Childhood Trauma and Social Cognition in Sexual Offenders

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Thesis submitted in partial fulfilment of the requirements of Staffordshire University for the degree of Doctorate in Clinical Psychology

August 2024

Total word count: 18,927

THESIS PORTFOLIO: CANDIDATE DECLARATION

Title of degree programme	**Professional Doctorate in Clinical Psychology**
Candidate name	**Mollie O'Riordan**
Registration number	**21026380**
Initial date of registration	**September 2021**

Declaration and signature of candidate

I confirm that the thesis submitted is the outcome of work that I have undertaken during my programme of study, and except where explicitly stated, it is all my own work.

I confirm that the decision to submit this thesis is my own.

I confirm that except where explicitly stated, the work has not been submitted for another academic award.

I confirm that the work has been conducted ethically and that I have maintained the anonymity of research participants at all times within the thesis.

Signed:  Date: 08.08.2024

Preface

Table illustrating breakdown of total word count:

Title	Word Count
Acknowledgements	294
Thesis abstract	345
Paper one: Literature review	7826
Paper two: Empirical paper	7969
Paper three: Executive Summary	2493
Total Word Count	**18,927**

Acknowledgements

First of all, I would like to thank my academic supervisor, Dr Michelle Rydon-Grange, for your guidance and support throughout this Doctorate and in completing this research. I'm grateful for your knowledge, insights and empathy during this challenging process – and for not letting me give up on the project when I couldn't see the light at the end of the tunnel!

I give thanks to HMP Stafford, including the Governor and staff members who were integral in getting this project completed, as well as all of those who participated in the research. This truly wouldn't have been possible without your efforts and openness.

Thank you to everyone who has supported with proof-reading sections of this portfolio for me; Jade, Gemma, Amy, Esme, Sam, and Imogen – your perspectives have been invaluable. And a special thank you to Rukhsaar for the statistics support when SPSS was scrambling my brain.

Thank you to Amy, Gemma and Esme – I couldn't have done the last three years without you; your love, laughter and mocking have kept me sane. Thank you to all my friends and family for your ongoing support, even when you're not really sure what I'm training in or what my job is (no, I still won't be a Psychiatrist). A big thank you especially to Bethan and Jade, for always letting me vent and evaluate my life choices that led to this workload. I am lucky to have you by my side.

Finally, the biggest thank you to Sam. Your constant belief in me has played no small part in getting me to this point and I am forever grateful to have you as a partner. And thanks for making sure I didn't just eat biscuits for three years and fall asleep at my desk.

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Thesis Abstract

Paper one is a literature review which aims to scope and evaluate published literature examining the link between both affective and cognitive social cognition and violent behaviours perpetrated by adult men. Ten relevant studies were identified following a systematic search of literature. The Crowe Critical Appraisal Tool (CCAT) was employed to critically review the studies. The review highlighted some evidence for the role of both affective and cognitive social cognition associated with violence, with more of the papers reporting a significant role of affective processes. However, some of the studies presented with methodological issues and poor quality which limit the impact of conclusions drawn. In particular, inconsistency in appropriate measures used is considered. Clinical and research implications are discussed. Paper two discusses a cross-sectional quantitative study investigating the predictive relationship between childhood trauma, when controlling for age and level of education, and three areas of social cognition in adult men who are serving a custodial sentence for a sexual offence. These three areas of social cognition include Theory of Mind (ToM), Emotion Recognition and Mentalising; subdivided into hyper- and hypo-mentalising. Forty-three men from HMP Stafford were recruited for this study. Four multiple regression analyses were conducted. The results found a significant predictive relationship between childhood trauma and mentalising in both directions; hyper- and hypomentalising within this population. Childhood trauma was not a significant predictor of ToM or emotion recognition. In the case of hypermentalising only, age was a significant covariate and it is recommended that this is controlled for in future studies examining this association. The findings present preliminary evidence of the relationship between childhood trauma and mentalising, requiring further research of well-designed studies with larger sample sizes. Recommendations for offender management programmes are considered, and implications for considering the impact of trauma and social cognition in the rehabilitation of male sexual offenders is discussed. The third paper is an executive summary of the research study completed for this thesis. It is written for people working with men who have committed a sexual offence, and anyone else interested in this area of research.

Paper 1: Literature Review

What is the Role of Affective and Cognitive Social Cognition in Male Perpetrated Violence? A Literature Review.

Word Count: 7826 (Excluding title page, references and appendices)

This review is intended for publication in the 'Journal of Personality and Social Psychology'. The referencing style of this paper is APA 7th edition, in line with author guidelines (Appendix A). Further modifications will be made before submitting to the journal to meet the specific guidelines.

Abstract

Purpose:

Violence perpetrated by men remains a significant societal issue, globally. Deficits within social cognition is cited in literature as a potentially contributing factor in increased levels of violence and aggression. This review systematically examines the relationship between both affective and cognitive social cognition and violent behaviours evidenced in current literature. The review also critically appraises the quality of the existing literature and makes recommendations for further research.

Method:

A systematic review of published literature identified ten relevant studies. The Crowe Critical Appraisal Tool (CCAT) was used to critically review the studies.

Results:

Findings for both the role of affective and cognitive social cognition in the included papers is mixed, with some evidence that both processes have associations with violent behaviour. However, seven papers reported a significant role of affective processes, compared to four for cognitive processes. Due to some of the poor quality of the reported studies, conclusions are drawn with caution.

Conclusion:

Results from the review indicate that social cognition and in particular affective social cognition, is significant associated with violence. However, there is a need for further, robust, and reliable studies with suitable designs and appropriate measures of the constructs of interest to draw clearer conclusions. There are significant clinical implications regarding prevention and treatment of violent behaviours, which further large-scale studies could support.

Introduction

Background

The Crime Survey for England and Wales indicates that 1.1million violent crimes were committed between January 2021 and November 2022 (ONS, 2021). Furthermore, it is estimated that violence-related injuries cause approximately 1.25 million deaths per year worldwide and are responsible for approximately 8% of all years lived with disability (WHO, 2022).

The high prevalence of violent crime necessitates a greater understanding of the psychological mechanisms which may underpin violent behaviour. Research has demonstrated that globally, perpetrators of violent crime are more likely to be male, with up to 90% of homicide offences committed by men (United Nations, 2019).

The World Health Organisation defines violence as; "The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation" (Krug et al., 2002, p3). Aggressive behaviour has been defined as behaviours directed towards another with the intent to cause harm (O'Neal, 1994).

Whilst there are many social and psychological risk factors for violence and aggression (Kraché, 2020; Warburton & Anderson, 2015), impairments in social cognition have been hypothesised as a potential psychological mechanism for heightened aggression and violence (DeWall & Anderson, 2011; Iozzino et al., 2021; Vaskinn et al., 2023; Waldheter, at al., 2005). According to social psychology models, social cognition has two distinct components: affective and cognitive social cognition. Affective social cognition refers to the experiencing of empathy and compassion. Empathy is conceptualised as deducing the affective state of others by producing a similar state within oneself, whilst maintaining understanding that such feelings originate externally (Engen & Singer, 2013). Cognitive social cognition refers to the ability to interpret and understand the mental states and beliefs of others, also referred to in the empirical literature as Theory of Mind (ToM) (Frith & Frith, 2005; Kanske et al., 2017). Similarly, the term 'mentalising' is also used when referring to cognitive social cognition, and is referred to as the ability to comprehend and interpret the behaviours, intentions, and mental states of others, and our own (Bateman, 2016).

Previous research has demonstrated an association between poorer performance on measures of social cognition and risk of violent behaviours (Blair et al., 2004; Engelstad et

al., 2019; Yu & Chou, 2018). Specifically, research indicates that violent offenders and those scoring higher on measurements of psychopathy perform more poorly on tasks involving facial expression recognition, which may indicate impairments in individuals' empathic and mentalising capabilities (Blair et al., 2004; Hoaken et al., 2007; Marsh & Blair, 2008).

Social cognition and the ability to associate mental states with others' behaviours has also been highlighted as a deficit associated with aggressive and anti-social behaviours (Bateman et al., 2013; Mize & Pettit, 2008). Research has suggested that decreased abilities in mentalising can lead to problems in interpersonal relationships and social communication, which may increase misunderstandings and subsequent violent behaviours (Allen et al., 2008). It is therefore possible that such deficits could result in conflicts and aggression due to misattributions of intentions of others.

Various theories have sought to explain the link between poorer social cognition and violence. One of the earliest theories, hostile attribution bias, suggests that inaccurate interpreting of affective information can cause false assumptions of hostile intent from others (Crick & Dodge, 1996), and subsequently result in violence. This theory suggests that a greater sensitivity to indicators of anger in others, such as facial expressions or body language, may be associated with greater anger responses in a display of self-defence (Wilkowski & Robinson, 2012). Furthermore, the violence inhibition mechanism model (Blair, 1995) proposes that individuals who develop externalising aggressive behaviours experience difficulties in recognising social indicators of distress, such as expressions of fear, which in turn limits development of social skills and moral understanding (Marsh & Blair, 2008). An inability to correctly predict and understand the intentions, and feelings of others may increase the risk of anti-social, violent, and aggressive behaviours (Iozzino et al., 2021).

However, research into the relationship between social cognition and violent or aggressive behaviours has produced mixed findings. For example, some studies report weak associations between social cognition and aggression (Vachon et al., 2014), whilst others report non-significant findings (Möller et al., 2014). Several studies also indicate that other factors such as intergroup relationships, impaired working memory, and deficits in executive functioning mediate the relationship between social cognition and violence (Eisenberg et al., 2010; Laviola et al., 2017; Romero-Martínez et al., 2013).

Research has further found violent offenders to present deficits in certain areas of social cognition, such as recognition of deceptive behaviours, whilst presenting no differences in others, including identifying facial expressions (Battaglia et al., 2022). This might suggest that the relationship between these constructs is specific to difficulties in

certain areas of social behaviour and understanding. This research suggests that aggression and violence may result from a misinterpretation of the intentions of others' actions, as opposed to a misunderstanding of emotional states of others. The mixed findings regarding the relationship between social cognition and violence suggest that further research is needed to explore this complex relationship.

This is a broad-based review attempting to identify as much relevant research as possible in an under researched area. Therefore, the search terms 'violent' and 'violence' have been utilised. These terms will undoubtedly capture some studies measuring aggression as an interchangeable term. All of the studies included in the final review concerning aggression refer to this in a demonstratable sense, i.e. aggressive actions and behaviours. The social cognition terms identified predominantly in the reviewed research included empathising, mentalising and Theory of Mind. Therefore, these are the terms used to reference social cognition throughout this review.

Rationale and Aims for Review

This review examines quantitative studies exploring the relationship between both affective and cognitive social cognition and violence in adult (i.e., 18+ years old) males. To the authors knowledge, this is the first review to examine the relationship between social cognition and violence in the male population. Existing reviews on the topic have focused on evaluating interventions (Darmedru et al., 2017), or examining relationships between social cognition and violence within specific populations, such as those with personality disorders or schizophrenia (Harris & Picchioni, 2013).

Specific aims of the current paper are to: 1) examine the relationship between affective and cognitive social cognition and violent behaviours in males; 2) provide a narrative synthesis of the quantitative research examining the relationship between social cognition and violence in adult men; 3) evaluate the methodological quality of the included studies by applying a critical appraisal tool; and 4) provide recommendations for future research on social cognition and violence in men.

Method

Scoping searches

Initial scoping searches were completed using Google Scholar and to determine whether a recent literature review on this topic had been completed. These searches indicated that there was no current published review of the literature in this area. The scoping process also supported in the identification and clarification of search terms.

Search Strategy, Outcomes and Selection

A systematic strategy was used in accordance with the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA; Moher et al., 2009). Three databases were searched including PsycInfo, Web of Science, and Scopus. The following search terms were used: (social AND cognition or mentali*ation or theory AND of AND mind) AND (violent or violent AND offence). These were chosen based on the scoping process to cover the identified key terms used for social cognition and violent behaviours. The searches were completed between April and June 2023. No limiters (e.g., date, country) were used. 174 records were identified through the database searches. Following removal of duplicates, 107 papers were initially screened by titles and abstracts. Subsequently, 80 articles were screened in further depth, leading to the exclusion of 70 due to not meeting the inclusion criteria. Subsequently, 10 articles were included in this review.

Grey literature was also searched and screened through OpenGrey and Ethos and 545 additional records were identified. Preliminary searches indicated that none of the findings were appropriate to the inclusion criteria, and as only peer-reviewed papers were included in this review, grey literature was not included. A summary of the database searches and screening process are outlined in Figure 1.

Inclusion Criteria and Exclusion Criteria

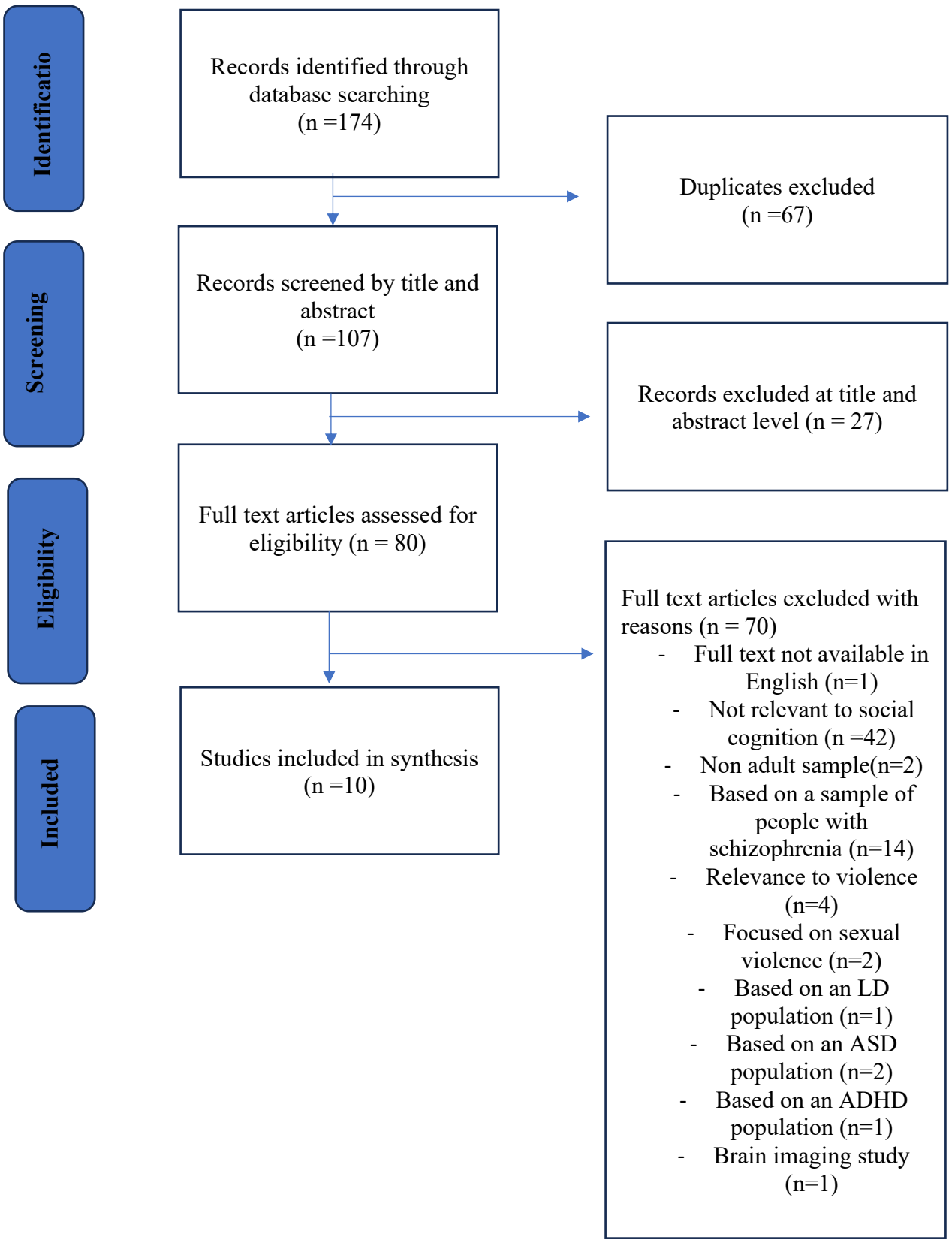
Study inclusion criteria were: (1) published studies in peer-reviewed journals; (2) English language (as translation services were not available); (3) used a quantitative research design; (4) sample of adult males, whereby adult denotes over 18 years of age; and (5) studies included a measure of social cognition *and* violent behaviour.

Exclusion criteria were: (1) literature reviews; (2) intervention studies evaluating treatments for social cognition, or violence, or both; (3) studies recruiting specific clinical populations (i.e., those with Autism Spectrum Disorders, Attention Deficit Disorders, Learning Disability, Psychosis) and examining the variables of interest in this population only; (4) qualitative and single-case studies, although one mixed-methodology paper is included in the review, only the quantitative section was reported and assessed as it met all other criteria; (5) studies recruiting samples that had engaged in sexual violence; (6) brain-imaging studies; and (7) book chapters, theses, and conference materials.

Critical Appraisal

Key characteristics relating to the design, sample, measures, and results were extracted and summarised for each of the ten studies included in this review (see Table 2). The ten studies were critically appraised to consider their overall quality using the Crowe Critical Appraisal Tool v1.4 (CCAT) (Crowe, 2013; Crowe & Sheppard, 2011). This is a valid and reliable tool used to appraise a variety of research designs, including both case-control and cross-sectional (Crowe et al., 2011). This tool appraises eight domains including preliminaries (i.e., give a definition), introduction, design, sampling, data collection, ethics, results, and discussion. A copy of the tool can be found in Appendix B. Each of these domains is scored on a scale of 0-5 with a total possible score of 40. Scores are converted into a percentage with higher percentages indicating greater quality and are categorised qualitatively.

Figure 1. *PRISMA diagram outlining literature search strategy.*



Results

Overall, 10 studies were considered eligible to include in this review. Table 2 includes an overview of the key characteristics of the studies. Details of the psychometric measures and assessments used across all ten studies is included in Appendix C. Studies were published between 2012 to 2020, despite no date limiter being utilised. The majority of studies were from the UK (*n*=3), with the remainder being from Europe (*n*=5), one from Australia, one from USA.

