem, and a subset of child-sex *implicit theories* (ITs). These IATs were then compared to corresponding self-report measures in terms of their predictive efficacy concerning offender status, and risk of sexual and/or general recidivism.

At present, empirical support for the role of attachment, self-esteem and IT-related beliefs in the onset and maintenance of sexual offending remains equivocal. Each of these domains currently demonstrates some form of limited predictive specificity. For example, whilst self-report measures of attachment are typically able to distinguish sexual offenders from non-offending community controls, they often fail to distinguish them from other non-sexual offenders. Such findings imply that, rather than signifying a specialised risk factor for the onset of sexual offending in particular, attachment may instead represent more a generic risk factor for offending in general. Similarly, whilst measures of explicit self-esteem are typically able to distinguish child-sex offenders from controls with some consistency, uncertainty remains regarding their ability to distinguish rapists from other non-sexual offenders. Likewise, measures of child-sex ITs typically vary in the success with which they discriminate those with and without a history of child-sex offending and, even when such differences emerge, they often represent a quantitative, rather than qualitative, distinction from other groups. In addition, each of these risk factors has, to date, shown an inconsistent relationship with either predicted or actual rates of sexual recidivism, leading to doubts concerning the role they play in the maintenance of such offending once initiated.

Whilst similar concerns have also been raised about several other psychosocial risk factors for sexual offending (e.g., empathy, emotional loneliness,

poor social skills; Mann et al., 2010), selection of the current risk domains was based upon more than just empirical inconsistency or uncertainty. Crucially, unlike other contested risk factors, theoretical evidence suggests that automatic cognitive processes may play a critical role in attachment, self-esteem and IT-related functioning alike. For example, the influence of attachment on interpersonal functioning is considered largely automatic (Mikulincer & Shaver, 2003), as is the impact of IT-related beliefs on attentional processing and behaviour (Ward, 2000). Similarly, evidence suggests there are automatic aspects of self-esteem that are seemingly inaccessible to conscious introspection, yet demonstrate meaningful relationships with evaluative and behavioural outcomes (Greenwald & Banaji, 1995).[4]

Furthermore, each of these three risk factors has previously been found amenable to examination using the IAT paradigm. Studies from the broader social-cognitive literature have already begun to utilise the IAT to assess automatic aspects of attachment and self-esteem, yet the current thesis represents the first attempt to apply such techniques to an offender sample. Also, whilst several investigations have already used the IAT to examine IT-related associations among offenders, the current thesis attempts to resolve some ongoing controversies in this area by making some further refinements to existing child-sex IAT measures.

In light of such theorising and empirical precedent, the current thesis examined whether use of the IAT paradigm (designed to assess more automated forms of cognitive processing and demonstrate greater resistance to self-presentational biases) would provide more definitive evidence that attachment, self-

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[4] Evidence regarding the automaticity of attachment, self-esteem and child-sex ITs will be reviewed in greater detail within the respective empirical chapters.

esteem, and child-sex ITs represent specialised risk factors for the onset and/or maintenance of sexual offending. If the IATs were better able to predict offender status (i.e., sexual offender versus offender control versus community control), or risk of sexual recidivism, rather than risk of re-offending generally, arguments concerning their role in sexual offending would be strengthened. Chapter 2 describes aspects of the current design and methodology that are relevant to all subsequent analyses, whilst Chapters 3-5 discuss the aims, methods, results, and conclusions of each specific analysis in turn. Finally, Chapter 6 provides an overall discussion of the current findings, and attempts to draw some general conclusions regarding their implications for the status of each psychosocial domain as a risk factor for sexual offending.

Chapter 2: General Method

2.1 Design

The current investigation consisted of a single cross-sectional study that compared experimental groups across the variables of interest using a between-subjects design, and also used correlational analyses to examine the predictive validity of these key variables. The data obtained from this study was used to conduct a range of statistical analyses. Methodological elements that were pertinent across all analyses are described below, whilst those that were specific to each individual analysis will be described within the relevant empirical chapter.

2.2 Ethical Approvals

All recruitment and testing procedures were given ethical approval by both the Research Ethics Committee at the School of Psychology, Cardiff University, and the National Research Committee of the National Offender Management Service (NOMS).

2.3 Recruitment and Eligibility Criteria

The study was advertised to all participants as a research study interested in factors that may relate to different types of offending behaviour among males. Recruitment criteria specified that all participants should be males who spoke English as their first language. All participants were required to possess an IQ above 80 to be considered eligible to complete the IAT measures. This decision was made to rule out any potentially confounding influence of intellectual disability upon completion of the IATs, as it has yet to be determined whether these measures are valid for use among such populations. Participants with an IQ of 80 or lower were still permitted to participate, but were only asked to complete the self-report measures, which were read aloud to them in order to address any issues with literacy.

2.3.1 Offender recruitment. Offender participants were recruited from four prison sites across Wales and the South West of England (Her Majesty's Prison [HMP] Channings Wood, HMP Dartmoor, HMP Leyhill, and HMP Usk). Within the three closed prison research sites, the study was advertised by distributing leaflets to every inmate within targeted prison blocks. At the open prison site (HMP Leyhill), members of the psychology department were asked to distribute copies of the same leaflet to all offenders they met with during the recruitment period. It was acknowledged that this latter strategy may have introduced some form of sampling bias to the recruitment process, as only offenders in contact with psychological services would be approached to take part at this site. Such an approach was considered a necessary compromise, however, in order to minimise demands placed on staff within the open prison setting, and was not expected to impact the recruitment of one offender group more than any other. In an attempt to safeguard more vulnerable individuals who were struggling with issues related to self-harm or suicide, offenders supported by the prison service's Assessment, Care in Custody, and Teamwork (ACCT) process at the time of recruitment were excluded from participation. In line with policies outlined by NOMS, offenders were given no incentive to take part.

2.3.2 Community recruitment. Community males were recruited using an electronic notice board available to all staff and students at Cardiff University. The study advertisement specified that participants should be males aged 25-65, with no history of criminal convictions. In an attempt to minimise demographic differences between offender and community participants, the lower age limit was raised to 25 to reduce the number of undergraduate students included in the sample.

2.4 Participants

A total of 185 participants completed the current study, comprising 48 child-sex offenders, 18 rapists, 49 non-sexual offenders, and 70 non-offending community controls. Continuous sample demographics are summarised according to group in Table 2.1.[5] Due to the use of an alternative grouping system for implicit theory-related analyses in Chapter 5, Table 2.1 also contains means and standard deviations for rapists and non-sexual offenders as a combined offender control group. Categorical sample demographics are described for each group in turn below.[6]

2.4.1 Child-sex offenders. The child-sex offender sample consisted almost exclusively of White participants ($n = 47$), with the remaining participant reporting Asian ethnicity. Educational attainment was classified according to levels set out by the Framework for Higher Education Qualifications (FHEQ). The majority of child-sex offenders had achieved FHEQ level 1 or 2 (GCSE equivalent; $n = 23$), whilst others had gone on to achieve level 3 (A-level equivalent; $n = 6$), level 4/5 (diploma level; $n = 2$), level 6 (bachelor degree; $n = 4$), or level 7/8 (postgraduate qualification; $n = 4$). The remaining nine child-sex offenders had achieved no educational qualifications. At the time of participation, the majority of child-sex offenders were single ($n = 42$), with only six offenders describing themselves as being in some form of romantic relationship. No IQ-related exclusions were made

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[5] Please note all reported values are those obtained after outliers were trimmed to within ±3SD of the mean, in order to reduce the effect of extreme cases on these values.
[6] Categorical sample demographics for the combined offender control group (rapists and non-sexual offenders) are described in Appendix A.

Table 2.1. Means and Standard Deviations for Continuous Demographic Variables across the Experimental Groups

| Variable | Child-Sex Offenders | Offender Controls | | | Community Controls |
| | | Rapists | Non-Sexual | Combined | |
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Age	46.23 (14.25)[c,d,e]	44.33 (13.58)[d]	37.41 (10.11)	39.27 (11.46)[d]	33.54 (7.67)
Standardised WTAR score	101.47 (16.27)	93.12 (19.45)	99.60 (16.65)	97.91 (17.51)	109.67 (14.42)[a,b,c,d]
Age at current conviction	40.78 (13.80)[b,c,e]	29.44 (8.25)	34.08 (10.05)	32.86 (9.76)	
Age at first conviction	30.13 (17.18)[b,c,e]	18.83 (8.47)	21.29 (11.33)	20.62 (13.80)	
Length served (days)	1660.10 (2285.67)	5081.56 (3585.77)[a,c]	1148.71 (1455.94)	2205.30 (2817.54)	
Prior sentences	5.04 (7.98)	9.28 (8.68)	11.01 (10.27)[a]	11.65 (10.80)[a]	

Note: WTAR = Wechsler Test of Adult Reading; [a] significantly higher than child-sex offender group; [b] significantly higher than rapist group; [c] significantly higher than non-sexual offender control group; [d] significantly higher than community control group; [e] significantly higher than combined offender control group.

within the child-sex offender group. For all offender participants, information relating to psychiatric history was obtained from file review, whenever possible. This data was unavailable for one child-sex offender. Among the remaining child-sex offenders, 22 had no history of any mental illness, whilst 25 were noted as having either an historical or current psychiatric diagnosis, or the potential for current diagnosis.[7] The majority of child-sex offenders had no evidence of a personality disorder (PD) on file ($n = 42$), with only five participants noted as having a probable or formally diagnosed PD. Finally, whilst 29 child-sex offenders had no history of being prescribed psychiatric medication, a sizeable minority had either a current ($n = 5$) or historical prescription ($n = 13$).

In terms of offence characteristics, most child-sex offenders were currently convicted of a contact sexual offence ($n = 44$). The remaining four child-sex offenders were currently convicted of non-contact offences, including grooming, voyeurism, and indecent image charges. The majority of contact child-sex offenders had been convicted of offences against females exclusively ($n = 31$), with only a minority having convictions for offences against males exclusively ($n = 10$) or both genders ($n = 3$).[8] Most contact child-sex offenders were classed as extra-familial, having offended exclusively against unrelated or stranger victims ($n = 28$). The remaining contact child-sex offenders were classed as intra-familial, having an

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[7] Participants were classed as having "the potential for a current diagnosis" when their psychology or offender management files contained psychiatric/psychology reports that suggested a psychiatric condition may be present, but no formal diagnosis had been applied or agreed upon.
[8] Given evidence that offenders with a history of non-contact offences or offences against male victims are considered at higher risk of recidivism (Hanson & Bussière, 1998; Harris, Phenix, Hanson & Thornton, 2003), it should be noted that the current child-sex offender group would generally be considered at low risk of re-offending. This may have important implications for the interpretation of later findings.

historical or current conviction against a family member ($n = 17$).[9] Whilst the number of contact child-sex offender victims ranged from 1-13, the modal number of victims was one, with 75% of offenders having only 1-2 victims. Contact child-sex offender victims ranged from 2-15 years old. At the time of participation, 27 child-sex offenders had completed, or were in the process of completing, some form of the Sex Offender Treatment Programme (SOTP). The remaining 21 child-sex offenders had no experience of treatment at that time.

2.4.2 Rapists. This offender group consisted of participants who had committed sexual crimes against victims aged 16 or older only. The majority were White ($n = 16$), with the remaining participants reporting Black ($n = 1$) and Mixed Race ethnicities ($n = 1$). Most rapists had only achieved FHEQ level 1/2 ($n = 12$), with another two participants reporting no educational attainments. A minority of rapists reported achieving FHEQ level 3 ($n = 1$), level 4/5 ($n = 1$), or level 6 ($n = 2$). None had achieved FHEQ level 7/8. Similar to child-sex offenders, the majority of rapists described themselves as single at the time of participation ($n = 13$), with only five participants describing themselves as in some form of romantic relationship. Two rapists were found to possess an IQ of 80 or lower and were excluded from all IAT analyses.

Similar to child-sex offenders, the majority of rapists had either an historical, current, or potential current psychiatric diagnosis ($n = 11$), with only seven having no history of mental illness on file. Whilst seven of the rapist sample had either a

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[9] The disparity between the number of contact offenders (n = 44) and the numbers of intra- and extra-familial offenders (total n = 45) reflects the fact that one child-sex offender had committed a non-contact offence of voyeurism against his biological daughter.

potential or formally diagnosed PD ($n = 7$), the majority had no evidence of any PD ($n = 11$). Half of the rapist sample had never received medication to treat a psychiatric condition ($n = 9$), whilst six rapists had been previously prescribed some form of psychiatric mediation in the past, and three were receiving such mediation currently. The majority of rapists had completed some form of SOTP ($n = 13$), whilst the other five participants had no experience of SOTP at the time of participation.

2.4.3 Non-sexual offenders. This group consisted of offenders with no current or historical convictions for any form of sexual offending. The majority of these were violent offenders ($n = 36$), with a history of contact offences, such as murder, manslaughter, or assault. The remaining offender controls were non-violent offenders ($n = 13$), with non-contact crimes only, such as fraud, theft, or drug-related offences. Non-sexual offenders were also predominately White ($n = 41$), with a minority of participants reporting Black ($n = 5$), Mixed Race ($n = 2$), or Indian ethnicities ($n = 1$). In terms of educational attainment, the majority had achieved FHEQ level 1/2 ($n = 25$), with others achieving up to level 3 ($n = 6$), level 4/5 ($n= 6$), or level 6 ($n = 3$). None had achieved FHEQ level 7/8 and the remaining nine non-sexual offenders had no educational qualifications at the time of participation. Similar to other offender groups, the majority of non-sexual offenders were single ($n = 35$), with only 14 describing themselves as in some form of relationship. Four non-sexual offenders were found to possess an IQ of 80 or lower and were excluded from all IAT analyses.

Like the other offender groups, the majority of non-sexual offenders had either an historical, current, or potential psychiatric diagnosis on file ($n = 31$), with 18 having no history of any mental illness. Only a minority were noted as having

either a potential or diagnosed PD ($n = 7$), with the vast majority having no evidence of PD on file ($n = 42$). Finally, whilst 25 non-sexual offenders had never received medication to treat a psychiatric condition, almost half of this group had either an historical ($n = 18$) or current prescription ($n = 6$).

2.4.4 Community controls. The majority of community controls reported White ethnicity ($n = 50$), with the remaining participants reporting Asian ($n = 10$), Mixed Race ($n = 5$), Black ($n = 4$), and White African ethnicities ($n = 1$). Despite attempts to minimise demographic differences between the experimental groups, the majority of community controls had achieved either FHEQ level 6 ($n = 25$) or level 7/8 ($n = 30$). Only a minority of community controls had achieved no higher than FHEQ level 1/2 ($n = 3$), level 3 ($n = 9$), or level 4/5 ($n = 2$), and only one community control reported no educational attainments. In contrast to both offender groups, the majority of community controls described themselves as in some form of romantic relationship at the time of participation ($n = 43$), with the remainder describing themselves as single ($n = 27$). No IQ-related exclusions were made within the community control group. Data on psychiatric history was not collected for community controls, as it was considered undesirable to rely solely on self-report for such variables.

2.4.5 Group demographic differences.[10] Group differences were noted on several demographic variables. When ethnicity was dichotomised into White versus non-White[11], significant group differences were found, $\chi^2 (3) = 14.83$, $p < .01$, such

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[10] To avoid repetition, group comparisons when rapists and non-sexual offenders were grouped together as offender controls can be found in Appendix A.
[11] Expected cell counts were too low to conduct a chi-square analysis when non-White ethnicities were further differentiated (Field, 2009).

that community controls were significantly more likely to report non-White ethnicity ($p < .05$), whilst child-sex offenders were less likely to report non-White ethnicity ($p < .05$) than other groups. Level of educational attainment also varied significantly between groups, χ^2 (15) = 102.91, $p < .001$. Community controls were significantly less likely to have no qualifications ($p < .05$), or to have only attained FHEQ level 1/2 ($p < .001$) and significantly more likely to have achieved FHEQ level 6 or level 7/8 (both $p < .001$). Non-sexual offenders were significantly less likely to have achieved FHEQ level 6 ($p < .05$) or level 7/8 ($p < .01$) and significantly more likely to have only achieved level 1/2 ($p < .01$). Rapists were also significantly more likely to have only attained Level 1/2 ($p < .05$). Marital status also differed significantly between the groups, χ^2 (2) =32.52, $p < .001$, with community controls being significantly more likely to be dating ($p < .001$), and significantly less likely to be single ($p < .01$). Child-sex offenders were significantly more likely to be single ($p < .05$) and significantly less likely to be dating ($p < .01$).

Child-sex offenders, rapists, and non-sexual offenders did not demonstrate any significant group differences on presence of mental illness, χ^2 (2) = 1.05, $p > .05$ or use of psychiatric medication, χ^2 (2) = 1.60, $p > .05$. They did, however, show significant differences in PD diagnosis, χ^2 (2) = 7.83, $p < .05$, such that rapists were more likely to have a potential or diagnosed PD ($p < .05$). Significant group differences were found for age, $H(3) = 29.25$, $p < .001$, such that child-sex offenders were significantly older than both community controls ($U = 50.81$, $p < .001$, $r = 0.37$) and non-sexual offenders ($U = 31.77$, $p < .05$, $r = 0.22$). Rapists were also significantly older than community controls ($U = 45.18$, $p < .01$, $r = 0.23$). Groups differed significantly on WTAR score, $F(3, 178) = 7.70$, $p < .001$, $\omega^2 = .01$, such that community controls scored significantly higher than non-sexual offenders ($p < .001$),

rapists ($p < .001$), and child-sex offenders ($p < .05$), but offender subgroups did not differ from one another.

Offender groups differed significantly on age at current conviction, $F(2, 112) = 7.43$, $p < .001$, $\omega^2 = .002$, such that child-sex offenders were significantly older at the time of conviction than both non-sexual offenders ($p < .05$) and rapists ($p < .01$). Child-sex offenders were also significantly older than both non-sexual offenders ($p < .05$) and rapists ($p < .01$) at their first conviction, $F(2, 111) = 6.89$, $p < .01$, $\omega^2 = .01$. Significant group differences were also found for length of current sentence, $H(2) = 16.61$, p < .001, such that rapists had served significantly longer sentences at the time of participation than both child-sex offenders ($U = 35.62$, $p < .001$, $r = 0.36$) and non-sexual offenders ($U = 34.01$, $p < .001$, $r = 0.34$). Offender groups also differed in number of previous sentences received, $F(2, 112) = 8.89$, $p < .001$, $\omega^2 = .05$, such that non-sexual offenders had a significantly higher number of prior sentences than child-sex offenders ($p < .001$).

2.5 Materials

2.5.1 Demographic measures.

2.5.1.1 Wechsler Test of Adult Reading (WTAR; Wechsler, 2001; see Appendix B). As institutionally assessed IQ was unavailable for the majority of offenders (and all community controls), eligibility for IAT completion was determined by asking all participants to complete the WTAR as a brief measure of IQ.[12] The WTAR estimates IQ based on the respondent's ability to pronounce a

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[12] For one participant within the child-sex offender group, the WTAR score indicated ineligibility, yet their file-based IQ indicated an eligible IQ above 80. In this instance, the file-based IQ assessment was relied upon and the participant was considered eligible for IAT completion.

series of 50 words with irregular grapheme to phoneme relations (e.g., "gnat", "subtle", "hyperbole"). The words increase in difficulty as the list progresses, and the number of correctly pronounced items is converted into an IQ score, based on age appropriate UK population norms. The WTAR was selected due to its brevity of administration and established validity based on convergence with other, more lengthy, measures of IQ, such as the Wechsler Adult Intelligence Scale (WAIS-III; Wechsler, 1997).

2.5.1.2 Demographic form (see Appendix C). All participants were asked to provide their age, ethnicity, highest level of educational attainment, marital status, and length of longest romantic relationship. They were also asked whether they had ever lived with a romantic partner and, if so, for how long. All participants with an IQ above 80 were also asked to provide their full name, nationality, and date of birth, in order to create the personalised IATs. To preserve participant anonymity, these additional items of personally identifying demographic information were destroyed/deleted from the computer upon completion of the experimental session.

2.5.1.3 File review. A formal file review was conducted for all offender participants, in order to facilitate completion of the actuarial risk assessment measures and provide further characterisation of the offender sample (see Appendix D for full File Data Extraction Form). Offender Management files were reviewed for all offender participants, along with psychology files when available. Information obtained for all offenders included offending characteristics (i.e., age at current conviction, previous convictions/charges/cautions, length of current sentence) and psychological/psychiatric information (i.e., psychiatric diagnoses, prescribed medication). For those with a history of sexual offending (adult or child victim), SOTP status was also documented (i.e., completed, halfway, waiting list,

rejected). For those with a current or historical child-sex offence, additional information was also obtained regarding victim age, gender, number, and relation to the offender. In line with scoring instructions for the actuarial risk assessment measures included within the current investigation, any information regarding offence characteristics, psychiatric history, or treatment that could not be obtained from file was treated as missing to avoid relying on self-report for such items.

2.5.2 Self-report measures. All participants were asked to complete self-report measures of attachment, self-esteem, and beliefs consistent with a variety of offence-supportive ITs. These measures will be described within their respective empirical chapters (Chapters 3-5).

2.5.3 IAT measures. All IATs within the current thesis were designed and delivered using the computer software Direct RT (v2008). For each target/attribute pairing, participants were first presented with a series of 20 practice trials, followed by a further 80 test trials. In line with the recommendations of Greenwald et al. (2003), practice trials were included in the calculation of IAT effects. For all IATs, a fixed trial block order was adopted, based on the aim to measure individual differences rather than determine absolute levels of association within each group. Such an approach avoided the introduction of further unwanted variability that results from the use of counterbalancing procedures (Banse et al., 2001). Use of this procedure means that scores obtained on the current IATs should not be interpreted in absolute terms, however, as IATs are known to be susceptible to order effects. Specifically, participants are often slower within the second trial block, due to the effects of cognitive inertia, or difficulty switching from one response rule to another (Messner & Vosgerau, 2010). In light of such effects, participants were always

presented with the more "normative" pairing first (e.g., *children + innocent*, *me + love*, or *me + secure*), so as to provide a conservative test of all current hypotheses.

Each stimulus category was represented by five stimuli (with the exception of the target category of *adults* within the dangerous world single-category IAT, which was only represented by four items). Individual stimuli were chosen on the basis of capturing the target or attribute in question, whilst remaining accessible to offenders who may possess a lowered reading ability compared to the general population (National Audit Office, 2008).[13] Within each IAT, stimuli were selected for presentation randomly without replacement throughout each trial block, and were presented centrally on the computer screen using upper case letters for target stimuli and lower case letters for attribute stimuli. Thus, stimuli were each seen once during practice trial blocks and four times during test trial blocks (again, with the exception of the dangerous world *adults* category, where a randomly selected stimulus item was shown twice during the practice trial blocks and all stimuli were seen five times during the test trial blocks). Throughout all trial blocks, participants were reminded of the required response contingencies by displaying the categories at the top of the computer screen, and were required to make their response selection using the "A" key for the left-hand category and the "L" key for the right-hand category.

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[13] To ensure items within the IATs would be intelligible to offender populations, each item was checked against the Bristol norms (Stadthagen-Gonzalez & Davis, 2006) and MRC psycholinguistic database (http://websites.psychology.uwa.edu.au/school/MRCDatabase/uwa_mrc.htm) to ensure that each word was typically acquired by the age of 10 (based on estimates that almost 40% of offenders have literacy levels below that expected of an 11 year old (National Audit Office, 2008)). If any words were found to have an age of acquisition above 10, they were replaced with a more suitable synonym, using an online thesaurus.

For the single-category IATs (children as sexual and dangerous world ITs), presentation of stimulus categories was weighted in order to prevent development of a response-key bias. Specifically, during trials where the target concept was paired with the positive attribute, the target concepts, positive attributes, and negative attributes were presented in a 5:5:10 ratio. As such, 50% of responses were made using the left response-key and 50% using the right response-key. This equal division across response keys was maintained during trials where the target concept was paired with the negative attribute, by adopting a 5:10:5 ratio of presentation. Within the bi-polar IATs (attachment anxiety, attachment avoidance, and self-esteem), stimulus presentation was weighted equally, as this naturally resulted in an equal division across response keys. No time limit was imposed on participant responding, thus stimuli remained on screen until the participant had pressed the correct key for the given response contingency. Each of the IATs incorporated a forced correct-choice procedure in which participants could not progress on to the next trial until they had selected the correct response. If the participant pressed the wrong response key for a given stimulus, they were immediately presented with a red "X" beneath the stimulus word and were required to press the other response key as quickly as possible to progress to the next trial. Reactions times were recorded for the point at which participants pressed the correct response key. Use of such a procedure resulted in a built in error latency, as recommended by Greenwald et al. (2003) for enhancing IAT effects. Each stage of the procedure was preceded by an instructions screen that explained what was required of the participant for that particular block.

All eligible participants were asked to complete two attachment-related IATs, a self-esteem IAT, and two single-category IATs designed to assess associations

relevant to a subsample of *implicit theories* (ITs) implicated in child-sex offending. Research suggests that personalising IAT measures may reduce the influence of unwanted extra-personal associations on resulting scores (i.e., culturally shared but not personally endorsed attitudes; Olsen & Fazio, 2004). In light of such findings, target categories within the attachment and self-esteem IATs were personalised on an ideographic basis for each participant [14] The full design and interpretation of these measures will be described in full during Chapters 3-5.

2.5.3.1 IAT scoring procedures. Participants who made more than 30% errors on an IAT were excluded from further analysis involving that particular measure. In line with the recommendations of Greenwald et al. (2003), extreme reaction times were dealt with prior to the formal calculation of IAT scores. Reaction times greater than 5000ms or less than 400ms were taken as indicative of inattention or failure to properly process the target stimuli and were discarded for all participants. Once these extreme data points had been excluded, an upper reaction time limit was generated ideographically for each participant, such that all values greater than three standard deviations above their mean reaction time within that particular IAT were also excluded from the *D* score calculation. Use of such an ideographic process meant that the IAT scoring procedure was able to account for individual variability in response speed, reducing unwanted "noise" within the data for each individual participant. Participants for whom greater than 25% of responses constituted extreme scores were also excluded from analyses involving that particular IAT.

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[14] Personalisation of the child-sex IT-related IATs was considered inappropriate as identification of a specific child victim would have been impossible for those without a child-sex offence and the dangerous world IT is considered to refer to adults generally rather than any one adult in particular (Ward and Keenan, 1999).

Response latencies which fell between the upper and lower reaction time limits were combined into a *D* score based on the recommendations of Greenwald et al. (2003). For the attachment and IT-related IATs, averaged response latencies across the target + negative attribute practice and test blocks were subtracted from those across the target + positive attribute practice and test blocks, and then divided by the standard deviation of all response times. As such, for these IATs, positive *D* scores indicated the presence of less adaptive functioning (i.e., higher attachment insecurity or higher IT endorsement), whereas negative *D* scores indicated more normative functioning (i.e., attachment security or disagreement with IT-related content). For ease of interpretation, within the self-esteem IAT target + positive blocks were subtracted from target + negative blocks, so that a positive *D* score indicated high self-esteem and a negative *D* score indicated low self-esteem.

2.5.4 Outcome measures. For all analyses, risk of recidivism was assessed using two actuarial risk assessment tools, which rely on static, mainly historical, risk factors to predict the likelihood of re-offending within a given time-scale. In line with the scoring instructions for such tools, onset of risk was always based on predicted date of release to the community. In the case of offenders serving a determinate sentence, this was either their conditional release date, the date at which they became eligible for monitoring via the home detention curfew system, or the date at which they would have served their full sentence. For prisoners serving an extended or indeterminate sentence for the public protection (EPP/IPP), this date was set for their next parole hearing.

2.5.4.1 Offender Group Reconviction Scale-3 (OGRS-3; Howard, Francis, Soothill, & Humphreys, 2009; see Appendix E). Risk of general recidivism within 12 and 24 months of the predicted date of release was estimated using the OGRS-3.

The OGRS-3 consists of five demographic and offence history items, which are commonly available from offender management files (age at predicted date of release, gender, current offence type, number of previous cautions/convictions, and length of criminal history). Despite its brevity, the OGRS-3 has demonstrated moderate predictive efficacy that is comparable to other, more lengthy, recidivism risk assessment tools (Yang, Wong, & Coid, 2010).

2.5.4.2 Static-99R (Hanson & Thornton, 2000; see Appendix F). Risk for sexual recidivism was estimated using the Static-99R. The Static-99R is a 10-item measure that assesses a range of offence (any historical or current non-sexual violence, number of prior sexual offences and sentencing dates, and any history of non-contact sexual offences) and victim characteristics (gender of and relation to victims), as well as the individual's age at the predicted date of release, and whether or not they have ever lived with a romantic partner for two or more years. The Static-99R represents a well-validated measure of sexual re-offending risk among offenders previously convicted of a sexual crime (Hanson & Morton-Bourgon, 2009).

2.6 Procedure

Prior to commencing the experimental session, all participants were given an information sheet to read and were asked to provide written informed consent, either at the start of the session itself (community controls) or during a preceding information session (offenders). All participants were made aware that the study was voluntary and that they could change their mind about taking part at any time without giving a reason and, in the case of community participants, without loss of any already accrued payment. It was stressed to offenders that their decision

whether or not to participate, or to withdraw at any time, would have no impact on their progress or treatment within the prison system. All participants were assured that their data would be stored anonymously so that their responses could not be traced back to them personally and, in the case of offenders, would have no impact on their progress or treatment at the prison. For offenders, file reviews were conducted after consent to view such files had been obtained, and the experimental session was scheduled with sufficient time to allow this review to be completed before testing began.

At the start of the experimental session proper, all participants were asked to confirm their understanding of the study requirements and to complete the WTAR to determine their eligibility for completing the IATs. Those who achieved a score equivalent to an IQ above 80 were then asked to complete Part A of the demographic form in order to personalise the self-esteem and attachment anxiety IATs. Whilst the researcher entered these details into the computer system, the participant then answered the WHOTO (Fraley & Davis, 1997; see Appendix G) in order to determine their personalised attachment figure. Participants who were able to provide a name in response to at least one WHOTO item were then asked to provide some additional information about this person in order to personalise the attachment avoidance IAT (Attachment Figure Information Form; see Appendix H). This information was then entered into the computer system whilst the participant completed Part B of the demographic form. Participants who could not provide an answer to any of the WHOTO items omitted the attachment figure information sheet, and were simply asked to move on to this final demographic form.

Participants were then asked to complete the attachment anxiety IAT and, if applicable, the attachment avoidance IAT.[15] For participants completing both attachment IATs, ordering of the anxiety and avoidance IATs was counterbalanced between participants, to minimise the influence of any potential order effects. All participants then completed the self-report measure of attachment anxiety and avoidance[16], along with some additional self-report measures related to attachment and parenting that are not of interest to the current investigation. They were then asked to complete the IAT and self-report measures of self-esteem. After being offered a short break, participants were then asked to complete some additional IAT and self-report measures of violence/aggression that also relate to a different project and are thus described elsewhere. Participants were then asked to complete the dangerous world and children as sexual single-category IATs, followed by the self-report measure of IT-related beliefs. Ordering of the IT-related IATs was set in this order across all participants due to concerns that the sensitive nature of the children as sexual single-category IAT might result in the highest level of participant attrition. By placing this measure towards the end of the session, it was hoped that such drop-outs would have minimal impact on data collection for the other measures.

After completing all of the experimental measures, participants were provided with a full verbal and written debrief, given the opportunity to ask any questions they had about the study, and thanked for their time. Given the sensitive

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[15] Given the personalised nature of the attachment avoidance IAT (see section 3.3.2.3), only participants who were able to identify an attachment figure within the WHOTO were asked to complete this measure.

[16] IATs were always completed before their corresponding self-report measure, due to ongoing uncertainty concerning whether completion of related self-report measures influences results obtained within the IAT paradigm (Karpinski & Steinman, 2006).

nature of the topics covered, community males were also given a debrief resource pack that contained details of support agencies that may be able to help with issues raised by the experimental session. Offenders were advised to seek appropriate staff support if they had any ongoing concerns. Community participants then received their monetary payment before leaving the testing session.

2.7 Data Screening Procedures

All variables of interest underwent screening procedures to ensure adherence with the assumptions of multivariate parametric analyses. Any distributional violations were corrected using transformation procedures. In addition, any extreme scores were trimmed to within three standard deviations of the mean before formal analysis proceeded. Formal statistical analyses are described within their respective empirical chapters.

Chapter 3: Attachment and Sexual Offending

3.1 Introduction

  3.1.1 Attachment theory. According to Attachment Theory, our behaviour within relationships is governed by an innate behavioural system that develops during infancy and continues to influence interpersonal functioning throughout the entire lifespan (Bowlby, 1969). Whilst initially developing to promote an optimal balance between infant-caregiver proximity and exploration of the environment (Ainsworth & Bell, 1970), the functioning of this *attachment system* is considered to determine the success with which increasingly demanding interpersonal challenges are met, up to and including the formation and maintenance of adult romantic relationships (Sroufe, 2005). Throughout each stage of development, the functioning of this system is governed by a series of *internal working models* (IWMs), defined as internalised mental representations of the self and others within interpersonal relationships (Bowlby, 1973).

  The content and valence of these IWMs is argued to be influenced by the nature of early care experiences (Ainsworth, 1985). For example, infants whose caregiver responds to them in a way that is timely and sensitive to their needs will develop IWMs characterised by beliefs that they are effective in eliciting, and worthy of receiving, care and attention, and that their caregiver can be relied upon to respond to their needs. In contrast, care-giving that lacks such qualities leads to IWMs characterised by beliefs that they are ineffectual or unworthy of sensitive care, and that their caregiver is inaccessible, inconsistent, or unresponsive (Ainsworth, 1979). Whilst remaining open to revision throughout the course of development, these models are considered to be relatively self-perpetuating, due to the operation of selective biases towards information that confirms pre-existing model content

(Bowlby, 1979). Their nature and functioning serve to determine individual levels of attachment (in)security that can be qualitatively and quantitatively assessed from infancy, through childhood and adolescence, into adulthood (Ainsworth, Blehar, Waters, & Wall, 1978; George, Kaplan, & Main, 1996; Hazan & Shaver, 1987; Main, Kaplan, & Cassidy, 1985).

3.1.1.1 Models of attachment. Whilst a variety of categorical and dimensional models of IWM functioning have been proposed over the years (e.g., Bartholomew, 1990; Hazan & Shaver, 1987), the most widely accepted conceptualisation consists of two orthogonal dimensions; *attachment anxiety* (sensitivity to attachment-related threats or rejection, and preoccupation with attachment figure availability and responsiveness) and *attachment avoidance* (tendency to approach versus avoid attachment figures in response to detected threats, and willingness to engage reciprocally in the functions of attachment relationships; Brennan, Clark, & Shaver, 1998). Individuals vary along both of these dimensions, with higher levels of anxiety and/or avoidance indicating more pronounced attachment insecurity. Bowlby (1988) argued that maladaptive IWMs, and the attachment insecurity they generate, interact with other environmental risk factors to produce most forms of child and adult psychopathology. Such propositions have been supported by a wealth of studies linking attachment insecurity with various impairments to intra- and inter-personal functioning, as well as a broad range of mental disorders (for a review, see Mikulincer & Shaver, 2007). In addition, preliminary findings suggest that increasing levels of attachment security can improve mental health indicators in both clinical and experimental settings, strengthening the idea that attachment dysfunction plays a causal role in such conditions (Mikulincer & Shaver, 2012).

3.1.2 Attachment theory and sexual offending. Marshall (1989) was among the first to apply such reasoning to the aetiology and maintenance of sexual crimes, proposing that deficits in attachment-related functioning might predispose an individual towards engaging in forms of sexual offending. Specifically, he argued that elevated levels of attachment insecurity result in a series of interpersonal deficits that produce heightened emotional loneliness, sexualised coping, and/or maladaptive beliefs concerning intimacy and power. Such deficits compromise an individual's ability to form and sustain satisfying interpersonal relationships, and increase the likelihood of adopting ever more deviant ways of satisfying their need for intimacy or sexual satisfaction. For example, rapists might resort to coercion, and disregard the rights of their victims, whilst child-sex offenders may seek out less threatening, yet age-inappropriate, sexual partners in order to satisfy their needs (Ward, Hudson, & Marshall, 1996). More recently, neurobiological accounts have proposed that attachment-related adversity may be responsible for disruptions in neuropeptide, corticosteroid, and limbic system functioning, leading to enduring problems with interpersonal bonding and the regulation of emotions, and increasing the chance of displaying aggressive or sexually inappropriate behaviour (Beech & Mitchell, 2005; Mitchell & Beech, 2011).

A similar pathway has been proposed to account for the development of deviant sexual fantasies, such that the difficulties engendered by attachment dysfunction encourage the individual to retreat further and further into an internal mental refuge characterised by fantasies of coercion, power, or control (Maniglio, 2012). Such fantasies are argued to promote the development of deviant sexual interests (via processes such as conditioning and social learning; Bartels & Gannon, 2011), that are known to be one of the strongest predictors of sexual recidivism

(Hanson & Morton-Bourgon, 2005). Such theoretical links demonstrate the potential for attachment functioning to contribute, either directly or indirectly, to the commission of sexual crimes, and have generated a substantial amount of research into the interpersonal functioning of such offenders.

3.1.2.1 Previous empirical evidence. Several investigations have focused on the first stage of Marshall's (1989) model, examining the nature of sexual offenders' early relationships with parents or caregivers. Generally, support is found for the idea that these offenders experience a range of adversity during their formative years, with early family environments characterised by high levels of conflict or dysfunction, and suboptimal parenting. For example, Craissati, McClurg, and Browne (2002) found many child-sex offenders recalled experiencing a parenting style termed *affectionless control* that combines low levels of warmth and care with high levels of overprotection and parental intrusion, and is considered the parenting style most detrimental to child development and wellbeing (Parker, Tupling, & Brown, 1979). In other studies, sexual offenders characterised their relationship with parents in a variety of negative terms, ranging from cold and rejecting, to hostile and abusive (e.g., Hazelwood & Warren, 1989; Marshall & Mazzucco, 1995; McCormack, Hudson, & Ward, 2002; Smallbone & Dadds, 1998), and several studies indicate a prevalence of insecure parental attachment among such offenders (e.g., Miner et al., 2010; Simons, Wurtele, & Durham, 2008; Smallbone & Dadds, 1998; Stirpe, Abracen, Stermac, & Wilson, 2006).

Several studies have also reported a predominance of insecure adult attachment among sexual offenders (e.g., Lyn & Burton, 2004; Marsa et al., 2004; Sawle & Kear-Colwell, 2001; Ward et al., 1996; Wood & Riggs, 2009). Some evidence even seems to suggest that different forms of attachment dysfunction might

distinguish between sexual offender subtypes, based on victim or offence characteristics. For example, Ward et al. (1996) reported that, whilst rapists demonstrated elevated levels of attachment avoidance (consistent with their heightened hostility and aggression towards victims), child-sex offenders demonstrated higher attachment anxiety, which might explain their attraction to less socially threatening, yet age inappropriate sexual targets. In addition, Jaimeson and Marshall (2000) found that sexual offenders with higher levels of attachment avoidance were more likely to engage in threatening or physically harmful behaviours during offences. Yet, other studies have failed to replicate such sub-group distinctions (e.g., Smallbone & Dadds, 1998), raising concerns about their consistency.

Finally, a number of studies have found evidence that sexual offenders demonstrate theoretically anticipated deficits in both establishing and maintaining interpersonal relationships. For example, Overholser and Beck (1986) found both rapists and child-sex offenders demonstrated significantly greater social deficits than non-sexual offenders and community controls during an observed interaction with a stranger. Sexual offenders also report significantly less intimacy within established interpersonal relationships (e.g., Bumby & Hansen, 1997) and greater sexual dissatisfaction within romantic relationships (particularly child-sex offenders; Ward, McCormack, & Hudson, 1997). Research by Hudson and Ward (1997) further suggests that these deficits are driven by differences in attachment-related functioning, rather than offence type, demonstrating the fundamental role such factors play in the generation of interpersonal difficulties among such offenders.

In light of these findings, variables related to attachment system functioning have been identified as key treatment targets within several mainstream Sex

Offender Treatment Programmes (SOTP). For example, the Structured Assessment of Risk and Need (SARN), that is frequently used to identify treatment targets within the UK prison system, contains a socio-affective functioning domain, in which offenders are rated across areas such as "lack of emotional intimacy" and "distorted intimacy balance".

3.1.2.2 Issues with specificity and predictive validity. As highlighted in the opening chapter to this thesis, however, concerns have been raised regarding the specificity of attachment as a risk factor for sexual offending in particular. For example, various forms of attachment dysfunction are commonly found across all offender subtypes, and several studies have failed to find significant differences between sexual and non-sexual offenders (e.g., Baker & Beech, 2004; Jamieson & Marshall, 2000; Lu & Lung, 2012). In addition, meta-analytic evidence suggests that variables such as familial adversity and insecure attachment may be related to risk of offending generally, rather than sexual offending in particular (Seto & Lalumiere, 2010; Whitaker et al., 2008). These concerns also extend to the later stages of Marshall's (1989) model, as existing meta-analyses offer conflicting conclusions regarding the specificity of social skill/intimacy deficits to sexual offending in particular (Dreznick, 2003; Whitaker et al., 2008). Such findings raise questions about the degree to which attachment dysfunction can explain why these offenders come to offend sexually, as opposed to engaging in other forms of criminality.

In addition, the results of meta-analytic recidivism studies demonstrate that attachment-related variables have only small to negligible relationships with sexual recidivism, casting doubt on its predictive validity as a risk factor for the maintenance of sexual offending. For example, Hanson and Morton-Bourgon (2005)

reported that factors such as experiencing negative relationships with parents, parental abuse/neglect, and social skill deficits all demonstrated negligible relationships with sexual recidivism (all $d < .20$). Such findings have lead researchers to re-evaluate these variables as "potentially misleading risk factors" (Hanson & Morton-Bourgon, 2005, p.1158), or factors unrelated to sexual recidivism (Mann et al., 2010). Whilst such results may simply indicate that the factors that initiate sexual offending are not the same as those that maintain it (Hanson & Morton-Bourgon, 2005), they nonetheless undermine the inclusion of such factors in treatment programs, based on the principles of the influential Risk-Need-Responsivity model (i.e., to focus treatment on criminogenic needs that are functionally related to offending, see Chapter 1; Andrews et al., 1990).

Other attachment-related variables, such as having a history of conflict within intimate relationships or having never been married, are still considered "psychologically meaningful risk factors" (Mann et al., 2010, p.199), as they demonstrate small, yet significant, relationships with sexual recidivism ($r = .18$ and .11 respectively; Hanson & Bussiere, 1998; Hanson & Morton-Bourgon, 2005). Yet, such findings provide only tentative support for links between attachment and sexual offending, as these variables represent proxies, rather than direct assessments of attachment system functioning, and could be confounded with other important risk factors, such as offender age or other antisocial traits.

3.1.3 Measuring attachment.

3.1.3.1 Traditional approaches. In summary, whilst the ideas of Marshall and colleagues are theoretically grounded and intuitively appealing, empirical evidence remains equivocal concerning the extent to which attachment dysfunction can account for the onset and/or maintenance of sexual offending. Yet, the vast

majority of research into offender attachment has relied on some form of self-report, such as the Relationship Questionnaire (RQ; Griffin & Bartholomew, 1994a), where respondents are assigned to one of four prototypical attachment styles, or the Experiences in Close Relationships scale (ECR; Brennan et al., 1998) that provides a dimensional assessment of anxiety and avoidance levels.[17] Whilst proving predictive of several theoretically relevant outcomes (e.g., self-esteem, emotion regulation, and interpersonal competency; Mikulincer & Shaver, 2007), such measures may be limited in their ability to provide a comprehensive assessment of attachment system functioning, due to the previously raised issues concerning impression management and automatic processing (see Chapter 1).

Self-presentational biases may influence self-reported rates of attachment insecurity, particularly among those who demonstrate high levels of attachment avoidance (as they are motivated to suppress or disregard attachment system functioning; Bartholomew, 1990). Such influences may explain why empirical evidence for the role of attachment in sexual offending is not more consistent or conclusive, as there may be variation in the extent to which participants engage, consciously or unconsciously, in such biases. Moreover, automatic processing may be especially pertinent when trying to assess individual differences in attachment system functioning, as much of its influence on behaviour is considered automatic in

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[17] A notable exception is a study conducted by Stirpe, Abracen, Stermac, and Wilson (2006) that used the Adult Attachment Interview (AAI; George et al., 1996). The AAI assesses an individual's current state of mind regarding childhood attachment to caregivers by relying on the coherence, rather than content, of their disclosures during the interview. It is considered capable of circumventing issues inherent to other self-report methods, such as impression management or recall biases, and is considered the "gold-standard" measure for adult attachment patterns (George & West, 1999). Despite such merits, the AAI is rarely utilised in offender studies, due to its lengthy training and administration requirements.

nature (Mikulincer & Shaver, 2003). As a result, self-report measures that are primarily influenced by more deliberative, controlled cognitive processing are considered to provide only "convenient surface indicators" of true attachment-related functioning (Shaver & Mikulincer, 2002, p. 137). To address such concerns, researchers have begun to utilise indirect measurement tools to try and assess the more automatic processes that contribute to attachment-related behaviour.

   3.1.3.2 Using the Implicit Association Test to assess attachment. Given that attachment IWMs are thought to denote associations concerning the self and significant others in relationships (Bowlby, 1973), the Implicit Association Test (IAT) may prove particularly well-suited to the indirect assessment of such constructs. Indeed, several investigations have previously examined the utility of using the IAT to assess factors related to adult attachment functioning. For example, Zayas and Shoda (2005) found that those with lower levels of self-reported attachment avoidance demonstrated more positive partner and mother associations within an IAT procedure. Similarly, Banse and Kowalick (2007) found that abused women reported more negative partner-IAT attitudes than those who were pregnant or had recently fallen in love. Dewitte and De Houwer (2008) also found that those high in self-reported attachment avoidance demonstrated a theoretically consistent preference for distance rather than proximity within IAT-based designs.

   Dewitte, De Houwer, and Buysse (2008) also used a pair of self-relevant IATs (self as relationally worthy versus worthless and secure versus anxious) to examine the nature and valance of the self-concept in relation to attachment functioning. Both IATs demonstrated convergence with self-report measures of attachment anxiety, as well as superior predictive validity for hypothetical attachment-based reactions to an imagined separation from a personally identified

attachment figure. Such findings demonstrate that factors related to attachment system functioning can be meaningfully measured using an IAT-based paradigm and that such measures are able to demonstrate acceptable discriminative and predictive validity. Within each of these designs, however, attachment itself was still indexed using questionnaires and IATs were only utilised to examine presupposed correlates of self-reported attachment functioning.

Based on the findings of an unpublished thesis by Velentanlic (2007), Ren, Wang, Yang, Li, and Higgins (2011) were the first to utilise the IAT paradigm as a means of assessing attachment dimensions specifically. They devised a pair of IATs to measure the dimensions of *self* (loveable versus un-loveable) and *other* (mother as emotionally available versus unavailable) proposed within the Bartholomew (1990) four-category model of attachment. These IATs demonstrated acceptable-good internal reliability, as well as convergent validity with two self-report measures of attachment (the ECR and RQ), and concurrent prediction of global well-being.

3.2 Aims of this Chapter

Despite such successes, the attachment IATs designed by Ren et al. (2011) may still require some conceptual and methodological refinement. Firstly, these IATs were based on a somewhat out-dated model of attachment, as recent investigations suggest self-reported attachment is best conceptualised in terms of attachment anxiety and avoidance, rather than models of self and others (Roisman et al., 2007). Secondly, the IATs failed to demonstrate divergent validity in terms of their relations with self-reported attachment style. Rather than demonstrating a selective relationship with their respective self-report counterpart, both IATs converged with both self-reported dimensions (e.g., the Self-IAT correlated with both self *and* other models within the RQ). Whilst the authors proposed a perfectly

plausible cultural explanation for this outcome (based on the idea that models of the self and others may be highly inter-related among collectivist cultures such as China), such lack of divergence could also signal a failure to accurately capture the distinct dimensions underlying adult attachment behaviour. As such, the first aim of the current investigation was to develop and validate a pair of attachment IATs, based on the more conceptually accurate model of attachment anxiety and avoidance. To address this aim, a pilot study was conducted among a community sample in order to validate the attachment IATs against existing attachment measures, as well as hypothetical responses to attachment-related threat (see section 3.3.2.4).

As discussed above, indirect measures that assess more automatic aspects of IWM functioning and are less susceptible to impression management may aid the assessment of attachment-related functioning among offender samples. Thus, the second aim of the current investigation was to examine whether use of the attachment IATs would provide greater evidence for the specificity and predictive validity of attachment as a risk factor for the onset and/or maintenance of sexual offending, above that achieved by self-report. To determine the relative specificity of each measurement format, self-report and IAT attachment measures were compared in their ability to distinguish sexual offender subtypes (child-sex offenders versus rapists) from both non-sexual offenders and community controls. If IAT assessment does indeed confer benefits over reliance on self-report, group differences would be expected on these new measures alone, or at least to a greater extent than found within traditional self-report measures of attachment.

Child-sex offenders and rapists were distinguished within these group analyses as there is evidence to suggest they may possess distinct forms of attachment dysfunction (e.g., Ward et al., 1996). As such, collapsing across

subtypes might have obscured meaningful group differences. Based on the results of previous investigations, child-sex offenders were expected to demonstrate elevated levels of attachment anxiety, whilst rapists were predicted to show elevated levels of attachment avoidance. If, as proposed by Marshall and others, attachment dysfunction is a specialised risk factor for sexual offending, such elevations would be expected to distinguish child-sex offenders and rapists from non-sexual offender controls as well as non-offending community controls. Furthermore, if the precise form of attachment dysfunction is important, even greater differentiation would be expected, such that child-sex offenders would show higher anxiety than all other experimental groups, and rapists would show higher avoidance than any other group. If, however, attachment dysfunction represents a more generalised risk factor for offending, levels of attachment insecurity would be elevated among all offender types, such that discrimination between them would not be possible, and only community controls would be distinguished by their lower anxiety and avoidance scores. Finally, if attachment-related functioning is in fact a misleading risk factor for sexual offending, it would not be possible to discriminate groups from one another on either self-report or IAT assessed anxiety or avoidance. Given the equivocal nature of current findings based purely on self-report, it was not possible to distinguish between these competing accounts a priori.

To determine the relative predictive validity of self-report and IAT assessed attachment, measurement formats were compared in their ability to predict scores on actuarial measures of recidivism risk. If use of the IAT paradigm enhances the assessment of attachment, the attachment IATs would be expected to add incrementally upon the prediction of risk achieved by self-report alone. The inclusion of measures that estimate both general and sexual recidivism risk also

permits further examination of the specificity of attachment as a risk factor for sexual offending. If attachment is a specialised risk factor, it should predict scores on the Static-99R among sexual offenders more successfully than scores on the OGRS-3 among the offender sample as a whole. If attachment is instead a more generalised risk factor, the reverse would be expected. If, however, attachment is unrelated to the maintenance of offending behaviour, neither self-reported, nor IAT assessed attachment would predict scores on either measure of estimated recidivism risk.

Finally, previous offender attachment studies have only examined the effects of anxiety and avoidance individually. Yet, evidence from the broader attachment literature suggests that the interaction between these two dimensions possesses some emergent properties, such that those with a combination of high anxiety and avoidance demonstrate the worst interpersonal, clinical, and behavioural outcomes (Griffin & Bartholomew, 1994b; Hesse & Main, 2000). Based on such findings, the current study also examined whether the interaction between anxiety and avoidance would aid prediction of group membership and/or scores on measures of recidivism risk. Within categorical models of attachment, individuals who demonstrate high anxiety and avoidance are often referred to as *fearfully* attached. Previous studies using such models have found fearful attachment to be common among child-sex offenders in particular (e.g., Ward et al., 1996). As such, it was predicted that those with a combination of both high anxiety and avoidance would be more likely to belong to the child-sex offender group. It was also predicted that, across offender types generally, those with both high anxiety and high avoidance would demonstrate the highest scores on measures of recidivism risk. Once again, the specificity of attachment as a risk factor was expected to affect the pattern of results. If attachment

is a specialised risk factor, then the interaction between anxiety and avoidance should afford superior prediction of Static-99R scores, rather than OGRS-3 scores. If attachment is more of a generalised risk factor, however, the reverse should be true.

3.3 Method

3.3.1 Participants. For the current analyses, participants were grouped as child-sex offenders ($n = 48$), rapists ($n = 18$), non-sexual offenders ($n = 49$), and non-offending community controls ($n = 70$). Section 2.4 provides a description of the demographic characteristics of each experimental group.

3.3.2 Measures.

3.3.2.1 Experiences in Close Relationships scale (ECR; Brennan et al., 1998; see Appendix I). Current self-reported attachment was assessed using the ECR, a 36-item questionnaire that assesses levels of attachment anxiety (e.g., "I worry about being abandoned") and attachment avoidance (e.g., "I try to avoid getting too close to others"). Respondents were asked to rate the extent to which each item characterised their attitudes, feelings, or behaviour within relationships, on a scale of 1 (*disagree strongly*) to 7 (*agree strongly*). The anxiety scale ranges from relative confidence in one's value and role within interpersonal relationships, to pervasive concern over such factors, and high sensitivity to rejection. The avoidance scale ranges from an ability to reciprocally provide and accept support or intimacy within attachment relationships, to a desire to avoid intimacy and assert one's independence from significant others. Higher scores on both subscales indicated the presence of greater attachment insecurity.

From the range of self-report measures available to index adult attachment, the ECR was selected due to its strong psychometric properties (anxiety α = .91, avoidance α = .94; Brennan et al., 1998) and focus on the two dimensions currently considered to best conceptualise adult attachment functioning (Roisman et al., 2007). The original scale was chosen over its more recent modification (the ECR-Revised; Fraley, Waller, & Brennan, 2000) due to its more inclusive focus on relationships in general, rather than a romantic relationship in particular. To avoid the unwanted conflation of different relationships during completion of the ECR, the instructions were modified such that participants were asked to focus selectively on one particular attachment relationship when responding to each item. This attachment relationship was selected ideographically for each participant by asking them to complete a second attachment-related questionnaire, designed to identify a personalised attachment figure in their lives at the time of participation (the WHOTO; Fraley & Davis, 1997).

The WHOTO consists of six items designed to capture the essential components of an attachment relationship; proximity-seeking (e.g., "Who is the person you don't like to be away from?"), providing a safe-haven in times of need (e.g., "Who is the person you want to be with when you are feeling upset or down?"), and providing a secure base for interpersonal development (e.g., "Who is the person you can always count on?"). The person named most frequently in response to these items was used as the participant's personal attachment figure within the ECR (and also the attachment avoidance IAT, see below). In cases where two or more people were listed an equal number of times, participants were asked a verbal tie break question ("Who do you currently feel emotionally closest too?"), the response to which was used to determine their personal attachment figure. If

participants were unable to provide an answer to any of the six items, they were asked to complete the ECR about their experiences within relationships generally.

3.3.2.2 Attachment anxiety IAT (see Appendix J). Based on the reasoning that attachment anxiety is related to beliefs regarding personal security within relationships (Bowlby, 1973; Brennan et al., 1998), a modified version of the Anxiety-IAT designed by DeWitte et al. (2008) was used to assess whether respondents more strongly associated themselves with relational anxiety or security. Participants were presented with a series of words related to the target categories of *me* versus *not-me* and the attribute categories of *relationally anxious* (e.g., "worried", "doubt", "tense") versus *relationally secure* (e.g., "relaxed", "certain", "sure"). The stimuli used to represent the me category were generated on an ideographic basis for each participant by having them provide their full name, gender, date of birth, and nationality within Part A of the demographic form. Previous meta-analytic evidence suggests that use of ideographic terms generates stronger correlations between IATs and self-report measures than use of more generic pronouns, such as "me" or "I" (Hofmann et al., 2005).

Items for the not-me category were a series of experimenter generated foils that were designed to be unrelated to the participant and contrast with their ideographically provided personal information. The same standard set of foils was used for each participant. Participants were asked to read through the list of not-me foils and indicate any items that related to them personally. Any personally relevant items were then replaced by an alternative stimulus (e.g., if the participant happened to have the surname "Taylor", the not-me surname stimulus would be altered to "Smith" instead). Whilst the use of specific others versus more generic not-me pronouns (such as "them"/"they") remains contested within the literature

(e.g., Karpinski, 2004), specific experimenter generated foils were used within the current design as they were considered to better contrast the ideographic terms chosen to represent the self.

Figure 3.1 provides an example of how stimuli were correctly classified during the attachment anxiety IAT procedure. Response times were compared between trials when me was paired with relationally secure (and not-me with relationally anxious), and when the opposite response contingency was adopted. Faster responding when self-referential terms were paired with relational anxiety, relative to relational security, produced a positive *D* score, indicative of attachment anxiety. In contrast, faster responding when self-referential terms were paired with relational security produced a negative *D* score, indicative of attachment security.

3.3.2.3 Attachment avoidance IAT (see Appendix J). Based on the argument that attachment avoidance is related, among other things, to level of comfort relying on close relationship partners for attachment-related needs (Bowlby, 1973; Brennan et al., 1998), the attachment avoidance IAT was designed to determine whether respondents more strongly associated a personally chosen attachment figure with intimacy or independence. Participants were presented with a series of words related to the target categories of attachment figure versus not-attachment figure and the attribute categories of intimacy (e.g., "trust", "rely", "depend") versus independence (e.g., "isolated", "alone", "withdraw"). As with the modified ECR instructions, the decision was made to focus on one attachment relationship, rather than relationships generally, to avoid unwanted conflation of different relationships during completion of the IAT. In contrast to previous attempts at focusing attachment IAT responses on one particular attachment relationship (e.g., partners

| | Sample | |
| Category Labels | Items | Category Labels |

Me +
Relationally
Secure trials

Me		Not-Me
or		Or
Relationally		Relationally
Secure		Anxious
●	certain	○
●	JOHN	○
○	worried	●
○	ANNE	●

Me +
Relationally
Anxious trials

Me		Not-Me
or		Or
Relationally		Relationally
Anxious		Secure
○	certain	●
●	JOHN	○
●	worried	○
○	ANNE	●

Figure 3.1. Categorisation examples for stimuli during each category pairing within the attachment anxiety IAT. Note: Blacked out circles indicate the correct categorisation response.

or mothers; Banse & Kowalick, 2007; Ren et al., 2011), this attachment figure was chosen on an ideographic basis for each participant, based on the responses they provided within the WHOTO questionnaire.

Stimuli related to this personally identified attachment figure were also generated on an ideographic basis. Within an additional questionnaire, participants were asked to provide as many of 12 personal characteristics about their chosen attachment figure as possible. These personal characteristics were as follows: surname, relation to respondent, nickname, profession, hair colour, eye colour,

favourite sport, hobby, favourite music, favourite beverage, car make/model, and habit. Most of these items were taken from a previous study that personalised IATs to refer to the respondent's romantic partner (Banse & Kowalick, 2007). Some additional items (surname and relationship to respondent) were also added to increase the accessibility of this measure to respondents who might struggle to provide more personal/intimate details (e.g., offender/clinical populations). After providing as many of these details as possible, participants were then asked to identify which four they associated most strongly with that person. These four items, along with their attachment figure's first name, were then used as stimuli within the attachment figure target category.[18]

As in the attachment anxiety IAT, items for the opposing not-attachment figure target category were created using another set of standard experimenter-generated foils, and the precise stimuli depended on the items considered most personally relevant to each participant. For example, if the participant selected a surname, hobby, car model, and eye colour to represent their attachment figure, unrelated foils for each of these categories would be entered as not-attachment figure stimuli. As with the not-me foils, participants were asked to ensure that none of the foils were related to their personally identified attachment figure. If any problematic items were highlighted, substitutions were made as described for the attachment anxiety IAT.

Response latencies were compared between trials in which words related to their personally identified attachment figure were paired on a response key with

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[18] Category labels were also personalised throughout the task, using their chosen attachment figures first name (e.g., "John OR Intimacy" versus "Not-John OR Independence")

intimacy (and words unrelated to their attachment figure with independence), and when the opposite response contingency was required. Faster responding when attachment figure terms were paired with independence, relative to intimacy, produced a positive *D* score, indicative of attachment anxiety. In contrast, faster responding when attachment figure terms were paired with intimacy produced a negative *D* score, indicative of attachment security.

3.3.2.4 Development and validation of the attachment IATs. The attachment IATs described in section 3.3.2.2 and 3.3.2.3 represent the final product of a series of pilot studies conducted in order to develop these measures and refine their psychometric properties among student samples. Initially, due to concerns regarding the selection of appropriate opposing target categories for complex constructs such as the self and relationships (Karpinski, 2004), attachment anxiety and avoidance were assessed using a single-category IAT design (SC-IAT; Karpinski & Steinman, 2006). Within the attachment anxiety SC-IAT, the target category of me was paired with the attribute categories of relationally anxious vs. relationally not-anxious. Within the attachment avoidance SC-IAT, the target category of relationships was paired with the attribute categories of independence vs. intimacy. Pilot testing revealed that, whilst both attachment SC-IATs demonstrated acceptable levels of internal reliability (anxiety α = .78; avoidance α = .79), these measures evidenced poor test re-test reliability when re-administered within the same testing session (anxiety r = .36; avoidance r = .38).[19]

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[19] The internal reliability of these initial attachment SC-IATs was examined using a sample of 136 university students (female n = 109). The test re-test reliability of the attachment anxiety SC-IAT was examined using a sub-set of these participants who were asked to complete this measure twice as part of this main experimental session (n = 41, female n = 34). The test re-test reliability of the attachment avoidance IAT

In response to such findings, it was speculated that use of a generic target category of relationships might have contributed to the lowered reliability of the avoidance IAT, as participants may have been conflating several different relationships when responding to the on-screen stimuli. As such, the attachment avoidance IAT was refined to focus on just one ideographically selected relationship (using the WHOTO procedure described in section 3.3.2.3). There were also concerns that use of the less cognitively demanding single-category design might have allowed participants to learn and adopt an alternative response strategy during completion of the attachment IATs, which may have further compromised reliability across both measures.

To address these concerns, an additional pilot study compared the original single-category attachment IATs to the final bi-polar designs described in sections 3.3.2.2 and 3.3.2.3. The sample for this pilot study consisted of 47 Cardiff University undergraduate students (female $n = 38$). The majority of the sample were White ($n = 45$), with the remaining two participants indicating Mixed Race ethnicity. Roughly half of the sample described themselves as being in some form of romantic relationship at the time of participation ($n = 25$). The average age of participants was 19.45 ($SD = 1.21$). All participants were reimbursed with course credit for their time.

The results of this comparison study demonstrated that the bi-polar attachment IATs demonstrated slightly superior internal reliability (attachment anxiety $r = .83$; attachment avoidance $r = .78$, both $p < .001$) compared to the original single-category IATs (both attachment anxiety and avoidance $r = .71$, $p <$

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was already established within a separate, earlier investigation involving 36 undergraduate students (female $n = 33$).

.001).   A subsample of participants ($n = 42$) returned to complete the bi-polar

attachment IATs for a second time, two days after the initial testing session. Based

on correlations between Time 1 and Time 2 D scores, the bi-polar attachment IATs

demonstrated improved test re-test reliability (attachment anxiety $r = .67$;

attachment avoidance $r = .64$, both $p < .001$) compared to the original single-

category variants (both $r < .40$). Whilst still falling below the standard typically

considered acceptable for measurement reliability ($r = .80$), these values are above

the average typically attained by IAT measures (average test re-test $r = .50$, range

.25-.69; Lane, Banaji, Nosek, & Greenwald, 2007).[20]

This same pilot study also examined the concurrent and convergent validity

of these measures using a procedure similar to that described by De Witte et al.

(2008). Specifically, during the initial experimental session, all participants were

asked to complete the attachment IATs, along with the ECR, and an open-response

thought exercise, where they were asked to list their emotional/cognitive responses

to an imagined 1-2 year separation from their chosen attachment figure.

Table 3.1 contains the zero-order correlations between all attachment and

thought exercise variables.[21] To examine their level of convergent validity, each

attachment IAT was correlated with their respective ECR subscale. The attachment

anxiety IAT did not correlate significantly with the anxiety subscale of the ECR

and, whilst reaching statistical significance, the relationship between IAT assessed

and self-reported attachment avoidance also remained modest. Such findings are in

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[20] The reliability of IAT measures is thought to be limited by the increased
measurement error associated with assessments based on reaction time
(Cunningham, Preacher, & Banaji, 2001).
[21] Whilst correlations were calculated for both single-category and bi-polar variants
of the attachment IATs, only results for the final bi-polar variants are displayed
presently, due to their superior psychometric properties.