Design

Seven studies used a case-control design comparing men with a conviction for violent offences with control groups. Control groups included men convicted of non-violent crimes (Gauci & Hollin., 2012; Ly et al., 2016), university students (Day et al., 2012), and general population without a history of offending (Jusyte et al., 2016; Newbury-Helps et al., 2017; Romero-Martínez et al., 2013; Winter et al., 2017).

Two studies used a cross-sectional design, one recruiting from a prison (Möller et al., 2014), and one recruiting a volunteer sample of couples self-reporting intimate partner violence (Godfrey et al., 2020). Finally, a longitudinal cohort study was completed with 685 offenders completing an ongoing sentence (Igoumenou et al., 2017).

Sample

Mean ages of the samples ranged from 20.1 (Moller et al., 2014) to 38 (Romero-Martinez et al., 2013). One sample did not report mean age of the sample (Ly et al., (2016). Sample sizes varied between 40 (Romero-Martínez et al., 2013) and 635 (Igoumenou et al., (2017) with a mean sample size of 128. All studies used convenience sampling by recruiting via advertisements posted within communities, or within prisons.

Only two studies included information regarding the ethnicity of the sample. Ignomenou et al (2017) reported that 82.2% of their sample self-identified as ‘white’ (Igoumenou et al., 2017), whilst Godfrey et al., (2020) reported that 55% of their sample self-identified as ‘African American’.

Table 1

Demographics and Key Findings of the Reviewed Studies

Citation & Country	Study Design	Sample Size & Clinical Characteristics	Social Cognition Measures	Violence Measures	Main Outcomes
Day et al., (2012) Australia	Case-control	*Clinical group*: N = 51, M_{age} = 33.06. Prison offender sample. *Control group*: N = 45, M_{age} = 24.42. Male university students with no history of offending. Participants randomly assigned to two experimental groups for vignette task; low social ambiguity (clearly ignored by bartender) and high social ambiguity (unclear social cues).	Interpersonal Reactivity Index The Marlowe-Crowne Social Desirability Scale	Violent offenders classified on basis of index offense State-Trait Anger Expression Inventory-2 Anger Attributional and Appraisal Questions	Violent offenders demonstrated significantly higher social desirability scores than controls. No significant differences between groups for measures of empathy, perspective-taking, empathic concern, personal distress or fantasy. Perspective-taking was the strongest predictor of self-reported anger and most related to scores of general trait anger and anger control. Anger was highest in situations with high social ambiguity for individuals with lower perspective-taking skills in both groups, not specifically violent offenders.
Gauci & Hollin (2012) UK	Case-control	*Clinical group*: N = 78, violent offenders classified by risk of reoffending as 'low risk' n=11, 'moderate-high risk' n=46, 'high risk' n=21. Prison offender sample. *Control group:* N = 78, non-violent offenders classified as 'low risk' n=8, 'moderate-high risk' n=51, 'high risk' n=19 M_{age}=26.58 Recruited for national evaluation.	Psychological Inventory of Criminal Thinking Styles Barratt Impulsiveness Scale Social Problem-Solving Inventory-Revised	Violent offenders classified using Home Office Offenders Index	Only significant difference between groups for PICTS sub-scale scores but this did not withstand post-hoc testing. Significant difference between risk bands for the PICTS subscales for discontinuity and super optimism, with high-risk offenders scoring higher. Low risk violent offenders scored significantly higher on SPSI subscales for positive social problem solving and rational problem solving. For non-violent offenders, high risk offenders scored significantly higher for BIS-II subscale for cognitive impulsivity.
Godfrey et al., (2020) USA	Cross-sectional	N = 49 cohabitating heterosexual couples, M_{age} = 32.33, who had experienced male-perpetrated IPV at least twice in the last year.	Interpersonal Reactivity Index	The Conflict Tactics Scale 2 Specific Affect Coding System –	Effects of memory on aggression were mediated by cognitive and affective empathy, and effects of memory on IPV were also mediated by affective empathy. Memory deficits may limit ability to utilise empathy effectively and increase violence towards partners.

Citation & Country	Study Design	Sample Size & Clinical Characteristics	Social Cognition Measures	Violence Measures	Main Outcomes
		Recruited via newspaper adverts and flyers		based on behavioural observations	
Igoumenou et al., (2017) UK	Cohort	*Clinical group:* N = 685, M_{age} = 29.9, identified by the Prison Service Inmate Information service, prison offender sample	Facial Affect Series	Violent offenders classified using Home Office Offenders Index	Offenders with greater antisocial and violent presentations had poorer accuracy in recognising fear and disgust faces. Associations became non-significant when controlling for cognitive abilities.
Jusyte & Schönenberg (2016) Germany	Case-control	*Clinical group:* N = 34 (M_{age} = 37.79) prison offender sample *Control group:* N = 35 M_{age} = 30.51, general population with no history of offending	Emotion Sensitivity Task Ambiguous Expressions Task	Violent offender population based on classification of crimes	No support found that violent offenders possess a heightened sensitivity to anger. Support that violent offenders have a deficit in the categorisation of fearful expressions, but not detection, and that this relates to self-reported aggression and psychopathy scores.
Ly et al., (2016) Netherlands	Case-Control	*Clinical group:* N = 38 M_{age} nr. Recruited from forensic psychiatric institutes. Prison offender sample. *Control group:* N = 19 M_{age} nr, with psychiatric disorders. Recruited staff from forensic settings, no history of offending.	Affective decision-making Task	Violent offenders classified on basis of index offense	Violent offenders with psychopathic tendencies showed reduced avoidance of goal-oriented, instrumental aggression in comparison to controls. Avoidance was increased in controls in response to angry expressions, but not in violent offenders. Indicates that offenders are less influenced to avoid cues of anger in others.
Möller et al., (2014) Sweden	Cross-sectional	N = 42 M_{age} = 20.1. Prison offender sample. Separated into violent and non-violent subgroups, 'n' for subgroups nr.	Reflective Functioning Scale Toronto-Alexithymia Scale-26	Violent offenders classified on basis of index offense	Results indicated impaired mentalising in offenders overall. There was no significant difference in RF scores between violent and non-violent offenders. No significant correlation found with TAS.
Newbury-Helps et al., (2017) UK	Case-control	*Clinical group:* N = 83, M_{age} = 33.2 subdivided into "ASPD group" (n = 54) and "non-ASPD group" (n = 29)	Perspective Taking Task Movie for Assessment of Social Cognition	Violent offenders classified using Home Office Offenders Index	Offender group demonstrated impaired mentalising on all tasks compared to the controls. ASPD subgroup showed further impairments with perspective taking, social cognition, social sensitivity, and more hypo-mentalising and non-mentalising than non-ASPD group.

Citation & Country	Study Design	Sample Size & Clinical Characteristics	Social Cognition Measures	Violence Measures	Main Outcomes
		Recruited via Offender Managers in probation services, prison offender sample *Control group:* N = 42, M_{age} = 37.5. Recruited via community advertisement. General population with no history of offending Matched for age and education level.	Reading the Mind in the Eyes Test	Personality Assessment Inventory	
Romero-Martínez et al., (2013) Spain	Case-control	*Clinical group:* N = 19 IPV perpetrators, M_{age} = 38. Recruited from a mandatory male abusers program *Control group:* N = 21, M_{age} = 36. Recruited via community advertisement. General population with no history of offending	Trier Social Stress Test Reading the Mind in the Eyes Test Interpersonal Reactivity Index	Violent offenders classified in basis of IPV history State-Trait Anger Expression Inventory-2	Perpetrators of IPV demonstrated poorer emotional recognition than controls, particularly for neutral expressions. IPV group had higher levels of distress than controls in tests for emotional empathy.
Winter et al., (2017) Germany	Case-control	*Clinical group:* N = 29, M_{age} = 31.17. Recruited via flyers and focus groups, history of at least one violent criminal act. *Control group:* N= 32, M_{age} = 31.7. Recruited via flyers and focus groups. General population with no history of offending	Toronto-Alexithymia Scale-26 EmpaTOM Task	The Buss-Perry-Aggression-Questionnaire The Reactive-Proactive Aggression Questionnaire	Participants with a history of violence demonstrated reduced empathic responses to material expressing suffering. Correlation between reduced empathy and severity of aggression on self-report measures. No group differences in ToM performance. Reduced empathy in control group mediated by alexithymia.

Note. EF=Executive Functioning, IPV=Intimate Partner Violence, N=number of participants, n = number of participants in subgroup M_{age}=mean age, NR=not reported, RF=Reflective Functioning, >=higher/more than, <=fewer/less than, ns=non-significant

Violence

For samples recruited from prisons, forensic hospitals or probation populations, 'violence' was determined by their conviction for a violent offence. This was generally defined through the use of the Home Office Index or appropriate equivalent. For non-forensic samples, 'violence' was determined by reports of a previous violent offence either from self-report (Winter et al., 2017) or probation services (Newbury-Helps et al., 2017), or self-reports of at least two self-disclosed instances of IPV within the last year (Godfrey et al., 2020). When specified, violent offences included assault, assault with a weapon, grievous bodily harm, attempted murder, murder, aggravated robbery, rape, kidnapping, battery and manslaughter.

Quality Appraisal

Whilst the CCAT does not categorise scores based on quality, the categorisations proposed by Singh et al., (2020) were used in this appraisal to support with ease of comparisons. Studies were categorised as 'poor' (up to and including score of 27), 'average' (28-31), 'good' (32-35), and 'very good' (36 and over) with categories divided into percentage quartile ranks. Three studies were categorised as 'poor' (Gauci & Hollin, 2012; Möller et al., 2014; Winter et al., 2017), five as 'average' (Day et al., 2012; Godfrey et al., 2020; Jusyte & Schönenberg 2016; Ly et al., 2016; Igoumenou et al., 2017), and two as 'good' (Newbury-Helps et al., 2017; Romero-Martínez et al., 2013). None of the studies were categorised as 'very good'. An overview of quality appraisal scores is provided in Table 3.

The reporting of ethical considerations was missing in many of the studies, or incomplete in others with only one study receiving a full score in this area (Romero-Martínez et al., 2013). The highest scoring section of the CCAT throughout was the introduction as most studies provided clear aims, hypotheses, and background information, with the exception of two (Gauci & Hollin. 2012; Ly et al., 2016). Details of how data was collected was unclear in the majority of studies, particularly in the case of two (Day et al., 2012; Gauci & Hollin, 2012), which impacts on replicability. In the majority of studies, details regarding the study procedure were not present, such as dates of data collection and analysis, timeframes, and order of events.

The lowest scoring study (Möller et al., 2014) presented insufficient detail in every section including sampling methods and data collection process. Conversely, one of the two

highest scoring studies (Newbury-Helps et al., 2017) provided detailed explanations and justifications for measures used, as well as including details relating to study procedures. The other highest-scoring study **(**Romero-Martínez et al., 2013**)** provided detail regarding ethical processes, clearly communicated results, and offered thorough considerations of further research.

In line with inclusion criteria, all studies utilised a quantitative approach. One study used a mixed-methodology approach (Möller et al., 2014), combining the primary quantitative research with case-studies. However, only the quantitative element of this research was considered and reported for this review as it met all other required criteria. None of the papers reported power calculations to determine sample size. Four of the papers discuss and report effect size (Godfrey et al., 2020; Igoumenou et al., 2017; Romero-Martínez et al., 2013; Winter et al., 2017). Confidence intervals are reported in three papers (Igoumenou et al., 2017; Newbury-Helps et al., 2017; Winter et al., 2017), and are mentioned in one further paper, though not reported (Godfrey et al., 2020). Omission of effect size information limits insight into findings as the degree of impact of social cognition on violence cannot be interpreted, even with significant results (Du Pret et al., 2009).

In terms of quality of data analysis, all studies provided comprehensive descriptive statistics to characterise their samples. All but two studies provided a table of sample characteristics (Möller et al., 2014; Ly et al., 2016), with the latter not providing information about mean ages of the sample. Although these details are provided in supplementary materials, the quality of the paper is impacted by not including such critical details within the published paper (Pop & Salzberg, 2015). All studies failed to discuss any outliers in their data, and six studies provided no information regarding the withdrawal of participants, meaning it was not possible to consider attrition bias. Response rates were also not discussed in any studies, which allows limited conclusions to be drawn regarding sampling bias and the representativeness of findings. In addition, none of the studies included power analyses to determine sample size.

Table 2

CCAT Table of Results

Study	Preliminaries	Introduction	Design	Sampling	Data collection	Ethical matters	Results	Discussion	Total	%	Categorisation
Day et al., (2012)	**4**	**5**	**4**	**3**	**1**	**1**	**4**	**4**	**28**	**70**	**Average**
Gauci & Hollin (2012)	**3**	**2**	**2**	**2**	**1**	**0**	**3**	**2**	**15**	**38**	**Poor**
Godfrey et al., (2020)	**4**	**5**	**3**	**3**	**3**	**2**	**3**	**5**	**28**	**70**	**Average**
Igoumenou et al., (2017)	**4**	**4**	**4**	**5**	**3**	**3**	**4**	**4**	**31**	**78**	**Average**
Jusyte & Schönenberg (2016)	**4**	**5**	**3**	**4**	**4**	**4**	**4**	**3**	**31**	**78**	**Average**
Ly et al., (2016)	**4**	**3**	**4**	**3**	**4**	**4**	**4**	**5**	**31**	**78**	**Average**
Möller et al., (2014)	**3**	**5**	**3**	**3**	**2**	**1**	**2**	**3**	**22**	**25**	**Poor**
Newbury-Helps et al., (2017)	**4**	**4**	**4**	**4**	**4**	**3**	**4**	**5**	**32**	**80**	**Good**
Romero-Martínez et al., (2013)	**3**	**5**	**3**	**4**	**5**	**4**	**4**	**4**	**32**	**80**	**Good**
Winter et al., (2017)	**4**	**5**	**2**	**3**	**3**	**3**	**3**	**4**	**27**	**67**	**Poor**

Note. Preliminaries refers to relevance of the title and abstract, and overall quality of text.

Synthesis of Findings

The aim of this section is to present a narrative synthesis of the findings from the ten studies included. Findings are considered regarding both the relationship of affective and cognitive social cognition, as defined in the literature, with violent behaviours in adult men, and the significance of associations found when controlling for confounding variables.

Affective Social Cognition

Eight of the included studies examined the relationship between affective social cognition and violent behaviour, of which seven found a significant relationship between these constructs (Godfrey et al., 2020; Jusyte & Schönenberg, 2016; Ly et al., 2016; Igoumenou et al., 2017; Newbury-Helps et al., 2017; Romero-Martínez et al., 2013; Winter et al., 2017). Five case control studies showed that violent participants showed poorer abilities for emotion recognition and empathic responses compared to general population and non-violent offender control groups. These studies include the only two papers deemed 'good' in their overall score for the CCAT quality assessment, illustrating reliable data collection and reporting processes (Newbury-Helps et al., 2017; Romero-Martínez et al., 2013). The remaining two papers consist of a cohort study with a high 'average' quality assessment score, and a correlational cross-sectional intimate partner violence study also considered of 'average' quality.

Findings from the aforementioned papers indicated that participants with a history of violence demonstrated reduced empathy compared to their controls in responses to images of people suffering, which correlated with severity of aggression on self-report measures (Winter et al., 2017). Furthermore, the papers showed deficits in offenders' ability to categorise expressions, particularly those of fearful, neutral and disgust expressions (Igoumenou et al., 2017; Romero-Martínez et al., 2013). Further findings supported a specific deficit in the categorising of expressions, as opposed to detecting them (Jusyte & Schönenberg, 2016).

Furthermore, avoidance of taking action, as measured with an affective decision-making task, was increased in non-violent offenders in response to angry expressions, but not in violent offenders (Ly et al., 2016). This indicates that violent offenders in this study lacked affective biasing of social behaviours and were therefore less likely to avoid potentially aggressive interactions than controls which may result in them engaging in more conflict situations. Perpetrators of IPV also demonstrated higher levels of distress than controls in

tests for emotional empathy, suggesting a lack of comprehension of emotion and impairments in emotional processing (Romero-Martínez et al., 2013).

In addition, Godfrey et al., (2020) showed that affective cognition mediated the effect of memory on aggression in perpetrators of IPV, in a correlational cross-sectional study. The results suggest that such cognitive processes may impact one's ability to utilise empathy effectively and the subsequent empathy deficit may increase the presentation of violence towards partners. Both of these studies support a narrative that difficulties in comprehending, processing and acting on affective cognition may increase aggression within these samples.

In terms of controlling for confounding variables, Igoumenou et al., (2017) found that whilst offenders with greater antisocial presentations and affective features of psychopathy had poorer accuracy in recognising fear and disgust faces, such associations ceased to occur when controlling for cognitive abilities. Furthermore, findings of reduced empathy in a community control group were mediated by the presence of alexithymia (Winter et al., 2017). Alexithymia refers to one's ability to communicate about their affective state (Taylor, 1984) sufficiently and accurately, and was measured in this case by the Toronto-Alexithymia Scale (Bagby et al., 1994).

In contrast, one study found no evidence for a significant difference in empathy expression between offender and university samples (Day et al., 2012). This case-control study comparing violent offenders with university students found no significant differences in relation to empathy and empathic concern using a questionnaire design (Day et al., 2012). The quality appraisal results indicate this paper to be of 'average' quality, although the results section scored particularly high which may support its reliability. One finding of a case-control study also found no support that violent offenders showed a heightened sensitivity to the potentially negative emotions of others in an interactive task compared with a general population sample (Jusyte & Schönenberg, 2016).

Cognitive Social Cognition

The measures used to determine levels of cognitive social cognition produced inconsistent results across the ten papers included in this review. Seven of the ten studies included assessed cognitive social cognition using perspective-taking and decision-making tasks, as well as relevant self-report scales. Four of these studies indicated a significant relationship between cognitive social cognition abilities and violent or aggressive behaviours (Day et al., 2012; Godfrey et al., 2020; Newbury-Helps et al., 2017; Romero-Martínez et al., 2013). Three of these were case-control studies all comparing offender groups with

community controls, utilising both decision-based and perspective-taking tasks and scales. Violent offenders were shown to demonstrate significantly higher social desirability scores than controls. High levels of social desirability can influence social behaviour as individuals may behave in ways that they perceive to be desirable to a certain group (Paulhus, 2017). Impairments within social cognition may influence what is considered 'socially desirable' based on previous experiences, such as whether they have normalised the use of aggression due to this being modelled as prosocial in early life (Bandura & Walters, 1977).

All findings demonstrated social cognition impairments on tasks for the clinical groups, demonstrating a potential lack of mental flexibility in perpetrators of violence. It is suggested this lack of flexibility may cause perpetrators to have impairments in social learning and understanding the impacts of actions on others. Therefore, they may have a reduced ability to learn from mistakes made (Romero-Martínez et al., 2013).

Three of the papers found evidence against this significant relationship between cognitive social cognition abilities and violent or aggressive behaviours (Gauci & Hollin, 2012; Möller et al., 2014; Winter et al., 2017). One case-control study, appraised to be of 'average' quality, compared violent offenders with university students. A marginal interaction between social ambiguity and perspective-taking was present, whilst it was found that abilities in perspective-taking was the strongest predictor of self-reported anger and most related to scores of general trait anger and anger control. Specifically, anger was highest in vignette tasks with high social ambiguity for individuals with lower perspective-taking skills. However, this finding was consistent across both groups, and not significant for violent offenders compared to students. This suggests a lack of ability to understand the intentions of others when social cues are unclear, which may lead to lack of emotional regulation or assumptions that the intentions of others are negative (Crick & Dodge, 1996).

A correlational cross-sectional study compared violent offenders to non-violent offenders and formulated subgroups stratified according to risk level (high, moderate to high and low risk) using the level of service inventory-revised (LSI-R; Andrews & Bonta, 1995). The LSI-R is designed to evaluate the risk and needs of individuals within the criminal justice system, identifying factors which contribute to criminal behaviour. The study found significant differences between these risk sub-groups on measures of social problem solving (Gauci & Hollin 2012). Low-risk violent offenders scored significantly higher on SPSI subscales for positive social problem solving and rational problem solving compared to high-risk violent offenders. It is proposed that the relationship between violence and social cognition in this case is more complex and impacted by the offenders' relationship with

comprehension of risk. Higher risk violent offenders demonstrated less forward-planning and social cooperation, indicative of poorer social cognition abilities (Frith & Frith, 2005).

Two further studies, both however appraised to be of 'poor' overall quality, supported the finding that there was no difference between violent offenders and control groups on tasks of perspective-taking and ToM (Möller et al., 2014; Winter et al., 2017). Similarly, these studies found that mentalising was impaired in offenders overall, but not specifically in violent offenders compared to non-violent offenders. The quality of these studies necessitates caution in the interpretation and reliability of these findings.

Considering confounding variables, anti-social personality disorder mediated social cognition outcomes, as the ASPD subgroup experienced greater impairments on measures of mentalising and perspective-taking. Whilst the offender group in this case-control study still demonstrated impaired mentalising on all tasks compared to community controls, these effects were greater across all measures for the ASD subgroup (Newbury-Helps et al., 2017). Furthermore, instances of aggression and intimate partner violence were shown to be impacted by both cognitive and affective empathy capabilities. Working memory positively correlated with both cognitive and affective empathy, and negatively with instances of perpetrating abuse and aggression during conflict (Godfrey et al., 2020). This indicates that memory deficits may limit ability to effectively utilise empathy and perspective taking and therefore increases potential for violence towards partners, which requires further exploration.

Discussion

The aims of this review were to: 1) examine the relationship between social cognition and violent behaviours in males; 2) provide a narrative synthesis of the quantitative research exploring the relationship between social cognition and violence in adult men; 3) evaluate the methodological quality of the included studies; and 4) provide recommendations for future research relating to social cognition and violence in men. Ten studies were systematically identified, reviewed, and critically appraised. The critical appraisal highlighted some limitations in the quality of the research with eight of the papers being considered of either 'poor' or 'average' quality. Therefore, results from these papers should be considered with caution and further well-designed studies are needed

Summary of Findings

There are mixed findings overall regarding the relationship between social cognition and violence in men. Seven out of eight of the included papers indicated that violent offenders may have deficits in affective processing presenting with reduced abilities to identify emotions from others' expressions. This was particularly identified in cases of processing expressions of fear and disgust. This is in line with previous findings supporting an association with reduced sensitivity to expressions, particular those depicting fear, in individuals with antisocial, psychopathic, and violent traits (Blair et al., 2004; Marah & Blair, 2008). Evidence suggests that the emotional response of disgust may be a significant factor in shaping moral judgments and behaviours (Schaich Borg et al., 2008), which may offer an explanation for the perceived association between impaired recognition and understanding of this emotion and increased violent behaviour (Igoumenou et al., 2017). There was further evidence of a correlation between violence and empathy, which is also supported by previous findings that empathic responses are negatively correlated with aggressive behaviours (Björkqvist et al.,2000).

In addition, four out of seven of the included papers indicated that violent offenders may experience problems with cognitive processing, specifically demonstrating deficits in perspective-taking, comprehending the consequences and impact of their actions, and learning from social errors made based on these impacts. A lack of mental flexibility is postulated as an explanation for these deficits, as it influences one's ability to be able to consider others' perspectives, though this association requires further exploration (Romero-Martínez et al., 2013). This is in accordance with evidence to suggest that high-risk violent offenders exhibit deficits in their global cognitive functioning that may foster engagement in violent behaviour (Walters 2009).

However, three of the studies in this review did not find evidence for this association between violence and social cognition, and instead findings suggest that differences in social cognition pertained more so to other factors such as risk-taking tendencies. These findings suggested limited differences in Theory of Mind functioning in violent offenders, which has also been supported in previous findings. Recent studies have found support for the notion that perpetrators of violence may have sufficient Theory of Mind capabilities, whilst experiencing difficulties in comprehending suffering in others and accurately identifying peoples' mental states (Gonzalez-Gadea, 2014; Mariano et al., 2017).

Overall, a more of the studies examining the relationship between affective social cognition and violence found evidence of this association than in those examining the role of

cognitive social cognition. Whether this outcome is reliable, or whether it is a result of the quality of both utilised measures and the overall research designs remains unclear. These findings must be interpreted in the context of their quality appraisals. Whilst the two highest scoring studies in this review studied both affective and cognitive domains (Newbury-Helps et al., 2017; Romero-Martínez et al., 2013), the two lowest scoring papers only examined cognitive social cognition (Gauci & Hollin 2012; Möller et al., 2014), which may impact the subsequent conclusions extrapolated from these studies.

Clinical Implications

Gaining a better understanding into the relationship between affective and cognitive processes and violent behaviours may be imperative for informing appropriate supportive rehabilitation approaches (Day et al., 2010). Therefore, the following implications have been considered.

The papers have implications for treatment and rehabilitative programs for offenders of violent crimes and perpetrators of abuse. Research could be used to provide a psychotherapeutic evidence-based focus on challenging attribution biases and mentalising impairments present in this population both within prisons and within general therapy (Newbury-Helps et al., 2017; Romero-Martínez et al., 2013). Currently, programmes targeting abusive behaviours rarely focus on aspects of empathic responses or perspective-taking, more often incorporating a cognitive-behavioural orientation (Babcock et al., 2016). Incorporating social cognition informed interventions may support effectiveness of such programmes and encourage longer-lasting changes, given the evidence of the link between improved social comprehension and prosocial behaviours generally (Day & Gerace, 2010; Guttman, & Laporte, 2002; Tusche et al., 2016). Whilst further research into the effectiveness and foundations of these interventions requires further research, there is existing evidence that compassion-focused treatments can support development of empathic skills (Leiberg et al., 2011).

Mentalisation-Based Therapy (MBT) is a therapeutic approach which supports individuals to improve their ability to understand and interpret the thoughts, feelings, and intentions of themselves and others, a process known as mentalisation**.** Initially developed for treating individuals with Borderline Personality Disorder (BPD), MBT has found applications in various contexts (Bateman & Fonagy, 2004; Fonagy, 2011). Such approaches have demonstrated success in working with offender populations indicating a reduction in violent

behaviours (Bateman & Fonagy, 2008) and adolescent offenders experienced improvements in empathy and social functioning (Rossouw & Fonagy, 2012).

Finally, the studies also provide implications for developing effective measures both of mentalising and empathising abilities, utilising the frameworks of the computerised and 'real-life' tasks outlined in this research. It is imperative that sensitive measures are developed and widely utilised to support our understanding of the concepts discussed (Newbury-Helps et al., 2017).

Recommendations for Future Research

Based on the aforementioned clinical implications, there are a number of areas recommended for future research. Studies would benefit from utilising standardised measures of social cognition. In the current reviewed studies, a wealth of different measures were employed, a full list of which is available in Appendix C. This creates barriers to making meaningful comparisons between studies and prevents the facilitation of a meta-analysis. Therefore, it is recommended for researchers to take a uniformed methodological approach, employing robust, standardised measures.

Furthermore, developing such measures facilitates the production of research into the role of social cognition across a range of psychopathological diagnoses, such as Autism-Spectrum Disorder and ASPD (Newbury-Helps et al., 2017). This could have significant implications for understanding behaviours of specific populations, targeting stigma, and providing more appropriate preventative supports against violent and anti-social behaviours.

Finally, it is recommended that a literature review into the current research examining the effectiveness of social cognition-oriented interventions into violent and aggressive behaviours is completed. Understanding how targeting affective and cognitive social processes impacts rehabilitation in these populations will add to the evidence-base and have imperative clinical implications.

Strengths and Limitations of Studies

There are several methodological limitations within the primary studies reviewed. Many of the studies used self-report measures of social cognition and violence/aggression. Although these measures have potential to provide rich information, they are not objective measures of social cognition and are subject to researcher effects. The use of more objective, robust measures and clinical assessments could be imperative to providing more significant

insights into the relationships of interest. There was also a significant lack of consistency in the social cognition measures used in this study. Uniform measures would allow for more accurate comparisons to be made between the studies and could allow facilitation of a meta-analysis to produce more robust results.

There are challenges regarding the measurement of affective and cognitive social cognition constructs, which raise the concern of whether they are always measuring the domains intended. Some research postulates that there are difficulties of separating the measurement of mentalising from other constructs, such as executive functioning, referring to the capacity to attend to and integrate information (Jarrold et al., 2000), and impulsivity. This questions the construct validity of the studies examining mentalising skills.

Similarly, some of the studies employed approaches aimed at collecting data pertaining to natural interactions. However, the spontaneous nature of 'real-life' interactions can threaten the validity of findings when using test conditions and environments. To obtain reliable results, it is important to have sensitive measures, however because each individual's circumstances leading to perceived mentalizing difficulties can vary greatly, these tasks might only capture a limited aspect of a person's experience, thus reducing the generalizability of the findings.

Additionally, all the included studies used volunteer sampling, which may introduce bias in the sample characteristics due to self-selection bias and potential high levels of agreeableness. This means we should be cautious when considering how generalizable the findings may be (Dollinger & Leong, 2010). Such samples are also subject to the ‘Hawthorne Effect’ which proposes participants may alter their behaviour due to awareness of being observed (Fox, 2008). One included study measured social desirability (Day et al., 2012), which may be an important factor to consider in future studies in order to potentially control for these effects.

Furthermore, some of the studies could have benefited from used more tightly defined samples to ensure that these are representative of the target groups. Recruitment methods may have led to the occurrence of some sample bias also, for example in the case of relying on referrals from ‘offender managers’ within a prison. These samples were only focused on men, as per the inclusion criteria, and although ethnicities were reasonably diverse, the samples were generally homogenous in terms of sexual orientation. Some studies suggest that individuals with alternative sexual orientations might have heightened empathy or different patterns of perspective-taking due to their own experiences with social marginalization (Motti-Stfandi, 2019; Perrin et al, 2020). Individuals may develop further skills in reading

social cues and understanding the emotions of others as a result of their own experiences with social stigmatisation. Social cognition can also be influenced by group identity as people often process information about themselves and others in reference on their social group memberships. Sexual orientation may be one such identity that can affect how individuals perceive social interactions, group dynamics, and social norms (Pronin et al., 2004). Further considering issues with methodology, cross-sectional data is unable to make causal conclusions about the findings, and with the lack of a control group and/or the small sample size of some of the studies, there is a threat to the findings' statistical power.

However, the studies also have some considerable strengths and provide some important insights which have evident clinical implications. The studies examine a variety of different affective and cognitive social cognition skills. In addition, many of the measures are validated and have confirmed good internal consistency and reliability, which supports the robustness of their results. Some of the sample sizes used are also sufficient to draw appropriate conclusions. As this research is still developing, these studies provide an important foundation from which to build further.

Critique of Review

The lack of uniform measures in the included papers was not controlled by the researcher, as a systematic search of available literature was utilised. Nevertheless, utilising additional inclusion and exclusion criteria and utilising additional databases in searches may have facilitated a more precise selection of papers and subsequently produced a more robust review.

It is a limitation of this review that the CCAT Appraisal Tool v1.4 doesn't provide a cut-off range. Crowe (2013) suggests that papers should be considered individually on their own merit as opposed to being compared against an 'ideal' standard as a justification for the lack of categorisation. This necessitated the use of cut off ranges provided from additional research (Singh et al., 2020) in order to provide clarity to the outcomes, which diverges from the originally proposed tool. However, a strength of utilising the CCAT to appraise the papers is that it is a straightforward tool which can be used with any study design, and would be replicable for future reviews.

Furthermore, although steps were taken to mitigate against publication bias, the inclusion criteria of using peer-reviewed papers only means that the review is at risk of this. In addition, one paper was excluded due to not being available in English which introduces the potential of language bias.

Conclusion

This literature review examined the relationship between social cognition and violence in adult males. This literature is in its infancy, as evidenced by the recency of all of the ten included papers, and therefore measures and methodology are still developing which was reflected in the quality appraisal scores. More evidence was found for affective social cognition's relationship than the role of cognitive social cognition overall. However, the limitations of the included papers must be considered when interpreting the findings. Such findings have the potential to provide significant clinical implications in the prevention and treatment of violent behaviour, which remains a substantial social issue. Therefore, further reliable research is needed.

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Appendices

Appendix A – Author Guidelines

Author guidelines for the Journal of Personality and Social Psychology can be accessed here:

https://www.apa.org/pubs/journals/psp#:~:text=Journal%20of%20Personality%20and%20Social%20Psychology%3A%20Attitudes%20and%20Social%20Cognition,micro%2D%20and%20macrolevel%20social%20contexts.

Appendix B: CCAT Form

Crowe Critical Appraisal Tool (CCAT) Form (v1.4) Reference Reviewer

This form must be used in conjunction with the CCAT User Guide (v1.4); otherwise validity and reliability may be severely compromised.

Citation	Year

Research design (add if not listed)		
❑ Not research	Article | Editorial | Report | Opinion | Guideline | Pamphlet | …	
❑ Historical	…	
❑ Qualitative	Narrative | Phenomenology | Ethnography | Grounded theory | Narrative case study | …	
❑ Descriptive, Exploratory, Observational	A. Cross-sectional | Longitudinal | Retrospective | Prospective | Correlational | Predictive | …	
	B. Cohort | Case-control | Survey | Developmental | Normative | Case study | …	
Experimental	❑ True experiment	Pre-test/post-test control group | Solomon four-group | Post-test only control group | Randomised two-factor | Placebo controlled trial | …
	❑ Quasi-experiment	Post-test only | Non-equivalent control group | Counter balanced *(cross-over)* | Multiple time series | Separate sample pre-test post-test [no Control] [Control] | …
	❑ Single system	One-shot experimental *(case study)* | Simple time series | One group pre-test/post-test | Interactive | Multiple baseline | Within subjects *(Equivalent time, repeated measures, multiple treatment)* | …
❑ Mixed Methods	Action research | Sequential | Concurrent | Transformative | …	
❑ Synthesis	Systematic review | Critical review | Thematic synthesis | Meta-ethnography | Narrative synthesis | …	
❑ Other	…	

Variables and analysis		
Intervention(s), Treatment(s), Exposure(s)	Outcome(s), Output(s), Predictor(s), Measure(s)	Data analysis method(s)

Sampling									
Total size		Group 1		Group 2		Group 3		Group 4		Control	
Population, sample, setting											

Data collection (add if not listed)			
Audit/Review	a) Primary | Secondary | … b) Authoritative | Partisan | Antagonist | … c) Literature | Systematic | …	Interview	a) Formal | Informal | … b) Structured | Semi-structured | Unstructured | … c) One-on-one | Group | Multiple | Self-administered | …
Observation	a) Participant | Non-participant | … b) Structured | Semi-structured | Unstructured | … c) Covert | Candid | …	Testing	a) Standardised | Norm-ref | Criterion-ref | Ipsative | … b) Objective | Subjective | … c) One-on-one | Group | Self-administered | …

Scores										
Preliminaries		Design		Data Collection		Results		Total [/40]	
Introduction		Sampling		Ethical Matters		Discussion		Total [%]	

General notes

Crowe Critical Appraisal Tool (CCAT) Form (v1.4)

Reference | Reviewer

This form must be used in conjunction with the CCAT User Guide (v1.4); otherwise validity and reliability may be severely compromised.