Table 3.1. Zero-order Correlations between Attachment and Thought Exercise Variables within the Validation Sample

	(1)	(2)	(3)	(4)	(5)	(6)
(1) ECR Anxiety	-	.07	.02	.08	-.05	.16
(2) ECR Avoidance		-	.26	.35*	-.06	-.06
(3) Anxiety IAT			-	.57***	-.32*	.15
(4) Avoidance IAT				-	.02	-.06
(5) Positive Responses					-	-.43**
(6) Negative Responses						-
M	3.33	2.64	-0.68	-0.72	1.20	6.12
SD	0.85	0.90	0.29	0.37	1.41	3.86

Note: * $p < .05$. $p < .01$. *** $p < .001$. ECR = Experiences in Close Relationships scale.
IAT = Implicit Association Test.

line with other empirical and meta-analytic evidence that suggests direct and indirect assessments of the same construct rarely demonstrate strong convergence (Hofmann et al., 2005), as well as structural modelling and neurological evidence that these measures tap into related, yet distinct, constructs (Cunningham, Johnson, Gatenby, Gore, & Banaji, 2003; Nosek & Smyth, 2007). Given that theoretical distinctions have been made between the processes likely to be assessed by direct versus indirect measures (De Houwer, 2006), such findings are typically taken as evidence to support dual process models of human cognition, and are not necessarily considered to invalidate either measure (Greenwald et al., 2009). Given such knowledge, the modest convergence demonstrated by the attachment avoidance IAT was still considered encouraging at this provisional stage of validation.

To examine their level of predictive validity, scores on each attachment IAT were also correlated with the aggregated number of positive and negative thoughts/feelings listed in response to the hypothetical separation imagination exercise. Whilst scores on the attachment avoidance IAT proved unrelated to either positive or negative responses, attachment anxiety D scores demonstrated a significant negative relationship with the number of positive responses provided, such that those who demonstrated a weaker association between the self and relational security reported fewer positive responses to the imagined attachment threat. Self-reported attachment anxiety and avoidance did not correlate with either positive or negative separation responses.

The nature of the current imagination task may explain why a significant correlation was noted for the attachment anxiety IAT, but not the attachment avoidance IAT. Whilst attachment anxiety is related to the ease with which

attachment-related threats are detected, attachment avoidance is related to how such threats are handled once detected (Fraley & Shaver, 2000). A task designed to assess the immediate emotional and cognitive reactions elicited by a hypothetical separation might relate more strongly to the detection and instinctive response to attachment threat (attachment anxiety levels), rather than decisions regarding how to handle such distress once it has arisen (attachment avoidance levels). As such, alternative tasks that focus on the long-term management of attachment distress may be needed to demonstrate the validity of measures related to attachment avoidance. For example, if another thought exercise were to be used, participants could be asked additional questions about how they might attempt to deal with the separation once it had occurred. In summary, both attachment IATs demonstrated some provisional validity by demonstrating moderate relationships with self-reported attachment or hypothetical attachment-related behaviour.

3.3.3 Statistical analysis. The degree of inter-relation between individual attachment variables was assessed using zero-order correlations. Descriptive statistics were calculated according to group for all attachment variables. Differences between these groups were then assessed using ANOVAs.

Multinomial logistic regression (MLR) analysis was used to determine whether the interaction between attachment anxiety and avoidance would aid prediction of group membership. All individual attachment variables, the interaction between self-reported attachment anxiety and avoidance, and the interaction between IAT anxiety and avoidance were entered as potential predictors. Group membership (child-sex offender versus rapist versus offender control versus community control) was used as the categorical outcome. All individual variables were entered at step 1 of the model, in order to satisfy the requirements of a

hierarchically well-formulated model (Jaccard, 2001). The interaction terms were then entered at step 2 of the model, using a backward elimination procedure, such that they would only be retained within the final model if they were found to add significantly to the prediction of group membership. When attempting to demonstrate incremental validity in analyses such as this, backward elimination is considered preferable to forward entry models, due to the potential influence of suppressor effects (when one variable only exerts a significant influence on outcomes once other variables have been held constant; Field, 2009). Log-likelihood ratios were examined to determine which individual or interaction variables aided group prediction. For significant predictors, Wald statistics were then examined to determine which groups could be distinguished based on each predictor. To permit examination of research questions specific to each sexual offender subtype, analyses were run twice, once with child-sex offenders as the reference group against which all others were compared, and again with rapists as the reference group.

To examine the predictive validity of the attachment measures, scores on the OGRS-3 and Static-99R were correlated with each of the IAT and self-report indices of attachment. In addition, linear multiple regression analyses were conducted to a) account for the potential influence of shared variance on these inter-variable relations, b) determine whether the IAT measures demonstrated any incremental validity above that achieved by self-report alone, and c) assess whether the interaction between attachment anxiety and avoidance further aided prediction of recidivism risk. Within these analyses, scores on the OGRS-3 and Static-99R were regressed onto the attachment measures using a 2-step hierarchical forced entry model. Self-reported attachment variables were entered at step 1, followed by

IAT attachment variables and attachment interaction terms at step 2.[22] At each step

of the model, the ΔR^2 value was inspected to determine whether the newly added

variables resulted in a significant improvement in risk outcome prediction. Where

prediction had been significantly improved, individual beta values were examined

to determine which attachment variables demonstrated a unique significant

influence on the risk outcome.

3.4 Results

      3.4.1 Internal reliability of the attachment IATs. The internal consistency

of the attachment IATs was assessed by calculating the split-half reliability of *D*

scores, using an odd-even trial divide. Specifically, *D* scores calculated using all odd

trials were correlated with *D* scores calculated using all even trials to determine the

consistency of reaction times throughout the IAT procedure. Given that dividing a

task into two halves is known to underestimate the resulting reliability coefficients

(Nunnally, 1978), the Spearman-Brown correction was applied to all IAT internal

reliability estimates. As such, all split-half correlations are reported as adjusted *r*

values to reflect this correction. The attachment anxiety IAT demonstrated a split-

half adjusted *r* value of .85, and the attachment avoidance IAT demonstrated a

similar split-half adjusted *r* value of .88. Such values indicate that both attachment

IATs demonstrated good internal reliability within the current investigation.

      3.4.2 Inter-variable correlations. As shown in Table 3.2, across the sample

as a whole, scores on the anxiety and avoidance ECR subscales were moderately

inter-related and scores on the two attachment IATs also demonstrated a small

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[22] In line with the recommendations of Tabachnick & Fidell (2007), all variables
were z scored before entry into the model and the formation of interaction terms.

Table 3.2. Zero-order Correlations between Attachment and Risk Estimate Variables

	(1)	(2)	(3)	(4)	(5)	(6)
(1) ECR Anxiety	-	.47***	.15*	.11	-.10	-.21
(2) ECR Avoidance		-	.04	-.01	-.00	-.09
(3) Anxiety IAT			-	.23**	.11	.16
(4) Avoidance IAT				-	-.17	-.13
(5) OGRS-3 12 Month					-	.56***
(6) Static-99R						-

Note: * $p < .05$. ** $p < .01$. *** $p < .001$. ECR = Experiences in Close Relationships scale. IAT = Implicit Association Test. OGRS = Offender Group Reconviction Scale.

positive correlation with one another. In situations where inter-variable correlations are $r < .60$, Tabachnick and Fidell (2007) recommend use of separate univariate ANOVAs with Bonferroni correction to control for familywise Type I error (adjusted $\alpha = .05$/number of ANOVAs conducted), rather than MANOVA. When examining the predictive validity of the attachment variables, potential shared variance was controlled for by using multivariate regression analyses.

3.4.3 Descriptive statistics and group comparisons. Table 3.3 contains scores for the attachment variables across each experimental group. Examination of these values indicated that all groups demonstrated average ECR subscale scores comparable to norms reported for the updated ECR-R.[23] Average IAT scores also indicated low levels of attachment anxiety and avoidance as, on average, each group demonstrated negative D scores, indicating a stronger association between the self and relational security (relative to anxiety) and between their chosen attachment figure and intimacy (relative to independence). Given the use of a fixed IAT trial block order, however, these averages should not be considered indicative of the absolute level of IAT assessed attachment security among the experimental groups. As a result of this approach, group averages may have been influenced by the effects of cognitive inertia, such that reactions times would generally have been slower during the second, less normative trial pairing (thus increasing the likelihood of participants demonstrating relative attachment security within these measures).

Using the Bonferroni correction for multiple comparisons, group differences were considered significant at $p < .013$ for all attachment variables. No significant

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[23] Available from (http://internal.psychology.illinois.edu/~rcfraley/measures/ecrr.htm). The current investigation refers to population norms for the revised ECR, as it was not possible to obtain such norms for the original ECR.

Table 3.3. Means and Standard Deviations for Attachment Variables across Experimental Groups

Variable	Child-Sex Offenders M (SD)	Rapists M (SD)	Non-Sexual Offenders M (SD)	Community Controls M (SD)
ECR Anxiety	3.26 (1.05)	2.63 (1.17)	3.02 (1.17)	3.16 (0.97)
ECR Avoidance	3.06 (1.15)	2.52 (0.81)	2.94 (1.11)	2.87 (1.06)
Anxiety IAT	-0.48 (0.36)	-0.73 (0.40)	-0.30 (0.30)	-0.44 (0.42)
Avoidance IAT	-0.54 (0.33)	-0.55 (0.49)	-0.48 (0.39)	-0.39 (0.41)

Note: ECR = Experiences in Close Relationships scale. IAT = Implicit Association Test

group differences were noted for ECR anxiety, $F(3, 179) = 1.97$, $p = .120$ or ECR avoidance, $F(3, 179) = 1.00$, $p = .395$. Significant group differences were found for the anxiety IAT, $F(3, 167) = 5.25$, $p = .002$, $\eta_p^2 = .09$. Post-hoc comparisons using Bonferroni correction indicated that this effect was driven by rapists having significantly lower attachment anxiety IAT scores than non-sexual offenders ($p = .001$). There were no significant differences found for the avoidance IAT, $F(3, 150) = 1.46$, $p = .228$.

3.4.4 Sub-sample comparisons. Previous research has indicated that extra-familial child-sex offenders may demonstrate greater attachment dysfunction than intra-familial offenders (e.g., Jamieson & Marshall, 2000). As such, further analyses examined whether heterogeneity in the relationship between offender and victim could be masking otherwise significant group differences in attachment. For each attachment variable, offenders who had offended exclusively against unrelated or stranger victims (extra-familial $n = 28$) were compared to those who had a current or historical conviction against a family member (intra-familial $n = 17$). Intra- and extra-familial child-sex offenders did not demonstrate any differences in self-reported attachment avoidance, $t(43) = -0.82$, $p = .415$, or on either the attachment anxiety, $t(39) = -0.45$, $p = .654$, or attachment avoidance IATs, $t(32) = -0.26$, $p = .798$. A trend was noted where intra-familial child-sex offenders indicated marginally higher levels of self-reported attachment anxiety ($M = 3.76$, $SD = 1.29$), than did extra-familial offenders ($M = 2.93$, $SD = 0.78$), but this difference fell just short of the Bonferroni corrected level of significance, $t(43) = 2.48$, $p = .017$. Such findings suggest that failure to distinguish between intra-familial and extra-familial offenders may have obscured some significant effects concerning self-reported

attachment anxiety within the main analyses, but such a conclusion remains speculative given the increased risk of making a Type I error.

In addition, difficulties regarding relationships and interpersonal functioning are covered as a dynamic risk factor within SOTP (Ministry of Justice, 2010) and almost two thirds of sexual offenders within the current sample had completed some form of SOTP at the time of participation. As such, the potential impact of treatment status on attachment variables was further explored by comparing scores between treated ($n = 40$) and untreated sexual offenders ($n = 25$).[24] Treated and untreated sexual offenders demonstrated no significant differences on either the attachment anxiety, $t(55) = 0.67$, $p = .505$, or attachment avoidance IATs, $t(47) = 0.75$, $p = .717$. Treated offenders did, however, demonstrate significantly lower levels of self-reported attachment anxiety ($M = 2.81$, $SD = 1.05$), than untreated offenders ($M = 3.52$, $SD = 1.09$), $t(62) = -2.63$, $p = .011$, $r = .32$. Treated offenders also demonstrated significantly lower levels of self-reported attachment avoidance ($M = 2.66$, $SD = 1.06$), than untreated offenders ($M = 3.34$, $SD = 1.06$), $t(62) = -2.55$, $p = .013$, $r = .31$. Such findings suggest that differences in treatment exposure may have impacted upon group differences concerning self-reported, but not IAT assessed, levels of attachment security.

3.4.5 Predicting group membership using attachment interaction terms.
Examination of the change in log-likelihood value confirmed that variables retained at the final stage of the MLR model collectively explained a significant amount of variance in group membership, $\chi^2 (15) = 31.62$, $p = .007$. The interaction between

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[24] Treatment status was unknown for one rapist. Given the low number of untreated rapists recruited ($n = 4$), these offenders were combined with child-sex offenders for treatment-based analyses.

ECR anxiety and avoidance was removed by the backward elimination procedure applied at step 2 of the model, as it was found to make a non-significant contribution to group membership, χ^2 (3) = 1.78, p = .619. In contrast, the interaction between scores on the attachment anxiety and avoidance IATs contributed significantly to group membership, and so was retained within the final model. The Pearson and Deviance goodness-of-fit indices both confirmed that the final model was an adequate fit to the data (both p > .05), and examination of the pseudo R^2 statistics indicated that this model accounted for between 19-21% of the variance in group membership.

In line with the previous group comparison analyses, examination of the individual likelihood ratio tests demonstrated that group membership was significantly predicted by score on the attachment anxiety IAT, χ^2 (3) = 13.37, p = .004. In addition, however, this analysis indicated that groups could also be significantly distinguished based on the interaction between scores obtained within the two attachment IATs, χ^2 (3) = 11.06, p = .011. Self-report attachment scores did not predict group membership, either independently, or in combination.

3.4.5.1 Child-sex offenders. When child-sex offenders were used as the reference group, examination of the individual Wald statistics indicated that attachment anxiety IAT scores distinguished child-sex offenders from rapists (OR = 0.47, b = -0.76, Wald χ^2 = 4.04, p = .044), such that having a stronger association between the self and relational security increased the likelihood of belonging to the rapist rather than child-sex offender group. This IAT also distinguished child-sex offenders from non-sexual offenders (OR = 1.82, b = 0.60, Wald χ^2 = 4.20, p = .041), such that having a stronger association between the self and relational security

increased the likelihood of being a child-sex offender rather than a non-sexual

offender.

The interaction between attachment anxiety and avoidance IAT scores

distinguished child-sex offenders from community controls only (OR = 2.20, b =

0.79, Wald χ^2 = 7.02, p = .008). The nature of this interaction was examined using

the MODPROBE macro designed for SPSS by Hayes and Matthes (2009), and is

depicted graphically in Figure 3.2. Analyses analogous to the examination of simple

slopes within multiple regression were used to examine the nature of this interaction.

These analyses confirmed that there was no relationship between anxiety IAT scores

and child-sex offender status at low levels of IAT assessed attachment avoidance

(defined as -1SD; p = .138), and only a trend towards a significant positive

relationship between these variables at high levels of IAT assessed attachment

avoidance (+1SD; p = .069). Based on examination of Figure 3.2, it appears that the

probability of belonging to the child-sex offender category, rather than the

community control category, was lowest when participants demonstrated a

combination of high anxiety and high avoidance within the attachment IAT

measures.

3.4.5.2 Rapists. When rapists were used as the reference category,

attachment anxiety IAT scores distinguished rapists from child-sex offenders (OR =

2.13, b = 0.76, Wald χ^2 = 4.04, p = .044), non-sexual offenders (OR = 3.86, b = 1.35,

Wald χ^2 = 10.99, p = .001), and community controls (OR = 2.33, b = 0.85, Wald χ^2 =

5.06, p = .025). In each instance, participants with a stronger association between

the self and relational security were more likely to belong to the rapist group than the

comparison group.
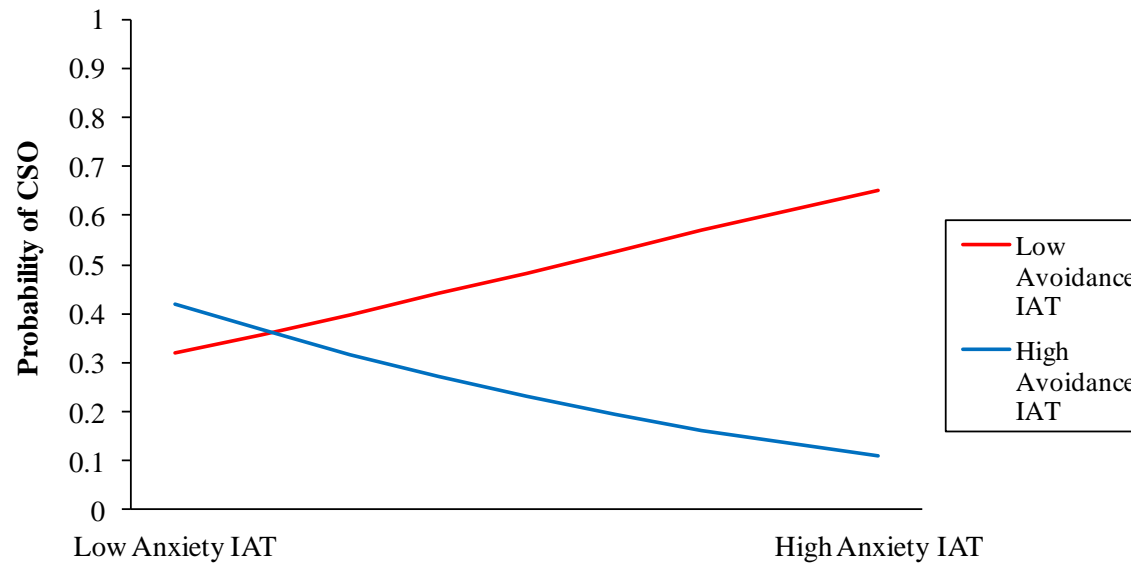
Figure 3.2. Predicted probability of child-sex offender (versus community control) group membership, as a function of anxiety IAT and avoidance IAT scores. CSO = child-sex offender. IAT = Implicit Association Test.
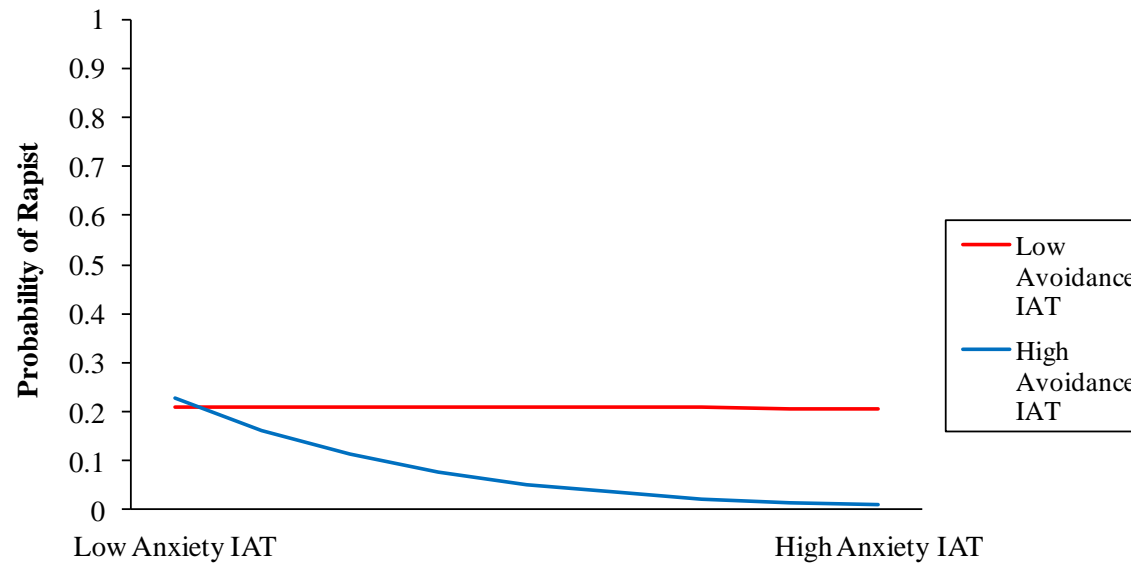
Figure 3.3. Predicted probability of rapist (versus community control) group membership, as a function of anxiety IAT and avoidance IAT

scores. IAT = Implicit Association Test.

The IAT interaction also distinguished rapists from community controls (OR = 2.30, b = 0848, Wald χ^2 = 4.86, p = .027). Use of the MODPROBE macro (Hayes & Matthes, 2009) indicated that, whilst there was no significant relationship between anxiety IAT scores and rapist status at low levels of IAT assessed attachment avoidance (-1SD, p = .565), a significant negative relationship existed between these variables at high levels of IAT assessed avoidance (+1SD, p = .019). This interaction is displayed in Figure 3.3, and indicates that the likelihood of belonging to the rapist group, rather than community control group, was also lowest when participants had a combination of high anxiety and high avoidance within the attachment IATs.

Whilst such effects were seen to reach statistical significance, it should be noted that the final model only managed to correctly classify 44% of participants, indicating poor predictive validity overall. The majority of community controls were classified correctly by the final model (81%), with the remainder misclassified as non-sexual offenders (8%) or child-sex offenders (11%). Only 26% of non-sexual offenders were correctly classified by the model, with 59% being misclassified as community controls and the remaining 15% as child-sex offenders. Similarly, only 8% of rapists were correctly classified, with 77% misclassified as community controls and 15% as child-sex offenders. Finally, only 11% of child-sex offenders were correctly classified by the model, with 69% being misclassified as community controls, 17% as non-sex offenders, and 3% as rapists. Overall, the model tended to over-classify individuals into the largest participant group (the community control group).

3.4.6 Predicting scores on risk assessment measures. Table 3.2 contains the basic zero-order correlations calculated between each of the attachment variables

and scores on the OGRS-3 and Static-99R. These values represent correlations calculated across all participants for whom the risk measure could be validly completed (i.e., OGRS-3 completed for all offenders, Static-99R for all sexual offenders). Given the high degree of correlation between 12 and 24 month predictions of risk on the OGRS-3 ($r = .99$, $p < .001$), only 12 month scores were included within further analyses.[25] Scores on each of the individual attachment variables did not correlate significantly with either Static-99R or OGRS-3 scores.

Multiple regression analysis was used to account for the potential influence of shared variance, and investigate whether the interaction between attachment anxiety and avoidance might improve prediction of risk estimates. Self-report attachment variables did not predict scores on the OGRS-3 at step 1 of the regression model, $F(2, 83) = 1.64$, $p = .199$ and the addition of IAT and interaction terms did not improve prediction at step 2 ($\Delta R^2 = .05$, $p = .412$). Similarly, self-report attachment did not predict Static-99R scores at step 1, $F(2, 42) = 1.14$, $p = .329$ and entering IAT and interaction terms did not improve prediction at step 2 ($\Delta R^2 = .04$, $p = .787$).

3.5 Discussion

3.5.1 Self-report findings. Based on the theorising of Marshall and others (Marshall, 1989; Ward, Hudson, Marshall, & Siegert, 1995), it was predicted that child-sex offenders would demonstrate elevated levels of attachment anxiety, whereas rapists would demonstrate heightened attachment avoidance. If, as originally hypothesised by this theory, attachment represented a specialised risk

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[25] The 12 month scale was considered preferable to the 24 month scale, as it better met the assumptions of parametric analyses.

factor for sexual offending in particular, these different dimensions of attachment dysfunction should have distinguished these sexual offender subtypes from both non-sexual offenders, as well as non-offending community controls. Yet, in line with the findings of several previous studies (e.g., Baker & Beech, 2004; Jamieson & Marshall, 2000; Lu & Lung, 2012), self-reported levels of attachment anxiety and avoidance failed to distinguish between any of the three main offender sub-groups. Perhaps more surprising, was the additional finding that none of the offender groups could be distinguished from community controls in terms of their self-reported attachment functioning. Whilst the existing literature has proven equivocal regarding the role of attachment in sexual offending specifically, recent meta-analytic findings do support the argument that attachment dysfunction acts as a risk factor for offending behaviour and delinquency more generally (Hoeve et al., 2012; Seto & Lalumiere, 2010; Whitaker et al., 2008).

Modifications made to ECR instructions within the current investigation may explain this disparity with previous findings. Participants were asked to focus on one specific attachment figure during completion of this questionnaire, so that the answers provided would be comparable to scores obtained on the personalised attachment avoidance IAT. Pilot testing within undergraduate populations demonstrated that the reliability of this IAT was improved by focusing on a specific attachment relationship, rather than relationships more generally (see section 3.3.2.4), and such an approach reduced the risk of respondents conflating different relationships throughout completion of the avoidance IAT (i.e., switching their focus of attention from one relationship to another during the course of the IAT).

Whilst focusing on a specific attachment figure brought about benefits for administration of the avoidance IAT, it may have affected scores obtained for self-

reported attachment. Use of the WHOTO to select a personalised attachment figure meant that participants would have been focusing on the attachment relationship in which they felt most secure. This may have reduced variation in self-reported anxiety and avoidance and might potentially explain why attachment was found to be unrelated to offending generally, as the measure essentially assessed their most successful attachment relationship, rather than how they felt generally or focusing on more maladaptive attachments. This methodological interpretation of the current discrepancy requires confirmation via additional research comparing the discriminative and predictive validity of attachment assessments that are focused on single attachment relationships, versus those that assess attachment-related functioning more generally.

Alternatively, additional analyses comparing different sub-types of sexual offender suggested that the current null findings may have been influenced by sources of heterogeneity within the present sample. Distinguishing between intra- and extra-familial child-sex offenders was found to have a marginally significant impact on self-reported attachment, such that those who had a history of offending against family members indicated greater anxiety than those who had offended against stranger or unrelated victims exclusively. It should be noted that this effect only trended towards significance once corrections for the use of multiple comparisons had been applied. It also contradicts previous reports of greater attachment insecurity among extra-familial offenders (Jamieson & Marshall, 2000), demonstrating the need for further analysis and replication within larger samples of intra- and extra-familial child-sex offenders.

Similarly, analyses comparing treated and untreated sexual offenders (child-sex offenders and rapists combined) suggested that heterogeneity in treatment exposure

could also have influenced the current null findings concerning self-reported attachment. Treated offenders were found to demonstrate lower levels of both self-reported attachment anxiety and avoidance compared to untreated offenders, suggesting the presence of a treatment effect within the current sample. Whilst such findings are not necessarily surprising (given the focus on developing healthier interpersonal attitudes and behaviour within conventional UK SOTP; Ministry of Justice, 2010), they reiterate the importance of recognising the heterogeneity present within sexual offender samples. It should be noted, however, that the current sub-sample comparisons represent exploratory, post-hoc analyses conducted using relatively small samples, limiting statistical power and increasing the likelihood of making a Type I error. Further research should aim to replicate such findings among larger samples where potential sources of within-group variation can be specified and accounted for within the study design a priori.

Finally, if self-reported attachment is to be considered a clinically meaningful risk factor for sexual and/or general re-offending, it should be seen to predict scores on measures of estimated recidivism risk (Andrews et al., 1990; Mann et al., 2010). Yet, consistent with the findings of previous meta-analyses (e.g., Hanson & Morton-Bourgon, 2005), self-reported attachment did not predict scores on either the OGRS-3 or Static-99R. Such findings add to existing evidence that self-reported attachment dysfunction is unrelated to the maintenance of sexual offending.

3.5.2 IAT findings. Overall, the current self-report findings generally support previous research questioning the specificity and predictive validity of Marshall's attachment theory of sexual offending. Yet, one of the main hypotheses of the current investigation was that such unsupportive findings may be due to issues concerning the use of self-report to measure attachment-related functioning, given

concerns regarding impression management (Bartholomew, 1990) and the presumed automatic nature of the attachment system itself (Bowlby, 1979; Mikulincer & Shaver, 2003). As a result, the main aim of the current investigation was to examine whether use of an indirect assessment paradigm might provide stronger evidence for the specificity and predictive validity of attachment dysfunction as a risk factor for sexual offending.

As such, a pair of IATs were designed to indirectly assess levels of attachment anxiety and avoidance. Results found within the current study, along with earlier pilot work among undergraduate students, suggested that these measures were reliable and demonstrated some provisional construct validity. Against predictions, however, these IATs failed to provide more substantive support for predictions derived from Marshall's (1989) theory than that typically achieved using self-report measures alone. There was no evidence to support predictions that child-sex offenders would show elevated attachment anxiety or that rapists would show elevated attachment avoidance, relative to either non-sexual offenders or community controls using these indirect measures. In contrast to self-reported attachment, it was considered unlikely that these null findings were driven by potential sources of heterogeneity within the current sample, as neither treated/untreated nor intra/extra-familial child-sex offenders could be distinguished based on their scores within the attachment IATs.[26] Again, however, the results of these exploratory, post-hoc

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[26] This result could indicate one of three possible scenarios; 1) automatic aspects of attachment, as indexed by scores on the IATs, may be resistant to the effects of treatment witnessed for self-reported indices of attachment; 2) failure to replicate such treatment effects could signify a lack of validity for the attachment IATs; or 3) the lack of significant differences could be driven by some form of floor effect, as the majority of respondents indicated low levels of anxiety and avoidance within the IAT measures.

comparisons require replication among larger samples that permit a priori analysis of within-group variation.

The only significant difference suggested that rapists were less anxious than non-sexual offenders, as they demonstrated a stronger association between the self and relational security within the attachment anxiety IAT. This finding suggests that rapists may be more secure than non-sexual offenders, contradicting the argument that sexual offenders are especially likely to be characterised by heightened attachment insecurity. Furthermore, the attachment IATs did not improve upon the prediction of Static-99R or OGRS-3 scores over that achieved by self-reported attachment alone. Such findings suggest that, even if significant group differences were demonstrated on the IAT measures, they may lack predictive or clinical utility with regards to the management and reduction of recidivism risk.

3.5.3 The interaction between attachment anxiety and avoidance. Given theoretical and empirical evidence that the interplay between levels of attachment anxiety and avoidance may have additional implications for intra- and inter-personal functioning (Griffin & Bartholomew, 1994b; Hesse & Main, 2000), the predictive properties of the interaction between these two attachment dimensions were also investigated regarding both group membership and scores on measures of estimated recidivism risk. Based on evidence that there are additional emergent difficulties associated with possessing high levels of both attachment anxiety and avoidance in particular (Griffin & Bartholomew, 1994b), it was predicted that offenders with elevated scores on both attachment dimensions would demonstrate the highest scores on measures of recidivism risk. Against predictions, however, the interaction term did not improve prediction of OGRS-3 or Static-99R scores, for either self-reported or IAT assessed attachment. Such null findings suggest that previous failures to

predict recidivism based on the attachment-related functioning of sexual offenders are not simply due to a lack of consideration for the interaction between these two dimensions.

In addition, based on evidence from categorical attachment studies that child-sex offenders are the offender group most likely to be characterised by fearful attachment (Ward et al., 1996), it was predicted that these offenders would be distinguished from other groups by a combination of high anxiety and high avoidance. Examination of the interaction terms indicated that both child-sex offenders and rapists could be distinguished from community controls based on their combined scores within the attachment IATs. Further investigation of these interactive effects revealed a theoretically unanticipated pattern of results, however, as participants with a combination of high anxiety and high avoidance were found to be more likely to belong to the community control group than either the child-sex offender or rapist group. In categorical terms, this finding suggests that community controls were more likely to be fearfully attached than either group of sexual offenders. This finding again suggests that sexual offending is associated with increased attachment security relative to control samples. Such findings are in direct contrast to the predictions made by the attachment theory of sexual offending (Marshall, 1989), casting further doubt on the idea that attachment dysfunction plays a causal role in the commission of sexual crimes.

In addition, such interaction effects were found to discriminate sexual offender subtypes from community controls, but not non-sexual offenders, suggesting they are insufficient to explain why these offenders committed sexual offences in particular, rather than engaging in other forms of criminality. Furthermore, examination of the overall classification success rates indicated that the full

attachment model demonstrated poor prediction of group membership. Coupled with the lack of prediction regarding scores on measures of recidivism risk, such findings suggest that, as well as being theoretically inconsistent, the current interactive IAT effects may have limited utility in terms of clinical practice.