Citation

	Year

Research design (add if not listed)

❑	Not research	Article | Editorial | Report | Opinion | Guideline | Pamphlet | …
❑	Historical	…
❑	Qualitative	Narrative | Phenomenology | Ethnography | Grounded theory | Narrative case study | …
❑	Descriptive, Exploratory, Observational	A. Cross-sectional | Longitudinal | Retrospective | Prospective | Correlational | Predictive | …
		B. Cohort | Case-control | Survey | Developmental | Normative | Case study | …
	Experimental	
❑	True experiment	Pre-test/post-test control group | Solomon four-group | Post-test only control group | Randomised two-factor | Placebo controlled trial | …
❑	Quasi-experiment	Post-test only | Non-equivalent control group | Counter balanced *(cross-over)* | Multiple time series | Separate sample pre-test post-test [no Control] [Control] | …
❑	Single system	One-shot experimental *(case study)* | Simple time series | One group pre-test/post-test | Interactive | Multiple baseline | Within subjects *(Equivalent time, repeated measures, multiple treatment)* | …
❑	Mixed Methods	Action research | Sequential | Concurrent | Transformative | …
❑	Synthesis	Systematic review | Critical review | Thematic synthesis | Meta-ethnography | Narrative synthesis | …
❑	Other	…

Variables and analysis

Intervention(s), Treatment(s), Exposure(s)	Outcome(s), Output(s), Predictor(s), Measure(s)	Data analysis method(s)

Sampling

Total size		Group 1		Group 2		Group 3		Group 4		Control	
Population, sample, setting											

Data collection (add if not listed)

Audit/Review	a) Primary | Secondary | … b) Authoritative | Partisan | Antagonist | … c) Literature | Systematic | …	Interview	a) Formal | Informal | … b) Structured | Semi-structured | Unstructured | … c) One-on-one | Group | Multiple | Self-administered | …
Observation	a) Participant | Non-participant | … b) Structured | Semi-structured | Unstructured | … c) Covert | Candid | …	Testing	a) Standardised | Norm-ref | Criterion-ref | Ipsative | … b) Objective | Subjective | … c) One-on-one | Group | Self-administered | …

Scores

Preliminaries		Design		Data Collection		Results		Total [/40]	
Introduction		Sampling		Ethical Matters		Discussion		Total [%]	

General notes

Appendix C: Full Table of Measures

Domain	Measure	Additional Information
Social Cognition	SPSI-R - Social Problem-Solving Inventory-Revised	52-item problem-solving measure
	BIS-II - Barratt Impulsiveness Scale	Measure of levels of impulsivity
	IRI – Interpersonal Reactivity Index	28-item self-report measuring four components of dispositional empathy; perspective-taking scale, empathic concern scale, fantasy scale, personal distress scale. 5 point Likert scales with alpha reliability coefficients for all scales reported to be at least .70. This measure was used in three studies
	TAS-26 – Toronto-Alexithymia Scale-26	18 items with 3 subscales; difficulty identifying feelings, difficulty describing feelings, externally-oriented thinking. Used in two studies
	EmpaTOM Task	Assessing empathy, compassion and ToM in a series of neuroimaging studies. Different measures of the EmpaToM have been validated with external tasks and self-reports. The EmpaToM consists of 48 short video sequences differing in emotional valence
	PTT - Perspective Taking Task	48 trials with two conditions measuring perspective-taking nder time pressure
	MASC – Movie for Assessment of Social Cognition	Short film with 45 multiple-choice questions concerning characters' intentions and feelings
	RMET - Reading the Mind in the Eyes Test	Reading the Mind in the Eyes Test, Revised Version – involving 36 pictures of eye regions and participants asked to choose the correct mental state from options on the screen. Used in two studies.
	Emotion Sensitivity Task	Measuring emotional intensity of expressions presented on screen
	Ambiguous Expressions Task	Categorising ambiguous expressions
	TSST - The Trier social stress test	Standardised psychosocial laboratory stressor task
	RF Scale – Reflective Functioning Scale	Investigating ability to take on other people's mental states and interpret behaviour
	Facial Affect Series	Pictures of expressions from Facial Affect Series morphed to different intensities and participants asked to verbally identify emotion
	Affective decision-making Task	Completed whilst on a balance-board

Violence and Anger	Attributional and Appraisal Questions	Relevant to the experience of anger
	STAXI-2 (adapted)	Measures anticipated experience of anger
	STAXI-2 (all but State Anger Scale)	57 item measuring trait anger and anger expression and control. Used in two studies
	BPAQ – Buss-Perry Aggression Questionnaire	29 items with four subscales measuring physical and verbal aggression, anger and hostility. Used in two studies
	RPQ – Reactive Proactive Aggression Questionnaire	Measuring reactive aggression, proactive aggression and a total overall score with 23 items
	STAI-S	Measure of psychological states
	POMS	Measure of psychological states – 5 subscales; tension, depression, anger, vigour and fatigue
	CTS2 – Conflicts Tactics Scale 2	78-item questionnaire about intimate partner violence
	SPAFF-16	Aggression observed and coding using specific affect coding system
Other tests (included in the studies not specific to focus of review)	LCB	17-item measure of locus of control
	Marlowe-Crowne Social Desirability Scale	13 item self-report measure of socially desirable responding
	PAI – Personality Assessment Inventory	
	BSI – Brief Symptom Inventory	53-item self-report for psychological symptoms over last 7 days
	WTAR - Wechsler Test of Adult Reading	
	SRP-III – Self-reported Psychopathy Scale	64 items measuring psychopathy traits
	WMT - Wiener Matrizen Test	18 item intelligence test
	AAI	Semi-structured interviews about adult attachment style
	PCL:SV/R	12 item scale of psychopathy traits. Used in two studies
	Structured Clinical Interview for AXIS II	Testing for personality disorders
	AUDIT – Alcohol Use Disorders Identification Test	
	WASI	Intelligence test

	CBTT – Corsi Block Tapping task	Testing memory of location and sequence
	PCL-R	Measure of psychopathy
	WCST – Wisconsin Card Sorting Test	Decision-making task
	OGRS2	Predicts likelihood of offender being reconvicted within two years of release
	CRIME-PICS II	Self-report measure about offending with high scores indicating attitudes predisposed to involvement in crime
	PICTS - Psychological Inventory of Criminal Thinking Styles	Assesses thinking styles associated with criminal lifestyles

Paper 2: Empirical Paper

Childhood Trauma and Social Cognition in Sexual Offenders

Word Count: 7969 (Excluding title page, references and appendices)

This report is intended for publication in the 'Journal of Personality and Social Psychology'. The referencing style of this paper is APA 7th edition, in line with author guidelines (Appendix A). Further modifications will be made before submitting to the journal to meet the specific guidelines.

Abstract

The current cross-sectional study explored the role of childhood trauma as a predictor of three components of social cognition: Theory of Mind, emotion recognition, and mentalising, when controlling for age and level of education. Forty-three men serving a custodial sentence for a sexual offence participated. Participants completed three measures of social cognition: Reading the Mind in the Eyes Test, the Geneva Emotional Recognition Test, and the Reflective Functioning Questionnaire. A self-report measure of childhood trauma - the Childhood Trauma Questionnaire - was also completed. Multiple regression analyses showed that childhood trauma was a significant predictor of both hypermentalising and hypomentalising, indicating both an overinterpretation and a lack of understanding of the mental states and intentions of others. In the case of hypermentalising, age was a significant covariate. Childhood trauma did not predict Theory of Mind nor emotion recognition. Findings are broadly consistent with existing literature, indicating that childhood trauma may have an association with mentalising difficulties in this population. This emphasises the importance of considering mentalising development in rehabilitative therapies within this population to support the reduction in recidivism. Recommendations of incorporating Mentalisation-Based Therapy into offender management programmes to address this need are discussed.

Introduction

Background

Sexual Offending

Sexual violence is defined as any actual or attempted sexual act completed through use of violent or coercive behaviour (Borumandnia et al., 2020). This includes rape or assault by penetration, indecent exposure, unwanted sexual touching and harassment behaviours (Dills et al., 2016; Mas'udah, 2022; ONS, 2024). Acts are characterised as sexually motivated whether or not sexual intercourse occurs and irrespective of the relationship between those involved (Indrayana, 2017).

The Crime Survey for England and Wales (ONS, 2024) indicates that approximately 1.1 million adults experienced a form of sexual assault in the year ending March 2022. The most common offence reported was unwanted sexual touching, followed by indecent exposure. Police reported a total of 193,566 sexual offences in England and Wales between March 2021 and 2022. Figures have increased over the last decade, with a 31% rise in reported instances from 2021 to 2022.

Studies examining the impact on victims have reported higher risks of self-harm and attempted suicide (Bentivegna & Patalay, 2022). Between 50% and 87% of survivors of sexual violence are reported to experience PTSD in their lifetime (Creamer et al., 2001; Mgoqi-Mbalo et al., 2017), with elevated reports of depression, substance misuse, and suicidality (Kilpatrick et al., 1997; Mgoqi-Mbalo et al., 2017; Ng et al., 2018; Segal, 2009).

Social Cognition

Social cognition refers to a range of psychological processes relating to how people process, store, and apply information about social situations. It involves how individuals perceive, interpret, and respond to social stimuli, including the thoughts, intentions, and behaviours of others (Arioli et al., 2018).

Social cognition encompasses a range of cognitive processes, including perception, attention, memory, and reasoning, which support understanding and interacting socially with others. Social cognition enables individuals to navigate complex social situations, maintain relationships, and respond appropriately to social cues, and is associated with better mental health, social satisfaction, and wellbeing (Nelis et al., 2011; Salazar Kämpf et al., 2023).

Models of social cognition suggest there are two distinct elements underpinning the construct. Affective social cognition is primarily focused on how emotions shape social understanding and behaviour, including empathy, emotion recognition, and emotional regulation. It principally refers to an individual's capacity to experience and communicate empathy, involving inferring others' emotional states by inducing similar states in the self, whilst comprehending that these states originate externally (Engen & Singer, 2013). Cognitive social cognition relates to the ability to interpret and make sense of others' mental states and beliefs, referred to as 'Theory of Mind' (ToM; Frith & Frith, 2005; Kanske et al., 2017).

Although separate constructs, more recent literature considers that affective and cognitive social cognition are inherently interlinked, and that both empathy expression and ToM involve affective and cognitive processes (Schurz et al., 2021). For example, in order to make inferences about others' mental states, we must have an understanding of their emotional expression. The process of mirroring emotions observed in others requires self-other cognitive distinction to differentiate between one's own mental states and those of others which is integral to developing empathy, perspective-taking skills and self-awareness (Eddy, 2018).

Within the literature, measurable components of social cognition typically fall into three domains: ToM, emotion recognition, and mentalising. ToM refers to the ability to attribute mental states, such as beliefs, aspirations, intentions, and emotions to oneself and others, and to understand that others have distinct beliefs and perspectives (Frith & Frith, 2005; Kanske et al., 2017). Emotion recognition includes the ability to recognise and interpret emotions in oneself and others, usually through facial expressions, body language, and tone of voice (Brackett et al., 2013). Mentalising is the ability to conceptualise and understand behaviours, intentions, and mental states of others as well as oneself (Bateman & Fonagy, 2016). Hypermentalising and hypomentalising are two extremes of mentalising (Fonagy et al., 2016; Karagiannopoulou et al., 2024). Hypermentalising refers to the tendency to over-attribute mental states, including thoughts, intentions, and emotions, to others, often leading to incorrect or exaggerated interpretations. For example, attributing 'anger' to a friend who did not acknowledge them, as opposed to believing they did not see them. Hypomentalising is characterised by concrete thinking with an under-interpretation of mental states, for example, not responding to another's distress with comfort, or showing confusion over emotional expression.

Social cognition development is suggested to be influenced by various factors. Research suggests age to be a key consideration as it is associated with multidirectional changes in social cognitive abilities, including declining ToM and improving affective empathy over time, even when controlling for general cognitive functioning (Grainger et al., 2023). Additionally, educational attainment is proposed to be associated with greater social cognition abilities (Lee et al., 2022), potentially due to enhanced critical thinking skills and exposure to alternative perspectives. Age and education are therefore considered for their confounding contribution in the current study.

Childhood Trauma and Social Cognition

Studies have examined the relationship between early traumatic experiences and the ability to recognise emotions in others. Findings have supported an association between these constructs, indicating that early trauma is associated with poorer performance on ToM and emotion recognition tasks (Gama et al., 2017; Morán-Kneer et al., 2022; Russo et al., 2015). PTSD from sexual trauma specifically appears to have a mediating role in the development of social cognition abilities (Preißler et al., 2010), with research illustrating that sexual trauma and PTSD are predictive factors for poor outcomes on social cognition measures.

Further research considering the link between trauma and social cognition has examined the role of childhood trauma and neglect in later maternal reflective functioning, referring to a parents' ability to understand the feelings and intentions of themselves and their children. San Cristobal et al. (2017) showed that early insecure attachment and experiences of physical neglect negatively impacted maternal reflective functioning abilities in adulthood.

Attachment theory hypothesises that early interactions with caregivers influence the development of internal working models which affect the construction of mental frameworks through which we understand the world and ourselves (Bowlby et al., 1992). Children with secure attachments typically develop better ToM abilities due to the presence of a safe base from which to explore environments and alternative perspectives (Szpak & Białecka-Pikul, 2020). Furthermore, children with consistent, supportive caregiving are more likely to be able to predict behaviours of others without forming unhelpful biases (Hawk et al., 2018). Conversely, childhood maltreatment is associated with insecure attachment, which has implications for social interactions and relationships, (Zephyr et al., 2021).

Evidence supports the notion that securely attached children are better at recognising and regulating emotional responses both in themselves and others (Jethava et al., 2022; Panfile & Laible, 2012) compared with less securely attached children. Research has considered how specific insecure attachment styles may influence relationships across the

lifespan (Dagan et al., 2022; Siegel, 2020). Findings suggests that individuals with avoidant attachments may seek distance from emotional closeness, which can lead to misconceptions of social cues and difficulties forming social relationships. Individuals with ambivalent attachments may experience increased anxiety in social situations, leading to hypervigilance and misinterpretations of social information. Individuals with a disorganised attachments may experience significant inconsistency in their interactions with the social world, finding it challenging to predict and understand.

In summary, the research surmises that children who experience childhood trauma generally develop poorer attachments to others. Stable attachments support learning about the social world and therefore the development of social cognition. When this integral process is disrupted by experiences such as abuse, children are less likely to be able to effectively understand the social world and relationships.

Childhood Trauma, Social Cognition, and Violence

Poorer social cognition has been identified as a potential risk factor for general violent behaviour (Engelstad et al., 2019; Fox et al., 2015; Gauci & Hollin, 2012; Hoaken et al., 2007; Sedgwick et al., 2017; Vaskinn et al., 2021). A hypothesised mechanism for this association is social learning theory. Exposure to aggressive behaviours, whether through family, peers, or media, could lead to the normalisation and imitation of aggression and violence. If children observe violence as seemingly advantageous or normalised, they may learn that this is an acceptable method to pursue goals (Bandura & Walters, 1977).

Research has suggested that decreased social cognition abilities, such as in mentalising or ToM, can lead to challenging interpersonal relationships and inferior social communication (Allen et al., 2008). This may lead to misinterpretations of intentions of others and subsequently aggressive or violent behaviour. Hostile attribution bias attempts to theoretically explain this process (Crick & Dodge, 1996), proposing that inaccurate decoding of affective cues leads to falsely ascribing hostile intent to others, initiating aggressive responses. This suggests that sensitivity or misidentification of anger through facial expressions or body language, may be associated with greater aggressive responses in pursuit of self-defence (Wilkowski & Robinson, 2012). Additionally, the violence inhibition mechanism model (Blair, 1995) suggests that individuals displaying aggressive behaviours may have deficits in identifying social indicators of distress, such as fearful expressions (Marsh & Blair, 2008). This inability to accurately interpret the feelings, intentions, and

thoughts of others may increase the risk of violent and anti-social behaviours (Iozzino et al., 2021).

Studies examining the association between childhood trauma and social cognition in adult males who have perpetrated a sexual offence is limited. Existing empirical studies indicate that individuals who perpetrate sexual offences often have histories of childhood trauma, including physical, emotional, and sexual abuse (Krahé et al., 2023; Levenson et al., 2016; Malamuth & Hald, 2016; Papalia et al., 2018). A meta-analysis by Jespersen et al. (2009) showed that sexual offenders reported significantly higher rates of childhood sexual abuse compared to non-offending controls.

Previous studies examining the link between childhood trauma, social cognition, and sexually violent behaviour are limited and often present methodological limitations. For example, research has typically included small sample sizes which are difficult to generalise (Jespersen et al., 2009; Levenson & Socia, 2016) utilising retrospective data which may be subject to recall bias (Hardt & Rutter, 2004). The wide range of assessment methods used to measure social cognition also makes cross-study comparisons difficult. In addition, cross-sectional studies do not allow directional relationships between childhood trauma and social cognition to be inferred. However, exposure to trauma during childhood is likely to overlap with the period of development associated with social cognition. Specifically, by two years of age infants are suggested to have a basic understanding of emotion, aspirations, intent and perception and by 4-5 years they are generally able to experientially test theory through experience and adjust their beliefs accordingly (Bamicha & Drigas, 2022; Carlson et al., 2013). Therefore, these processes possibly preclude causal inferences regardless of study design.

Current Study, Rationale and Hypotheses

The current study examined childhood trauma as a predictor of social cognition, when controlling for age and level of education, in an adult male population of sexual offenders in a UK custodial setting. Specifically, three key components of social cognition were examined: ToM, emotion recognition, and mentalising. The following hypotheses were tested:

1. Higher scores on a childhood trauma measure will predict poorer ToM ability, when controlling for age and level of education, as measured by the Reading the Mind in the Eyes Test.

2. Higher scores on a childhood trauma measure will predict poorer emotion recognition, when controlling for age and level of education, as measured using the Geneva Emotional Recognition Test.
3. Higher scores on a childhood trauma measure will predict more hypermentalising, when controlling for age and level of education, as measured using the Reflective Functioning Questionnaire.
4. Higher scores on a childhood trauma measure will predict more hypomentalising, when controlling for age and level of education, as measured using the Reflective Functioning Questionnaire.

Method

Design

The study used a cross-sectional design. Quantitative data were collected in person with men currently serving a custodial sentence in a UK prison. Participants provided demographic information and completed self-report questionnaires measuring childhood trauma and mentalising. Two computerised measures were used to examine ToM and emotion recognition skills.

Ethical approval was obtained by the School of Health, Education, Policing and Sciences (HEPS) at Staffordshire University under reference SU_22_264 (Appendix B), and HMPPS (Her Majesty's Prison and Probation Service) under reference 2023-255 (Appendix C). A full risk assessment was competed (Appendix D).

Recruitment

Recruitment took place in a UK Category C prison for adult males sentenced for a sexual offence. The study used a volunteer sampling approach. Advertisement posters, flyers and participant information sheets (Appendix E) were placed on all prison wings. The study was presented at the Prisoners' Council Forum with wing representatives which enabled any questions to be addressed. 'Expression of interest' slips and envelopes were provided for participants to complete and send to the Psychology department via the internal post. There was no inducement to participate in the study. The study was open from the 4th of March until the 8th of May 2024, inclusive, with 11 days of data collection completed over this period.

Following expressions of interest, the participants were screened for appropriateness to participate. To be eligible, participants had to be able to communicate in English, due to lack of available funding for translation. Other inclusion criteria were satisfied by the population: males serving a custodial sentence for a sexual offence. Exclusion criteria were participants with a formal diagnosis of ASD (Autism Spectrum Disorder) and / or a brain injury which can impair social cognitive functioning; those receiving care under the Assessment, Care in Custody and Teamwork (ACCT) process indicating they were at risk of self-harm or suicide; and men who were considered by the prison to present a lone working risk.