3.5.4 Implications and limitations. Overall, the current findings provide further evidence that attachment-related functioning demonstrates limited specificity and predictive validity as a risk factor for sexual offending and suggest that previous null findings may not simply due to reliance on self-report, or failure to consider the interaction between the different dimensions of attachment. Based on the principles of the RNR model of offender treatment and rehabilitation (Andrews et al., 1990), such findings add to existing evidence that questions the inclusion of attachment-related functioning as a treatment target within SOTP. Such inferences may be somewhat premature, however, given the limitations and preliminary nature of the current investigation.

Firstly, the majority of the current child-sex offender sample were contact offenders who had exclusively victimised female children, identifying them as at low risk for recidivism based on the existing literature (Harris et al., 2003; Hanson and Bussière, 1998). Such characteristics may have limited the ability to detect a significant relationship between aspects of attachment-related functioning and recidivism within the current sample, due to a truncated range of risk scores (Tabachnick & Fidell, 2007). The low-risk nature of the current sample may also be an issue theoretically, as it could be argued that attachment difficulties may only be detectable and meaningfully related to re-offending among more high-risk offenders. The low number of rapists recruited may have similarly compromised the ability to detect significant relations between attachment and this particular form of sexual

offending (see discussion of power in Chapter 6). As such, until analyses using larger samples that capture the full range of recidivism risk are undertaken, the current findings cannot be taken as conclusive evidence against the role of attachment in sexual offending.

Secondly, whilst the attachment IATs managed to demonstrate acceptable reliability, along with some provisional validity within a small cross-sectional pilot study, these measures still require additional verification before we can be confident of their construct validity (i.e., that they are indeed tapping into associations related to attachment anxiety and avoidance). Given the limitations of relying on self-report measures to validate IAT measures (Hofmann et al., 2005), a further study was designed to try and provide additional validation based on observation of couple interactions. Previous research has suggested that, whilst self-report measures are capable of predicting verbal outcomes (such as other self-report measures or what people explicitly say to one another), indirect measures, such as the IAT, are better able to predict non-verbal behaviours (such as body positioning, eye contact, and facial expressions; Dovidio, Kawakami, & Gaertner, 2002).

To explore whether such findings might extend to the domain of attachment and attempt to provide additional validation for the newly devised IATs, couples who had been dating at least six months would be asked to complete the IAT and ECR measures of attachment, along with various self-report indicators of relationship quality and satisfaction. They would then engage in three discussions designed to activate mild attachment-related threat, so that the research team could observe a range of verbal and nonverbal responses that are related to crucial elements of an attachment relationship (Collins & Feeney, 2000; Simpson, Rholes, & Phillips, 1996). Specifically, couples would take it in turns to discuss a personal

problem beyond their relationship (designed to elicit support seeking and support providing behaviours), as well as an ongoing point of conflict within their relationship (designed to elicit conflict resolution skills). Based on previous findings, it was predicted that ECR scores would predict the verbal content of these discussions, as well as the couple's self-reported evaluation of their own behaviour during the discussion, whilst the attachment IATs would predict nonverbal responding as rated by the research team. Whilst provisional pilot testing of this procedure has already been undertaken (couple $n = 4$), due to time constraints, the full study remains to be completed as part of ongoing research conducted by the current research team. Until such further study is undertaken and the IATs can be shown to predict theoretically meaningful attachment-related behaviours, results generated by these measures should continue to be interpreted with caution.

Alternatively, the continued difficulty in finding evidence to support the theorised role of attachment in sexual offending may be due to the way in which attachment is typically conceptualised as a risk factor. For example, the vast majority of offender studies, including the current investigation, have opted to examine predictions based on distinctions between different offender types (i.e., child-sex offender or rapist versus non-sexual offender; e.g., Baker & Beech, 2004; Smallbone & Dadds, 1998; Ward et al., 1996). Yet, other research has suggested that attachment may be more likely to influence the particular characteristics of a sexual offence, rather than offence type per se. For example, Ward et al. (1995) theorised that anxiously attached offenders might be more likely to engage in grooming behaviours, be interested in establishing a relationship with the victim, and be less likely to use violence, due to beliefs regarding the mutuality of the abusive relationship. In contrast, avoidant offenders were conceptualised as less interested in

forming a relationship with the victim and more likely to engage in coercion or violence to achieve their goals. In support of such reasoning, Jamieson and Marshall (2000) found greater use of threats and physical violence among child-sex offenders with higher levels of attachment avoidance. Thus, whilst empirical studies may fail to distinguish discrete offender subtypes based on their attachment-related functioning, such characteristics may nonetheless play a crucial role in how sexual crimes are enacted. As such, attachment may still warrant continued attention within treatment programmes designed to reduce the incidence of sexual offending.

Finally, research in this area may need to move beyond consideration of attachment-related functioning in isolation. For example, Rich (2005) proposed that other intra- or inter-personal factors, such as low self-esteem, poor social skills, or a lack of empathy, might interact with attachment-related functioning to influence the onset and expression of sexual offending behaviour. As an example of some indirect support for this idea, Craissati and Beech (2006) found that an accumulation of two or more developmental risk factors proved particularly powerful at predicting completion of community based SOTP. Further research, utilising both direct and indirect measures of attachment, should seek to examine whether similar effects can be found when considering the prediction of group membership and estimated risk of recidivism among such offenders.

To conclude, whilst use of the IAT paradigm and consideration of the interaction between the different dimensions of attachment currently failed to provide more substantive evidence for the role of attachment in sexual offending, there remain many avenues to explore before attachment is discredited as a risk factor for such crimes. Firstly, further research should seek to resolve the methodological concerns raised regarding both the self-report and IAT measures

currently used, as well as the more general limitations of the present study overall

(discussed in section 6.3). Secondly, research using both direct and indirect

measures should seek to move towards more comprehensive and multi-faceted

consideration of the role played by attachment in sexual offending, examining more

fine-grained relationships with various offence characteristics, and potential

interactions with other risk factors.

Chapter 4: Self-Esteem and Sexual Offending

4.1 Introduction

    4.1.1 Self-esteem. Self-esteem represents a relatively pervasive "personal judgement of worthiness", based on attitudes held regarding the self (Coopersmith, 1981, p. 5). Such self-related attitudes are thought to be heavily influenced by the quality of early interpersonal experiences, especially those with parents, who provide crucial feedback about our self-worth and value (Mischel, 1981). The enduring impact of these early experiences may be a result of the universal human desire to experience psychological consistency, such that people often behave in a manner that serves to maintain their existing level of self-esteem (Tice, 1993). Levels of self-esteem have been shown to affect a wide variety of human functions, including emotion, motivation, behaviour and cognitive processing (Campbell & Lavallee, 1993), and positive self esteem has long been considered of central importance to psychological well-being (Freud, 1940; Rogers, 1959). In contrast, low self-esteem has been linked with a variety of adverse outcomes, including poorer physical and mental health, financial difficulty, and increased criminality (Trzesniewski et al., 2006).

    4.1.2 Self-esteem and sexual offending. Marshall and colleagues were among the first to suggest that low self-esteem may increase the risk of sexual offending in particular (Marshall, Anderson, & Champagne, 1997). As a brief overview, it is well documented that sexual offenders are often raised in homes characterised by high levels of developmental adversity (i.e., exposure to parental abuse, rejection, or neglect; e.g., Craissati et al., 2002; Hazelwood & Warren, 1989; McCormack et al., 2002) and that such experiences typically result in low levels of

self-esteem (e.g., Mischel, 1981). Such negative self-attitudes are thought to contribute to a range of deficits in cognitive and emotional functioning, that then serve to either inhibit effective interpersonal interactions or limit the value derived from them (Marshall, 1997). For example, people with low self-esteem are known to respond more negatively to external social feedback, seek out partners similarly low in self-approval, and exhibit a range of deficits during social interactions (e.g., Byrne, 1971; Campbell, 1990; Rosenberg, 1989). Each of these deficits are thought to reduce the likelihood of initiating and maintaining successful romantic relationships, causing the individual to feel constant dissatisfaction, generating negative attitudes towards other adults, and serving to perpetuate their already low levels of self-regard (Marshall, Anderson et al., 1997). According to Marshall, Anderson et al. (1997), such experiences increase the propensity for offenders to try and satisfy their sexual needs in a way that places minimal demands on interpersonal skill and provides a sense of power or control that they otherwise lack (i.e., by seeking a non-threatening child partner or resorting to coercion).

Theoretical links have also been made between low self-esteem and the maintenance of sexual offending. It is assumed that such offenders are aware their behaviour violates social and moral norms and that this awareness would likely result in further erosion of their self-esteem (Marshall, Anderson et al., 1997). To avoid this vicious cycle, sexual offenders are thought to develop cognitive strategies that minimise the impact of offending on their own self-esteem, yet increase the risk of repeating the offensive behaviour itself. For example, they may develop post-offence justifications or excuses for their behaviour (Marshall, Marshall, Serran, & O'Brien, 2009) or avoid the experience and expression of empathy to minimise their

awareness of the harm caused to victims (Marshall, Champagne, Brown, & Miller, 1997).

Low self-esteem may also contribute to the maintenance of sexual offending indirectly, by causing undesirable barriers to the successful treatment of other risk factors (Marshall, Champagne, Sturgeon, & Bryce, 1997). Individuals with low self-esteem are known to be reluctant to commit to change, try new behaviours, or accept new beliefs (e.g., Baumeister, Tice, & Hutton, 1989; Mayo, 1978), all key components of the cognitive restructuring approach typically used within contemporary Sex Offender Treatment Programmes (SOTP; Gannon & Polaschek, 2006). They are also unlikely to practice new skills, are easily discouraged, and generally expect to fail in their endeavours (e.g., Heatherton & Ambady, 1993; Shrauger, 1975; Tice, 1993), which may further undermine therapeutic progress (Marshall, Champagne, Sturgeon et al., 1997). Such findings led Marshall, Anderson et al. (1997) to suggest that treatment programmes should contain specialised modules designed to try and increase self-esteem among sexual offenders, by providing opportunities for the mastery of new skills and focusing on existing strengths, within a supportive, yet appropriately challenging, therapeutic environment. In support of such assertions, Marshall and colleagues found that treatment incorporating a self-esteem module resulted in increased intimacy and reduced loneliness compared to baseline levels at pre-treatment (Marshall, Champagne, Sturgeon et al., 1997). The same treatment programme was also linked with reduced phalometric responses to deviant sexual stimuli, despite having never targeted such interests directly (Marshall, 1997).

4.1.2.1 Empirical evidence. In support of the theory put forward by Marshall and colleagues, Pithers, Beal, Armstrong, and Petty (1989) reported that 61% of

child-sex offenders listed feelings of low self-esteem as an immediate precursor to their offending. In addition, several studies have demonstrated that sexual offenders report lower levels of self-esteem than non-offending community controls and/or other non-sexual offenders, particularly in the domain of social self-esteem (e.g., Marshall, Cripps, Anderson, & Cortoni, 1999; Marshall & Mazzucco, 1995; Webster, Mann, Thornton, & Wakeling, 2007).

Existing evidence does seem to suggest, however, that low self-esteem may be more characteristic of child-sex offenders than rapists. For example, Webster et al. (2007) found that rapists had higher social self-esteem than intra-familial child-sex offenders or extra-familial offenders with male victims. In addition, both Fernandez and Marshall (2003) and Pervan and Hunter (2007) found that rapists could not be distinguished from community controls in terms of self-esteem. Marshall et al. (2009) highlighted that rapists seem to display a bi-modal distribution of self-esteem scores, with around one third indicating scores above the population average, whilst the remainder demonstrate lowered levels, comparable to those seen among child-sex offenders. Whilst not all studies achieve distinction between different offender subtypes (e.g., study 2 in Marshall, Marshall, Sachdev, & Kruger, 2003; Shine, McCloskey, & Newton, 2002), meta-analytic evidence does seem to suggest that low self-esteem may be especially characteristic of child-sex offenders, among both adult and adolescent offenders (Seto & Lalumiere, 2010; Whitaker et al., 2008).

Due to the predominance of studies involving incarcerated offenders, concerns have been raised that such group differences may have developed in response to the stigma and shame associated with being publically identified as a child-sex offender, thus representing a consequence rather than cause of offending

(Shine et al., 2002). Yet, evidence from a prospective birth cohort study suggests that deficits in self-esteem may in fact be causally related to the onset of sexual offending, as adolescents with lower self-esteem were more likely to be convicted of violent offences in adulthood (including rape and breach of non-molestation order), even after accounting for gender, socioeconomic status, and levels of depression (Trzesniewski et al., 2006).[27]

Some studies also provide support for the role of self-esteem in the maintenance of sexual offending. For example, several studies have demonstrated that offenders rated as being at higher risk for sexual recidivism, or indicating greater sexual deviancy, report lower levels of self-esteem than those predicted to be at lower risk for re-offending, or indicating lower levels of sexual deviancy (Beech, Fisher, & Beckett, 1998; Smith, Wampler, Jones, & Reifman, 2005; Webster et al., 2007). More compelling still, are findings that lower self-esteem predicted higher rates of actual recidivism after release, within two separate recidivism studies (Barnett et al., 2012; Thornton, Beech, & Marshall, 2004). Barnett et al. (2012) also demonstrated that post-treatment self-esteem scores added incrementally to the level of prediction achieved by a static risk assessment measure (the RM2000), further demonstrating the potential importance of self-esteem in the maintenance of sexual offending. These two studies do provide conflicting information regarding whether pre- or post-treatment levels of self-esteem were more strongly related to rates of recidivism, however, demonstrating the provisional nature of such findings and the need for further replication of the effects reported.

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[27] It should be noted, however, that this study was later criticised for failing to control for other potentially important family functioning variables (Thomaes & Bushman, 2011).

4.1.2.2 Issues with predictive validity. Whilst providing some encouraging

results, the existing literature is typically interpreted as evidence against the

inclusion of self-esteem as a criminogenic treatment need for sexual offending. This

seems to be influenced, primarily, by the results of meta-analytic recidivism studies

that fail to demonstrate a link between self-esteem and rates of re-offending. For

example, Andrews and Bonta (1998) found low self-esteem to be only a minor

predictor of sexual recidivism and thus labelled it a *minor criminogenic need*.

Similarly, Hanson and Morton-Bourgon (2005) found no evidence of a link between

self-esteem and either sexual or violent re-offending among sexual offenders. In

summarising the preceding meta-analytic literature, Mann et al. (2010) commented

that self-esteem was generally unsupported as a sexual recidivism risk factor.

According to the principles of the Risk-Need-Responsivity (RNR) Model (Andrews

et al., 1990), low self-esteem should not be considered a criminogenic need based on

such findings. These conclusions are mirrored in the absence of self-esteem within

recent lists of recommended SOTP targets (Ministry of Justice, 2010).

4.1.3 Implicit self-esteem.

4.1.3.1 Limitations of self-report. As discussed in Chapter 1, however, there

are limitations to the information that can be obtained via self-report measures.

Impression management may be of particular concern within the self-esteem

literature, as evidence suggests that people try to mask low self-esteem within

questionnaires (Walker & Knauer, 2011) and that individuals with high self-esteem

tend to overestimate their good qualities, whilst underplaying their negative ones

(Baumeister, Campbell, Kruger, & Vohs, 2003). In addition, whilst self-report

measures of self-esteem have demonstrated links with a range of intra- and inter-

personal outcomes, including aggression (e.g., Donnellan, Trzesniewski, Robins,

Moffitt, & Caspi, 2005), relationship satisfaction (Swann, Hixon, & De LaRonde, 1992), and even mental and physical health (Trzesniewski et al., 2006), evidence suggests there may be other, equally important, aspects of self-esteem that are relatively automatic in nature and thus inaccessible to conscious introspection (Greenwald & Banaji, 1995). Such reasoning has led to the use of indirect measures to try and tap into more automatic aspects of self-evaluation and the advent of *implicit self-esteem* as a psychological construct.[28]

4.1.3.2 Measuring implicit self-esteem. The self-esteem Implicit Association Test (IAT) represents one of the most popular measures of implicit self-esteem (Greenwald & Farnham, 2000). In this task, respondents are typically presented with a series of self-relevant versus self-irrelevant words, along with some form of positive versus negative attribute categories, such as love versus hate, good versus bad, or pleasant versus unpleasant. High implicit self-esteem is inferred when respondents are faster to categorise self-related terms when paired with positive rather than negative attribute terms, whereas low implicit self-esteem is inferred when faster responding is observed during trials where the self is paired with negative terms.

Results generated by the self-esteem IAT often fail to correlate with more traditional self-report measures of self-esteem (commonly referred to as *explicit self-esteem*; e.g., Bosson, Swann, & Pennebaker, 2000; Hofmann et al., 2005). Such divergence is typically interpreted as support for dual-process models of cognition

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[28] Whilst the aforementioned limitations of describing constructs as implicit continue to be acknowledged (see Footnote 2), the term implicit self-esteem was adopted throughout this empirical chapter, due to its dominance throughout the literature associated with this particular psychological construct.

(see Chapter 1) and may be due to each form of self-esteem being influenced by different cognitive processes (e.g., whereas explicit self attitudes are thought to be the result of logical and conscious analysis of self-relevant information, implicit self-esteem is considered the product of more spontaneous reactions to self-relevant affective experiences; Bosson, Brown, Zeigler-Hill, & Swann, 2003). Indeed, despite facing ongoing critique regarding it's convergent and construct validity (e.g., Bosson et al., 2000; Buhrmester, Blanton, & Swann, 2011), the self-esteem IAT has continued to gather empirical support, demonstrating relatively strong psychometric properties and the ability to predict distinct aspects of human behaviour, where explicit self-esteem has previously failed.

For example, a recent double dissociation demonstrated that, whilst explicit self-esteem predicted self-reported anxiety and more controlled aspects of observed non-verbal behaviour (i.e., illustrators), scores on a self-esteem IAT predicted observer rated anxiety and more spontaneous aspects of observed non-verbal behaviour (i.e., adaptors; Rudolph, Schröder-Abé, Riketta, & Schütz, 2010). Such findings suggest that, whilst measuring distinct forms of self evaluation, both explicit and implicit self-esteem are able to demonstrate relationships with meaningful aspects of human behaviour and implicit self-esteem may exert greater influence during situations where the individual has little motivation or opportunity to engage in deliberative processing (e.g., Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003). Therefore, by failing to examine implicit as well as explicit self-esteem, research that aims to understand its role in sexual offending may be neglecting some crucial elements of self-evaluation.

4.1.3.3 Links with aggression. Whilst measures of implicit self-esteem have been widely utilised within the broader social-cognitive literature, research

concerning its potential role in offending, or even aggression more generally, remains very much in its infancy. To date, only two studies have examined the role of implicit self-esteem in aggression. In a sample of secondary school-aged children, Sandstrom and Jordan (2008) failed to find a main effect of implicit (or explicit) self-esteem on levels of teacher rated physical or relational aggression. Similarly, among a sample of university students, implicit self-esteem demonstrated only a trend towards predicting levels of indirect aggression and neither explicit nor implicit self-esteem predicted levels of direct aggression within this sample (Amad, Pepper, Gray, & Snowden, in preparation). Crucially, however, both studies found evidence of a significant interaction between explicit and implicit self-esteem in predicting aggression, suggesting the relationship between these two constructs may be more complicated than initially conceived. Indeed, research from the wider social-cognitive literature suggests that, in order to provide a comprehensive understanding of the impact of self-esteem on human behaviour, research must consider not only both explicit and implicit self-esteem individually, but also the interaction between these two aspects of self-evaluation (Jordan et al., 2003).

4.1.4 Interactions between explicit and implicit self-esteem.

4.1.4.1 Fragile high self-esteem. Whilst related to several indicators of positive adjustment and wellbeing (such as greater task persistence, higher life satisfaction, and less depression), high self-esteem has also demonstrated links with a range of negative outcomes, such as prejudice, defensiveness, and even aggression or violence (Jordan et al., 2003). Indeed, whilst research among sexual offenders has focused on links with low self-esteem, the literature on violent offending has demonstrated evidence that such behaviour can be related to both low and high levels of self-esteem (Ostrowsky, 2010). In an attempt to resolve such

inconsistency, researchers began to emphasise the distinction between secure and fragile forms of high self-esteem. Whilst *secure high self-esteem* describes individuals who are secure and confident in their self-worth, *fragile high self-esteem* describes those whose outward self-assurance masks unconscious feelings of inadequacy and self-doubt (Jordan et al., 2003). Those with fragile high self-esteem are considered more vulnerable to experiences that threaten their inflated, yet unstable, sense of self-worth and may be more likely to display the negative outcomes associated with high explicit self-esteem (Baumeister, Smart, & Boden, 1996).

Following the development of indirect measurement tools, fragile high self-esteem has been conceptualised as a combination of high explicit and low implicit self-esteem (Jordan et al., 2003). As a result, it has been suggested that differences in implicit self-esteem might help distinguish between individuals who experience the positive versus negative outcomes associated with high explicit self-esteem (Bosson et al., 2003). In support of such claims, fragile high self-esteem has been linked with higher rates of defensiveness, narcissism, and anger suppression than secure high self-esteem (Haddock & Gebauer, 2011; Jordan et al., 2003; Schröder-Abé, Rudolph, & Schütz, 2007; Zeigler-Hill, 2006). As such, evidence suggests that the interaction between explicit and implicit self-esteem may possess some emergent predictive properties that are not observed when either index is considered in isolation.

The construct of fragile high self-esteem may also help to resolve the seemingly paradoxical association between high explicit self-esteem and violence. In order to prevent increased awareness of their underlying self-doubts, individuals with a fragile sense of self-worth are argued to respond to criticism or other forms of

ego threat with a range of antagonistic behaviours, up to and including violence

(Bushman & Baumeister, 1998; Jordan et al., 2003). Thus, critically, it is a

combination of outward bravado and underlying self-doubt that is considered

necessary to increase the risk of violence amongst those with high explicit self-

esteem (Walker & Bright, 2009). In support of such claims, whilst failing to find a

significant main effect of either explicit or implicit self-esteem in isolation,

Sandstrom and Jordan (2008) found that both physical and relational aggression

among children could be predicted from a combination of high explicit and low

implicit self-esteem (fragile high self-esteem). These authors argued that heightened

vulnerability to aggression may be the result of the cognitive and emotional demands

associated with trying to maintain high explicit self-esteem in the face of underlying

implicit self-doubts.

 4.1.4.2 Damaged self-esteem. Whilst the majority of self-esteem

discrepancy research has focused on the combination of high explicit and low

implicit self-esteem, Schröder-Abé, Rudolph, and Schütz (2007) argued that any

discrepancy between internal mental states or attitudes is likely to be aversive and

suggested the reverse discrepancy may also lead to maladaptive outcomes. These

authors coined the term *damaged self-esteem* to describe the combination of low

explicit and high implicit self-esteem and suggested it may be associated with

underlying feelings of entitlement or unfulfilled potential, resulting from failure to

actualise initially high expectations for the self (Schröder-Abé, Rudolph, Wiesner, &

Schultz, 2007). In support of the reasoning that either form of self-esteem

discrepancy may lead to negative outcomes, these authors demonstrated links

between damaged self-esteem and defensive processing of social information,

elevated rates of anger suppression and depressive attributional style, and more days

of impaired health within the last year (Schröder-Abé, Rudolph, & Schütz, 2007; Schröder-Abé, Rudolph, Wiesner et al., 2007). Further research has also linked damaged self-esteem to higher rates of Borderline Personality Disorder symptomology, demonstrating its potential utility among clinical, as well as normative, populations (Vater, Schröder-Abé, Schultz, Class-Hinrich, & Roepke, 2010).

Some provisional research also links damaged self-esteem to certain forms of aggression. For example, Sandstrom and Jordan (2008) noted that children with damaged self-esteem also had higher levels of relational aggression than those with *congruent low self-esteem* (a combination of low explicit and low implicit self-esteem), though this comparison was not formally analysed within their study. In addition, Amad et al. (in preparation) found that the main effect of implicit self-esteem on levels of indirect aggression was qualified by an interaction with explicit self-esteem, such that those with damaged self-esteem demonstrated higher levels of indirect aggression than those with congruent low self-esteem.

4.2 Aims of this chapter

In summary, provisional evidence suggests that implicit self-esteem may play a role in some forms of aggressive behaviour. Yet, further research is needed to examine the individual and interactive influence of implicit self-esteem on offending behaviour specifically, as aggression and delinquency are considered conceptually distinct constructs, demonstrating unique developmental trajectories and resulting from different risk factors (Hoeve et al., 2012). As such, the current investigation aimed to be the first to examine the role of implicit self-esteem in sexual offending, both independently and in interaction with levels of explicit self-esteem. Whilst the existing literature has found fairly consistent evidence that child-sex offenders

demonstrate lowered explicit self-esteem relative to non-sexual offenders and community controls, evidence regarding rapists appears less consistent (Marshall et al., 2009). In addition, measures of explicit self-esteem have failed to provide consistent prediction of recidivism within meta-analytic studies, leading to concerns that low self-esteem may not be related to the maintenance of sexual offending (Hanson & Morton-Bourgon, 2005; Mann et al., 2010). The current investigation sought to determine whether such inconsistencies might be due to the previous literature relying solely on explicit measures of self-esteem, thus neglecting the potentially important effects of more automated forms of self-evaluation and leaving results open to the influence of impression management. Given the lack of previous research concerning the role of implicit self-esteem in offending behaviour, the current investigation remained exploratory in nature and made only tentative hypotheses concerning group differences and the prediction of recidivism risk scores.

Firstly, theoretical reasoning suggests that the construct of fragile high self-esteem may help resolve the empirical inconsistency surrounding self-esteem among rapists. During their initial description of falsely inflated self-esteem, Baumesiter et al. (1996) referred to the work of Groth (1979), who described pathways to rape where the offence is preceded by a blow to the perpetrators self-esteem, such that he feels undermined and uses the offence to restore a sense of power, control, identity, and self-worth. Such an account bears striking resemblance to theories and evidence linking violence with fragile high self-esteem and suggests that such unstable forms of high self-esteem may also be implicated in the commission of rape (Baumeister et al., 1996). This may help to explain why some rapists are found to demonstrate unexpectedly high levels of explicit self-esteem (Marshall et al., 2009). As such, it

was tentatively predicted that rapists would be characterised by a combination of high explicit and low implicit self-esteem.

In contrast, theoretical and empirical evidence continues to link child-sex offending with low self-esteem, as feelings of personal inadequacy are thought to motivate selection of a child victim (Marshall, Anderson et al., 1997; Seto & Lalumiere, 2010; Whitaker et al., 2008). This lack of self-regard may extend across both explicit and implicit self-esteem, such that child-sex offenders might be expected to demonstrate congruent low self-esteem. Alternatively, implicit self-esteem may also moderate the relationship between low explicit self-esteem and sexual offending against children. Recent evidence suggests that, whilst interpersonally ineffectual, child-sex offenders also harbour feelings of entitlement towards their victims or sexual activity in general (Pemberton & Wakeling, 2009). A combination of outward self-derision and an underlying sense of entitlement is thought to be particularly characteristic of damaged self-esteem (Schröder-Abé, Rudolph, Wiesner et al., 2007). As such, it was also tentatively predicted that child-sex offenders would be characterised by a combination of low explicit and high implicit self-esteem.

Given the theoretical and empirical importance of more automated forms of self-evaluation, implicit self-esteem may also contribute to the prediction of recidivism risk among sexual offenders. Based on evidence of double dissociations within the broader social-cognitive literature, implicit self-esteem may provide independent prediction of estimated risk of recidivism, where explicit self-esteem has previously failed. Alternatively, the interaction between explicit and implicit self-esteem may prove most important in predicting estimated risk of recidivism. Given that both fragile and damaged forms of self-esteem have demonstrated

relationships with adverse outcomes (e.g., Schröder-Abé, Rudolph, & Schütz, 2007), it may be that a discrepancy in either direction increases the estimated risk of re-offending. Alternatively, increased recidivism risk may be linked to a specific form of discrepancy based on sexual offender sub-type. For example, fragile high self-esteem may increase the risk of recidivism among rapists, yet damaged self-esteem may increase this risk among child-sex offenders. Given the lack of preceding literature in this area, these accounts remain speculative and it was not possible to distinguish between them a priori.

4.3 Method

4.3.1 Participants. For the current analyses, participants were grouped as child-sex offenders ($n = 48$), rapists ($n = 18$), non-sexual offenders ($n = 49$), and non-offending community controls ($n = 70$). Section 2.4 provides a description of the demographic characteristics of each experimental group.

4.3.2 Measures.

4.3.2.1 Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1989; see Appendix K). Explicit self-esteem was assessed using the RSES, a 10-item questionnaire that provides an overall estimate of self-reported global self-esteem (e.g., "On the whole, I am satisfied with myself"). Respondents were asked to indicate the extent to which each item characterised their self-related attitudes, on a scale of 1 (*strongly agree*) to 4 (*strongly disagree*). Higher scores indicated the presence of higher explicit self-esteem. The RSES is one of the most widely used measures of explicit self-esteem and is even considered the standard against which newly developed measures should be evaluated, due to its brevity, ease of administration, and interpretability (Blascovich & Tomaka, 1991). It has also

demonstrated strong psychometric properties within previous research ($\alpha = .85-.88$; Rosenberg, 1989).

4.3.2.2 Self-Esteem IAT (see Appendix J). Implicit self-esteem was assessed using an ideographic self-esteem IAT (Greenwald & Farnham, 2000) that examined whether respondents more strongly associated themselves with love or hate. Participants were presented with a series of words related to the target categories of *me* versus *not-me* and the attribute categories of *love* (e.g., "adore", "nice", "good") and *hate* (e.g., "disgust", "horrible", "nasty"). Stimuli for the personalised me and not-me categories were the same as those described for the attachment anxiety IAT (see section 3.3.2.2). Response times were compared between trials when me was paired with love (and not-me with hate) and when the opposite response contingency was required. Faster responding when self-referential terms were paired with love relative to hate produced a positive *D* score, indicative of high implicit self-esteem. In contrast, faster responding when self-referential terms were paired with hate produced a negative *D* score, indicative of low implicit self-esteem. Variants of the self-esteem IAT typically demonstrate acceptable levels of both internal and test re-test reliability (e.g., split-half reliability $r = .75-.85$, test re-test reliability $r = .54$; Krause, Back, Egloff, & Schmukle, 2011; Rudolph, Schröder-Abé, Schütz, Gregg, & Sedikides, 2008).

4.3.3 Statistical analyses. The degree of inter-relation between explicit and implicit self-esteem scores was assessed using zero-order correlations. Descriptive statistics were calculated according to group for both self-esteem variables. Differences between these groups were then assessed using ANOVAs.

Multinomial logistic regression (MLR) analysis was used to determine whether the interaction between explicit and implicit self-esteem aided prediction of group membership. Both individual self-esteem variables and their interaction were entered as potential predictors. Group membership (child-sex offender versus rapist versus offender control versus community control) was used as the categorical outcome. All individual variables were entered at step 1 of the model, in order to satisfy the requirements of a hierarchically well-formulated model (Jaccard, 2001). The interaction term was then entered at step 2 of the model, using a backward elimination procedure, such that it would only be retained within the final model if it added significantly to the prediction of group membership. Log-likelihood ratios were examined to determine which variables aided group prediction. For significant predictors, Wald statistics were then examined to determine which groups could be distinguished based on each predictor. In order to permit examination of research questions specific to each sexual offender sub-type, analyses were run twice, once with child-sex offenders as the reference group against which all others were compared and again with rapists as the reference group.

To examine the predictive validity of the self-esteem measures, scores on the OGRS-3 and Static-99R were correlated with both the RSES and self-esteem IAT. In addition, linear multiple regression analyses were conducted to a) determine whether the self-esteem IAT demonstrated incremental validity above that achieved by self-report alone, and b) whether the interaction between explicit and implicit self-esteem further aided prediction of recidivism risk. For each analysis, scores on the OGRS-3 and Static-99R were regressed onto the self-esteem measures using a 2-step hierarchical forced entry model. Individual explicit and implicit self-esteem scores were entered at step 1, followed by the explicit-implicit interaction term at

step 2.[29] At each step of the model, the ΔR^2 value was inspected to determine whether the newly added variables resulted in a significant improvement in risk outcome prediction. Where prediction had been significantly improved, individual beta values were examined to determine which self-esteem variables demonstrated a unique significant influence on the risk outcome.