Participants

Forty-six men expressed an interest in participating in the research. All of these were screened and deemed appropriate to participate. Three participants subsequently decided not to participate, leaving a remaining sample of 43. Over half of the sample were aged 50 or

over (51.1%) with the largest individual age group being 60 or over (39.5%). Most of the sample identified as White British (97.7%), and the highest level of education obtained by most was secondary education (48.8%). Sample characteristics are presented in Table 1.

Table 1
Sample Characteristics (N = 43).

Demographic Characteristic	*n* (%)
Age Group	
20-29	6 (14)
30-39	8 (18.6)
40-49	7 (16.3)
50-59	5 (11.6)
60+	17(39.5)
Ethnicity	
White British	42(97.7)
White and Asian	1 (2.3)
Years of Education	
Less than secondary	7 (16.3%)
Secondary	21 (48.8%)
A Level / College	10 (23.3%)
University Degree / Diploma	5 (11.6%)

Measures

Childhood Trauma

Childhood trauma was assessed using the Childhood Trauma Questionnaire short form (CTQ-SF; Bernstein et al., 1997; Bernstein et al., 2003; Appendix F). The CTQ-SF is a 28-item self-report measure assessing five domains of childhood trauma which occurred between the ages of 0 and 18: physical abuse (PA), sexual abuse (SA), emotional abuse (EA), emotional neglect (EN), and physical neglect (PN). Participants are required to rate the severity with which they experienced the items during childhood on a scale of 'never' (1), 'rarely' (2), 'sometimes' (3), 'often' (4), and 'very often' (5). Seven items are reverse scored: two from the PA subscale and five from the EN subscale. Example items include 'When I was growing up, I didn't have enough to eat' (PN).

The measure produces five subscale scores and a total score. Each subscale consists of 5 items with a score range of 5-25 which each map onto four categories of increasing severity of trauma as follows; none, low, moderate and severe (MacDonald et al., 2016). The measure also includes a minimisation/denial scale assessing the likelihood of underreporting. This scale consists of three items and is scored on a scale of 0 – 3 whereby higher scores indicate potential minimising of childhood experiences. The CTQ total score ranges from 25 to 125 with higher scores indicating greater severity of traumatic events categorised as

follows: 36 or < = “none”; > 36 and < 51= “low”; > 51 and < 68 = “moderate” and 69 or > = “severe”. Only the CTQ total score was analysed in the current study.

The CTQ is a well-validated and standardised measure with good internal and convergent validity (Bernstein et al., 1997). The subscales have test-retest reliability coefficients ranging from. 79 to. 86, and internal consistency coefficients ranging from. 66 to. 92 (Bernstein et al., 2003). Cronbach’s alpha was high in the current study at 0.92.

Social Cognition

Three components of social cognition were assessed using a range of gold-standard tests.

Theory of Mind.

Reading the Mind in the Eyes Task (RMET; Baron-Cohen et al., 2001; Appendix G) presents 36 sets of eyes—18 male and 18 female—requiring the participant to choose a word from four options presented for each item, indicating which mental state descriptor they believe is most applicable to the image. There were 93 potential descriptors altogether. The images of the eyes were presented on a laptop and participants were required to circle their answer using pen and paper. Possible responses included ‘Irritated’, ‘Bored’, or ‘Aghast’. A glossary with definitions of potential descriptors was made available to the participants throughout testing. Scores on this measure range from 0 to 36, with lower scores indicating poorer ToM abilities. Average scores ranged between 22 and 30. Scores below 22 indicate potential difficulties with ToM whilst scores over 30 suggest superior ToM ability (Jahromi et al., 2023).

This test is widely used and shows good convergent validity with other measures of ToM (Olderbak et al., 2015). The measure’s internal consistency is reported as good (Cronbach Alpha = 0.84; Israelashvili et al., 2020). Internal consistency for the current study was acceptable (Cronbach Alpha = .71).

Emotion Recognition.

The Geneva Emotion Recognition Test Short version (GERT-S; Schlegel et al., 2014; Appendix H) is a computer-administered task measuring an individual’s ability to recognise emotions in other people based on their expression, tone of voice, and body language. The short version of the measure consists of 42 clips of between one and three seconds expressing 14 different emotions by ten actors. The clips have been chosen from the GEneva Multimodal

Emotion Portrayals database (GEMEP; Bänziger et al., 2012). The GERT-S uses dynamic, interactive emotion expression with movement and sound to improve ecological validity.

After each clip was played on a computer, the participant was asked to select which of the 14 emotions (e.g., Disgust, Despair, Joy) was expressed using pen and paper on an 'emotion wheel' to aid quick identification. The measure is scored based on how many emotions are correctly identified, with a range of 0 to 42, with a higher score indicating better emotion recognition.

The GERT-S has good construct and predictive validity, (Israelashvili et al., 2021; Schlegel et al., 2019; Stadler, 2021) with excellent test score reliability (ρ = .92). The measure's internal consistency has been shown to be good (Cronbach Alpha = 0.8; Schlegel & Scherer, 2016). Internal consistency for the current study was acceptable (Cronbach Alpha = .70).

Mentalising.

The Reflective Functioning Questionnaire / Scale (RFQ) (Fonagy et al., 2016; Appendix I) is a self-report questionnaire examining reflective functioning. The RFQ includes 8 items, which are split into 2 subscales: certainty (RFQc) measuring hypermentalising, and uncertainty, (RFQu) measuring hypomentalising.

Participants are asked to rate how much they agree with each statement on a scale of '1' to '7' with '1' corresponding to lack of agreement and '7' corresponding to full agreement. Example statements include "People's thoughts are a mystery to me" and "I always know what I feel".

To calculate the subscale scores of the RFQ-8, the items must be recoded. The following scoring procedure has been validated by several studies, confirming the two-factor structure of the RFQ-8 in both clinical and non-clinical samples (Horváth et al., 2023). For the item "I don't always know why I do what I do," low scores (response options 1, 2, and 3) imply hypermentalization (certainty), the middle response option (4) suggests genuine reflective functioning, and high scores (response options 5, 6, and 7) imply hypomentalization (uncertainty). Therefore, only high or low scores are required for calculating each subscale score, with the rest of the responses calculated as 0. For instance, the scoring for hypermentalization (certainty) subscale is as follows: 3, 2, 1, 0, 0, 0, 0; and for hypomentalization (uncertainty) subscale: 0, 0, 0, 0, 1, 2, 3. Overall, six variables form the two subscales, and responses on four items of the RFQ-8 are considered for both subscales, reverse-scored, and two are unique to each subscale totalling 8 items in the questionnaire

overall. The total subscale score is calculated by producing the mean recoded score of the relevant subscale items. Lower scores on both subscales indicate good mentalising abilities. There is a strong negative correlation between the two subscales (Cucchi et al., 2018; Horváth et al., 2023)

This measure is considered the gold standard for assessing mentalising (Ruiz-Parra et al., 2023), showing good reliability and validity (Anis, 2020). Cronbach alpha scores indicate good internal reliability of items (Cronbach Alpha = 0.77 and 0.65) (Woźniak-Prus et al., 2022). Internal consistency was good in the current study (Cronbach Alpha = .72).

Demographics

Relevant demographic data was collected to characterise the sample (Appendix J). Data relating to age, ethnicity, and years of formal education was collated and analysed for descriptive statistics.

Procedure

Written informed consent was obtained from each participant prior to data collection (Appendix K). All data was collected in person in the presence of the researcher (MOR) and all measures were completed in one appointment lasting approximately 45 minutes.

All study measures were presented in the same order for each participant, except for the GERT-S and RMET which were alternated to control for potential order effects. All participant responses were recorded by pen and paper, and a laptop was used for the RMET to display the images of eyes, and for GERT-S to play the video clips.

All data collected was anonymised. Consent forms were stored separately from response data to ensure anonymity but were given an alphabetical code so information could be matched should a participant wish to withdraw. Participants were informed they could withdraw from the study within three weeks of participation. No participants withdrew their data. A debriefing statement (Appendix L) was provided at the end of each data collection session, which provided information regarding confidential sources of emotional support available within the prison (e.g., Chaplaincy, Listeners).

Power Analysis

To determine the number of participants required, a Soper a-priori power calculation was conducted for a multiple regression study, using the statistical programming language R

(Soper, 2023). Power was set at the conventional 0.8 and probability alpha at 0.05, to calculate the number of participants required for a medium effect size according to Cohen's rules of thumb (Cohen, 2013) based on previous research (Vaskinn et al., 2021). The power analysis indicated an overall sample size of 76.

Data Analysis

All data was inputted manually into SPSS and statistical analysis was completed using IBM SPSS Statistics (Version 28). Descriptive statistics provided an overview of scores on each of the measures used to assess the variables of interest and of sample demographics. Multiple linear regression analyses were run to examine whether childhood trauma significantly predicted ToM, emotion recognition, and hypo- and hyper-mentalising, when controlling for age and level of education. Bivariate correlations between all variables were produced within the regression analyses.

Data Screening

There was no missing data in the dataset. No data was removed from the sample and the analysis was run on the full dataset (N = 43).

Statistical Assumptions

Data checks were carried out to check if the data significantly violated any of the assumptions for multiple linear regression analyses. This included checking for outliers, normality, homoscedasticity, linearity, multicollinearity, and independence of residuals (Field, 2017). The data violated these checks, demonstrating a violation of normality and indicating that the data distribution diverged significantly from a normal distribution (Appendix M). Therefore, bootstrapping was employed to address this and is subsequently reported (Field, 2017). Bootstrapping is a reliable re-sampling technique which can be applied when the sample deviates from normality assumptions, principally concerning the distribution of residuals. Bootstrapping resamples the data in order to estimate the sampling distribution and reduce the impact of the normality violation (Field, 2017).

Results

Descriptive Statistics

The mean, standard deviation, range, and categorisation for each of the predictor and criterion variables (where relevant) in the current sample are presented in Table 2.

Table 2

Descriptive statistics for the analysis variables (N = 43).

	M	SD	Range	Categorisation
CTQ Total (Childhood Trauma)	70.37	24.2	41-112	Severe
RMET (ToM)	22.7	5.12	11-33	Average
GERT (Emotion Recognition)	17.28	5.29	6-27	
RFQc (Hypermentalising)	.99	.8	0-2.8	
RFQu (Hypomentalising)	.89	.71	0-3	

Note. CTQ – Childhood Trauma Questionnaire, RMET – Reading the Mind in the Eyes, ToM – Theory of Mind, GERT – Geneva Emotion Recognition Test, RFQc – Reflective Functioning Questionnaire Certainty Scale, RFQu – Reflective Functioning Questionnaire Uncertainty Scale.

In addition, the mean, standard deviation, and range for each of the 5 CTQ subscales are presented in Table 3, as well as the frequency and percentage in each category of severity for the five subscales. Just over half of participants (53.5%) reported experiencing 'severe' sexual abuse during childhood, followed by physical abuse (39.5%) and emotional neglect (34.9%). Results showed that there was 'no minimisation' present for the majority of the sample (60.5%).

Table 3

Descriptive Statistics for Childhood Trauma Questionnaire (N = 43).

	M(SD)	Range	None	Low	Moderate	Severe
CTQ Total	70.32 (24.2)	41-112				
Physical Abuse	11.42 (7.1)	5-25	22 (51.2%)	4 (9.3%)	-	17 (39.5%)
Emotional Abuse	14.05 (4.0)	8-21	14 (32.6%)	11 (25.6%)	5 (11.6%)	13 (30.2%)
Sexual Abuse	13.07 (7.8)	5-25	17 (39.5%)	3 (7%)	-	23 (53.5%)
Physical Neglect	10.07 (4.6)	5-23	19 (44.2%)	10 (23.3%)	1 (2.3%)	13 (30.2%)
Emotional Neglect	13.77 (6.3)	5-24	21 (48.8%)	7 (16.3%)	-	15 (34.9%)
Minimisation	0.7 (1.0)	0-3				

Correlations

The pooled bivariate Pearson *r* correlations between all study variables in the regression analyses are presented in Table 4. The variable for education was dichotomised to be included in the correlation and interpret the Pearson r comparably with other study variables. As shown in Table 4, there are strong significant positive correlations between all subscales of the CTQ and the overall score. Therefore, the subscales have not been included in the regression models, due to the impact of multicollinearity on the interpretation of the data.

There was a significant positive correlation between RFQu and the CTQ total score (r =.49, p <.001), indicating that greater hypomentalising was related to greater childhood trauma scores. This finding was also consistent on four of the five subscales. In addition, a strong and significant positive correlation was reported between RMET and GERT-S (r = .66, p<.001) indicating that ToM and emotion recognition are highly related. A strong, significant negative correlation was also found between RFQu and RFQc (r = -.7, p<.001) as expected. There was a significant negative correlation between GERT and age (r = -.36, p<.05), and a significant positive correlation between GERT and education (r = .42, p<.01), suggesting that emotion recognition decreased with age but increased with education attainment. The RFQc was significantly negatively correlated with emotional neglect (r = -.37, p<.05), and physical neglect (r = -.33, p<.05), suggesting that increased hypermentalising was associated with lower scores on these measures, but was significantly positively correlated with age (r = .31, p<.05). There was a strong, significant negative correlation between education and age (r = -.61, p<.001)., indicating a lower level of education was reported as age increased.

Table 4

Pearson's r correlations for the study variables (N = 43).

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. CTQ Overall (Childhood Trauma)	-											
2. CTQ Emotional Abuse	.78***	-										
3. CTQ Physical Abuse	.91***	.75***	-									
4. CTQ Sexual Abuse	.77***	.48***	.57***	-								
5. CTQ Emotional Neglect	.84***	.59***	.69***	.52***	-							
6. CTQ Physical Neglect	.81***	.57***	.71***	.45**	.72***	-						
7. Age	.12	-.06	.09	.13	-.03	.15	-					
8. Education	-.23	-.03	-.18	-.12	-.24	-.24	-.61***	-				
9. RMET (ToM)	-.08	-.01	-.11	.06	-.01	-.19	-.28	.22	-			
10. GERT (Emotion Recognition)	-.11	-.10	-.16	.01	.04	-.22	-.36*	.42**	.66***	-		
11. RFQc (Hypermentalising)	-.29	-.26	-.22	-.20	-.37*	-.33*	.31*	-.04	-.09	-.00	-	
12. RFQu (Hypomentalising)	.49***	.41**	.48***	.29	.46**	.41**	-.10	-.13	-.26	-.20	-.70***	-

Note. **p* < .05; ***p* < .01; ****p* < .001. Education variable dichotomised as "secondary education and below" and "over secondary education".

Multiple Linear Regression Analyses

Four multiple linear regressions were run with the three predictor variables: CTQ total score, age and level of education, and the four criterion variables of social cognition measures. The models examined how trauma effected the outcomes on these measures, controlling for age and level of education. Due to there being no missing data, no imputations were required. Due to violations of normality observed in the data on the p-p plots of the regression models (Appendix M), all models were rerun using Bootstrapping and these results are reported.

Hypothesis one predicted that higher scores on the childhood trauma measure, when controlling for age and level of education, would predict poorer ToM as measured by the Reading the Mind in the Eyes Test. The regression model was not significant. Childhood trauma was not a significant predictor of ToM abilities, including when accounting for age and education, as shown in Table 5. Therefore, hypothesis one was not supported.

Table 5

Multiple linear regression analysis predicting ToM, with bootstrapping (N = 43).

	Regression					
	B	Bias	SE B	Sig.	95% BCa CI	
					Lower	Upper
RMET (Constant)	24.9	-.05	3.3	<.001	18.8	31.4
CTQ	-.01	.00	.04	.83	-.08	.07
Age	-.80	-.10	.74	.29	-2.4	.51
Education	.80	-.04	2.14	.70	-3.7	4.6

Note. R^2 = .09%; Adjusted R^2 = .02%. Bootstrapped unstandardised coefficient, standard error, standardised coefficient, significance values and bias-corrected accelerated confidence intervals are presented. Bootstrap results are based on 1000 bootstrapped samples.

Hypothesis two predicted that higher scores on the childhood trauma measure would predict poorer performance of emotion recognition, when controlling for age and level of education, as measured using the Geneva Emotional Recognition Test (GERT). The regression model was significant F (3,39) = 3.1, p< 0.04, accounting for 19.2% of the variance in emotion recognition scores and 13% when adjusted. However, childhood trauma, age and level of education were all not significant predictors of emotion recognition abilities, as shown in Table 6. Therefore, despite the model's overall significance the hypothesis was not supported as none of the included predictors explain this outcome. The model may have been missing important covariates which could explain the variance of the dependent variable, or the finding may be due to the high correlation of the included covariates.

Table 6

Multiple linear regression analysis predicting GERT, with bootstrapping (N = 43).

	Regression					
	B	**Bias**	**SE B**	**Sig.**	**95% BCa CI**	
					Lower	**Upper**
GERT(Constant)	17.7	.18	2.9	<.001	12.5	23.9
CTQ	-.00	-5.0	.03	.92	-.07	.06
Age	-.57	-.06	.66	.38	-2.0	.56
Education	3.46	-.09	1.92	.08	-.67	6.90

Note. R^2 = .19%; Adjusted R^2 = .13%. Bootstrapped unstandardised coefficient, standard error, standardised coefficient, significance values and bias-corrected accelerated confidence intervals are presented. Bootstrap results are based on 1000 bootstrapped samples.

Hypothesis three predicted that higher scores on the childhood trauma measure would predict poorer mentalising ability, as measured using the Reflective Functioning Questionnaire. Specifically, it was hypothesised that childhood trauma would predict greater hypermentalising, when controlling for age and level of education, as measured by the RFQc. The regression model was significant, F (3,39) = 3.8, p< 0.05, accounting for 22.4% of the variance in mentalising scores and 16.5% when adjusted. Childhood trauma was a significant predictor of hypermentalising (β = -.31, p = 0.04), as shown in Table 7, and age was also a significant covariate (β = .45, p = 0.02), whilst education was non-significant. Therefore, hypothesis three was supported.

Table 7

Multiple linear regression analysis predicting hypermentalising, with bootstrapping (N = 43).