4.4 Results

    4.4.1 Internal reliability of the self-esteem IAT. The internal consistency of the self-esteem IAT was assessed by calculating the split-half reliability of D scores, using an odd-even trial divide. Using the Spearman-Brown correction for reliability estimates involving sub-divided tasks, the self-esteem IAT demonstrated a split-half adjusted r value of .86, indicating good internal reliability.

    4.4.2 Inter-variable correlations. As shown in Table 4.1, and consistent with the findings of several previous studies, explicit and implicit self-esteem scores were found to be unrelated within the current sample.

Table 4.1. Zero-order Correlations between Self-Esteem and Risk Estimate Variables

Variable	(1)	(2)	(3)	(4)
(1) RSES	-	-.004	.06	.18
(2) Self-Esteem IAT		-	.14	.05
(3) OGRS-3			-	.56***
(4) Static-99R				-

Note: *** $p < .001$. RSES = Rosenberg Self-Esteem Scale.
IAT = Implicit Association Test.

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[29] In line with the recommendations of Tabachnick & Fidell (2007), all variables were z scored before entry into the model and the formation of interaction terms.

4.4.3 Descriptive statistics and group comparisons. Table 4.2 contains average scores on the explicit and implicit self-esteem measures for each experimental group. Examination of these averages indicated that all groups demonstrated scores within the normative range reported for the RSES (Rosenberg, 1989). In addition, average self-esteem IAT *D* scores were positive for each group, indicating a stronger association between the self and love (relative to hate), suggesting a prevalence of high implicit self-esteem on average. As discussed in Chapter 3, however, given the use of a fixed trial block order and the potential influence of cognitive inertia within the self + hate trial blocks, these averages should not be considered indicative of absolute implicit self-esteem levels among the experimental groups. Using the Bonferroni correction for multiple comparisons, group differences were considered significant at $p < .025$. No significant group differences were noted on either the RSES, $F(3, 178) = 0.87$, $p = .461$ or the self-esteem IAT, $H(3) = 2.70$, $p = .440$.

4.4.4 Predicting group membership using the interaction between explicit and implicit self-esteem. Examination of the change in the log-likelihood value indicated that, collectively, self-esteem variables did not explain a significant amount of variance in group membership, $\chi^2 (6) = 4.23$, $p = .645$. In addition, the interaction between explicit and implicit self-esteem was removed by the backward elimination procedure applied at step 2 of the model, as it was made a non-significant contribution to group membership , $\chi^2 (6) = 1.61$, $p = .658$. Given that the overall model was found to be non-significant, further examination of individual likelihood ratio tests and Wald statistics was not appropriate.

Table 4.2. Means and Standard Deviations for Self-Esteem Variables across

Experimental Groups

Variable	Child-Sex Offender M (SD)	Rapist M (SD)	Non-Sexual Offender M (SD)	Community Control M (SD)
RSES Self-Esteem	19.99 (5.11)	21.07 (6.52)	21.53 (6.02)	21.01 (5.14)
IAT	0.55 (0.37)	0.51 (0.27)	0.49 (0.43)	0.44 (0.37)

Note: RSES = Rosenberg Self-Esteem Scale. IAT = Implicit Association Test

4.4.5 Predicting scores on risk assessment measures. Table 4.1 contains

the basic zero-order correlations calculated between both the RSES and self-esteem

IAT and scores on the OGRS-3 and Static-99R. These values represent correlations

calculated across all participants for whom the risk measure could be validly

completed (i.e., OGRS-3 completed for all offenders, Static-99R for all sexual

offenders). Given the high degree of correlation between 12 and 24 month

predictions of risk on the OGRS-3 ($r = .99$, $p < .001$), only 12 month scores were

included within further analyses.[30] Neither explicit nor implicit self-esteem was

found to correlate with scores on either the OGRS-3 or Static-99R.

Multiple regression analysis was used to investigate whether the interaction

between explicit and implicit self-esteem might improve prediction of risk estimates.

Individual self-esteem variables did not predict scores on the OGRS-3 at step 1 of

the regression model, $F(2, 99) = 1.00$, $p = .372$ and addition of the interaction term

did not improve prediction at step 2 ($\Delta R^2 = .004$, $p = .511$). Similarly, when entered

at step 1 of the regression model, individual self-esteem variables did not predict

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[30] The 12 month scale was considered preferable to the 24 month scale, as it better
met the assumptions of parametric analyses.

Static-99R scores, $F(2, 50) = 1.42$, $p = .251$ and entering the interaction term did not improve prediction at step 2 ($\Delta R^2 = .03$, $p = .257$).

To determine whether the influence of self-esteem discrepancies varied according to offender sub-type, risk measure regression models were re-run using data from the child-sex offenders only.[31] Even when restricted to a single sexual offender sub-group, however, neither self-esteem variables individually, nor their interaction, demonstrated a significant influence on OGRS-3 scores, step 1 $F(2, 42) = 1.06$, $p = .355$; step 2 $\Delta R^2 = .00$, $p = .940$. The same pattern of non-significance was also observed for prediction of Static-99R scores among child-sex offenders only, step 1 $F(2, 38) = 1.79$, $p = .760$; step 2 $\Delta R^2 = .01$, $p = .569$.

4.5 Discussion

4.5.1 Explicit self-esteem. Although the main aim of the current investigation was to examine the potential role of implicit self-esteem in sexual offending, the unexpected null findings regarding group differences in explicit self-esteem also warrant discussion. Whilst evidence remains mixed regarding the explicit self-esteem of rapists (Marshall et al., 2009) or whether offender sub-types can necessarily be discriminated from one another in terms of their self-attitudes (e.g., Marshall et al., 2003), the preceding literature has provided fairly consistent evidence that child-sex offenders report lowered explicit self-esteem compared to non-offending community controls (Marshall & Mazzucco, 1995; Shine et al., 2002; Webster et al., 2007). Yet, it was not possible to distinguish between any of the experimental groups within the current sample. Also, in line with the findings of previous meta-analyses concerning the role of self-esteem in sexual recidivism

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[31] Unfortunately, parallel analyses could not be run for rapists, due to the low number of participants recruited for this particular group.

(Andrews & Bonta, 1998; Hanson & Morton-Bourgon, 2005), the current investigation found no evidence that levels of explicit self-esteem predicted scores on measures of estimated recidivism risk. These findings add to evidence that suggests self-esteem deficits are not related to the maintenance of sexual offending and, as such, should not be considered a criminogenic need for this offender group (e.g., Mann et al., 2010). Indeed, the relationship between self-esteem and risk of general recidivism was also non-significant within the current study, suggesting deficits in self-esteem may be unrelated to the risk of maintaining any form of offending behaviour.

Given that each group demonstrated levels of explicit self-esteem within the normative range specified for the RSES (Rosenberg, 1989), such findings could simply be due to the current sample consisting of child-sex offenders with unusually high levels of self-esteem. Yet, an existing study by Smith et al. (2005) also reported similar RSES averages among a sample of adolescent sexual offenders[32], suggesting the current sample may not be so unusual after all. As such, this unexpected finding may be the result of relying on a measure of global self-esteem, rather than one which acknowledges the multi-faceted or context-dependent nature of attitudes towards the self.

Whilst generally considered a relatively stable aspect of personality, individual levels of self-esteem have been shown to fluctuate across different situations, roles, and domains of functioning, leading to the proposal that self-esteem is in fact comprised of several distinct facets (Coopersmith, 1981). Such variability

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[32] Participants within this study were grouped according to level of risk, based on the number of static risk factors present. Low risk adolescents demonstrated a mean RSES score of 22.33 ($SD = 4.60$), whilst medium risk adolescents scored 18.80 ($SD = 4.60$) and high risk adolescents scored 18.60 ($SD = 5.30$).

is acknowledged within various *domain-specific* measures of self-esteem (e.g., the Body Esteem Scale; Franzoi & Shields, 1984; the Social Self-Esteem Inventory; Lawson, Marshall, & McGrath, 1979), as well as more comprehensive, multi-faceted measures that cover a range of domains within the same questionnaire (e.g., the Multidimensional Self-Esteem Inventory; O'Brien & Epstein, 1988).

Whilst such facets are ultimately considered to feed into our overall evaluation of the self, they have been shown to demonstrate divergent predictive properties (e.g., Fleming & Watts, 1980) and some may be more relevant to sexual offending than others. Indeed, the majority of previous investigations have focused on levels of social self-esteem among sexual offenders (e.g., Fernandez & Marshall, 2003; Marshall et al., 1999; Marshall & Mazzucco, 1995; Pervan & Hunter, 2007), based on the argument that how such offenders view themselves within social situations may be particularly salient within their offence chains (Marshall, Champagne, Sturgeon et al., 1997). Presently, a global measure of self-esteem was chosen due to the exploratory nature of this preliminary investigation and the assumption that an overall evaluation of self-worth might relate more closely to the generic associations assessed within the current self-esteem IAT. Yet, the current inability to distinguish between groups could be due to the potential domain specificity of self-esteem deficits among sexual offenders. Further research should seek to utilise multidimensional measures of explicit self-esteem to determine the domains in which sexual offenders demonstrate more pronounced deficits and formally examine which, if any, demonstrate a relationship with measures of implicit self-esteem.

4.5.2 Implicit self-esteem. In light of recent evidence implicating more automatic forms of self-evaluation in the prediction of attitudinal and behavioural

outcomes (e.g., Jordan et al., 2003; Rudolph et al., 2010; Schröder-Abé, Rudolph, & Schütz, 2007), the current study sought to conduct the first empirical examination of the role of implicit self-esteem in sexual offending. Based on evidence from the wider social-cognitive and aggression literature, it was tentatively predicted that implicit self-esteem would moderate the relationship between explicit self-esteem and sexual offending outcomes (e.g., Bushman & Baumeister, 1998; Sandstrom & Jordan, 2008). Against such predictions, however, no significant group differences were found for scores on the self-esteem IAT (with each group demonstrating a response pattern indicative of high implicit self-esteem) and scores on this measure were also unrelated to measures of general or sexual recidivism risk. In addition, consideration of the interaction between explicit and implicit self-esteem also failed to improve prediction of group membership. Against predictions, there was no evidence to suggest that rapists were characterised by a combination of high explicit and low implicit self-esteem (fragile high self-esteem) or that child-sex offenders were characterised by a combination of low explicit and high implicit self-esteem (damaged self-esteem). Also against predictions, consideration of self-esteem discrepancies did not enhance prediction of scores on either measure of recidivism risk. Taken together, such findings suggest that, similar to explicit self-esteem, neither implicit nor discrepant self-esteem should be considered a criminogenic risk factor for sexual (or general) offending behaviour.

Whilst evidence indicating a non-significant main effect of implicit self-esteem is consistent with the existing, albeit limited, empirical literature concerning other, more general forms of aggression, the lack of effect seen for the interaction between explicit and implicit self-esteem contradicts previous research in this area. For example, whilst both Amad et al. (in preparation) and Sandstrom and Jordan

(2008) reported a non-significant main effect of implicit self-esteem, discrepancies between explicit and implicit self-esteem were seen to predict certain forms of aggressive behaviour, suggesting implicit self-esteem may moderate the influence of explicit self-esteem in the prediction of such outcomes. Given the preliminary nature of research in this area, such inconsistency may simply be due to differences between samples (i.e., children versus students versus offenders) or outcome measures (i.e., teacher-rated aggression versus self-reported aggression versus rated risk of recidivism).

     4.5.3 Implications and limitations. Overall, the current findings provide little support for either explicit self-esteem, implicit self-esteem, or their interaction as risk factors for the onset and/or maintenance of sexual offending. The null findings concerning implicit self-esteem suggest that the existing empirical inconsistency regarding relations between self-esteem and sexual offending may not simply be due to failure to acknowledge the potential influence of more automatic forms of self-evaluation. As such, the present study adds to existing evidence supporting the removal of self-esteem as a treatment target within UK variants of the SOTP (Ministry of Justice, 2010). Yet, the current findings need to be considered in light of the limitations regarding the size and composition of the current sex offender sample,

     Firstly, the low number of rapists may have compromised the ability to detect significant relations between this particular form of sexual offending and levels of explicit, implicit and/or discrepant self-esteem (see discussion of power in Chapter 6). Secondly, the characteristics of the current child-sex offender sample identify them as being at low risk for recidivism (Harris et al., 2003; Hanson and Bussière, 1998). Statistically, this sampling limitation may have reduced the ability to

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demonstrate significant group differences and/or detect significant relationships between risk and self-esteem, due to the truncated nature of risk estimate scores (Tabachnick & Findell, 2007). Theoretically, and perhaps more importantly, it could also be argued that self-esteem deficits may only be detectable and clinically meaningful among more high-risk offenders. As such, replication among larger samples that capture the full range of recidivism risk is required before the current findings can be taken as conclusive evidence against the role of self-esteem in sexual offending.

Alternatively, the present null findings could be due to limitations regarding the current self-esteem IAT. Following the progression of research concerning the domain-specificity of explicit self-esteem, recent evidence suggests that implicit self-esteem may be similarly multifaceted. For example, by applying confirmatory factor analysis to the data generated by four domain-specific self-esteem IATs (assessing self-regard and social, performance, and physical self-esteem), Klavina, Schröder-Abé, and Schütz (2012) demonstrated that a four-factor model provided a better fit to the data than models that combined scores across the various self-esteem IATs. Whilst researchers have long acknowledged the likelihood of implicit self-esteem being multi-faceted (e.g., Bosson et al., 2000), the vast majority of IAT studies have continued to treat it as a unitary construct, simply assessing the global positivity of associations held regarding the self. This may explain why existing studies, including the present investigation, have struggled to demonstrate an independent link between implicit self-esteem and forms of aggressive behaviour. Further research should seek to utilise newly emerging IATs that are designed to assess distinct facets of implicit self-esteem, in order to determine which, if any, play a role in sexual offending or other forms of aggression.

In addition, existing IAT measures of self-esteem currently suffer from a lack of standardisation, with individual studies varying in the precise category labels and stimuli that are presented to participants. Such lack of standardisation has led to confusion over what exactly is assessed by these IAT measures and the suggestion that some variants may in fact assess constructs other than self-esteem per se. For example, given the use of terms such as "disgust", "horrible" and "nasty" within the current self-esteem IAT, it could be argued that this measure is in fact tapping into aspects of shame rather than self-esteem.[33] Although theoretically and empirically related to the construct of self-esteem, shame represents a distinct form of negative self-evaluation that is triggered by a sense of having violated some personally or socially constructed standard for behaviour (Lewis, 1995). Whilst also implicated in theoretical accounts regarding the maintenance of sexual offending (due to its relations with feeling powerless, worthless and incapable of change; Marshall et al., 2009), this more transient *moral emotion* should by no means be considered synonymous with the more enduring construct of self-esteem. Given such distinctions, further validation is required to establish the precise construct captured by the current "self-esteem" IAT, before drawing firm conclusions regarding the role of implicit self-esteem in sexual offending.

During their recent review, however, Buhrmester et al. (2011) debated the validity of IAT-based approaches to the assessment of implicit self-esteem more generally. These authors questioned whether such a fundamental aspect of personality can really be reduced to a simple self-related association when, by its very definition, self-esteem is the product of reflective evaluations regarding self-

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[33] Thanks go to Prof. Theresa Gannon for suggesting this alternative conceptualisation of the current "self-esteem" IAT.

worth. To strengthen their argument, they highlighted evidence that scores obtained within the self-esteem IAT often fail to converge with theoretical correlates or consequences of self-esteem, even when such outcomes are indirectly assessed or observed (e.g., Bosson et al., 2000). In addition, they also highlighted the fact that, across a wide variety of contexts and cultures, nearly all respondents are faster to associate the self with positive concepts within variants of the self-esteem IAT. Such generalised positivity is incompatible with documented rates of the theoretical precursors of low implicit self-esteem (i.e., insecure parental attachment), leading to suggestions that the self-esteem IAT may instead capture some form of implicit affective processing or the automatic tendency to embrace positive appraisals, rather than self-esteem per se (Buhrmester et al., 2011).

In conclusion, whilst the current study found no evidence to support the argument that explicit, implicit, or discrepant self-esteem are related to sexual offending, such null findings may be due to issues regarding the size and composition of the current sexual offender sample and/or the multifaceted nature of self-evaluations at both an explicit and implicit level. In addition, the self-esteem IAT, like many other existing measures of implicit self-esteem, continues to face ongoing concerns regarding its construct validity and clinical utility. The current results should also be evaluated in light of the more general limitations of the present study (discussed in section 6.3). Until such issues are resolved, the present null findings regarding the independent or interactive role of implicit self-esteem in sexual offending should be interpreted with caution.

Chapter 5: Implicit Theories and Child-Sex Offending

5.1 Introduction

5.1.1 The role of cognition in sexual offending. Cognitive dysfunction is considered to play a key role in the commission of sexual crimes (Gannon & Polaschek, 2006). Several of the most influential multi-factorial models of sexual offending implicate faulty cognitive processes and/or content in some manner (e.g., Finkelhor, 1984; Hall & Hirschman, 1991; Ward & Beech, 2006; Ward & Siegert, 2002), and several single factor theories have been developed in an attempt to explain how and why the cognitive functioning of sexual offenders differs from that of the general population (e.g., Ward, 2000; Ward, Gannon, & Keown, 2006). The impact of such theories is reflected in the fact that the majority of contemporary Sex Offender Treatment Programmes (SOTP) incorporate some form of cognitive intervention (Gannon, 2009).

Such theoretical and clinical interest stems from observations that men who have been convicted of sexual crimes often make statements that condone or excuse their actions (offence-supportive statements). For example, rapists may claim that their victim led them on and thus deserved what happened to them (Polaschek & Gannon, 2004), whilst a child-sex offender might claim that their victim was very sexually aware for their age (Ward & Keenan, 1999). Abel and colleagues were the first to suggest that such statements may be surface indicators of more deep-rooted cognitive dysfunction and adopted the term *cognitive distortions* to reflect the atypical nature of these underlying beliefs (Abel, Becker, & Cunningham-Rathner, 1984; Abel, Becker, Cunningham-Rathner et al., 1984; Abel et al., 1989). Since its initial proposal, however, this term has suffered from substantial definitional ambiguity, and has fallen out of favour, due to being used indiscriminately to

describe constructs as diverse as *learned assumptions* (Bumby, 1996),

rationalisations (Neidigh & Krop, 1992), *justifications* (Abel et al., 1989), and

maladaptive beliefs (Ward, Hudson, Johnston, & Marshall, 1997).

Whilst such ambiguity initially caused considerable controversy regarding

the role of cognition in sexual offending (Ó Ciardha & Gannon, 2011), clearer

distinctions have since been made between beliefs that play an aetiological role in

such crimes and those that represent post-offence justifications or rationalisations

(Maruna & Mann, 2006). Although post-offence justifications may still prove

informative regarding underlying cognitive vulnerabilities (Navathe, Ward, &

Gannon, 2008), or contribute to the maintenance of sexual offending (Abel, Becker,

& Cunningham-Rathner, 1984), they are generally considered to reflect the

normative process of trying to excuse behaviour that violates societal standards,

rather than a form of dysfunction that distinguishes sexual offenders from the normal

population (Maruna & Mann, 2006). In support of such reasoning, evidence

suggests that post-offence justifications are unrelated to rates of sexual recidivism

(Hanson & Morton-Bourgon, 2005), leading to the suggestion that treatments

designed to target such rationalisations are unwarranted, or even undesirable

(Marshall, Marshall, & Kingston, 2011). In contrast, aetiological cognitions are still

considered viable treatment targets (due to their presumed causal role in the onset

and maintenance of sexual offending; Ó Ciardha & Gannon, 2011), and thus

represent the theoretical focus of the current chapter.[34]

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[34] As long as researchers are forced to rely on retrospective investigations with
convicted offenders (for ethical as well as logistical reasons), it will remain difficult
to determine whether cognitive deficits noted among such individuals were present
prior to the onset of offending, or simply developed in response to such behaviours.

5.1.2 Implicit Theories and sexual offending.

5.1.2.1 The Implicit Theories approach. One of the most prominent theories of aetiological cognition among sexual offenders was proposed by Ward and colleagues (Ward, 2000; Ward, Hudson et al., 1997). These authors used the principles of social-cognitive theory to progress models of offender cognition beyond mere consideration of cognitive products, towards a more comprehensive appreciation of the underlying structures and processes that give rise to these outputs. According to social-cognitive theory, all individuals act as cognitive misers, who are motivated to reduce the cognitive effort involved in information processing by forming a series of interconnected beliefs about themselves and the world around them (e.g., Fiske & Taylor, 1991). Ward (2000) labelled such belief systems *implicit theories* (ITs)[35] to capture the fact that they share some functions of scientific theorising (i.e., are used to explain experiences and to form assumptions/predictions about an individual's environment), but are not necessarily open to formal expression by the individual. Much like a scientific theory, ITs are evaluated and refined based on their ability to account for regularities in the individual's environment. Whilst helping to save cognitive resources, ITs tend to distort incoming information so that it corresponds with their existing content, especially in ambiguous or novel circumstances, leading to potential biases in the way individuals attend to and process incoming information (Fiske & Taylor, 1991). Critically, the processes that underlie such effects are presumed to be automatic in

Nevertheless, researchers in this field continue to strive towards improved identification and assessment of potentially aetiological cognitions, in order to identify those who may benefit from targeted therapeutic intervention.

[35] This label was considered preferable to the term *schema*, which can be used to describe a broad a range of cognitive constructs, such as categories, response scripts, or belief systems (Ward, 2000).

nature, such that they are not necessarily open to conscious introspection (Ward, 2000).

Thus, according to the IT approach, sexual offenders are predisposed towards inappropriate sexual behaviour, due to the development of maladaptive ITs that contain offence-supportive beliefs about the nature of sex, themselves, their victims, and the world around them. These ITs are usually derived from attempts to explain adverse experiences during childhood development and, whilst initially adaptive, may result in inappropriate assumptions if they persist and are applied beyond the dysfunctional early environment (Ward, 2000). Since its proposal, the IT approach has been applied to a number of sexual offender subtypes (e.g., sexual murderers; Beech, Fisher, & Ward, 2005; rapists; Polaschek & Gannon, 2004; child-sex offenders; Ward & Keenan, 1999). Coverage of each IT typology was considered beyond the scope of the current thesis, however, so the theoretical focus was narrowed to examine only ITs that have been implicated in the commission of child-sex offences in particular.[36]

5.1.2.2 Child-sex offender implicit theories. After reviewing empirical and clinical evidence available at the time, Ward and Keenan (1999) proposed five ITs that appeared to account for the range of offence-supportive statements made by convicted child-sex offenders. The first IT, labelled *children as sexual beings*, concerns maladaptive beliefs regarding the sexual awareness and motivation of

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[36] In addition, whilst initial evidence seemed to suggest that the original child-sex ITs applied equally well to female child-sex offenders (Beech, Parrett, Ward, & Fisher, 2009), more recent investigations seem to suggest gender differences exist in the precise content and implications of these ITs (Gannon, Hoare, Rose & Parrett, 2012). As such, the current thesis focused on the ITs of male child-sex offenders specifically.

children. Specifically, an offender possessing this IT assumes that children have sexual desires, can benefit from fulfilling these, and are also cognitively mature enough to both identify and pursue these desires. Such beliefs are thought to increase the motivation to offend by biasing the interpretation of normal child behaviours as conveying sexual intent (i.e., sitting on an adults lap, or accidently exposing their underwear during play). This IT links with another, termed *nature of harm*, that centres around beliefs that sexual activity is inherently beneficial and thus unlikely to cause harm to children. Any victim distress is considered to result from other contextual factors, such as the use of physical force, rather than the sexual experience itself. Such beliefs are considered to facilitate offending as they help to absolve the offender of guilt (i.e., "what I did was not that bad") and to overcome any internal inhibitions against engaging sexually with a child.

The *entitlement* IT captures feelings of superiority over others (based on characteristics such as gender, social class, or position within the family), and the idea that other "inferior" individuals are obliged to meet their needs. Offenders possessing this IT may engage in sexual activity with children due to beliefs that they are entitled to sex whenever, and with whomever, they please. In contrast, offenders possessing the *uncontrollability* IT view the world and human behaviour as beyond personal control, with events and actions being largely determined by factors external to the individual. Such determinism extends to sexual behaviours and can either present as relatively pervasive (i.e., a belief that things "just happen", or are the result of historical events/adversity that set the individual on an unalterable life-course), or situational in nature (i.e., blaming actions on the effects of stress or intoxication). Regardless of its precise format, possession of this IT facilitates child-

sex offending by generating beliefs that sexual urges are uncontrollable and the offender cannot be held accountable for acting upon them.

The final IT, termed *dangerous world*, has two variants rooted in the basic belief that the world is a dangerous place and others are likely to behave in a hostile or abusive manner towards you. Some offenders who possess this IT take an active approach to dealing with threats, believing that it is necessary to fight back or pre-empt hostility by asserting your own dominance before others can take advantage of you. These individuals view all others as dangerous, even children, and are thought to engage in child-sex offences as a means of punishing or controlling these potential sources of threat. Other offenders holding the dangerous world IT are argued to focus their insecurities on the hostility of adults relative to children. These individuals believe that, whilst adults are likely to take advantage of them, children are reliable, trustworthy, and accepting. Thus, rather than lashing out against the perceived threat posed by adults, these offenders are motivated by a desire to achieve sexual satisfaction and emotional connection with children, who represent less socially threatening, yet age inappropriate, sexual partners.

Ward (2000) argued that individual offenders could hold any combination of ITs, giving rise to diverse motivations for their offending behaviour. For example, an offender who holds the children as sexual beings IT may be more likely to engage in grooming behaviours, where an attempt is made to establish some form of relationship with the victim. In contrast, offenders who hold the entitlement IT might be more likely to engage in coercion or use greater physical force to subdue victims.

5.1.3 Direct measurement of child-sex ITs. Research relying on interview techniques has found evidence to support the ITs proposed by Ward and Keenan (1999). For example, Marziano, Ward, Beech, and Pattison (2006) analysed transcripts from 22 incarcerated male child-sex offenders and found evidence for each of the five child-sex ITs. Furthermore, they reported that 82% of their sample demonstrated endorsement of all five ITs within their individual transcripts and that thematic analysis revealed no need for additional ITs beyond those originally described by Ward and Kennan (1999). Whilst not investigating the categories proposed by Ward and colleagues directly, several other studies have provided evidence of specific IT-related themes within child-sex offender transcripts, such as sexual entitlement, sexualisation of children, uncontrollability, and minimising the level of harm caused to victims (e.g., Hartley, 1998; Pemberton & Wakeling, 2009; Saradjian & Nobus, 2003).

In contrast, studies using questionnaires to assess IT-related beliefs provide equivocal evidence for Ward's theory. Whilst several studies have found that child-sex offenders demonstrate higher scores than controls within IT-related questionnaires (e.g., Arkowitz & Vess, 2003; Bumby, 1996; Hayashino, Wurtele, & Klebe, 1995; Marshall et al., 2003; Stermac & Segal, 1989), others have struggled to achieve fine-grained, yet theoretically crucial distinctions, when using such measures. For example, some studies fail to discriminate subtypes of sexual offender (e.g., child-sex offender versus rapist; Abel et al., 1989), whilst others only achieve discrimination from non-offender community controls, with sexual and non-sexual offenders proving statistically indistinguishable in their scores (e.g., Tierney & McCabe, 2001). Such findings raise concerns about the specificity of child-sex ITs as a risk factor for this type of offending in particular.

Perhaps more concerning are observations that, even when significant differences are noted between child-sex offenders and controls within these questionnaires, rather than demonstrating theoretically consistent agreement with offence-supportive items, child-sex offenders simply tend to disagree with them to a lesser extent than do offender or community controls (e.g., Arkowitz & Vess, 2003; Langevin, 1991; Tierney & McCabe, 2001). Such findings cast further doubt on the overall validity and utility of Ward's IT approach to child-sex offender cognition (Gannon, Ward, & Collie, 2007). In addition, whilst the generic domain of *offence-supportive attitudes* is commonly highlighted as a significant predictor of sexual recidivism within meta-analytic reviews (Hanson & Morton-Bourgon, 2005; Helmus, Hanson, Babchishin, & Mann, 2012; Mann et al., 2010), such effects are typically small in magnitude (average $d = .22$-$.24$), leading to doubts about the predictive validity of IT-related attitudes as a risk factor for the maintenance of sexual offending.

5.1.3.1 Issues regarding measurement validity. Why might the results of interview- and questionnaire-based investigations diverge in their support for Ward's IT theory? One suggestion is that, whilst interview approaches allow for the spontaneous expression of IT-consistent themes, existing questionnaires simply fail to provide adequate assessment of each IT (Gannon & Polaschek, 2006). In support of this proposal, Gannon, Keown, and Rose (2009) found that the ITs proposed by Ward and Keenan (1999) were poorly represented within existing self-report questionnaires. Many items were considered unrelated to any child-sex IT, and items representing the dangerous world, entitlement, and uncontrollability ITs were highly underrepresented. If the measures used to detect the presence of maladaptive

ITs are inadequate, then it is not surprising that they fail to provide consistent evidence for Ward's theory.

In response to such concerns, Goddard (2006) developed the Implicit Theories Questionnaire (ITQ), designed specifically to assess all five child-sex ITs proposed by Ward and Kennan (1999). To date, the ITQ has demonstrated acceptable internal and test re-test reliability, as well as concurrent validity among a small sample of community males (Goddard, 2006). It has also been administered to a small sample of child-sex offenders ($n = 30$), who endorsed the dangerous world IT more than any other IT (Jones & Vess, 2010).[37] Despite such provisional validity, the ITQ has yet to undergo more stringent validation within larger samples where child-sex offenders are compared directly against controls. Also, at 204 items long, it currently represents a rather time-consuming measure.

Howitt and Sheldon (2007) also devised a questionnaire to assess all five child-sex ITs and again found strong endorsement for ITs that are poorly represented within established self-report measures (the dangerous world and uncontrollability ITs). Unfortunately, whilst the full item list was provided in the original Howitt and Sheldon (2007) publication, scoring procedures are not publically available and attempts to obtain these from the authors were unsuccessful. As a result, a novel self-report measure of child-sex ITs was designed to determine whether a "purpose-built" questionnaire would provide greater support for the role of child-sex ITs in the onset and/or maintenance of child-sex offending (see section 5.3.2.1 for details on the construction of this measure).

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[37] Such findings raise further concerns about the validity of prior measures where this particular IT was poorly represented (Gannon et al., 2009).

5.1.3.2 Issues regarding automatic processing and impression management. As discussed in Chapter 1, even the most well designed questionnaire may struggle to provide accurate assessment of IT-related beliefs, due to issues concerning automatic cognitive processing and impression management. Firstly, whilst questionnaires are heavily influenced by aspects of cognitive processing that are controlled, or deliberative in nature (De Houwer, 2006), ITs are presumed to operate in a fairly automated manner (Ward, 2000). Furthermore, evidence suggests that automatically activated beliefs may be subsequently refuted on the basis of more conscious deliberation, particularly when they conflict with other temporarily activated propositions, such as those learned through treatment (Beech, Bartels, & Dixon, 2013; Gawronski & Bodenhausen, 2006). Such reasoning implies that the deliberated evaluations typically revealed by questionnaire assessment may diverge from those that arise spontaneously in response to a particular stimulus or situation, leading to concerns that self-report may fail to assess some crucial aspects of child-sex offender cognition (Snowden et al., 2011).

Secondly, the susceptibility of self-report to impression management is particularly concerning in this area of research, given the highly sensitive nature of child-sex ITs, and the pressure faced by offenders to demonstrate a lack of endorsement for such items (Snowden et al., 2011). Existing evidence supports such concerns, as child-sex offenders show higher child-sex belief endorsement when they are lead to believe their responses are being monitored for faking (Gannon, Keown, & Polaschek, 2007).

As a result, it remains difficult to determine whether the equivocal nature of previous child-sex IT research is due to the invalidity of Ward's theory itself, or simply the measures being used to evaluate it. Based on claims regarding their

ability to resist impression management and assess more automated forms of cognitive processing, researchers have begun to utilise indirect measurement techniques in an attempt to provide more definitive support for Ward's IT approach to child-sex offender cognition.

5.1.4 Indirect measurement. Whilst indirect measures have already been used to examine a variety of aspects of child-sex offender cognition (for a recent review, see Snowden et al., 2011), the current discussion focuses only on studies that evaluate some aspect of the IT approach in particular.

5.1.4.1 Information-processing paradigms. Gannon and colleagues have used a range of information-processing paradigms to examine the validity of Ward's child-sex ITs. For example, during an interpretative bias task, offenders with and without a child-sex offence read vignettes that depicted a child-sex abuse event. Each vignette contained a piece of socially ambiguous information that could either be interpreted in an IT-consistent (i.e., supportive of abuse) or IT-inconsistent (i.e., not supportive of abuse) manner. Given that ITs are presumed to help disambiguate such material (Ward, 2000), when asked to recall vignette content after a delay, child-sex offenders were expected to mis-recall the ambiguous information in an abuse supportive manner. Yet, the results showed that, whilst all participants tended to make errors in their recall of vignette content, neither child-sex offenders, nor controls, demonstrated recall biases indicative of an IT-consistent interpretation (Gannon, Wright, Beech, & Williams, 2006). A later study using sentences related to the children as sexual beings IT demonstrated that such null findings persisted even after male child-sex offenders were primed with images of semi-clothed children, suggesting the previous null findings were not due to a lack of contextual activation (Keown, Gannon, & Ward, 2008a).

Use of another indirect paradigm, the Rapid Serial Visual Presentation-Modified (RSVP-M), also failed to find evidence of IT-consistent processing biases among child-sex offenders. Within the RSVP-M, respondents are expected to process sentences that are congruent with their existing mental models of the world more quickly than those that are inconsistent with such models (Albrecht & O'Brien, 1993). Yet, Keown, Gannon, and Ward (2010) found no evidence of facilitated processing for IT-consistent sentences among a group of male child-sex offenders, even amongst those who had previously endorsed IT-related themes within interview and questionnaire sessions.

Similar null findings were reported during a study that used another indirect methodology, the Lexical Decision Task (LDT). Within LDTs, respondents are asked to rapidly determine whether a string of letters represents a word or non-word, and evidence suggests that response selection is facilitated when the target is preceded by a semantically related prime (e.g., Meyer & Schvaneveldt, 1971). Using the LDT, Keown, Gannon, and Ward (2008b) presented child-sex offenders, offender controls, and community controls with a series of priming sentences related to each of the five child-sex ITs (e.g., "Having sex with children won't do them any..."). These sentences were then followed by targets that completed the sentence in either an IT-consistent manner (e.g., "harm"), an IT-inconsistent manner (e.g., "good"), or were a non-word (e.g., "knid"). Against predictions, child-sex offenders only showed facilitated recognition for IT-consistent words within the uncontrollability IT category, and this effect seemed to be driven by strong opposition to this IT by non-sexual offenders, rather than strong endorsement by child-sex offenders. Another research group reported evidence of an elevated association between sex and power among child-sex offenders using an LDT

(Kamphuis, De Ruiter, Janssen, & Spiering, 2005), demonstrating that information processing paradigms are not simply incapable of assessing such cognitive biases among offenders. Such findings provide only indirect evidence to support the IT theory, however, as, whilst an association between sex and power could relate to a sense of sexual entitlement (Ó Ciardha & Ward, 2013), Kamphuis et al. did not specify which, if any IT, their LDT was designed to measure.

To summarise, it appears that, despite being designed to assess automated forms of cognitive processing, information-processing paradigms presently provide little evidence to support Ward's IT theory of child-sex offender cognition. Given that several of the aforementioned studies represent the first use of these indirect methods among child-sex offenders, these null findings could simply be due to methodological flaws or the use of relatively small samples. Two points argue against this explanation, however. Firstly, studies utilising some of the same indirect paradigms have managed to demonstrate theoretically anticipated information-processing deficits among other offender groups (e.g., female child-sex offenders; Gannon & Rose, 2009), and such paradigms have long been used with success within the broader social-cognitive literature. Secondly, the convergence of null findings across a variety of indirect paradigms reduces the likelihood that they represent a methodological anomaly. Such consistent null findings have caused some to question whether child-sex offenders do indeed possess maladaptive automatic beliefs, such as the ITs proposed by Ward and colleagues (e.g., Keown et al., 2008b).

5.1.4.2 The Implicit Association Test. One indirect measure that has had greater success in distinguishing those with and without a child-sex offence is the Implicit Association Test (IAT). Mihailides, Devilly, and Ward (2004) designed a

series of IATs to examine three specific child-sex ITs. They reasoned that, if child-sex offenders do possess such maladaptive belief-systems, they should demonstrate stronger associations between sex and children (children as sexual beings IT), sex and losing control (uncontrollability IT), and sex and first-person concepts (sexual entitlement IT), than either offender or community controls. These predictions were supported for both the children as sexual beings and uncontrollability ITs, but significant differences were only noted between child-sex offenders and community controls for the entitlement IT. This was attributed to beliefs of entitlement being common to a variety of offender types (Polaschek, Calvert, & Gannon, 2009; Polaschek & Gannon, 2004). Thus, the results of this investigation were consistent with the predictions of Ward's IT theory, and highlighted the IAT as a promising tool for the indirect assessment of more automatic aspects of child-sex offender cognition.

The majority of child-sex offender IAT research has focused specifically on associations held regarding children and sex. For example, Gray, Brown, MacCulloch, Smith, and Snowden (2005) examined associations between children versus adults and sex versus not-sex. In line with predictions, child-sex offenders were found to demonstrate faster responding when children were paired with sex, relative to when adults were paired with sex, whilst offender controls demonstrated the opposite pattern of responding. A subsequent study by this research group confirmed that this effect was maintained even among those who outwardly denied their offences and could also successfully distinguish between those who had offended against pre-pubescent (paedophilic offenders) versus pubescent victims (hebephilic offenders). Specifically, only paedophilic offenders demonstrated the relative child-sex association, whilst hebephiles demonstrated a response pattern

comparable to offenders with no history of child-sex offending (Brown, Gray, & Snowden, 2009).

Several studies have since replicated this effect and a recent meta-analysis confirmed that, overall, variants of the child-sex IAT are able to discriminate child-sex offenders from rapists, non-sexual offenders, and community controls with moderate to large effect sizes ($d = 0.48$, 0.58, and 0.96, respectively; Babchishin, Nunes, & Hermann, 2012). Many of these studies have also reported additional indicators of the child-sex IAT's validity and potential utility. For example, child-sex IAT variants have been shown to correlate with actuarial measures of recidivism risk (e.g., the Static-99; Nunes, Firestone, & Baldwin, 2007), as well as clinician-rated risk of relapse if granted immediate release (Steffens, Yundina, & Panning, 2008). Another study reported similar child-sex IAT effects among non-incarcerated self-acclaimed paedophiles, demonstrating the potential for generalisation beyond convicted offenders (van Leeuwen et al., 2011).

When Banse, Schmidt, and Clarbour (2010) further refined the child-sex IAT to examine gender-specific preferences, however, a girls versus women IAT produced significant group differences, but a boys versus men IAT failed to achieve such discrimination (potentially due to the low number of homosexual offenders within the sample). In addition, the IATs were generally outperformed by a different class of indirect measures based on image viewing times. Such findings caution against relying on IAT scores in isolation whilst research validating this measure remains in its infancy.

Notwithstanding such cautions, existing child-sex IATs appear to demonstrate superior specificity in distinguishing between those with and without a

child-sex offence compared to self-report, and at least provisional predictive validity in terms of predicting scores on measures of recidivism risk (Snowden et al., 2011). Also important in terms of clinical utility are findings that it is possible to detect and, at least partially, correct attempts to fake child-sex IAT scores and that doing so further improves group identification (Cvencek et al., 2010, using a reanalysis of the data from Brown et al., 2009). Such findings suggest that the IAT may also demonstrate increased resistance to impression management when attempting to assess beliefs related to child-sex offending.

5.1.4.3 Limitations of current IAT findings. Despite demonstrating evidence of provisional predictive validity and specificity, as well as increased resistance to impression management, questions remain regarding the extent to which current child-sex IAT findings can be taken as support for Ward's IT theory in particular. As discussed previously, the vast majority of IAT studies have focused on associations between children and sex. Whilst such associations could be indicative of a children as sexual beings IT, they could also index a variety of other cognitive phenomena, such as deviant sexual interests (Banse et al., 2010). Furthermore, research involving the standard bi-polar IAT paradigm (where two target categories are contrasted to produce the IAT effect) has been criticised for producing a relative rather than absolute index of associative strength, leaving the data open to multiple interpretations. For example, if an offender demonstrated faster responding when sexual items were paired with children rather than adults, it remains unclear whether this effect is driven by an abnormally strong association between children and sex or, alternatively, an abnormally weak association between adults and sex (Snowden et al., 2011). Whilst both instances would give rise to the same IAT effect, only the former would be consistent with possession of the children

as sexual beings IT that focuses specifically on the sexualisation of children, rather than the under-sexualisation of adults.

One way of addressing the relative nature of the IAT is to utilise the single-category variant (SC-IAT) proposed by Karpinski and Steinman (2006). Within the SC-IAT, respondents are only ever presented with one target category, thus removing one of the relative comparisons. Hempel, Buck, Goethals, and van Marle (2013) replicated previous child-sex IAT effects using a SC-IAT where participants were required to categorise sexual words when paired across trials with either child- or adult-related words. Whilst suggesting that previous child-sex IAT effects were unlikely to be driven by a lack of child-nonsexual association, this SC-IAT still retained both adult and child target categories. As such, it remains unclear whether existing child-sex IAT effects can be taken as evidence to support the presence of an IT containing maladaptive beliefs that sexualise children. Finally, with the exception of the study by Mihailides et al. (2004), existing research has failed to use the IAT approach to examine associations relevant to other ITs implicated in the commission of child-sex offences.

5.2 Aims of this Chapter

To summarise, self-report approaches have often failed to demonstrate consistent support for the argument that child-sex ITs play a role in the onset and/or maintenance of child-sex offending. To determine whether such inconsistency is simply due to the use of questionnaires that fail to adequately capture the nature of child-sex ITs (Gannon et al., 2009), the first aim of the current investigation was to re-examine the discriminative and predictive validity of self-reported ITs, using a new questionnaire designed to assess such beliefs specifically. Scores on this newly devised measure were compared between groups of child-sex offenders, offender

controls, and community controls, and were also correlated with measures of general and sexual recidivism risk (the OGRS-3 and Static-99R). According to the theorising of Ward (2000), child-sex offenders should demonstrate elevated levels of the children as sexual beings and nature of harm ITs, compared to both offender and community controls. In contrast, beliefs related to the entitlement, uncontrollability, and dangerous world ITs are considered to be prevalent among a broad range of offenders (Polaschek et al., 2009; Polaschek & Gannon, 2004). As such, both child-sex offender and offender control groups were expected to show elevated endorsement of these subscales. If child-sex ITs are related to the maintenance of sexual offending, scores on this questionnaire would also be expected to predict scores on the OGRS-3 and/or Static-99R. Whilst the more generalised entitlement, dangerous world, and uncontrollability subscales would be expected to relate to both estimates of recidivism risk, scores on the children as sexual beings and nature of harm subscales may demonstrate a stronger relationship with Static-99R scores.

As discussed in section 5.1.3.2, however, issues regarding the influence of automatic cognitive processing and impression management may limit the ability to detect such effects within even the most well designed of self-report measures. Use of alternative indirect paradigms may provide stronger support for the IT approach to child-sex offender cognition. Previous research highlights the IAT as a promising indirect measure of child-sex offender cognition (Snowden et al., 2011), yet there remains uncertainty over the extent to which existing findings can be taken as support for Ward's IT theory in particular. Thus, the second aim of the current study was to modify existing child-sex IATs to examine a key assertion of the children as sexual beings IT. Specifically, use of a SC-IAT removed the need for an opposing target category of *adults* and afforded examination of whether child-sex offenders

more strongly associated children with sexual awareness (IT-consistent), or sexual innocence (IT-inconsistent). If child-sex offenders do indeed possess such maladaptive beliefs, they should be distinguished from both offender and community controls by demonstrating a stronger child-sexual association. In addition, if such beliefs are related to further risk of child-sex offending, possessing a stronger association between children and sexuality would be expected to predict higher scores on measures of estimated risk of sexual recidivism.

In addition, whilst IAT-based coverage of each child-sex IT was considered beyond the scope of the current investigation, an additional aim was to extend upon the work of Mihailides et al. (2004) and design the first IAT assessment of the dangerous world IT. Specifically, a SC-IAT was designed to assess whether adults were more strongly associated with safety or danger. The SC-IAT design was considered more appropriate than trying to devise a suitable opposite for the category of *adults*, as would be required within a traditional bi-polar IAT. Whilst the relative safety of children compared to adults is actually expressed as part of one of the dangerous world IT variants (Ward & Keenan, 1999), it was felt that children might be considered less dangerous than adults by the vast majority of respondents, potentially limiting the range of scores that could be generated by a relative measure. Group differences and the prediction of scores on measures of recidivism risk were again used to assess the utility of the dangerous world SC-IAT. Based on the predictions of IT offending theories, this SC-IAT was expected to discriminate both child-sex offender and offender control groups from the non-offending community controls (but not necessarily from one another) and to predict scores on both the OGRS-3 and Static-99R.

Finally, whilst Keown et al. (2010) directly compared self-report and indirect measures of child-sex ITs using the RSVP-M paradigm, no study has yet attempted such a comparison using the IAT. Such comparisons are important to determine whether a movement towards indirect measures has any benefit over and above self-report for those working clinically with child-sex offenders. To address this issue, the newly designed self-report and SC-IAT measures of the children as sexual beings and dangerous world ITs were directly compared in their ability to predict offender status and/or scores on measures of recidivism risk. If the child-sex ITs proposed by Ward and Keenan (1999) do indeed operate at an automatic level of cognitive processing, the SC-IATs would be expected to detect group differences to a greater extent than that achieved by the corresponding self-report subscales. When trying to predict scores on the OGRS-3 and/or Static-99R, the SC-IATs would also be expected to demonstrate stronger predictive validity than self-report, or to add incrementally to prediction after self-report scores were accounted for within these analyses.

5.3 Method

5.3.1 Participants. For the current analyses, offender participants were re-grouped, such that rapists and non-sexual offenders were combined to form a non-child-sex offender control group ($n = 67$). This change was motivated by there being no theoretical reason to distinguish between these offenders when examining attitudes towards child-sex offence-supportive beliefs. The demographic characteristics of this combined group, and how they differ from the other experimental groups on these variables, are described in Appendix A. The child-sex offender ($n = 48$) and community control groups ($n = 70$) remained unchanged for these analyses.

5.3.2 Measures.

5.3.2.1 The Implicit Theories Self-Report scale (ITSR; see Appendix L).

Self-reported endorsement of child-sex ITs was assessed using the newly designed

ITSR. The ITSR is a 62-item self-report questionnaire designed to assess the full

range of ITs implicated in child-sex (Ward & Keenan, 1999) and violent offending

(Polaschek et al., 2009), along with self-reported attraction to children and

virtuous/deviant responding patterns. Respondents were asked to indicate the extent

to which each item characterised their personal beliefs on a scale of 1 (*strongly*

disagree) to 4 (*strongly agree*). Higher scores indicated greater IT endorsement,

attraction to children, or evidence of aberrant responding. Of current interest are the

five subscales designed to assess the child-sex ITs proposed by Ward and Keenan

(1999), and those designed to detect virtuous/deviant responding.

Each child-sex IT subscale contained five items considered to reflect beliefs

that would either support or contradict that particular IT (see Appendix L for a list of

all subscale items). Whilst some were based on, or taken directly from, the ITQ

(Goddard, 2006), others were drawn from a broader range of existing offence-

supportive belief questionnaires, using the comprehensive classification conducted

by Gannon et al. (2009). Final item selection was informed by the original IT

descriptions provided by Ward and Keenan (1999), and each subscale contained

items that were both congruent and incongruent with the respective IT, to discourage

adoption of a biased response set. To ensure questions contained within the ITSR

would be accessible to offender populations, each item was checked against the

Bristol norms (Stadthagen-Gonzalez & Davis, 2006) and MRC psycholinguistic

database

(http://websites.psychology.uwa.edu.au/school/MRCDatabase/uwa_mrc.htm), to

ensure that the words used were typically acquired by the age of 10.[38] If any words were found to have an age of acquisition above 10, they were replaced with a more suitable synonym, using an online thesaurus.

The virtuous responding subscale was designed to detect attempts to portray the self in an unrealistically positive light, whilst the deviant responding subscale consisted of unusual items designed to detect deliberate malingering or the development of a biased response set (i.e., consistent "yea- or nay –saying"). Items within these scales were also newly generated for the ITSR, due to concerns that offender participants may be familiar with items contained within existing, commercially available measures, as a result of prior assessment within the prison system. As development of the ITSR represented a supplementary aim of the current investigation, its reliability is discussed within sections 5.4.1 and 5.4.3.

5.3.2.2 The children as sexual SC-IAT (see Appendix J). The children as sexual SC-IAT was designed to assess whether respondents more strongly associated children with sexuality or innocence. Participants were shown words related to the target category of *children* (e.g., "boy", "girl", "infant"), and the attribute categories of I (e.g., "flirty", "tempt", "lust") versus *innocent* (e.g., "naive", "virgin", "pure"). Response latencies were compared between trials when words related to children were paired on a response key with innocent and when paired with sexual. Faster responding when children were paired with sexuality, relative to innocence, would produce a positive *D* score, consistent with endorsement of the children as sexual beings IT. In contrast, faster responding

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[38] Based on estimates that almost 40% of offenders have literacy levels below that expected of an 11 year old (National Audit Office, 2008).

when children were paired with innocent would produce a negative *D* score, suggesting an absence of beliefs consistent with this IT.

5.3.2.3 The dangerous world SC-IAT (see Appendix J). Given that both variants of the dangerous world IT feature the belief that adults are hostile and dangerous, the dangerous world SC-IAT was designed to assess whether respondents more strongly associated adults with safety or danger. Participants were shown words related to the target category of *adults* (e.g., "man", "woman", "grown-up"), and the attribute categories of *dangerous* (e.g., "risky", "threat", "harmful") versus *safe* (e.g., "harmless", "trust", "friendly"). Response latencies were compared between trials when words related to adults were paired on a response key with safe and when paired with dangerous. Faster responding when adults were paired with danger, relative to safety, would produce a positive *D* score, consistent with endorsement of the dangerous world IT. In contrast, faster responding when adults were paired with safety would produce a negative *D* score, suggesting an absence of beliefs consistent with this IT.

5.3.4 Statistical analysis. Internal and test re-test reliability was examined for each of the IT-related variables. The degree of inter-relation between individual IT variables was assessed using zero-order correlations. Descriptive statistics were calculated according to group for all IT variables and differences between these groups were assessed using ANOVAs.

To examine the predictive validity of each IT variable, scores on the OGRS-3 and Static-99R were correlated with each of the SC-IAT and self-report IT measures. Linear multiple regression analyses were also calculated to a) account for the potential influence of shared variance, and b) determine whether the SC-IATs added incrementally to prediction achieved by self-report subscales alone.

Within these analyses, scores on the OGRS-3 and Static-99R were regressed onto the IT measures using a 2-step hierarchical forced entry model. Self-reported IT variables were entered at step 1, followed by SC-IAT scores at step 2. At each step, ΔR^2 and individual beta values were examined to determine whether the IT variables contributed significantly to risk outcome prediction.

5.4 Results.

5.4.1 Refinement and internal reliability of the ITSR child-sex IT/response validity subscales.

Ideally, as a newly devised questionnaire, final item selection and subscale structure of the ITSR would have been examined using exploratory and confirmatory factor analysis. Yet, when conducting such analyses, researchers are cautioned against combining heterogeneous samples (i.e., offender versus non-offender), as the resulting factor scores would likely prove unrepresentative of either subsample individually (Kline, 1994). As sample sizes were inadequate to rectify this situation using multi-group exploratory factor analysis, such analyses were performed among community controls only, as these participants represented the largest and most viable experimental group within the current sample.

When this was attempted, however, examination of the Kaiser-Meyer-Olkin statistic indicated that this group's sample size was still insufficient to achieve a stable factor solution. Whilst recruitment of additional community males could have resolved this problem, there would still have been no guarantee that the resulting factor structure would generalise to offender samples, without the use of multi-group analysis to formally confirm such invariance (Kline, 1994). As such, it was concluded that factor analytic methods were beyond the scope of the current

investigation, but it is acknowledged that such procedures need to be undertaken within a larger sample of child-sex offenders before the ITSR can be validated for wider use. Foregoing such analyses, the structure of the ITSR was evaluated by examining the internal consistency of each subscale, to ensure they demonstrated acceptable psychometric properties for use within the current analyses. Given the empirical focus of the current investigation, only results concerning the child-sex IT and response validity subscales are reported herein.

Based on procedures used to develop previous offence-supportive attitude questionnaires (e.g., the MOLEST scale; Bumby, 1996), experimental groups were collapsed so that data from all participants was used to assess internal consistency. Traditionally, internal consistency is assessed using Cronbach's alpha (α). The majority of ITSR items were found to demonstrate significant distributional skew, however, and recent investigations indicate α is not robust to violations of normality (Sheng & Sheng, 2012). As such, *corrected item-to-total correlations* were calculated as an alternative index of internal consistency, using the Spearman rank correlation (*rho*) for non-parametric data (e.g., Fu, Chow, & Lam, 2008). Each item within a given subscale was correlated with the mean of all other items for that subscale, and only items with a correlation coefficient greater than .30 were considered adequate for further use (Field, 2009).

All subscales, bar the children as sexual beings subscale, contained items with corrected item-to-total scores below this accepted cut-off. These scales underwent a recursive process of refinement, where items with the lowest corrected item-to-total correlation were removed sequentially from the scale, and coefficients were recalculated using the remaining subscale items. Using this process, one item was removed from the dangerous world ITSR subscale ("Most adults are

trustworthy"), and two items were removed from the uncontrollability subscale

("People should think before they act" and "People should act on their feelings").[39]

One item was also removed from the deviant responding subscale ("I have never

been caught in the rain without an umbrella"). Once these items had been removed,

these three subscales also demonstrated acceptable levels of internal consistency (all

rho > .30).

Unfortunately, items within the entitlement, nature of harm, and virtuous

responding subscales demonstrated such low item-to-total correlations that this

process failed to adequately improve their internal consistency to a level sufficient

for use within further analysis. As such, these subscales were dropped from the

ITSR, and excluded from further analyses. As a result of such procedures, the

refined ITSR consisted of three child-sex subscales (the original five item children as

sexual beings scale, modified four item dangerous world subscale, and modified

three item uncontrollability subscale), and one response validity subscale (the

modified four item deviant responding subscale).

The corrected item-to-total correlations were also used as an index of the

internal reliability of each remaining ITSR subscale. Items within the children as

sexual beings subscale demonstrated corrected item-to-total correlations ranging

between $r = .48-.58$, whilst correlation ranges were somewhat lower for the

dangerous world ($r = .32-.48$), uncontrollability ($r = .34-.48$), and deviant responding

($r = .30-.40$) subscales. Whilst these values are all within the range considered

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[39] Removing these two items meant the uncontrollability ITSR subscale consisted
purely of items related to the controllability of sexual behaviours in particular. This
suggests it may now measure self-assessed control within this one, specialised area
only, rather than a more generalised sense of personal control as originally intended.
This may have important implications for interpretations made based on this refined
ITSR subscale.

acceptable for this statistic (Field, 2009), they are lower than what would be desired ideally (aiming for correlations as close to 1.00 as possible).

5.4.2 Internal reliability of the SC-IATs. The internal consistency of the SC-IATs was assessed by calculating the split-half reliability of *D* scores, using an odd-even divide, and applying the Spearman-Brown correction to produce an adjusted *r* value. The children as sexual SC-IAT demonstrated a split-half adjusted *r* value of .64, and the dangerous world SC-IAT demonstrated a similar split-half adjusted *r* value of .66. Whilst these values are below the standards traditionally required for self-report questionnaires (> .80), indirect measures are often found to demonstrate lowered internal reliability, due to the influence of trial-by-trial fluctuations in response time (Cunningham et al., 2001). Indeed, the current reliability coefficients are comparable to those produced for other existing SC-IATs (e.g., Hempel et al., 2013; Karpinski & Steinman, 2006). Nonetheless, it should be noted that these values are lower than those typically achieved by traditional bi-polar IATs (coefficients typically in the range of .70-.90; Nosek, Greenwald, & Banaji, 2007).

5.4.3 Test re-test reliability of the ITSR subscales and SC-IATs. Due to practical limitations surrounding recompletion of measures within the prison environment[40], the temporal stability of the SC-IATs and ITSR subscales was

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[40] Due to restrictions concerning their daily prison regime, most offenders could only attend each experimental session for a maximum of two hours. Asking them to recomplete the newly devised IAT measures for a second time would have resulted in an overall session length that exceeded such limitations. It was considered similarly impractical to ask them to return to complete these measures again at a second experimental session, as attrition rates were expected to be unacceptably high. Also, given the sensitive nature of the ITSR items, and in the interest of preventing unwanted dissemination of these items throughout the wider prison

assessed among a subsample of community control participants only. Given the need for specialist software, IAT measures had to be administered within the lab environment. As such, in an attempt to minimise attrition associated with asking participants from the general population to return to the lab for a second, relatively short session, SC-IATs were recompleted for a second time at the end of the formal experimental session, after completion of the ITSR, but before being debriefed about the aims of the study (children as sexual $n = 20$, dangerous world $n = 19$).[41] Previous research into the temporal stability of IAT measures has demonstrated that findings are fairly invariant across re-test periods ranging between 10 minutes to one year (Lane et al., 2007). Whilst considered the most practical approach given the testing circumstances, it was acknowledged that completion of the ITSR may have influenced responding on the second SC-IAT administration. In an attempt to minimise this potential influence, re-test participants were given a short rest break (~5-10 minutes) between completing the ITSR and recompleting the SC-IAT measures.

A sub-sample of community participants ($n = 24$) were also asked to complete a second copy of the ITSR at home, two days after the initial experimental session, and to return it to the research team within a pre-paid envelope. The time-scale of two days was chosen in an attempt to balance concerns over participants remembering the answers given during the first administration (artificially inflating re-test correlations), and those regarding participant attrition (reducing the power to detect significant re-test correlations). In a further attempt to prevent attrition,

population, it was considered undesirable to provide offenders with a second copy to take away and complete at a later date.
[41] For the dangerous world SC-IAT, data for one re-test participant was removed due to an error rate > 30%.

participants were emailed a reminder on the day they were due to complete the second ITSR. To preserve participant anonymity, all second ITSR forms were pre-labelled with the corresponding participant number, and participants were reminded not to place their name anywhere on the form or envelope.

Test re-test reliability was calculated by correlating Time 1 and Time 2 scores on each of the IT measures. Both the children as sexual beings and dangerous world ITSR subscales demonstrated acceptable levels of temporal stability (*rho* = .73 and *r* = .78, respectively), whilst the uncontrollability and deviant responding subscales demonstrated reduced test re-test reliability (*r* = .60 and *rho* = .57, respectively). Test re-test reliability was also lower for both SC-IATs (children as sexual beings *r* = .41; dangerous world *rho* = .57), though these values are fairly typical of those reported for IAT measures generally (average *r* = .50, range .25-.69; Lane et al., 2007).

Given that ITs are thought to be relatively resistant to modification (Ward, 2000), and considering the short time scale of the re-test period used, it is likely that the limited temporal stability demonstrated by these measures was driven by measurement error, rather than genuine fluctuation in IT-related beliefs. Such increased measurement error may be due to methodological issues with the current re-test procedure. Correlations between Time 1 and Time 2 ITSR scores could have been reduced by differences between the administration environments. Whilst the first form was completed under laboratory conditions, the environment in which the second form was completed remained unknown, and beyond the experimenter's control. In addition, previous research has demonstrated that retrieval and conscious consideration of related stimuli can alter outcomes within IAT procedures (e.g., Dasgupta & Greenwald, 2001). As participants completed the ITSR between the two

Table 5.1. Zero-order Correlations between IT and Risk Estimate Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ITSR children-as-sexual beings	-	.23**	.38***	.09	-.21*	-.21*	-.21
(2) ITSR dangerous world		-	.30***	-.04	.01	.11	.12
(3) ITSR uncontrollability			-	.03	.05	-.22*	.04
(4) Children as sexual SC-IAT				-	.31***	.15	.01
(5) Dangerous world SC-IAT					-	-.05	.11
(6) OGRS-3 12 month						-	.56***
(7) Static-99R							-

Note: * $p < .05$. *** $p < .001$. ITSR = Implicit Theories Self-Report scale. IAT = Implicit Association Test.
OGRS = Offender Group Reconviction Scale.

SC-IAT administrations, *D* scores obtained at Time 2 could have been affected by such influences, limiting the test re-test correlations demonstrated by the SC-IATs.

 5.4.4 Inter-variable correlations. As shown in Table 5.1, across the sample as a whole, scores on each of the ITSR subscales demonstrated small-moderate correlations, as did scores on the two SC-IATs. As a result, group differences across each IT variable were assessed using separate univariate ANOVAs, with Bonferroni correction for the use of multiple comparisons ($\alpha = .05$/number of comparisons; Tabachnick & Fidell, 2007). When examining the predictive validity of the IT variables, potential shared variance was controlled for using multivariate regression analyses.

 5.4.5 Descriptive statistics and group comparisons. Table 5.2 contains scores for each IT variable across the experimental groups. Examination of means indicated low levels of self-reported IT endorsement across each ITSR subscale for all groups. Similarly, mean SC-IAT scores indicated low levels of IT endorsement. On average, each group demonstrated negative *D* scores, indicating they more strongly associated children with innocence than sexuality and adults with safety than danger.

 Using the Bonferroni correction for multiple comparisons, group differences were considered significant at $p < .01$ for all IT variables. Significant group differences were found for the children as sexual beings ITSR subscale, $F(2, 179) = 5.50$, $p = .005$, $\eta_p^2 = .06$. Post-hoc follow-ups, conducted using Bonferroni correction, demonstrated that this effect was driven by the offender controls scoring significantly lower than community controls ($p = .004$). Significant group differences were also found for the uncontrollability ITSR subscale, $F(2, 178) = 7.38$, $p = .001$, $\eta_p^2 = .08$. This effect was again driven by offender controls scoring

Table 5.2. Means and Standard Deviations for IT Variables across the Experimental Groups

Variable	Child-Sex Offenders	Offender Controls	Community Controls
	M (SD)	M (SD)	M (SD)
ITSR children as sexual beings	1.49 (0.49)	1.31 (0.39)	1.55 (0.49)
ITSR dangerous world	1.93 (0.49)	1.97 (0.51)	1.89 (0.45)
ITSR uncontrollable	1.64 (0.56)	1.41 (0.41)	1.76 (0.60)
Children as sexual SC-IAT	-0.22 (0.29)	-0.21 (0.26)	-0.18 (0.24)
Dangerous world SC-IAT	-0.24 (0.25)	-0.25 (0.28)	-0.16 (0.28)

Note: ITSR = Implicit Theories Self-Report scale. IAT = Implicit Association Test.

significantly lower than community controls ($p = .001$). No significant group differences were found for the dangerous world ITSR subscale, $F(2, 179) = 0.55$, $p =.581$, the children as sexual SC-IAT, $F(2, 166) = 0.52$, $p = .598$, or the dangerous world SC-IAT, $F(2, 173) = 2.07$, $p = .129$.

5.4.6 Sub-sample comparisons. Given the heterogeneous nature of child-sex offender samples, additional analyses were conducted to determine whether differences between child-sex offender subtypes might have masked some significant group differences. Once again, the Bonferroni correction for multiple comparisons was applied, such that group differences were considered significant at $p < .01$. Previous research suggests that child-sex offenders who have exclusively victimised pubescent children (hebephilic-type offenders) may hold different motivations for offending compared to those who offend against pre-pubescent children (paedophilic-type offenders). For example, studies assessing erotic preferences via penile plethysmography (PPG) demonstrate sexual arousal to children is confined to paedophilic-type offenders only (e.g., Freund & Blanchard, 1989). In addition, previous IAT research has demonstrated that, whilst paedophilic-type offenders show a stronger association between children and sex, hebephilic-type offenders show a stronger association between adults and sex, and cannot be discriminated from non-sexual offender controls on such measures (Brown et al., 2009). As such, child-sex offenders with any current or historical conviction for a sexual offence against a child aged 11 or younger (paedophilic-type offenders, $n = 21$), were compared to those who had offended exclusively against children aged 12-

15 (hebephilic-type offenders, $n = 23$)[42] on each IT variable. Paedophilic-type and hebephilic-type child-sex offenders did not demonstrate significant differences on any IT variable, however (range of p .355 - .976).