	Regression					
	B	Bias	SE B	Sig.	95% BCa CI	
					Lower	Upper
RFQc (Constant)	1.0	.01	.41	.01	.33	1.9
CTQ	-.01	-6.1	.00	.02	-.02	-.00
Age	.24	-.01	.08	.01	.06	.39
Education	.27	-.02	.27	.33	-.27	.78

Note. R^2 = .22%; Adjusted R^2 = .16%. Bootstrapped unstandardised coefficient, standard error, standardised coefficient, significance values and bias-corrected accelerated confidence intervals are presented. Bootstrap results are based on 1000 bootstrapped samples.

Hypothesis four predicted that higher scores on the childhood trauma measure would predict poorer mentalising ability, when controlling for age and level of education, as measured using the Reflective Functioning Questionnaire. Specifically, it was hypothesised that childhood trauma would predict greater hypomentalising measured by the RFQu. The regression model was significant, F (3,39) = 5.14, p< 0.01, accounting for 28.3% of the variance in mentalising scores and 22.8% when adjusted. Childhood trauma was a significant positive predictor of hypomentalising (β = .48, p = <0.01), as shown in Table 8, whilst age and education were both non-significant covariate predictors. Therefore, hypothesis four was supported.

Table 8

Multiple linear regression analysis predicting hypomentalising, with bootstrapping (N = 43).

	Regression					
	B	**Bias**	**SE B**	**Sig.**	**95% BCa CI**	
					Lower	**Upper**
RFQu (Constant)	.32	-.00	.38	.4	-.50	1.04
CTQ	.01	2.8	.00	.00	.01	.02
Age	-.13	.00	.08	.11	-.30	.02
Education	-.28	-.00	.23	.24	-.75	.18

Note. R^2 = .28%; Adjusted R^2 = .23%. Bootstrapped unstandardised coefficient, standard error, standardised coefficient, significance values and bias-corrected accelerated confidence intervals are presented. Bootstrap results are based on 1000 bootstrapped samples.

Discussion

This study examined whether self-reported childhood trauma predicted social cognition in adulthood, when controlling for age and level of education, in a population of men serving a custodial sentence for a sexual offence. Specifically, three components of social cognition - ToM, emotion recognition, and mentalising (i.e., hyper- and hypomentalising) - were examined. Results showed that childhood trauma significantly predicted both hypomentalising and hypermentalising in this sample.

It was hypothesised that higher scores on the CTQ would predict poorer ToM, when controlling for age and level of education, as measured by the RMET. The regression model was not significant. Research suggests that ToM begins to develop at approximately 18 months old, with the exploration of joint attention, imitation, and understanding that others may have different desires to their own (Carpenter et al., 1998). By the age of four, children typically show more complex ToM skills such as recognising emotions and their origins, and engaging in pretend play (Wellman et al., 2000). In the current study, age at which childhood trauma occurred, and the chronicity was not measured. Whilst social cognition is a lifelong developmental process (Blakemore & Mills, 2014; Wellman, 2014), it is possible that age of trauma experienced impacted results, if it occurred after ToM had sufficiently developed. Future studies should assess the age and chronicity of early trauma as childhood spans several developmental periods during which there are rapid social cognition advances (Thompson et al., 2006; Wellman et al., 2001). Trauma occurring at a specific developmental stage, or spanning several stages, may influence findings and this should be controlled in future studies.

Childhood trauma did not significantly predict emotion recognition performance when controlling for age and level of education, as measured using the GERT. The sample in this study were predominantly older males (51.1% aged 50 or >), and whilst data regarding sentence length and time served was not collected, it is possible participants had been in custody for an extended period and accessed therapeutic and risk reduction programmes involving improving emotion recognition skills. Indeed, interventions focused on improving emotion recognition within forensic populations have demonstrated improvements in these abilities (Clarke et al., 2004; Romero-Martinez et al., 2019). Future research should aim to capture sentence length and engagement in therapeutic and / or risk reduction programmes during custody to assess this.

In the current study, childhood trauma significantly predicted both hypermentalising and hypomentalising, as measured on the RFQc and the RFQu. In the case of the RFQc, the regression model indicated that hypermentalising accounted for 16.5% of the variance of the model, when adjusted. For the RFQu, it demonstrated that hypomentalising accounted for 22.8% of the variance of the model.

Whilst the relationship between trauma and mentalising in those convicted of sexual offending is complex and multifaceted, research and psychological theory proposes potential explanations to interpret these findings. As discussed, childhood trauma can lead to insecure attachment styles which may contribute to difficulties in understanding and relating to others. This can impair the development of social cognition, disrupting the emergence of mentalising and potentially resulting in both hypermentalising and hypomentalising (Fonagy et al., 2018).

Previous research has indicated a link between both mentalising difficulties and aggressive or violent behaviours (Fonagy, 2004; Velotti et al., 2021). Hypermentalising can initiate anxiety due to the overevaluation of the thoughts, feelings and intentions of others and an overinterpretation of social cues (Ballespí et al., 2019; Fonagy & Bateman, 2008). This could lead to impulsive and aggressive actions, in attempts to defend oneself against perceived threats, or as a consequence of becoming emotionally dysregulated (Abate et al., 2017; Fonagy et al., 2018; Sharp et al., 2011). Similarly, individuals who exhibit hypomentalising tend to experience difficulties with interpreting social information, recognising and understanding emotions, and predicting others' intentions and behaviour. This can subsequently generate challenges in forming healthy relationships, exerting empathy, and exercising impulse control and prosocial behaviours (Bird & Viding, 2014; Blair, 2005; Dziobek et al., 2008). Inhibited comprehension of the experiences and emotions of others and the consequences of one's own actions could impact engagement in offending behaviours such as sexual offences (Beech & Ward, 2004; Jolliffe & Farrington, 2004; Mann et al., 2010).

Age was a significant covariate in the relationship between childhood trauma and hypermentalising. The current sample was skewed in terms of age, and therefore interpretations regarding the impact of age should be inferred with caution. However, the findings suggest that age should be considered as a covariate of interest in future research examining the relationship between childhood trauma and hypermentalising to gain further insight into this interaction.

It is possible that there are additional factors not measured in the current study which also impact on the relationship between childhood trauma and mentalising. For example,

intellectual functioning, mental health and presence of protective factors (Kim & Cicchetti, 2010; Sharp et al., 2016; Yang & Huang, 2024) may have a mediating impact on this relationship. Evidence suggests that intellectual functioning impacts development of problem-solving skills, supporting individuals to navigate complex social situations and develop adaptive coping mechanisms (Sternberg, 2019). The presence of protective factors such as positive role models, a stable environment and community support in childhood can significantly mediate the impact of trauma on development. These factors can mitigate against the adverse effects of trauma, allowing for the development of supportive interpersonal relationships and positive sense of self (Gilligan, 2000; Luthar & Cicchetti, 2000) which could reduce social cognition deficits.

Clinical Implications

Two of the four hypotheses in this study were not supported, and therefore considerations of clinical implications are limited. However, findings did illustrate that childhood trauma predicted both hypermentalising and hypomentalising in this sample of sexual offenders. Based on this, the development of offending behaviour programmes which focus on supporting offenders to recognise and understand distress in others and to develop comprehension and expression of empathy is recommended.

Incorporating social cognition-informed interventions may support effectiveness of therapeutic programmes and lead to longer-lasting changes, considering the evidence of an association between improved social comprehension and prosocial behaviours (Day et al., 2010; Guttman & Laporte, 2002; Tusche et al., 2016). Evidence also suggests that compassion-oriented treatments can encourage development of empathic social skills (Leiberg et al., 2011).

Current offender management programmes for individuals who have committed sexual offences predominantly take a cognitive-behavioural approach, focusing on elements such as challenging cognitive distortions, developing victim empathy, enhancing self-esteem and promoting prosocial behaviours (Marshall, 1999). Whilst helpful, programmes could be strengthened by the inclusion of Mentalization-Based Therapy.

Mentalization-Based Therapy (MBT) is a therapeutic approach that focuses on improving abilities to understand and interpret mental states regarding the self and others (Bateman & Fonagy, 2013). MBT integrates principles from attachment theory**,** psychoanalysis**,** and cognitive-behavioural therapy and emphasizes the importance of secure attachment in mentalisation development. Developed primarily for treating Borderline

Personality Disorder (BPD)**,** MBT has shown effectiveness in addressing various psychological issues, particularly those related to interpersonal functioning and emotional regulation (Bateman & Fonagy, 2004; Fonagy, 2011).

MBT could address mentalising difficulties in sexual offenders by enhancing social cognition, empathy, and emotional regulation. By specifically targeting the cognitive and emotional deficits linked to offending behaviour, MBT can contribute to reducing recidivism and promoting safer, more adaptive interpersonal interactions (Bateman et al., 2016; Bateman et al., 2022).

MBT initially focuses on psychoeducation to support understanding of mentalisation and how it may impact behaviours. Subsequently, therapy can be delivered in both groups and one-to-one, with a focus on attachment processes, addressing interpersonal conflicts, identifying emotions and developing coping skills, such as grounding and cognitive restructuring (Bateman & Fonagy, 2013). The primary aims of MBT include increasing reflective functioning and understanding of the self and others, to improve emotional regulation and reduce impulsivity, to decrease violent or aggressive behaviours and recidivism rates (Bateman & Fonagy, 2004).

Additionally, it is important to consider the preventative implications of the research in supporting young people who experience childhood trauma. In identifying an association between adverse early experiences and social cognitive deficits leading to misunderstanding of others' intentions and subsequent anti-social behaviours, it is critical that services respond to this need. Social cognition may be an important factor to consider in work with young people in mental health and local authority services who may have experienced adverse childhood events (Rokita et al., 2018; Venta et al., 2017).

Limitations and Future Research

Whilst the current study recruited a reasonable sample size for an under-researched population, it was underpowered based on the a priori power calculation which may have contributed to the lack of significant findings. Similarly, the power calculation was calculated to detect a medium effect size and may have been underpowered to detect smaller effects. Future research should aim to recruit larger samples sizes.

Furthermore, the current study recruited almost entirely White British participants (97.7%) and over half were aged 50 or over (51.1%). The average age of male sexual offenders serving custodial sentences in the UK as of March 2024 was 39.5 years. As of the

latest quarter, approximately 82% of male sexual offenders in a custodial setting are reported to be White British (Ministry of Justice, 2024). Further studies should aim to recruit more representative samples of the UK prison sexual offending population to be more generalisable and to examine the potential confounding impact of age. In addition, sampling from a range of prisons with varied therapeutic approaches is advised.

In the current study, participants were also required to self-report the presence of any traumatic brain injury and / or a formal diagnosis of ASD. As such, the current sample may have included participants with undiagnosed brain injuries or ASD. Indeed, studies consistently report that nearly 65% of male prisoners have a history of brain injury (Frost et al., 2013; Williams et al., 2010) and a significant proportion have undiagnosed ASD or are awaiting assessment (Dehaghani & Bath, 2021). Given that the current study relied on self-reporting, it is possible these conditions were underreported which may have impacted on findings. Both of these conditions can influence social understanding, emotional recognition and emotional regulation (Mandy & Lai, 2017; Milders, 2019) which may have affected the results. Formal screening for brain injuries and / or ASD would strengthen future studies.

The RFQ-8 is a widely utilised measure of reflective functioning abilities, however some research has questioned the construct validity of the simplified version of the scale. Mentalization is a complex**,** multidimensional construct and as the RFQ-8 encompasses only 8 items, it may oversimplify its nuance and fail to capture in-depth insights about reflective functioning. For example, some studies have suggested that scale items assess concepts such as emotional lability and impulsivity as opposed to mentalising (Müller et al., 2022). Therefore, it may be beneficial to utilise longer versions of this measure.

Moreover, whilst all the measures of social cognition used in the current study are considered ‘gold-standard’, including additional measures with greater ecological validity, such as the Faux-Pas Recognition Test (Baron-Cohen et al., 1999), may have strengthened the study. Similarly, although definitions of terminology associated with the measures were provided, it could not be guaranteed that participants understood the emotional language inherent in these measures. Including measures of literacy would help to ensure that participants fully understood task instructions.

The current study was undertaken with an underserved population (Dhaliwal et al., 2023; Phillips, 2024) and stigma regarding discussing trauma may have been a barrier to participation. Recruitment was reliant on support from prison representatives on the prison wings, which may have encouraged participation from prisoners who were more engaged with the prison regime.

Future research should aim to control for a range of possible confounding variables, such as age, intellectual functioning, duration in custody, therapeutic interventions, and age of trauma. The small sample size and high correlation between variables precluded analysis of the impact of subtypes of childhood trauma (e.g. sexual, neglect) on social cognition, but studies with larger sample sizes could allow for this exploration. There is emerging evidence to indicate that these specific types of childhood trauma are differentially associated with specific sexual offending in adulthood, such as rape and sexual assault (Levenson et al., 2016; Seto & Lalumiere, 2010).

Conclusion

The main aim of the current study was to examine whether childhood trauma was a predictor of social cognition in an adult male population of sexual offenders currently in a UK custodial setting, when controlling for age and level of education. Specifically, three key components of social cognition were examined: ToM, emotion recognition, and mentalising. Forty-three men serving sentences at HMP Stafford completed three measures of social cognition, one measure of childhood trauma and provided brief demographic information. Multiple regression analyses indicated that childhood trauma was a significant predictor of both hypermentalising and hypomentalising in adult male sexual offenders, whereas it was not a significant predictor of ToM or emotion recognition. Hypermentalising was also significantly predicted by age. Further well-designed studies with larger sample sizes, and samples that are more representative of the male prison population are still required. Meanwhile, the current findings suggest some key areas to consider in offender management programmes, particularly inclusion of Mentalisation-Based Therapy. The current study offers preliminary evidence that childhood trauma predicts mentalising difficulties within the studied population. It has also highlighted the importance of proactively considering the impact of trauma and social cognition in the rehabilitative support of male sexual offenders.

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Appendices

Appendix A – Author Guidelines

Author guidelines for the Journal of Personality and Social Psychology can be accessed here:

https://www.apa.org/pubs/journals/psp#:~:text=Journal%20of%20Personality%20and%20Social%20Psychology%3A%20Attitudes%20and%20Social%20Cognition,micro%2D%20and%20macrolevel%20social%20contexts.

Appendix B - Ethical Approval Staffordshire University

School of Health, Science and Wellbeing

ETHICAL APPROVAL FEEDBACK

Researcher name:	Mollie O'Riordan
Title of Study:	SU_22_264 *'Childhood Trauma and Social Cognition in Male Sexual Offenders'*
Status of approval:	Approved

Thank you for addressing the committee's comments. Your research proposal has now been approved by the Ethics Panel and you may commence the implementation phase of your study. You should note that any divergence from the approved procedures and research method will invalidate any insurance and liability cover from the University. You should, therefore, notify the Panel of any significant divergence from this approved proposal. This approval is only valid for as long as you are registered as a student at the University.

Please forward a copy of the HMPS ethical approval once given and notify the Ethics Committee of any amendments to this application that might be required.

You should arrange to meet with your supervisor for support during the process of completing your study and writing your dissertation.

When your study is complete, please send the ethics committee an end of study report. A template can be found on the ethics BlackBoard site.

Signed: **Date: 06/07/2023**

Dr Jade Elliott

Ethics Co-ordinator
Psychology
School of Health, Science and Wellbeing

Appendix C - Ethical Approval HMPPS

FINAL APPROVAL

National Research Committee
Email: National.Research@NOMS.gsi.gov.uk

Ref: 2023-255
Title: Is childhood trauma related to social cognition in male sexual offenders in a UK custodial setting?

Dear Mollie O'Riordan

The National Research Committee (NRC) is pleased to provide final approval for your research project. The governor of HMP Stafford will have final approval regarding the research going ahead. Whilst they have been informed of the recommendation, they are currently on leave and therefore final approval has not yet been granted.

For your research to go ahead, please ensure that the following stipulations are adhered to:

- The debrief document listing avenues of support needs to be reviewed. Prisoners do not have access to websites so cannot access any of these services. Instead, a debrief sheet covering services available in the prison is needed.

- There are no prisoners held on remand at HMP Stafford. Please remove reference to this from consent forms as it is likely to cause confusion.

- In line with data protection, it is important that participants are not identifiable. Please ensure that consent forms and questionnaires are taken out of the establishment separately as well as being stored separately.

- Since the previous review of the research proposal, the reviewed have been reflecting and request an additional amendment to exclusion criteria for the research. Any prisoners on open ACCT documents should be excluded to ensure their wellbeing, given the sensitive nature of the research topic.

The terms and conditions below will continue to apply to your research project.

Please note that unless the project is commissioned by MoJ/HMPPS and signed off by Ministers, the decision to grant access to prison establishments, National Probation Service

(NPS) divisions or Community Rehabilitation Company (CRC) areas (and the offenders and practitioners within these establishments/divisions/areas) ultimately lies with the Governing Governor/Director of the establishment or the Deputy Director/Chief Executive of the NPS division/CRC area concerned. If establishments/NPS divisions/CRC areas are to be approached as part of the research, a copy of this letter must be attached to the request to prove that the NRC has approved the study in principle. The decision to grant access to existing data lies with the Information Asset Owners (IAOs) for each data source and the researchers should abide by the data sharing conditions stipulated by each IAO.

Please note that a MoJ/HMPPS policy lead may wish to contact you to discuss the findings of your research. If requested, your contact details will be passed on and the policy lead will contact you directly.

Please quote your NRC reference number in all future correspondence.

Yours sincerely,

National Research Committee

National Research Committee - Terms and Conditions

All research

- **Changes to study -** Informing and updating the NRC promptly of any changes made to the planned methodology. ***This includes changes to the start and end date of the research***.
- **Dissemination of research** - The researcher will receive a research summary template attached to the research approval email from the National Research Committee. This is for completion once the research project has ended (ideally within one month of the end date).The researcher should complete the research summary document (approximately three pages; maximum of five pages) which (i) summaries the research aims and approach, (ii) highlights the key findings, and (iii) sets out the implications for MoJ/HMPPS decision-makers. The research summary should use language that an educated, but not research-trained person, would understand. It should be concise, well organised and self-contained. The conclusions should be impartial and adequately supported by the research findings. It should be submitted to the NRC. Provision of the research summary is essential if the research is to be of real use to MoJ and HMPPS.
- **Publications -** The NRC (National.Research@NOMS.gsi.gov.uk) receiving an electronic copy of any papers submitted for publication based on this research at the time of submission and at least one month in advance of the publication.
- **Data protection** - Researchers must comply with the requirements of the Data Protection Act 2018, the General Data Protection Regulation (GDPR) and any other applicable legislation. Data protection guidance can be found on the Information Commissioner's Office website: http://ico.org.uk
  Researchers must store all data securely and ensure that information is coded in a way that maintains the confidentiality and anonymity of research participants. The researchers must abide by any data sharing conditions stipulated by the relevant data controllers.
- **Research participants -** Consent must be given freely. It will be made clear to participants verbally and in writing that they may withdraw from the research at any point and that this will not have adverse impact on them. If research is undertaken with vulnerable people – such as young offenders, offenders with learning difficulties or those who are vulnerable due to psychological, mental disorder or medical circumstances - then researchers should put special precautions in place to ensure that the participants understand the scope of their research and the role that they are being asked to undertake. Consent will usually be required from a parent or other responsible adult for children to take part in the research.
- **Termination** – MoJ/HMPPS reserves the right to halt research at any time. It will not always be possible to provide an explanation, but we will undertake where possible to provide the research institution/sponsor with a covering statement to clarify that the decision to stop the research does not reflect on their capability or behaviour.

Research requiring access to prison establishments, NPS divisions and/or CRCs

- **Access –** Approval from the Governing Governor/Director of the establishment or the Deputy Director/Chief Executive of the NPS division/CRC area you wish to research in. (Please note that NRC approval does not guarantee access to establishments, NPS divisions or CRC areas; access is at the discretion of the Governing Governor/Director or Deputy Director/Chief Executive and subject to local operational factors and pressures). This is subject to clearance of vetting procedures for each establishment/NPS division/CRC area.
- **Security** – Compliance with all security requirements.
- **Disclosure –** Researchers are under a duty to disclose certain information to prison establishments/probation provider. This includes behaviour that is against prison rules and can be adjudicated against, undisclosed illegal acts, and behaviour that is potentially harmful to the research participant (e.g. intention to self-harm or complete suicide) or others. Researchers should make research participants aware of this requirement.

Appendix D – Risk Assessment

University Research Ethics Committee

RESEARCH ETHICS RISK ASSESSMENT AND MANAGEMENT

Prior to completion, if there is any aspect of the risks or risk management process associated with your proposed research that you feel unsureabout then it is **your responsibility** (as the researcher) to seek further guidance.

Identified Risks	Likelihood	Potential Impact/Outcome	Risk Management/Mitigating Factors
Identify the risks/hazards present	High/Medium/ Low	Who might be harmed and how?	Evaluate the risks and decide on the precautions, e.g., Health & Safety

Travel risks to location of research project:
• Road/rail accident
• Physical assault
	Low	Researcher:
		• Physical injury
		• Psychological harm
			• Awareness of options for mode of travel
			• Awareness of physical environment, e.g., alleyways, open spaces
			• Researcher to be aware of safety policies within research location and the use of any security devices, such as a personal alarm
			• Researcher to be aware of health and safety policies of research location:
			  ○ Fire bells
			  ○ Location of fire alarms & exits

Discussion of a sensitive topic in an interview has potential to cause distress to participant	Medium	Participant: • Psychological stress Researcher: • Anxiety about managing distress	• Offer to stop interview • Signpost participant to support services
Whistleblowing	Low	Participant: • Emotional distress from disclosing the event • Bias/prejudice because of disclosure	• Inform participants of limits to confidentiality in Participant Information Sheet • At time of disclosure, cease interview • Have identified person to pass on details of the event

Data collection taking place in an unfamiliar location with people not already known to researcher	High	Researcher: • Physical injury or psychological harm	• Visit location prior to data collection to assess possible risks associated with built and social environment • Use this information to plan session • Allow extra time to familiarise participants with research and environment • Researcher to have contact details and means of making timely contact with support
Disclosure of information about poor practice	Low	Immediate, urgent, or prompt response may be required from service providers	• Ensure all verbal and written information about research indicates possible researcher response to disclosure

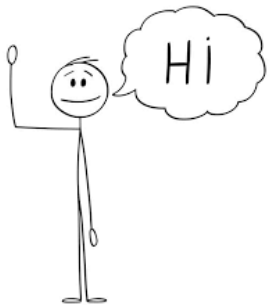
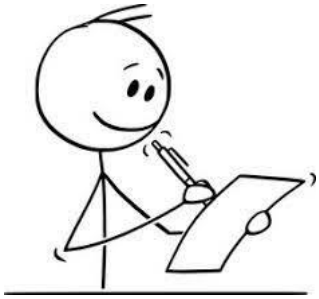
Disclosure of unmet health or social care needs	Medium	Immediate, urgent, or prompt response may be required from service providers	• Ensure all verbal and written information about research indicates possible researcher response to disclosure
Research participant in danger of harm to self or others	Medium	Immediate or urgent response may be required from service providers or emergency services	• Ensure all verbal and written information about research indicates possible researcher response to indication of danger to self or others

Appendix E – Participant Information Sheet

Version Number 5 08/09/23

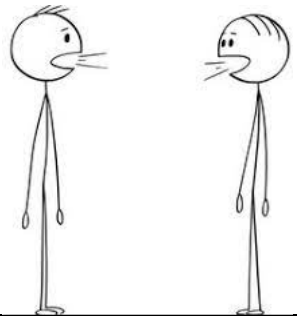
PARTICIPANT INFORMATION SHEET

Title of Project: Childhood Trauma and Social Cognition

	My name is Mollie O'Riordan
	My role is a researcher
	We are asking if you want to take part in a research study

	To help you understand this sheet you can
	• Ask someone to read it for you
	• Ask the researcher questions

What is this research about?	
	We want to know if experiences during childhood relate to how people interact with others when they're older.



We will look at things such as:

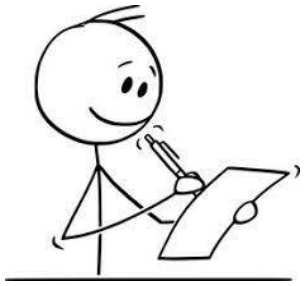
- Understanding other people's thoughts and feelings
- Seeing emotions in other people
- Understanding other people's actions

We want to find out about

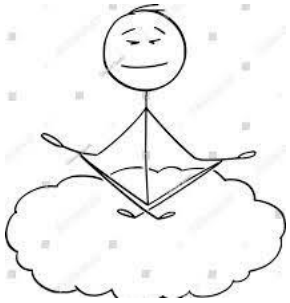
Whether difficult experiences in childhood have a link with these skills.

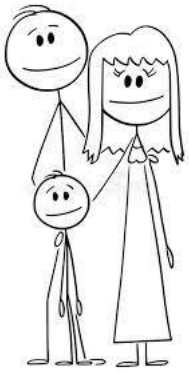
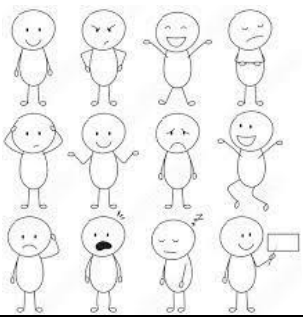
This could help us to know if there is a need for more help during childhood to help with these skills.

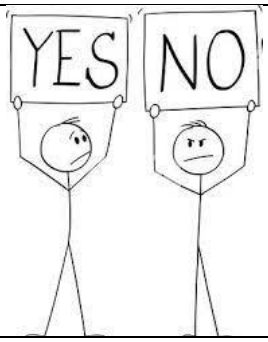
Why do we want you to participate?

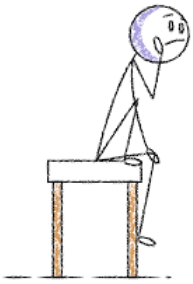
	You have been asked to take part in this study as you are currently serving a sentence at HMP Stafford for a sexual offence.

What will happen if you take part?	
	You do not have to take part if you do not want to. It is your choice.
	If you say YES to taking part, you will be asked to complete four short questionnaires and tasks with the researcher in a room at HMP Stafford on paper and on a laptop.
	The questionnaires may take up to 1 hour

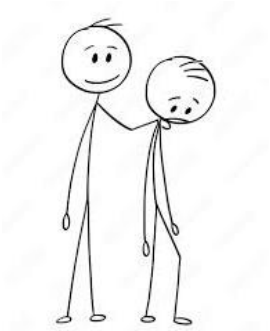
	We can have a break half-way through if you would like to

The researcher will ask questions about	
	You will also be asked some questions about yourself, such as your age.
	Some of the questions ask about experiences from your childhood. An example of these questions is a statement such as; ‘When I was growing up, I didn’t have enough to eat’ and you will be asked to say whether this statement was ‘Never True’, ‘Rarely True’, ‘Sometimes True’, ‘Often True’, or ‘Very Often True’.
	Other questions and tasks will ask you to identify expressions on faces, as well as other things. For example, you will also be asked to look at a picture of someone’s eyes and select which emotion you think they are

	experiencing from a list of four options, such as ‘Upset’. You will be shown whole faces of people too and asked to select which emotion you think they are showing from a list of six options, such as ‘Surprised’.
	You will also see some moving clips and be asked to say what emotions you think are being shown in them.
	Finally, you will be read statements such as ‘I always know what I feel’ and asked to say how much you agree with the statement.

What are the risks of taking part?	
	There are no serious risks of taking part in this research
	Sometimes talking about experiences may be difficult and upsetting
	You will be able to take breaks if you need to. We will provide contacts for support if you want this after the questionnaires.

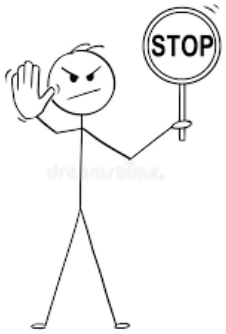
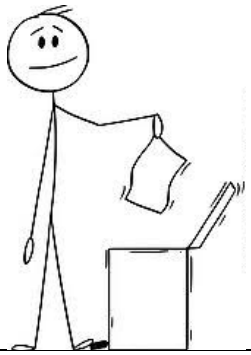
What are the possible benefits to taking part?	
	There are no immediate benefits to you for participating in this research. It has no impact on your prison sentence.

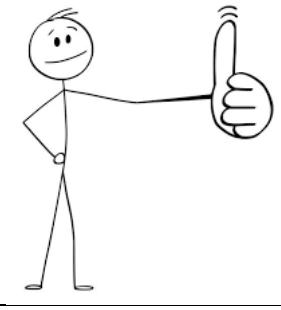
	The research is completely independent from any criminal or legal procedures you are currently involved with.
	If you decide to take part, you will be part of to a piece of research which hopes to help inform support for people in prison.

What happens with your information?	
	Your data will be used in line with data protection law and will comply with the General Data Protection Regulation 2018 (GDPR).
	The information that you give will be confidential (private) There are limits to confidentiality, and information would need to be shared with relevant people if it suggested there was a risk of harm to yourself or someone else, if it meant you are breaking prison rules or providing information about offences for which you have not been convicted. We will keep all information about you safe and secure.

	Your responses to the computer-based tasks will be stored securely with a code and it will not be possible to identify you from your responses
	All of the data collected in the questionnaires will be securely stored at the University of Staffordshire for 10 years, and then it will be destroyed. Data will only be shared with the research team and will not be shared with any third parties.
	People will not be able to see your name or contact details. Your data will have a code number instead.
STAFFORDSHIRE UNIVERSITY	The data controller for this project will be Staffordshire University. The University will process your personal data for the purpose of the research outlined above. You can provide your consent for the use of your personal data in this study by completing the consent form provided. You have the right to access information held about you. Questions, comments and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer.

	Please use the contact information at the end of this sheet if you wish to lodge a complaint.

What happens if you change your mind about taking part?	
	You can stop taking part at any time during the questionnaires
	You are able to withdraw your data from the study up until **3 weeks** after participation.
	If you choose to withdraw from the study, we will not keep any information that you have provided us as a part of this study.
	You do not have to give a reason for withdrawing from the study and this will not have any impact on the sentence you are serving

What will happen to the result of this study?	
	The results will be used in a Clinical Psychology Doctoral thesis. The researcher also hopes to publish the results in a peer review journal or present at a conference in the future. But none of the published findings will contain any of your personal details.

Who can you contact for more information?	
	If you have any questions please contact: MOLLIE FROM PSYCHOLOGY Through the prison post

	If you want to make a complaint, you can contact the study supervisor or the Chair of the Staffordshire University Ethics Committee through the prison point of contact for further advice and information: MOLLIE FROM PSYCHOLOGY Through the prison post
Thank you for looking at this information You will now be asked to complete a consent form of you want to take part	

Appendix F – CTQ

Instructions: Please rate yourself based on the options below in relation to the following possible traumatic experiences that you may have experienced. Take your time and be honest with your answers. This will be kept confidential.

Item	Never True	Rarely True	Sometimes True	Often True	Very Often True
1. I did not have enough to eat.	◯	◯	◯	◯	◯
2. I had someone to take care of me and protect me.	◯	◯	◯	◯	◯
3. I've been called "stupid," "lazy," and/or "ugly.	◯	◯	◯	◯	◯
4. My parents were too drunk/high to take care of me.	◯	◯	◯	◯	◯
5. Someone helped me feel important.	◯	◯	◯	◯	◯
6. I had to wear dirty clothes.	◯	◯	◯	◯	◯
7. I felt loved.	◯	◯	◯	◯	◯
8. I felt/thought that my parents wished I had never been born.	◯	◯	◯	◯	◯
9. I got hit so hard that I had to see a doctor.	◯	◯	◯	◯	◯
10. There is nothing I want to change in my family.	◯	◯	◯	◯	◯
11. I've been hit so hard that it left bruises and marks.	◯	◯	◯	◯	◯
12. I was punished with a belt, board, cord, or another hard object.	◯	◯	◯	◯	◯
13. My family looked out for each other.	◯	◯	◯	◯	◯
14. My family said hurtful or insulting things to me.	◯	◯	◯	◯	◯
15. I was physically abused.	◯	◯	◯	◯	◯
16. I had a perfect childhood.	◯	◯	◯	◯	◯

Bernstein D., Fink L. (1998). Childhood Trauma Questionnaire. A Retrospective Self-Report Questionnaire and Manual. San Antonio, The Psychological Corporation.

PAGE 1

Item	Never True	Rarely True	Sometimes True	Often True	Very Often True
17. I got hit badly and it was noticed by a teacher, neighbor, and/or doctor.	◯	◯	◯	◯	◯
18. Someone in my family hated me.	◯	◯	◯	◯	◯
19. My family felt close to each other.	◯	◯	◯	◯	◯
20. Someone tried to touch me in a sexual way or tried to make me touch them.	◯	◯	◯	◯	◯
21. Someone threatened to hurt me unless I did something sexual with them.	◯	◯	◯	◯	◯
22. I have the best family in the world.	◯	◯	◯	◯	◯
23. Someone made me try to do sexual things/watch sexual things.	◯	◯	◯	◯	◯
24. Someone molested me.	◯	◯	◯	◯	◯
25. I was emotionally abused.	◯	◯	◯	◯	◯
26. Someone took me to see the doctor when I needed to/if I needed to	◯	◯	◯	◯	◯
27. I was sexually abused.	◯	◯	◯	◯	◯
28. My family gave me strength and support.	◯	◯	◯	◯	◯