It has also been suggested that men who offend against unrelated victims (extra-familial offenders) may hold more entrenched dysfunctional beliefs than those who offend against related victims (intra-familial offenders; Ward, 2000; Ward, Hudson et al., 1997). In support of such reasoning, studies using both direct (Hayashino et al., 1995) and indirect measures (Bartels, Harkins, & Beech, in preparation) have found evidence that extra-familial, but not intra-familial, offenders can be distinguished based on their attitudes or associations regarding children and sex. To explore the possibility that extra-familial offenders might be more likely to possess child-sex ITs than intra-familial offenders, child-sex offenders with any current or historical conviction against a family member (intra-familial, $n = 17$), were compared against those with unrelated victims only (extra-familial, $n = 24$) on each IT variable. These groups did not demonstrate significant differences on any IT variable (range of p .046 - .981). The only variable that trended towards significance was the children as sexual beings ITSR subscale, with extra-familial offenders demonstrating higher scores ($M = 1.58$, $SD = 0.52$) than intra-familial offenders ($M = 1.29$, SD 0.41), $t(41) = 2.05$, $p = .046$.

Finally, previous evidence has suggested that treated child-sex offenders may be more likely to "fake-good" on self-report measures, due to facing greater pressure

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[42] The terms paedophilic- and hebephilic-type offender were adopted in acknowledgement that the terms paedophile and hebephile refer to sexual preference, rather than victim choice (see Brown et al., 2009). Three offenders had committed non-contact sexual offences only and information about victim age was unavailable for one other offender, so these participants were excluded from the current analyses.

to impression manage or increased familiarity with normative responding (Gannon &

Polaschek, 2005). To determine whether differences in treatment history might have

masked significant group differences on either self-reported or SC-IAT assessed ITs,

treated ($n = 27$) and untreated ($n = 21$) child-sex offenders were compared across

each IT variable. Treated and untreated child-sex offenders did not demonstrate

significant differences on any IT variable (range of p .031 - .651). Again, the only

variable that trended towards significance was the children as sexual beings ITSR

subscale, with untreated offenders demonstrating higher scores ($M = 1.62$, $SD =$

0.51) than treated offenders ($M = 1.33$, $SD = 0.45$), $t(44) = 2.23$, $p = .031$.

5.4.7 Predicting scores on risk assessment measures. Table 5.1 contains

the basic zero-order correlations calculated between each IT variable and scores on

the OGRS-3 and Static-99R. These values represent correlations calculated across

all participants for whom the risk measure could be completed validly (i.e., OGRS-3

completed for all offenders, Static-99R for all sexual offenders). Given the high

degree of correlation between 12 and 24 month predictions of risk on the OGRS-3 (r

$= .99$, $p < .001$), only 12 month scores were included within further analyses.[43]

Against predictions, both the children as sexual beings and uncontrollability

ITSR subscales demonstrated a small negative correlation with scores on the OGRS-

3, such that those with higher self-reported scores were predicted to be less likely to

recidiviate within the first 12 months of release. Scores on the dangerous world

ITSR subscale and both SC-IATs were unrelated to OGRS-3 scores. Amongst

sexual offenders, no significant correlations were noted between any IT variable and

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[43] The 12 month scale was considered preferable to the 24 month scale, as it better
met the assumptions of parametric analyses.

scores on the Static-99R. Multiple regression analyses were then used to control for the potential influence of shared variance on these relations.

ITSR subscales were found to significantly predict OGRS-3 scores when entered at step 1 of the regression model, $F(3, 95) = 4.36$, $p = .006$, *adj* $R^2 = .09$. Examination of the individual regression coefficients revealed a significant positive relationship between dangerous world ITSR scores and OGRS-3 scores, $\beta = .24$, $t(95) = 2.28$, $p = .025$. IAT variables did not improve this prediction when added to the model at step 2 ($\Delta R^2 = .02$, $p = .294$). ITSR subscales did not predict scores on the Static-99R when entered at step 1 of the regression model, $F(3, 47) = 2.10$, $p = .113$ and addition of the SC-IATs did not further improve this prediction ($\Delta R^2 = .07$, $p = .152$).

5.4.8 Participants identified as high scorers on the deviant responding ITSR subscale. Lacking any predefined norms for this newly developed measure, deviant responding was presently defined as scores greater than two standard deviations above the sample mean (placing the individual beyond the range of scores given by 95% of the sample). Based on this criterion, 10 participants were identified as *deviant responders*, whose scores may not reflect genuine or accurate answers. A further three participants either failed to complete the ITSR completely ($n = 2$), or omitted more than half of the items on the deviant responding subscale ($n = 1$), such that their levels of malingering could not be assessed. To determine whether the responding of these participants affected the current pattern of results, analyses were re-run excluding these 13 cases (child-sex offender $n = 45$, offender control $n = 60$, community control $n = 68$).

The pattern of results for group comparisons remained unchanged after exclusion of these cases.[44] Excluding deviant responders did not alter the pattern of results concerning Static-99R score prediction. Prediction of OGRS-3 scores altered slightly, however, such that additional negative relationships were found for both the children as sexual beings, $\beta = -.26$, $t(87) = -2.40$, $p = .018$ and uncontrollability ITSR subscales, $\beta = -.23$, $t(87) = -2.10$, $p = .039$. This may be due to the fact that having an index offence of sexual activity with a child actually contributes to a lower risk rating within the OGRS-3 scoring algorithm (Howard et al., 2009). Thus, child-sex offenders scored significantly lower than offender controls on the OGRS-3, $t(101) = 8.18$, $p < .001$, $r = .63$ and demonstrated a trend towards significantly higher scores than offender controls on both these ITSR subscales, creating a potential confound that might explain these unexpected results. In support of such reasoning, the positive relationships between OGRS-3 scores and both the children as sexual beings and uncontrollability ITSR subscales were removed once the regression analysis was restricted to child-sex offenders only ($p = .221$ and .174, respectively).[45] As such, given that the exclusion of deviant responders resulted in few changes, none of which are of particular theoretical interest, only main results using the whole sample will be discussed further.

5.5 Discussion

    5.5.1 Self-report findings. The first aim of the current investigation was to examine self-reported child-sex IT endorsement using a new questionnaire designed

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[44] Full results when deviant responders were excluded are included in Appendix M.
[45] It is acknowledged, however, that restricting analyses to child-sex offenders only would also have reduced the power to detect significant relationships within the regression models. As such, it remains possible that the positive relationships seen between OGRS-3 score and the children as sexual and uncontrollability ITSR subscales are in fact genuine, albeit counter-theoretical, effects.

specifically for this purpose. Overall, the current findings provide little support for

the specificity and predictive validity of Ward's IT approach to child-sex offending.

According to this theory, the beliefs of child-sex offenders should be influenced by a

series of maladaptive ITs that serve to motivate their offending behaviour (Ward,

2000). Yet, subscales within the ITSR proved unable to distinguish between those

with and without a history of child-sex offending, suggesting IT-related beliefs may

be unrelated to the onset of such behaviour. Such findings are consistent with

previous research indicating a lack of specificity for Ward's IT model of child-sex

offending (e.g., Tierney & McCabe, 2001). In addition, further sub-sample analyses

suggested that these null findings were not simply the result of heterogeneity within

the current child-sex offender sample, neither in terms of victim age, relationship

with the victim, nor SOTP status. The only significant differences noted on this self-

report measure were driven by offender controls indicating significantly *lower*

endorsement of child-sex ITs than community controls.

This theoretically unanticipated finding may have been driven by the

environmental conditions faced by non-sexual offender controls when completing

the ITSR. Sexual offenders continue to face a considerable amount of hostility

within the prison system. As a result, when faced with items related to sexual

offending, offender controls may have felt greater pressure to demonstrate

disagreement than community controls, who were perhaps less keenly aware of the

stigma associated with such items. In other words, the lowered endorsement of IT-

related beliefs among offender controls may represent a form of defensive

overcompensation, in an attempt to distance themselves from sex-crime related

material as much as possible. This interpretation is supported by the finding that

offender controls were distinguished from community controls only on subscales

that contained overt links to sexual offending (the children as sexual beings and uncontrollability subscales), and not the more generalised content of the dangerous world subscale.

Self-reported endorsement of child-sex ITs also demonstrated minimal utility regarding the prediction of scores on measures of recidivism risk. Only higher scores on the dangerous world ITSR subscale predicted higher scores within the OGRS-3. This finding is consistent with cognitive theories implicating this particular IT in the commission of a variety of offences (e.g., Polaschek et al., 2009; Polaschek & Gannon, 2004), and suggests that this particular ITSR subscale may have some predictive utility. Yet, scores on the Static-99R were not related to any ITSR subscale, undermining the argument that such ITs are related to the maintenance of sexual offending in particular. Such findings are consistent with the results of previous meta-analytic studies that demonstrate only a minimal role for offence-supportive attitudes in sexual recidivism (e.g., Helmus et al., 2012), and contribute to evidence that undermines the IT approach to sexual offender cognition (e.g., Gannon et al., 2006).

The current null findings may, however, be due to issues with the newly devised ITSR, rather than Ward's theory itself. Firstly, whilst intended to provide a comprehensive assessment of all five child-sex ITs, issues regarding the internal reliability of the entitlement and nature of harm ITSR subscales meant this was not presently achieved. As a result, the current study cannot draw conclusions about the specificity and predictive validity of these particular child-sex ITs. Additional research is required to refine items included within these subscales, in order to resolve their current lack of inter-item consistency. Alternatively, if further research resulted in a sample size sufficient to perform factor analysis upon the ITSR items,

alternative item groupings may be discovered. For example, beliefs related to the children as sexual beings and nature of harm ITs are considered to overlap theoretically (Ward, 2000). Future factor analysis may reveal sufficient inter-relations to warrant combining items within these subscales (for an empirical example, see Howitt & Sheldon, 2007).

Secondly, the internal and test re-test reliability achieved by the remaining ITSR subscales still left something to be desired, particularly the uncontrollability subscale, which demonstrated only questionable temporal consistency based on conventional standards. Such diminished reliability introduces greater measurement error to the current findings and limits the correlations that can be demonstrated with other measures (Cunningham et al., 2001; Tabachnick & Fidell, 2007). Thus, the existing ITSR subscales may require further refinement before this measure can be relied upon within future research.

Thirdly, due to similar issues with scale reliability, it was not presently possible to determine whether responses provided within the ITSR were likely to have been influenced by social desirability or impression management. Whilst a newly devised "virtuous responding" scale was designed as part of the ITSR, this subscale failed to demonstrate acceptable levels of internal consistency and was, as such, excluded from further analyses. Whilst there were initial concerns around the transparency and familiarity of existing measures of aberrant responding (e.g., the BIDR; Paulhus, 1988), such difficulties in constructing a novel scale demonstrate the benefits of relying upon previously established measures when concerned about the impact of socially desirable responding. Regardless of the precise measure used, however, it should be remembered that attempts to "control" for impression management or socially desirable responding may simply remove potentially

meaningful variance in personality, rather than helping to increase the validity of self-reported responding (Tan & Grace, 2008). Such concerns underlie the continued motivation to find alternative measurement techniques that demonstrate greater resistant to impression management and other forms of deceptive responding, without the need to rely on such corrective procedures.

Finally, although the current null findings are presently interpreted as evidence against Ward's IT theory, they could equally reflect a lack of validity regarding the ITSR itself. Data from the current investigation cannot be simultaneously used to test empirical predictions and validate the ITSR using a known-groups approach, without resorting to some form of circular reasoning. Future research should aim to provide some form of external validation for the ITSR, either by demonstrating its convergence with other theoretically-related measures (concurrent validity), or ability to predict relevant outcome measures prospectively (predictive validity).[46] Until such research has been conducted, results using the ITSR cannot be relied upon firmly as evidence for or against Ward's theory.

5.5.2 SC-IAT findings. Given the aforementioned limitations of self-report concerning the influence of automatic cognitive processing and impression management (De Houwer, 2006; Snowden et al., 2011), it is perhaps not altogether surprising that a self-report measure failed to support the current predictions (even one designed specifically with Ward's IT theory in mind). In an attempt to overcome such issues, SC-IATs were also used to assess two of Ward's child-sex ITs, the children as sexual beings and dangerous world ITs.

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[46] Such validation was not attempted within the current study due to issues regarding use of a longitudinal design or further extending the length of the experimental session.

Against predictions, however, both SC-IATs failed to distinguish child-sex offenders from offender or community controls, or to predict scores on measures of general or sexual recidivism risk. Sub-sample analyses confirmed that such null findings were unlikely to be due to heterogeneity in victim age, relationship to the victim, or SOTP status among the current child-sex offender sample. These results are consistent with that of previous research that has used a variety of information-processing paradigms to assess the validity of Ward's IT approach (see section 5.1.4.1). Collectively, consistency across a range of different indirect paradigms suggests that previous research demonstrating only a small or negligible role for IT-related beliefs in the onset and/or maintenance of child-sex offending may not be solely due to issues with relying on self-report techniques. Such findings add to the argument that IT-related cognitive dysfunction cannot account for the offending behaviour of all child-sex offenders (e.g., Gannon et al., 2006).

The current null findings do, however, contrast with the discriminative and predictive validity demonstrated by previous child-sex IATs that have used a traditional bi-polar design to compare relative associations held regarding children versus adults and sex (Babchishin et al., 2012; Nunes et al., 2007). Such divergence may suggest that previously significant child-sex IAT effects were driven by associations regarding adults, rather than children (Snowden et al., 2011), limiting the extent to which they can be taken as evidence to support the children as sexual beings IT in particular. Further research comparing bi-polar and single-category IAT procedures within the same sample is required, however, before such speculations can be considered a viable interpretation of the current findings.

Indeed the suggestion that child-sex offenders do not possess any abnormal cognitive associations regarding children runs counter to almost all theoretical and

clinical accounts of such offending, and is challenged by the results of other indirect paradigms, such as the Sorting Paired Features task (Bar-Anan, Nosek, & Vianello, 2009). Using this alternative association-based measure, Bartels et al. (in preparation) found extra-familial offenders demonstrated a specific deficit in their ability to categorise child-sex stimuli, suggesting that at least some child-sex offenders hold abnormal associations regarding children and sex. What remains to be determined, however, is just what such associations are indexing exactly, and which, if any, cognitive theories of child-sex offending they support (Beech et al., 2013).

As such, the current null findings may simply be due to the psychometric weaknesses of the children as sexual and dangerous world SC-IATs, as they demonstrated lowered reliability compared to traditional bi-polar IAT designs. Reduced reliability increases the likelihood that measurement error contributed to scores within these SC-IATs and restricts their ability to demonstrate significant correlations with other measures (Tabachnick & Fidell, 2007). In addition, research suggests that it may be easier to fake false attitudes within SC-IATs than traditional bi-polar IATs (Karpinski & Steinman, 2006). Whilst practical and conceptual concerns motivated the use of a single-category format within the current investigation, such findings suggest that these measures may be less resistant to attempts at deliberate dissimulation or impression management. As such, further research is needed to determine the ability to detect and correct faking within SC-IAT measures, analogous to the work previously conducted for bi-polar IAT designs (e.g., Cvencek et al., 2010).

5.5.3 Implications and limitations. Overall, the current findings add to existing evidence that indirect measures do not necessarily provide greater support

for the child-sex ITs proposed by Ward than that afforded by traditional self-report measures alone. Such conclusions must, however, be considered in light of the novel nature and reduced reliability of the measures currently used to assess IT-related functioning, along with the more general limitations of the present study overall (discussed in section 6.3). In addition, ongoing issues regarding the construct validity of existing indirect measures limit the extent to which they can be relied upon as evidence for or against any particular theory of child-sex offender cognition, highlighting the need for further research to determine what, if any, implications these measures have for theory or clinical practice (Beech et al., 2013).

Alternatively, the current null findings could be due to limitations regarding the low-risk nature of the current child-sex offender sample. The majority of child-sex offenders had committed contact offences against female victims only (characteristics linked to lower risk of sexual recidivism; e.g., Harris et al., 2003; Hanson & Bussière, 1998). Examining the links between IT-related beliefs and offending behaviour on a low-risk sample is problematic as it means reliance on a truncated range of risk scores (lowering the power or correlational analyses; Tabachnick & Fidell, 2007) and it is possible that maladaptive ITs may only be present among higher-risk offenders. In order to address such concerns, further research seeking to validate either the current IT-related measures, or Ward's IT theory of sexual offender cognition, should seek to recruit larger samples that capture the full range of recidivism risk.

Finally, it is important to remember that maladaptive cognitive processes represent just one of several sexual offending pathways (Ward & Beech, 2006; Ward & Siegert, 2002), and that more recent discussions of the IT approach acknowledge such dysfunction may only characterise a subsample of child-sex offenders (Gannon

& Ward, 2009). Such reasoning demonstrates the limitations of attempting to evaluate risk factors or assessment tools at the group level, where significant effects may be masked by treating child-sex offenders as a homogeneous group. Whilst the current study found no evidence of variation based on heterogeneity in victim characteristics or exposure to treatment, the sample sizes for these analyses remained small, meaning they are likely to have been under-powered. In addition, whilst theoretically derived, all sub-sample comparisons currently represented exploratory post-hoc analyses, rather than pre-specified aspects of the study design. As such, replication among larger samples (where it is possible to anticipate and account for sources of within-group variation a priori) is required before the current sub-sample analyses can be relied upon with confidence. Further research should also seek to determine whether other co-varying developmental, social, or cognitive factors can be used to identify individuals at high-risk for the possession of offence-supportive ITs, as this may help to resolve some of the ongoing controversy surrounding the IT approach to sexual offender cognition (Gannon & Polaschek, 2006).

Chapter 6: General Discussion

6.1 Aim of Thesis

Several theoretical risk factors for sexual offending fail to find consistent support within the empirical literature. The main aim of the current thesis was to examine whether such inconsistency might be due to the vast majority of research having relied solely on measures of self-report to assess such factors. As an indirect measure, the Implicit Association Test (IAT) is argued to circumvent some of the limitations of self-report by facilitating the assessment of more automatic forms of cognitive processing and demonstrating increased resistance to impression management or faking (De Houwer, 2006). As such, the current investigation sought to determine whether use of the IAT paradigm would provide greater evidence for the role of certain psychosocial risk factors in the onset and/or maintenance of sexual offending. This aim was achieved by directly comparing self-report and IAT measures across the three domains of attachment, self-esteem, and child-sex implicit theories (ITs) in their ability to predict offender status and/or scores on measures of general and sexual recidivism risk.

6.2 Summary of Findings and Potential Implications

Across each of the three empirical chapters, the current findings replicated previous evidence indicating a lack of discriminative and/or predictive validity for self-report measures of attachment, self-esteem, and child-sex ITs. Self-reported functioning in each of these domains did not distinguish sexual offenders from non-sexual offenders, or from non-offending community controls, and was also unrelated to estimated risk of sexual recidivism, as indexed by scores on the Static-99R. Only one subscale of the self-report child-sex IT measure achieved significant prediction of scores within the OGRS-3 (the Dangerous World IT), indicating that offenders

with a more negative attitude towards other adults were rated as being at higher risk for general recidivism within 12 months of their proposed release date. This result suggests that such self-reported attitudes may represent a generic risk factor for offending behaviour generally, but show no evidence of representing a specialised risk factor for sexual offending in particular. Overall, such findings add to existing evidence that suggests these areas of psychosocial functioning should not be considered criminogenic risk factors for sexual offending and thus do not warrant continued attention within Sex Offender Treatment Programmes (SOTP; e.g., Mann et al., 2010; Marshall et al., 2011).

Crucially, a series of IATs designed to provide indirect assessment of attachment-, self-esteem-, and IT-related functioning did not improve the prediction of group membership or estimated risk of recidivism. It was not possible to distinguish any of the experimental groups based on their attachment avoidance, self-esteem, or child-sex IT IAT scores. Against predictions, scores on the attachment anxiety IAT indicated that rapists demonstrated a more secure response profile than non-sexual offenders, but could not be distinguished from either child-sex offenders or community controls on this measure. In addition, whilst the interaction between attachment IAT scores was seen to improve prediction of group membership statistically, the resulting classifications demonstrated only limited clinical utility and directly contradicted theoretical predictions, as both child-sex offenders and rapists were less likely to have fearful attachment than community controls. Consideration of the interaction between explicit and implicit self-esteem also failed to discriminate sexual offenders from either control group. Finally, each of the IAT measures also was unrelated to scores on either the Static-99R or OGRS-3.

Thus, overall, use of the IAT paradigm did not provide more substantive evidence of the role played by attachment, self-esteem, or child-sex ITs in the onset and/or maintenance of sexual offending. These findings contribute to the literature regarding risk factors for sexual offending, by suggesting that the existing disparity between theory and evidence may not simply be the result of failure to appreciate the influence of more automated forms of cognition on behaviour, or the susceptibility of self-report to impression management or faking. In their current form at least, IAT measures of attachment, self-esteem, and child-sex ITs correspond with existing self-report evidence that these areas of psychosocial function should not be viewed as criminogenic treatment targets for sexual offenders. Such conclusions and implications must, however, be considered in light of the various conceptual and procedural limitations of the current investigation.

6.3 Limitations of the Current Research Design

6.3.1 Potential issues with the current self-report measures. Throughout each of the empirical chapters, issues were raised concerning the measures used to index self-reported psychosocial functioning, demonstrating the impact measurement selection can have on the ability to draw meaningful conclusions from a given pattern of results. For example, whilst concerns were raised regarding the specificity of the self-reported attachment measure, there were also concerns over the generality of the global explicit self-esteem measure. Such issues demonstrate the importance of striking the correct balance regarding measurement specificity, as important information may be missed by adopting too broad or narrow a focus. Further research is needed to determine whether the current null findings would be replicated using measures that assess alternative forms of attachment (i.e., parental attachment, attachment within relationships generally, or within more problematic/maladaptive

relationships), or domain-specific forms of self-esteem (i.e., social, physical, or sexual self-esteem).

In addition, whilst scores on the self-report measure of child-sex ITs (the Implicit Theories Self Report scale [ITSR]) currently failed to distinguish child-sex offenders from offender or community controls, the conclusions that could be drawn from such findings were limited by issues regarding sub-scale reliability, and a lack of construct validation for this newly devised measure. Further research is needed to refine items contained within the ITSR, particularly those designed to assess the entitlement and nature of harm child-sex ITs, as these subscales were currently excluded from formal analysis due to issues with low internal reliability. Further validation work is also needed to demonstrate the validity of this measure, either by examining its convergence with other measures of offence-supportive beliefs, or by examining its ability to predict offence-related behaviour prospectively, within longitudinal research designs.

6.3.2 Potential issues with the current IAT measures. Each empirical chapter also raised concerns regarding the construct validity of the current IAT measures. Whilst the attachment IATs were found to demonstrate some preliminary convergence with self-reported outcomes during earlier pilot work, further validation is required to demonstrate that these measures are able to predict other meaningful attachment-related outcomes. Similar concerns have been raised concerning the lack of convergent or predictive validity demonstrated by variants of the self-esteem IAT (Buhrmester et al., 2011) and there also remains much debate regarding the construct validity of effects generated by existing child-sex IAT measures (Beech et al., 2013). Such concerns caution against taking IAT effects at face value, and highlight the need for more detailed examination of what exactly is indexed by such associations,

before they are used to further theory or clinical practice. Until such construct validity is demonstrated, the present null findings cannot be taken as conclusive evidence against the role of attachment, self-esteem, or child-sex ITs in sexual offending.

At a broader level, the current findings must also be interpreted in light of ongoing concerns regarding the validity of the IAT paradigm more generally. Firstly, concerns remain over the extent to which complex, dynamic aspects of intrapersonal functioning and personality can be reduced to simple associative links, as assessed within the IAT (e.g., Buhrmester et al., 2011). Such issues were experienced firsthand within the current investigation, when trying to reduce the various definitions of attachment dysfunction or offence-supportive ITs to just a few, clearly defined response categories. Alternative indirect paradigms, such as the lexical decision task, affective priming measure, emotional Stroop task, or rapid serial visual presentation paradigm, might prove better suited to assessing such complex aspects of cognitive functioning. Following the example of Gannon and colleagues (e.g., Gannon et al., 2006; Keown et al., 2008b, 2010), further research should seek to determine whether any of these alternative indirect paradigms might provide stronger evidence for the role played by psychosocial factors in sexual offending.

Secondly, there remains ongoing debate regarding whether, and in what sense, associations indexed by an IAT can be considered automatic (De Houwer, 2006), and the extent to which these effects can be considered resistant to faking or deliberate dissimulation (Rohner et al., 2011). Further research should seek to determine which, if any, criteria for automaticity the current IAT measures satisfy (e.g., by formally examining whether respondents are aware of the attitudes assessed,

or whether the effects are dependent upon having an overall intention to engage in evaluative processes; De Houwer, 2006; De Houwer et al., 2009; Gawronski et al., 2007). Until such work is undertaken, the current null findings cannot be taken as conclusive evidence regarding the role of automatic cognitive processes in sexual offending.

Others have even challenged the central argument that IAT effects represent cognitive associations of any description (i.e., automatic, controlled or otherwise). For example, Rothermund and Wentura (2004) have suggested that, rather than representing the strength of cognitive association held by the respondent, IAT effects instead represent the influence of salience asymmetries on cognitive processing. Specifically, faster responding is facilitated when categories of similar salience are paired on the same response key, than when they are separated across response keys. In other words, responding within the IAT is facilitated by similarity in category salience rather than valence. Whilst the creators of the IAT paradigm question whether such a distinction truly alters the interpretation of its findings (Greenwald, Nosek, Banaji & Klauer, 2005), Rothermund, Wentura and De Houwer (2005) argue that existing evidence is unable to distinguish between these competing accounts and thus advise caution in drawing valence-based conclusions from IAT generated data. Based on the reasoning of these authors, the current null findings could simply indicate that sexual offenders do not differ from controls in the salience compatibility of categories presented within the attachment, self-esteem and/or IT-related IATs, rather than suggesting they hold similar associations regarding these constructs.

In addition to such conceptual concerns, the reduced reliability of the current IAT measures should also be kept in mind when interpreting the present findings,

particularly those involving the single-category IATs used to index Ward's child-sex ITs. Whilst potentially a result of the increased variability inherent to reaction-time based procedures (Cunningham et al., 2001), such reduced internal consistency and temporal stability may limit the utility of IAT measures within clinical practice. For example, if an offender demonstrated a reduction in their children-as-sexual SC-IAT score between pre- and post-treatment assessments, it would be difficult to know whether such a change was the result of a genuine effect of treatment, or simply the increased measurement error currently associated with this measure. Whilst it may be possible to compensate for such measurement error statistically (as demonstrated by Cunningham et al., 2001), such procedures are not readily available to practicing clinicians, again calling into question the utility of IAT measures within applied settings.

6.3.3 Potential issues with the current study design. The conclusions that can be drawn from the current findings are also limited by more general concerns regarding the study sample and design. Prior to data collection and based on the recommendations of Cohen (1992), it was estimated that the planned analyses would require a minimum of 60 participants per group in order to detect a medium sized effect. Yet, due to time constraints and the difficulties inherent to data collection within the prison service, sample sizes fell short of this target for all offender groups. As such, the sample size remained relatively small given the complexity of statistical analyses used to test some of the current empirical predictions, particularly those involving rapists and those comparing sub-types of sexual offender (i.e., treated versus untreated, paedophile versus hebephile). Low sample size reduces the power of statistical analyses and increases the risk of both Type I and Type II errors (Field, 2009). The risk of making a Type I error was further increased within analyses

comparing different sexual offender sub-types, as these sources of heterogeneity were examined in an exploratory, post-hoc manner. Further research should aim to re-examine the role of attachment, self-esteem, and child-sex IT-related beliefs among larger offender samples that allow potential sources of within-group variation to be accounted for and examined a priori.

Secondly, the offender sample consisted solely of self-selected, previously convicted offenders, who volunteered to participate in the study without any form of reimbursement for their time. There are obvious concerns over the extent to which data provided by these participants would generalise to other convicted offenders who were not willing to volunteer their time, or to sexual offenders who have so far evaded detection by the criminal justice system. In addition, the vast majority of sexual offenders within the current sample were classed as accepting of their sexual offences, with deniers being in such a minority that statistical comparison of these two groups was not possible.[47] As a result, it also remains unknown whether the current findings would generalise to offenders who outwardly deny their offending behaviour. Whilst evidence generally challenges the argument that those who deny their offences are more likely to re-offend (Mann et al., 2010), it may still prove important to rule out this potential source of variability in order to demonstrate the generalised clinical utility of the current self-report and IAT measures.

In addition, examination of the demographic characteristics of each group revealed that the current child-sex offender sample was likely to be at relatively low risk for re-offending. The majority of these offenders had committed contact

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[47] Accept versus deny status was determined based on whether or not the offender had been refused entry to SOTP due to denying their offences. Using this basic criterion, 55 sexual offenders were rated as accepting and only 10 as denying.

offences against female victims, whereas existing empirical evidence suggests offenders who engage in non-contact offences and/or victimise males are at higher risk for future re-offending (Harris et al., 2003; Hanson & Bussière, 1998). Reliance on low risk offenders limits the conclusions that are able to be drawn from the current findings, as it remains possible that significant deficits in attachment, self-esteem or IT-related functioning are only present among higher-risk offenders and/or that the relationship between these areas of psychosocial functioning and recidivism risk only becomes significant at higher levels of risk. Until the current null findings are replicated among larger samples representing the full range of risk, or targeted samples of high-risk offenders, the current findings cannot be taken as conclusive evidence against the role of attachment, self-esteem or IT-related beliefs in sexual offending.

Finally, there may also be issues regarding the current selection of outcome measures. Group membership was determined solely on the basis of officially recorded convictions, yet it is well documented that such formal sources of information likely underestimate the full extent of criminal activity among offender participants. For example, official records contain no information regarding offences that the offender has not admitted to, or been formally convicted of, offences that were sexually motivated, but were classed as non-sexual at the point of conviction (i.e., breaking into someone's house with the intention to sexually assault them, yet only being charged for burglary), or offences where the sexual element of an incident has been dropped as a result of plea bargaining (Snowden et al., 2011).

Similarly, the current study relied on scores obtained using actuarial measures of recidivism risk as a proxy for the maintenance of sexual offending behaviour. Such an approach is limited in several ways. Firstly, actuarial risk

assessment measures continue to face criticism for failing to account for the influence of more dynamic sexual offending risk factors, such as sexual preoccupation, hostility, and general problems with self-regulation (Hanson & Morton-Bourgon, 2005). Researchers argue that, beyond providing accurate estimates of recidivism, risk assessment tools should also highlight areas of dysfunction that can be meaningfully targeted within treatment and risk management programmes (e.g., Douglas, Cox, & Webster, 1999). As such, it would be interesting to examine whether the current null findings would be replicated using more dynamic risk assessment tools, (i.e., structured professional judgement tools, such as the SVR-20; Boer, Hart, Kropp, & Webster, 1997). Secondly, whilst achieving moderate to large effect sizes within a recent meta-analysis of measures used to predict sexual and/or violent recidivism ($d = 0.67$-0.97), actuarial risk assessment measures continue to demonstrate some degree of predictive inaccuracy (Hanson & Morton-Bourgon, 2009). As such, investigations interested in the role of psychosocial risk factors in sexual recidivism should, ideally, utilise longitudinal designs that examine actual rates of recidivism as the outcome variable, rather than imperfect predictive estimates of such behaviour.[48]

Finally, whilst selected for its brevity and comparative predictive validity among offender populations generally (Yang et al., 2010), the OGRS-3 may have limited clinical utility when attempting to predict general recidivism among sexual offenders specifically. Due to its focus on the short-term likelihood of committing any sanctionable offence, sexual offenders generally receive low scores within the

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[48] Although, due to the aforementioned limitations of relying on formal conviction records, it is once again noted that even prospective recidivism studies will likely underestimate the true incidence of reoffending and thus contain some degree of inaccuracy.

OGRS-3, irrespective of the level of risk implied by the nature of their sexual offending (National Offender Management Service, n.d.). In other words, offenders with markedly different scores within sexual recidivism measures such as the Static-99 might score very similarly within the OGRS-3, due to the nature of this latter measures scoring algorithm. Future research may benefit from the use of alternative measures of general recidivism that are designed specifically for use among sexual offender populations and thus better able to account for such within-group variation in risk (e.g., the C-scale of the RM2000; Thornton et al., 2003).

6.4 Future Directions

Several suggestions for further research have already been proposed in order to address limitations with the current study design and measures. To summarise, the following practical recommendations are made regarding future research related to the findings of the current thesis:

1. Researchers interested in the role of attachment in sexual offending should measure both generalised and relationship-specific attachment, to determine whether the level at which such functioning is assessed impacts upon the ability to detect significant group differences and/or relationships with estimates of recidivism risk.

2. Similarly, researchers interested in the role of self-esteem in sexual offending (explicit and/or implicit) should use multi-dimensional or domain specific measures to examine whether there are particular domains of self-evaluation that distinguish these offenders from controls.

3. Researchers interested in the role of automatic cognitive processing in sexual offending should consider measurement reliability, validity and suitability

before selecting a paradigm to try and capture the particular construct of interest. There also needs to be greater movement towards the standardisation of such measures, in order to reduce the influence of procedural variation on the ability to replicate findings between studies using such indirect paradigms.

4. When considering sample size and composition, researchers should aim for samples that not only meet the standards for adequate statistical power (Cohen, 1992), but also contain sufficient diversity to afford examination of effects across a range of risk levels and account for known sources of within-group variation (such as offence characteristics, and treatment or denial status). Strategic recruitment across prisons of varying security levels may facilitate such heterogeneous sampling within future research.

5. Irrespective of the domain of interest, researchers should also give careful consideration to their choice of outcome measures. If attempting to demonstrate relationships with the maintenance of offending behaviour, longitudinal designs should be utilised wherever possible. If such a design is not possible for practical or financial reasons, consideration of the population of interest and the relevance of dynamic versus static risk factors should be used to guide selection of an appropriate risk estimate measure.

Beyond these practical recommendations, research regarding risk factors for sexual offending also faces some more general challenges. For example, researchers are becoming increasingly aware of the need to move beyond examining individual risk factors in isolation, towards the development of more comprehensive investigations that assess how such factors might inter-relate to produce offending behaviour. The

vast majority of existing empirical research (including the current thesis) has treated attachment, self-esteem, and IT-related beliefs as isolated risk factors for sexual offending. Yet, evidence suggests these areas of psychosocial functioning may in fact relate to one another. For example, attachment-related functioning has been theoretically and empirically implicated in the formation of self-esteem in both normative populations generally (e.g., Bowlby, 1969; Coopersmith, 1967), and sexual offender samples specifically (e.g., Marshall & Mazzucco, 1995). Attachment dysfunction has also been implicated in the development of child-sex ITs, as these maladaptive belief systems are thought to be the result of attempts to make sense of ongoing adversity within early interpersonal relationships (Ward, 2000).

Such reasoning and evidence suggests aetiological pathways may exist between each of the three risk factors considered within the current thesis. Whilst beyond the scope of the present investigation, future research should focus on developing theoretical models that formally integrate such factors, and aim to generate testable predictions that can be examined within further empirical study. Such ideas resonate with calls for researchers to move beyond simple identification of risk factors, towards consideration of the processes which translate risk into behaviour (e.g., Beech & Ward, 2004). Greater understanding of the temporal links between individual risk factors, as well as the processes that translate such vulnerabilities into actual offending behaviour, may provide crucial information to help further improve the efficacy of SOTP.

In addition, future researchers should be encouraged to move away from studies that focus on trying to identify meaningful differences at the group level of analysis. It is becoming increasingly acknowledged that there often exists as much

variation within as between groups created purely on the type of offence committed (as reflected in the development of complex multi-factorial models such as the ITSO; Ward & Beech, 2006). More meaningful analysis may involve identification of potential sources of within-group heterogeneity, such as level of aggression or premeditation (Ward et al., 1996), and examining whether relationships with such characteristics indicate a role for factors such as attachment, self-esteem and IT-related beliefs in how, rather than if, sexual offences are committed.

6.5 Conclusion

Within the current thesis, use of the IAT as an indirect measurement paradigm did not provide more substantive evidence for the role of attachment, self-esteem, or child-sex ITs in sexual offending. Such findings extend the existing literature by suggesting that the previous empirical inconsistency regarding these risk factors may not simply be due to the limitations of relying solely on self-report. With further study and replication, the current findings could be taken as additional evidence against retaining these factors as criminogenic risks that need to be targeted within SOTP. Yet, further research is needed to address the various conceptual and methodological limitations of the current investigation before such findings can be interpreted and acted upon with confidence.

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Appendix A: Demographic Characteristics of the Combined "Offender Control" Group

For analyses involving the IT variables, participant groupings were reformed such that rapists and non-sexual offenders were combined to into an "offender control" group. The rationale for such an alteration is explained in Chapter 5 These offenders were predominately White ($n = 57$), with a minority of participants reporting Black ($n = 6$), Mixed Race ($n = 3$), or Indian ethnicities ($n = 1$). In terms of educational attainment, the majority had achieved FHEQ level 1/2 ($n = 37$), with others achieving up to level 3 ($n = 7$), level 4/5 ($n = 7$), or level 6 ($n = 5$). No offender controls had achieved FHEQ level 7/8 and the remaining 11 participants had no educational qualifications at the time of participation. The majority of offender controls were single ($n = 48$), with only 19 describing themselves as in some form of relationship.

Regarding psychiatric history variables, the majority of offender controls had either an historical, current, or potential for current psychiatric diagnosis on file ($n = 42$), with only 25 having no history of any mental illness. Only a minority were noted as having either potential or diagnosed PD ($n = 14$), with the vast majority having no evidence of PD on file ($n = 53$). Finally, whilst 34 offender controls had never received medication to treat a psychiatric condition, around half this group had either an historical ($n = 24$) or current prescription ($n = 9$).

Group differences were noted on several demographic variables. When ethnicity was dichotomised into White versus non-White ethnicity[49], significant

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[49] Expected cell counts were too low to conduct a chi-square analyses when non-White ethnicities were further differentiated (Field, 2009)

group differences were found, χ^2 (2) = 14.58, $p < .001$, such that community controls were significantly more likely to report non-White ethnicity ($p < .05$), whilst child-sex offenders were less likely to report non-White ethnicity ($p < .05$). Level of educational attainment also varied significantly between groups, χ^2 (10) = 99.69, $p < .001$. Community controls were significantly less likely to have no qualifications ($p < .05$), or to have only attained FHEQ level 1 or 2 ($p < .001$), and significantly more likely to have achieved FHEQ level 6 or level 7/8 (both $p < .001$). Offender controls were significantly less likely to have achieved FHEQ level 6 ($p < .05$) or level 7/8 ($p < .001$), and significantly more likely to have only achieved level 1/2 ($p < .01$). Marital status also differed significantly between groups, χ^2 (2) = 32.51, $p < .001$, with community controls being significantly more likely to be dating ($p < .001$), and child-sex offenders being significantly more likely to be single ($p < .05$). Child-sex offenders and offender controls did not demonstrate any significant group differences on presence of mental illness, χ^2 (1) = 1.03, $p > .05$, personality disorder, χ^2 (1) = 2.09, $p > .05$, or use of psychiatric medication, χ^2 (2) = 1.34, $p > .05$.

Significant group differences[50] were found for participant age, $H(2) = 26.11$, $p < .001$. Post-hoc follow-ups demonstrated that child-sex offenders were significantly older than both offender controls (U = 24.75, $p < .05$, $r = .23$) and community controls (U = 50.81 $p < .001$, $r = .47$), and that offender controls were also significantly older than community controls ($U = 26.06$, $p < .01$, $r = .24$). Groups also differed significantly in IQ, as indexed by the Wechsler Test of Adult Reading (WTAR), $F(2, 179) = 10.89$, $p < .001$, $\omega^2 = .01$, such that community controls had significantly higher WTAR scores than both child-sex offenders ($p <$

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[50] Please note all group comparison analyses were conducted on transformed rather than raw demographic variables.

.05) and offender controls ($p < .001$), but child-sex offenders and offender controls did not differ significantly from one another ($p > .05$).

In terms of offence characteristics, child-sex offenders were found to be significantly older than offender controls at the point of current conviction, $t(113) = 3.51$, $p < .001$, $r = .31$ and at their first criminal conviction, $t(112) = 3.56$, $p < .001$, $r = .32$. Child-sex offenders were also found to have significantly fewer prior sentences than offender controls, $t(113) = 4.16$, $p < .001$, $r = .36$. Offender groups did not differ in the number of days already served for their current prison sentence, $t(113) = 1.74$, $p > .05$.

Appendix B: The Wechsler Test of Adult Reading (Wechsler, 2001)

Instructions given verbally: "I will show you some words that I will ask you to pronounce (provide word list). Beginning with the first word on the list, pronounce each word aloud. Start with this word (point to item 1), and go down this column, one after the other, without skipping any. When you finish this column, go to the next column (point to second column). Pronounce each word even if you are unsure. Do you understand? Ready? Begin."

1	again	26	conscientious
2	address	27	homily
3	cough	28	malady
4	preview	29	subtle
5	although	30	fecund
6	most	31	palatable
7	excitement	32	menagerie
8	know	33	obfuscate
9	plumb	34	liaison
10	decorate	35	exigency
11	fierce	36	xenophobia
12	knead	37	ogre
13	aisle	38	scurrilous
14	vengeance	39	ethereal
15	prestigious	40	paradigm
16	wreathe	41	perspicuity
17	gnat	42	plethora
18	amphitheatre	43	lugubrious
19	lieu	44	treatise
20	grotesque	45	dilettante
21	iridescent	46	vertiginous
22	ballet	47	ubiquitous
23	equestrian	48	hyperbole
24	porpoise	49	insouciant
25	aesthetic	50	hegemony

Appendix C: Demographic Form

Part A:

First Name:

Surname:

Date of Birth:

Nationality:

Part B:

Age:

Ethnicity (e.g., White, Black, Asian):

Highest school grade/achievement:

Marital status:

Length of longest relationship:

Ever lived with partner (yes/no)?

      If YES for how long did you live with them?

Appendix D: Offender Participant File Data Extraction Form

Prison:

Participant Number:

Participant Demographics

Age:

Gender:

Ethnicity:

Education Level:

Marital Status:

Length of Relationship (current or previous):

Full IQ:

  Verbal:

  Non-verbal:

Psychiatric History:

Personality Problems:

Medication:

Substance Misuse:

Head Injuries:

Offence Characteristics

Current Conviction:

Age at Current Conviction:

Length of Current Prison Sentence/Served so far:

Previous Convictions/Charges:

Institutional Charges or Rule Violations:

Number of Prior Sentences Received:

Most Serious Offence:

Age at First Conviction:

Predicted Date of Release:

Victim Characteristics (past and present)

Number of Victims:

Victim Ages:

Victim Gender:

Relation to Victims:

Sex Offender Treatment Program

Status:

1) Rejected ☐ Reason:
2) Completed ☐ Type:
   Times:
3) Halfway ☐ Type:
4) Waiting List ☐
5) Non-Sex Offender ☐

Rated as: **ACCEPTING   /   DENYING**

(please circle)

General Notes:

Appendix E: Scoring Form for the Offender Group Reconviction Scale – 3

(Howard et al., 2009)

1. Age at the date of the current caution, non-custodial sentence or discharge from custody

2. Gender

3. Types of offence for which the offender has currently been cautioned or convicted

4. Number of times previously cautioned and convicted

5. Length of recorded criminal history (in years).

Appendix F: Scoring Form for the Static-99R (Hanson & Thornton, 2000)

Question Number	Risk Factor	Codes		Score
1	Age at release	Aged 18 to 34.9 Aged 35 to 39.9 Aged 40 to 59.9 Aged 60 or older		1 0 -1 -3
2	Ever Lived With	Ever lived with lover for at least two years? Yes No		 0 1
3	Index non-sexual violence - Any Convictions	No Yes		0 1
4	Prior non-sexual violence - Any Convictions	No Yes		0 1
5	Prior Sex Offences	Charges 0 1,2 3-5 6+	Convictions 0 1 2,3 4+	 0 1 2 3
6	Prior sentencing dates (excluding index)	3 or less 4 or more		0 1
7	Any convictions for non-contact sex offences	No Yes		0 1
8	Any Unrelated Victims	No Yes		0 1
9	Any Stranger Victims	No Yes		0 1
10	Any Male Victims	No Yes		0 1
	Total Score	**Add up scores from individual risk factors**		

Appendix G: The WHOTO (Fraley & Davies, 1997)

Who is the person you most like to spend time with?

Who is the person you don't like to be away from?

Who is the person you want to be with when you are feeling upset or down?

Who is the person you would count on for advice?

Who is the person you would want to tell first if you achieved something good?

Who is the person you can always count on?

Appendix H: Attachment Figure Information Form

Please tell us the following information about _____

1. Surname:

2. Nickname:

3. Relationship to you (e.g., mother, best friend):

4. Job:

5. Hair Colour:

6. Eye Colour:

7. Favourite Hobby:

8. Favourite Sport:

9. Favourite Music:

10. Favourite Drink:

11. Car Make:

12. Habit:

Now please tick alongside the FOUR items that most remind you of
_____

Appendix I: The Experiences in Close Relationships Scale (Brennan et al., 1998)

The following statements concern how you generally feel in your relationship with

_____. Respond to each statement by indicating how much you

agree or disagree with it. Circle the number that corresponds most closely to your

level of agreement. If you do not feel comfortable answering a question you may

leave it blank.

		Disagree Strongly	Disagree	Disagree Slightly	Neutral/Mixed	Agree Slightly	Agree	Agree Strongly
		1	2	3	4	5	6	7
1	I prefer not to show others how I feel deep down	1	2	3	4	5	6	7
2	I worry about being rejected or abandoned	1	2	3	4	5	6	7
3	I am very comfortable being close to other people	1	2	3	4	5	6	7
4	I worry a lot about my relationships	1	2	3	4	5	6	7
5	Just when someone starts to get close to me I find myself pulling away	1	2	3	4	5	6	7
6	I worry that others won't care about me as much as I care about them	1	2	3	4	5	6	7
7	I get uncomfortable when someone wants to be very close to me	1	2	3	4	5	6	7
8	I worry a fair amount about losing my close relationship partners	1	2	3	4	5	6	7
9	I don't feel comfortable opening up to others	1	2	3	4	5	6	7
10	I often wish that close relationship partners' feelings for me were as strong as my feeling for them	1	2	3	4	5	6	7

		Disagree Strongly	Disagree	Disagree Slightly	Neutral/Mixed	Agree Slightly	Agree	Agree Strongly
11	I want to get close to others, but I keep pulling back	1	2	3	4	5	6	7
12	I want to get very close to others, and this sometimes scares them away	1	2	3	4	5	6	7
13	I am nervous when another person gets too close to me	1	2	3	4	5	6	7
14	I worry about being alone	1	2	3	4	5	6	7
15	I feel comfortable sharing my private thoughts and feelings with others	1	2	3	4	5	6	7
16	My desire to be very close sometimes scares people away	1	2	3	4	5	6	7
17	I try to avoid getting too close to others	1	2	3	4	5	6	7
18	I need a lot of reassurance that close relationship partners really care about me	1	2	3	4	5	6	7
19	I find it relatively easy to get close to others	1	2	3	4	5	6	7
20	Sometimes I feel that I try to force others to show more feeling, more commitment to our relationship than they otherwise would	1	2	3	4	5	6	7
21	I find it difficult to allow myself to depend on close relationship partners	1	2	3	4	5	6	7
22	I do not often worry about being abandoned	1	2	3	4	5	6	7
23	I prefer not to be too close to others	1	2	3	4	5	6	7
24	If I can't get a relationship partner to show interest in me, I get angry or upset	1	2	3	4	5	6	7
25	I tell my close relationship partners just about everything	1	2	3	4	5	6	7

		Disagree Strongly	Disagree	Disagree Slightly	Neutral/Mixed	Agree Slightly	Agree	Agree Strongly
26	I find that my partners don't want to get as close as I would like	1	2	3	4	5	6	7
27	I usually discuss my problems and concerns with close others	1	2	3	4	5	6	7
28	When I don't have close others around, I feel somewhat anxious and insecure	1	2	3	4	5	6	7
29	I am comfortable depending on others	1	2	3	4	5	6	7
30	I get frustrated when my close relationship partners are not around as much as I would like	1	2	3	4	5	6	7
31	I don't mind asking close others for comfort, advice or help	1	2	3	4	5	6	7
32	I get frustrated if relationship partners are not available when I need them	1	2	3	4	5	6	7
33	It helps to turn to others in times of need	1	2	3	4	5	6	7
34	When other people disapprove of me, I feel really bad about myself	1	2	3	4	5	6	7
35	I turn to close relationship partners for many things, including comfort and reassurance	1	2	3	4	5	6	7
36	I resent it when my relationship partners spend time away from me	1	2	3	4	5	6	7

Appendix J: Items used within the Implicit Association Tests

Attachment Anxiety IAT

Me	Not-Me	Relationally Secure	Relationally Anxious
FIRST NAME*	ANNE†	Secure	Anxious
SURNAME*	TAYLOR†	Sure	Tense
MALE	FEMALE	Safe	Uncertain
DATE OF BIRTH*	27TH SEPTEMBER†	Certain	Worried
NATIONALITY*	SCOTTISH†	Relaxed	Doubt

Note: * Generated on an ideographic basis using Part A of Demographic Form. †

Replaced with an alternative if standard foil was personally relevant to the participant.

Attachment Avoidance IAT

John*	Not-John*	Intimacy	Independence
FIRST NAME*	BILLY†	Rely	Distant
EYE COLOUR*	GREEN EYES†	Depend	Withdraw
PROFESSION*	ENGINEER†	Support	Isolated
RELATIONSHIP*	COUSIN†	Trust	Alone
CAR MAKE*	HONDA†	Share	Independent

Note: * Generated on an ideographic basis using Attachment Figure Information Form

(exact stimuli categories will vary depending on which are indicated as most closely

related to their attachment figure. † Replaced with an alternative if standard foil was

personally relevant to the participant.

Self-Esteem IAT

Me	Not-Me	Love	Hate
FIRST NAME*	ANNE†	Like	Disgust
SURNAME*	TAYLOR†	Good	Dislike
MALE	FEMALE	Adore	Horrible
DATE OF BIRTH*	27TH SEPTEMBER†	Nice	Nasty
NATIONALITY*	SCOTTISH†	Love	Hate

Note: * Generated on an ideographic basis using Part A of Demographic Form. †

Replaced with an alternative if standard foil was personally relevant to the participant.

Children as Sexual IAT

Children	Innocent	Sexual
CHILD	PURE	FLIRTY
KID	NAIVE	SEDUCTIVE
INFANT	VIRGIN	TEMPT
BOY	VULNERABALE	LUST
GIRL	INNOCENT	SEXUAL

Dangerous World IAT

Adults	Safe	Dangerous
MAN	TRUST	THREAT
WOMAN	HARMLESS	SCARY
GROWN-UP	FRIENDLY	HARMFULL
ADULT	SURE	RISKY
	SAFE	DANGEROUS

Appendix K: The Rosenberg Self-Esteem Scale (Rosenberg, 1989)

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **1**. If you agree with the statement, circle **2**. If you disagree, circle **3**. If you strongly disagree, circle **4**. If you do not feel comfortable answering a question you may leave it blank.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1	On the whole, I am satisfied with myself	1	2	3	4
2	At times, I think I am no good at all	1	2	3	4
3	I feel that I have a number of good qualities	1	2	3	4
4	I am able to do things as well as most other people	1	2	3	4
5	I feel I do not have much to be proud of	1	2	3	4
6	I certainly feel useless at times	1	2	3	4
7	I feel that I am a person of worth, at least on an equal plane with others	1	2	3	4
8	I wish I could have more respect for myself	1	2	3	4
9	All in all, I am inclined to feel that I am a failure	1	2	3	4
10	I take a positive attitude toward myself	1	2	3	4

Appendix L: The Implicit Theories Self-Report Scale

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	Sometimes I just get into a rage (OC)	1	2	3	4
2	Most adults take advantage of you (DW)	1	2	3	4
3	I enjoy sex with children (SA)	1	2	3	4
4	Children can learn from having sex with an adult (NH)	1	2	3	4
5	Fighting makes people respect you (SE/J)	1	2	3	4
6	I am sexually attracted to adults (SA-R)	1	2	3	4
7	Adults often reject me (DW)	1	2	3	4
8	A man has to fight to stay on top (SE/J)	1	2	3	4
9	*People should think before they act (UN-R)	1	2	3	4
10	Fighting is part of who I am (SE/J)	1	2	3	4
11	Being violent just helps get the job done (NV)	1	2	3	4
12	Sometimes I put off unpleasant jobs to do more enjoyable things (VR-R)	1	2	3	4
13	I have the right to do as I please (EN)	1	2	3	4
14	People often seem to want to start fights with me (SP/J)	1	2	3	4
15	Violence helps solve problems (NV)	1	2	3	4
16	Sexual urges are difficult to control (UN)	1	2	3	4
17	Children can be harmed by having sex with an adult (NH-R)	1	2	3	4
18	Children are sexually innocent (CS-R)	1	2	3	4
19	When I get angry I walk away (OC-R)	1	2	3	4
20	I always control my behaviour (OC-R)	1	2	3	4
21	I can remember a time when a story or joke made me laugh (DR-R)	1	2	3	4
22	A man has to fight to protect other people (IL/J)	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
23	*People should act on their feelings (UN)	1	2	3	4
24	I never gossip about others (VR)	1	2	3	4
25	Fighting seems stupid to me (J-R)	1	2	3	4
26	Children know a lot about sex (CS)	1	2	3	4
27	I avoid getting in to fights at all (J-R)	1	2	3	4
28	I get on well with everyone that I meet (VR)	1	2	3	4
29	Violence usually makes problems worse (NV-R)	1	2	3	4
30	Everyone is of equal value (EN-R)	1	2	3	4
31	A man has to fight or he will be the victim (SP/J)	1	2	3	4
32	I can only really trust myself (DW)	1	2	3	4
33	Children are sexually attractive (SA)	1	2	3	4
34	I am always willing to give up my time to help others (VR)	1	2	3	4
35	I fight to protect myself (SP)	1	2	3	4
36	Children's behaviour is innocent (CS-R)	1	2	3	4
37	When I get angry I lose control (OC)	1	2	3	4
38	Sex is bad for a child (NH-R)	1	2	3	4
39	Sometimes I forget where I live (DR)	1	2	3	4
40	I find it hard to forgive people who have really upset me (VR-R)	1	2	3	4
41	Sex between an adult and child is harmless (NH)	1	2	3	4
42	Some people are better than others (EN)	1	2	3	4
43	When I wake up I often have the taste of banana in my mouth (DR)	1	2	3	4
44	I use violence to put bad people in their place (IL/J)	1	2	3	4
45	Fighting between men is normal (NV)	1	2	3	4
46	Children can be flirty (CS)	1	2	3	4
47	A man should walk away from fights (J-R)	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
48	*Most adults are trustworthy (DW-R)	1	2	3	4
49	Children who are sexually abused get over it when they grow up (NH)	1	2	3	4
50	Sex can happen by accident (UN)	1	2	3	4
51	I am sexually attracted to children (SA)	1	2	3	4
52	Children have sexual needs (CS)	1	2	3	4
53	Men should avoid getting in fights (NV-R)	1	2	3	4
54	Men can control their sexual urges (UN-R)	1	2	3	4
55	If people wind me up it's their fault if I hurt them (OC)	1	2	3	4
56	I enjoy sex with adults (SA-R)	1	2	3	4
57	I try to think about others before acting (EN-R)	1	2	3	4
58	Adults usually accept me (DW-R)	1	2	3	4
59	Men are allowed sex whenever they want it (EN)	1	2	3	4
60	I need to close my eyes to fall asleep (DR-R)	1	2	3	4
61	Fighting teaches people a lesson (IL)	1	2	3	4
62	*I have never been caught in the rain without an umbrella (DR-R)	1	2	3	4

Note: Child-Sex ITs: CS = Children as sexual beings
                      DW = Dangerous World
                      EN = Entitlement
                      NH = Nature of harm
                      UN = Uncontrollability
       Violence ITs: NV = Normalisation of violence
                      IL = I am the law
                      SE = Beat or be beaten – self-enhancement
                      SP = Beat or be beaten – self-protection
                      J = Justifications for violence (IL, SE, and SP combined)
                      OC = I get out of control
       Non-IT scales: SA = Sexual attraction to children
                      DR = Deviant responding
                      VR = Virtuous responding
       -R = Item reverse scored
       * Item removed during questionnaire refinement

Appendix M: Full Analysis of Implicit Theory Data when excluding Deviant Responders within the Implicit Theory Self-Report Scale

Participants

Thirteen cases were identified as extreme scorers on the Deviant Responding subscale of the Implicit Theory Self-Report Scale (ITSR). Once these participants were removed from the sample, group sizes were as follows: Child-sex offender $n = 45$; offender control $n = 60$, community control $n = 68$.

Inter-variable Correlations

Table M1 demonstrates that each of the ITSR subscales and single-category Implicit Association Tests (SC-IATs) continued to demonstrate only small to moderate inter-relations after excluding deviant responders.

Descriptive Statistics and Group Comparisons

Table M2 contains the means and standard deviations for each ITSR subscale once deviant responders were excluded from the sample. Examination of these scores indicated that all groups continued to demonstrate low levels of self-reported IT endorsement across each ITSR subscale. Using Bonferroni correction for multiple comparisons, group differences were considered significant at $p < .01$ for all IT variables. Significant group differences were found for the children-as-sexual ITSR subscale, $F(2, 169) = 8.08$, $p < .001$, $\eta_p^2 = .09$. Post-hoc follow-ups, conducted using Bonferroni correction, demonstrated that this effect was driven by the offender controls scoring significantly lower than community controls (p = .004). Significant group differences were also found for the Uncontrollability

Table M1. Zero-order Correlations between IT and Risk Estimate Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ITSR Children-as-Sexual	-	.23**	.28***	.12	.21**	-.25**	-.27
(2) ITSR Dangerous World		-	.30***	-.06	-.01	.14	.10
(3) ITSR Uncontrollability			-	.06	.08	-.25*	.02
(4) Children-as-Sexual IAT				-	.31***	.20	-.00
(5) Dangerous World IAT					-	-.06	.12
(6) OGRS-3 12 month						-	.56***
(7) Static-99R							-

Note: * p < .05. ** p < .01. *** p < .001. ITSR = Implicit Theory Self-Report scale. IAT = Implicit Association Test. OGRS-3 = Offender Group Reconviction Scale-3.

Table M2. Means and Standard Deviations for IT Variables across Experimental Groups

Variable	Child-Sex Offenders	Offender Controls	Community Controls
	M (SD)	M (SD)	M (SD)
ITSR Children-as-Sexual	1.48 (0.50)	1.27 (0.39)	1.55 (0.49)
ITSR Dangerous World	1.93 (0.50)	1.94 (0.50)	1.90 (0.46)
ITSR Uncontrollable	1.64 (0.56)	1.36 (0.40)	1.77 (0.60)

Note: ITSR = Implicit Theories Self-Report scale. IAT = Implicit Association Test.

ITSR subscale, $F(2, 167) = 9.53$, $p < .001$, $\eta_p^2 = .10$. This effect was again found to be driven by offender controls scoring significantly lower than community controls ($p < .001$). No significant group differences were found for the Dangerous World ITSR subscale, $F(2, 168) = 0.17$, $p = .843$.

Subsample Comparisons

After the exclusion of deviant responders, there continued to be no significant differences between paedophilic-type and hebephilic-type child-sex offenders on any ITSR subscale ($p = .372-.782$). When comparing intra-familial and extra-familial child-sex offenders, there remained a trend for extra-familial offenders to score higher on the children-as-sexual ITSR subscale ($M = 1.58$, $SD = 0.54$) than intra-familial offenders ($M = 1.29$, $SD = 0.41$), $t(39) = 2.00$, $p = .053$. Intra- and extra-familial offenders did not differ on either the dangerous world, $t(39) = -1.47$, $p = .151$ or uncontrollability ITSR subscales, $t(39) = 0.08$, $p = .939$. When comparing treated and untreated child-sex offenders, there remained a trend for treated offenders to score lower on the children-as sexual ITSR subscale ($M = 1.31$, $SD = 0.44$) than untreated offenders ($M = 1.64$, $SD = 0.52$), $t(42) = -2.57$, $p = .014$. Treated and untreated offenders did not differ on either the dangerous world, $t(42) = 0.46$, $p = .648$) or uncontrollability ITSR subscales, $t(42) = -0.93$, $p = .356$.

Predicting Scores on Risk Assessment Measures

Table M1 contains the basic zero-order correlations calculated between each of the IT variables and scores on the OGRS-3 and Static-99R. These values represent correlations calculated across all participants for whom the risk measure could be completed validly (i.e., OGRS-3 completed for all offenders, Static-99R for

all sexual offenders). Given the high degree of correlation between 12 month and 24 month predictions of risk on the OGRS-3 ($r = .99$, $p < .001$), only 12 month scores were included within further analyses.[51]

Against predictions, both the children-as-sexual and uncontrollability ITSR subscales demonstrated a small negative correlation with scores on the OGRS-3, such that those with a higher self-reported scores were predicted to be less likely to recidiviate within the first 12 months of release. Scores on the dangerous world ITSR subscale failed to demonstrate a significant relationship with the OGRS-3. Amongst sexual offenders, no significant correlations were noted between any IT variable and scores on the Static-99R. Multiple regression analyses were then used to control for the potential influence of shared variance on outcomes.

ITSR variables did not predict Static-99 scores when entered at step 1, $F(3, 43) = 2.36$, $p = .084$ and IAT variables did not enhance prediction when entered at step 2 ($\Delta R^2 = .10$, $p = .079$). ITSR subscales significantly predicted OGRS-3 scores at step 1 of the regression model, $F(3, 87) = 6.06$, $p = .001$, adj $R^2 = .14$. Examination of the individual regression coefficients revealed a significant positive relationship between scores on the dangerous world ITSR scale and the OGRS-3, $\beta = .30$, $t(87) = 2.81$, $p = .006$. Unexpectedly, a significant negative relationship was also noted between OGRS-3 score and both the children-as-sexual, $\beta = -.26$, $t(87) = -2.40$, $p = .018$ and uncontrollability ITSR subscale, $\beta = -.23$, $t(87) = -2.10$, $p = .039$. SC-IAT variables did not improve upon this prediction when added in to the model at step 2 ($\Delta R^2 = .05$, $p = .058$).

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[51] The 12 month scale was considered preferable to the 24 month scale, as it better met the assumption of parametric analysis.

The unexpected positive results regarding the children-as-sexual and uncontrollability ITSR subscales may be due to the fact that having an index offence of sexual activity with a child contributes to a lower risk rating within the scoring algorithm for the OGRS-3 (Howard et al., 2009). Thus, child-sex offenders scored significantly lower than offender controls on the OGRS-3, $t(101) = 8.18$, $p < .001$, $r = .63$, and also scored significantly higher than offender controls on both these ITSR subscales (see above), creating a potential confound that might explain these unexpected results. To examine this possibility, the OGRS-3 regression analysis was re-run using only child-sex offenders (and excluding any deviant responders within this experimental group). Among child-sex offenders only, ITSR significantly predicted scores on the OGRS-3, $F(3, 38) = 3.06$, $p = .040$, adj $R^2 = .13$. As expected, examination of the individual regression coefficients revealed that, whilst the dangerous world ITSR subscale maintained a significant positive relationship with OGRS-3 scores, $\beta = .39$, $t(38) = 2.53$, $p = .016$, there was no longer a significant negative relationship between either the children-as-sexual, $\beta = -.21$, $t(38) = -1.25$, $p = .221$ or uncontrollability subscales, $\beta = -.24$, $t(38) = -1.39$, $p = .174$ and scores on this risk assessment measure. SC-IAT variables again failed to improve upon this prediction when added in to the model at step 2 ($\Delta R^2 = .04$, $p = .447$).