Appendix G - Reading the Mind in the Eyes Test

practice

arrogant

hateful

playful

comforting

1

irritated

bored

terrified

upset

2

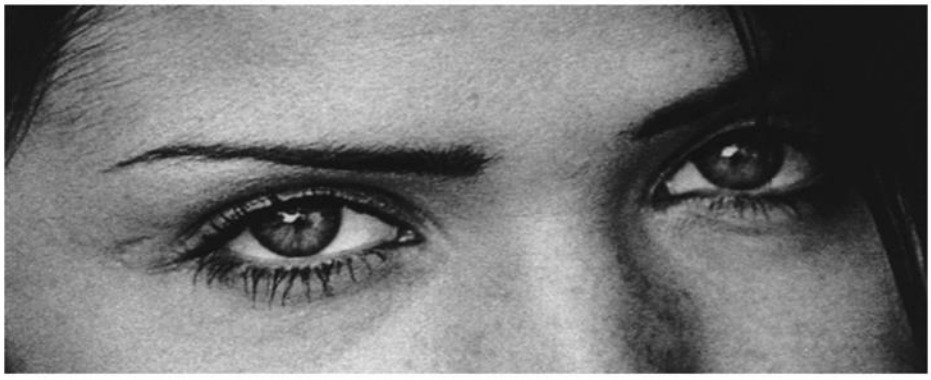
arrogant

annoyed

joking

flustered

3



desire

convinced

joking

insisting

4

amused

relaxed

irritated

sarcastic

5

worried

friendly

aghast

fantasizing

6

impatient

alarmed

apologetic

friendly

7

uneasy

dispirited

despondent

relieved

8

shy

excited

annoyed

hostile

9

horrified

preoccupied

cautious

insisting

10

bored

aghast

terrified

amused

11

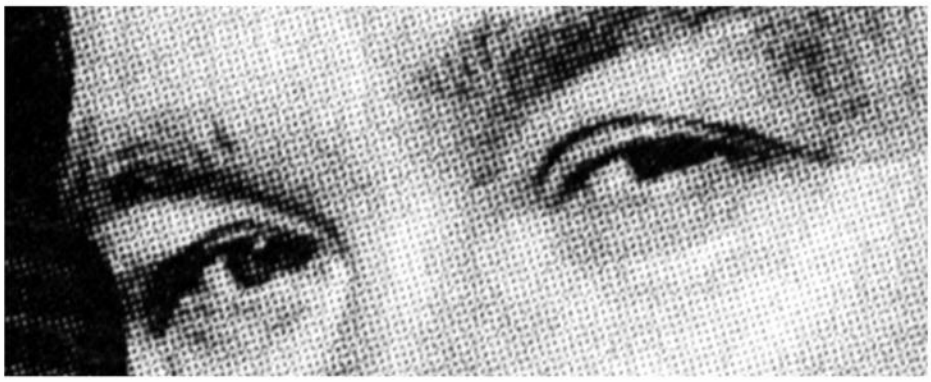
regretful

flirtatious

indifferent

embarrassed

12



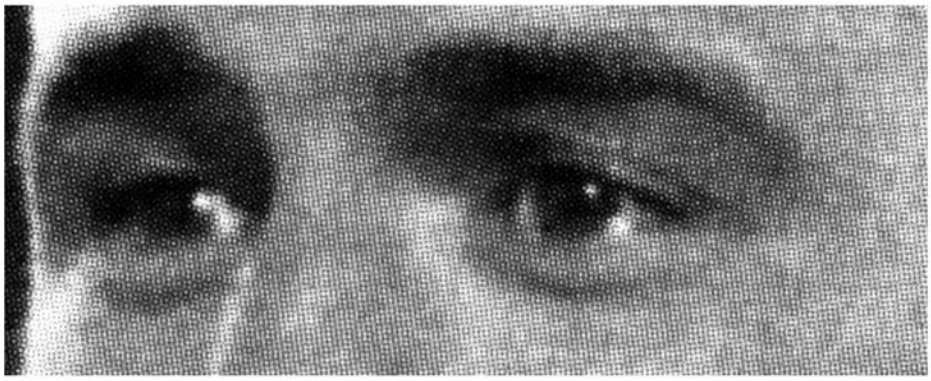
sceptical

dispirited

decisive

anticipating

13



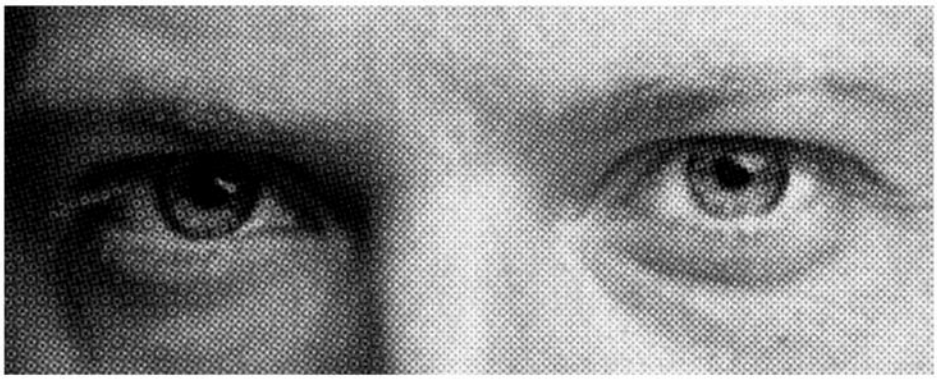
threatening

shy

irritated

disappointed

14



depressed

accusing

contemplative

flustered

15

encouraging

amused

irritated

thoughtful

16

encouraging

sympathetic

doubtful

affectionate

17

playful

aghast

decisive

amused

18

aghast

bored

arrogant

grateful

19

sarcastic

tentative

dominant

friendly

20

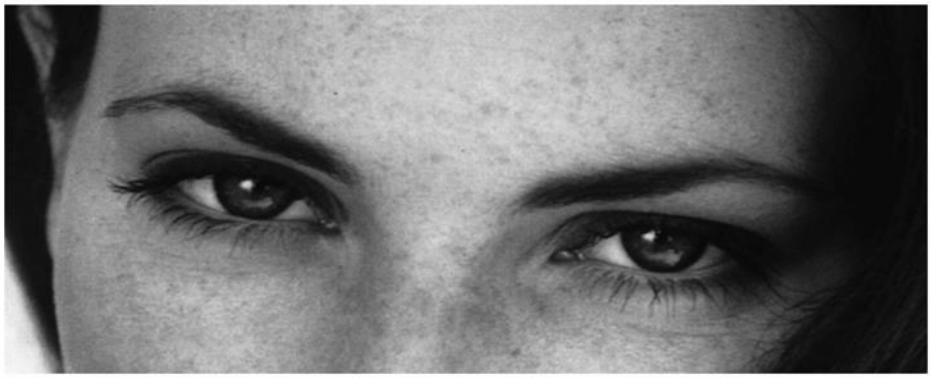
guilty

horrified

embarrassed

fantasizing

21



confused

panicked

preoccupied

grateful

22

insisting

imploring

contented

apologetic

23

defiant

curious

pensive

irritated

24

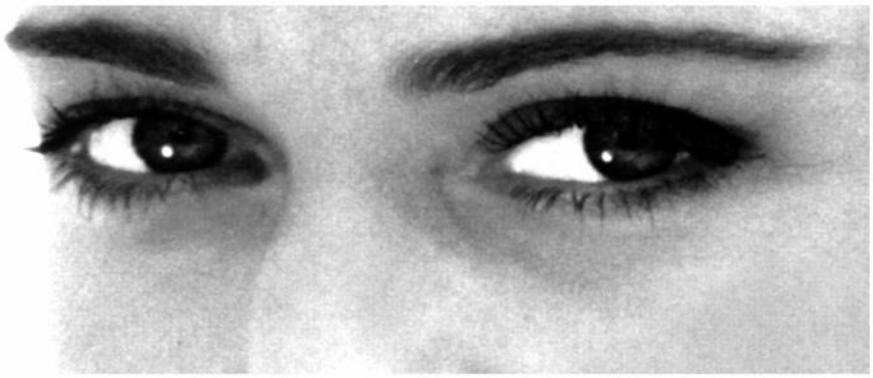
excited

hostile

panicked

incredulous

25



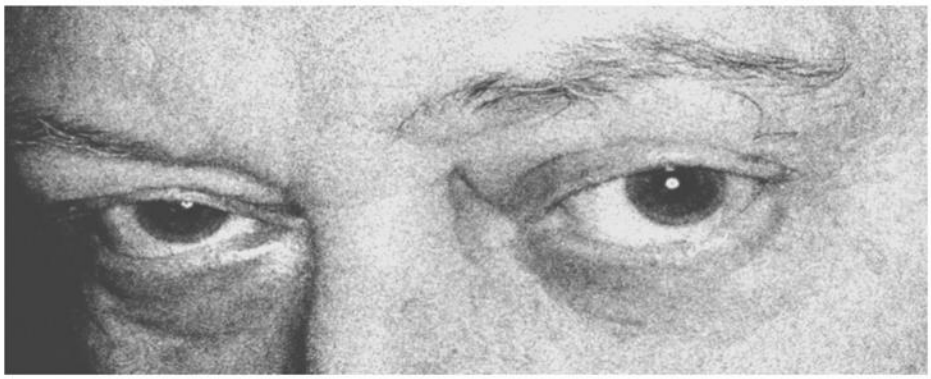
despondent

interested

alarmed

shy

26



hostile

anxious

joking

cautious

27

arrogant

reassuring

interested

joking

28

affectionate

contented

impatient

aghast

29

irritated

reflective

grateful

flirtatious

30

hostile

disappointed

ashamed

confident

31

joking

dispirited

serious

ashamed

32

bewildered

alarmed

embarrassed

guilty

33

fantasizing

concerned

aghast

baffled

34

distrustful

terrified

puzzled

nervous

35

insisting

contemplative

ashamed

nervous

36

suspicious

indecisive

Appendix H - GERT Response Sheet

Please tick the emotion word that describes best the emotion that the actor tried to express in this video.

Please note: Only ONE choice is allowed!

To alter your choice, do the following:
1) Put a cross by the choice you want to delete
2) Tick the circle you want to choose. Make sure only ONE circle is ticked.

Appendix I – Reflective Functioning Questionnaire

The Reflective Functioning Questionnaire

Please work through the next 8 statements. For each statement, choose a number between 1 and 7 to say how much you disagree or agree with the statement, and write it beside the statement. Do not think too much about it – your initial responses are usually the best. Thank you.

Use the following scale from 1 to 7:

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

1. __ People's thoughts are a mystery to me

2. __ I don't always know why I do what I do

3. __ When I get angry I say things without really knowing why I am saying them

4. __ When I get angry I say things that I later regret

5. __ If I feel insecure I can behave in ways that put others' backs up

6. __ Sometimes I do things without really knowing why

7. __ I always know what I feel

8. __ Strong feelings often cloud my thinking

Appendix J – Demographics Questionnaire

Demographics Questionnaire

1. What is your age?

   ☐ 18 – 20
   ☐ 21 – 24
   ☐ 25 – 29
   ☐ 30 – 39
   ☐ 40 – 49
   ☐ 50 – 59
   ☐ 60+

2. How many years of formal education have you completed? (e.g., GCSEs, A Levels, University degree/s)

   …….

3. What is your ethnicity?

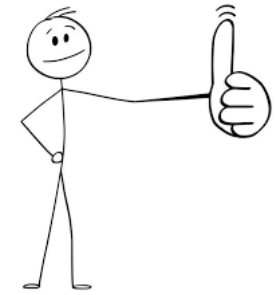
Asian or Asian British	
Indian	
Pakistani	
Bangladeshi	
Chinese	
Any other Asian background	

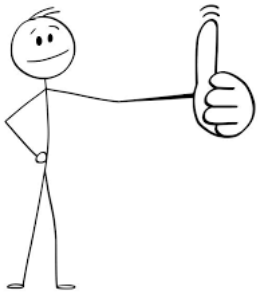
Black, Black British, Caribbean or African	
Caribbean	
African	
Any other Black, Black British, or Caribbean background	
Mixed or multiple ethnic groups	
White and Black Caribbean	
White and Black African	
White and Asian	
Any other Mixed or multiple ethnic background	
White	
English, Welsh, Scottish, Northern Irish or British	
Irish	
Gypsy or Irish Traveller	
Roma	
Any other White background	
Other ethnic group	
Arab	
Any other ethnic group	

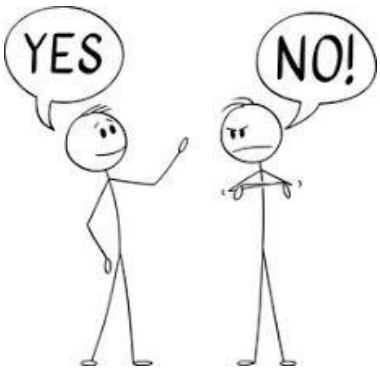
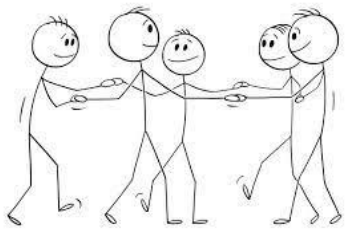
Appendix K – Consent Form

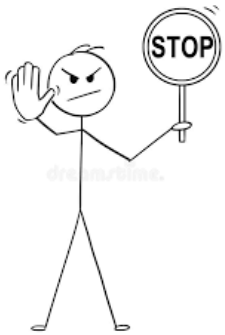
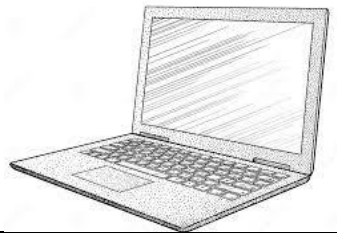
RESEARCH PROJECT CONSENT FORM

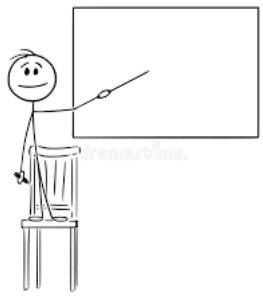
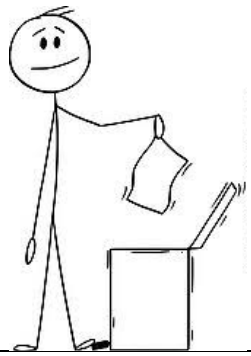
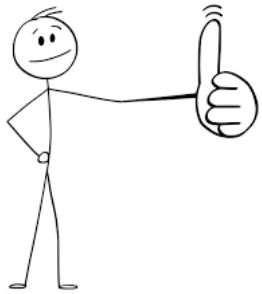
Title: Childhood Trauma and Social Cognition

	This is a form to give your consent to taking part in our research.
	We are looking at how people's past experiences impact how they interact with other people.

	Please only click one box for each item	✓ Yes	X No
	I have read the information sheet I was given	✓ ☐	X ☐
	I understand the information sheet I was given	✓ ☐	X ☐

	I have had a chance to ask any questions that I have	✓ ☐	X ☐
	I am happy to answer questions about my past experiences	✓ ☐	X ☐
	I am happy to answer questions about how I interact with other people	✓ ☐	X ☐
	I understand that it is my choice if I want to take part or not.	✓ ☐	X ☐

	I know that I can stop the questions at any time	✓ ☐	X ☐
	I understand that my information will be kept confidential (private) I also understand that there are limits to confidentiality, and information would need to be shared with relevant people if it suggested there was a risk of harm to yourself or someone else, if it meant you are breaking prison rules or providing information about offences for which you have not been convicted	✓ ☐	X ☐
	I understand that my data will be stored safely on a password protected computer for 10 years and then destroyed	✓ ☐	X ☐
	I consent that information collected might be written in scientific papers or presented in workshops but will always be anonymous, so I cannot be identified	✓ ☐	X ☐

	I consent that information collected might be used in teaching but will always be anonymous, so I cannot be identified	✓ ☐	X ☐
	Other than the two reasons above I consent for my information to be used only for this study, and I understand it might be checked for its quality	✓ ☐	X ☐
	I can change my mind and withdraw my data from the research within three weeks without having to give a reason	✓ ☐	X ☐
	I am aware that if I take part or not this has no impact on my prison sentence	✓ ☐	X ☐
	I **agree** to take part in this study	✓ ☐	X ☐

Please write or sign your name in the box below

	Name:
	Date:
Researcher: Mollie O'Riordan	
	Name:
	Date:

DEBRIEFING FORM

Title of Project: Childhood Trauma and Social Cognition

Thank you for giving your time to take part in this project.

If you need any emotional support following this research, this can be accessed in the following ways:

A listener

The Samaritans phone

Talking to your keyworker

If you are in distress, let a nearby member of staff know straightaway and they will be able to support you.

If you need any further information about this research, please send this request to **Mollie from Psychology** so that this can be passed on.

Appendix M – SPSS Outputs

Correlations

		CTQ	CTQ_EMOTIONAL	CTQ_PHYSICAL	CTQ_SEXUAL
CTQ	Pearson Correlation	1	.782**	.909**	.768**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	43	43	43	43
CTQ_EMOTIONAL	Pearson Correlation	.782**	1	.754**	.476**
	Sig. (2-tailed)	<.001		<.001	.001
	N	43	43	43	43
CTQ_PHYSICAL	Pearson Correlation	.909**	.754**	1	.573**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	43	43	43	43
CTQ_SEXUAL	Pearson Correlation	.768**	.476**	.573**	1
	Sig. (2-tailed)	<.001	.001	<.001	
	N	43	43	43	43
CTQ_EMOTIONAL_NEGLECT	Pearson Correlation	.836**	.594**	.691**	.523**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	43	43	43	43
CTQ_PHYSICAL_NEGLECT	Pearson Correlation	.808**	.567**	.705**	.447**
	Sig. (2-tailed)	<.001	<.001	<.001	.003
	N	43	43	43	43
Age2	Pearson Correlation	.121	-.058	.093	.125
	Sig. (2-tailed)	.438	.713	.552	.425

	N	43	43	43	43
Edu2	Pearson Correlation	-.230	-.033	-.176	-.115
	Sig. (2-tailed)	.138	.834	.258	.463
	N	43	43	43	43
RMET_SCORE	Pearson Correlation	-.084	-.014	-.113	.059
	Sig. (2-tailed)	.593	.929	.472	.709
	N	43	43	43	43
GERT_SCORE	Pearson Correlation	-.108	-.099	-.161	.005
	Sig. (2-tailed)	.492	.529	.303	.973
	N	43	43	43	43
RFQ_c	Pearson Correlation	-.292	-.256	-.220	-.201
	Sig. (2-tailed)	.057	.097	.157	.197
	N	43	43	43	43
RFQ_u	Pearson Correlation	.486**	.410**	.478**	.290
	Sig. (2-tailed)	<.001	.006	.001	.059
	N	43	43	43	43

Correlations

		CTQ_EMOTIONAL_NEGLECT	CTQ_PHYSICAL_NEGLECT	Age2	Edu2	RMET_SCORE
CTQ	Pearson Correlation	.836**	.808**	.121	-.230	-.084
	Sig. (2-tailed)	<.001	<.001	.438	.138	.593
	N	43	43	43	43	43
CTQ_EMOTIONAL	Pearson Correlation	.594**	.567**	-.058	-.033	-.014

	Sig. (2-tailed)	<.001	<.001	.713	.834	.929
	N	43	43	43	43	43
CTQ_PHYSICAL	Pearson Correlation	.691**	.705**	.093	-.176	-.113
	Sig. (2-tailed)	<.001	<.001	.552	.258	.472
	N	43	43	43	43	43
CTQ_SEXUAL	Pearson Correlation	.523**	.447**	.125	-.115	.059
	Sig. (2-tailed)	<.001	.003	.425	.463	.709
	N	43	43	43	43	43
CTQ_EMOTIONAL_NEGLECT	Pearson Correlation	1	.719**	-.029	-.238	-.007
	Sig. (2-tailed)		<.001	.855	.125	.963
	N	43	43	43	43	43
CTQ_PHYSICAL_NEGLECT	Pearson Correlation	.719**	1	.145	-.235	-.193
	Sig. (2-tailed)	<.001		.355	.129	.214
	N	43	43	43	43	43
Age2	Pearson Correlation	-.029	.145	1	-.606**	-.282
	Sig. (2-tailed)	.855	.355		<.001	.067
	N	43	43	43	43	43
Edu2	Pearson Correlation	-.238	-.235	-.606**	1	.224

	Sig. (2-tailed)	.125	.129	<.001		.149
	N	43	43	43	43	43
RMET_SCORE	Pearson Correlation	-.007	-.193	-.282	.224	1
	Sig. (2-tailed)	.963	.214	.067	.149	
	N	43	43	43	43	43
GERT_SCORE	Pearson Correlation	.040	-.217	-.357*	.418**	.658**
	Sig. (2-tailed)	.801	.161	.019	.005	<.001
	N	43	43	43	43	43
RFQ_c	Pearson Correlation	-.367*	-.334*	.312*	-.038	-.088
	Sig. (2-tailed)	.016	.029	.042	.811	.574
	N	43	43	43	43	43
RFQ_u	Pearson Correlation	.456**	.412**	-.100	-.134	-.264
	Sig. (2-tailed)	.002	.006	.526	.392	.088
	N	43	43	43	43	43

Correlations

		GERT_SCORE	RFQ_c	RFQ_u
CTQ	Pearson Correlation	-.108	-.292	.486**
	Sig. (2-tailed)	.492	.057	<.001
	N	43	43	43
CTQ_EMOTIONAL	Pearson Correlation	-.099	-.256	.410**
	Sig. (2-tailed)	.529	.097	.006
	N	43	43	43

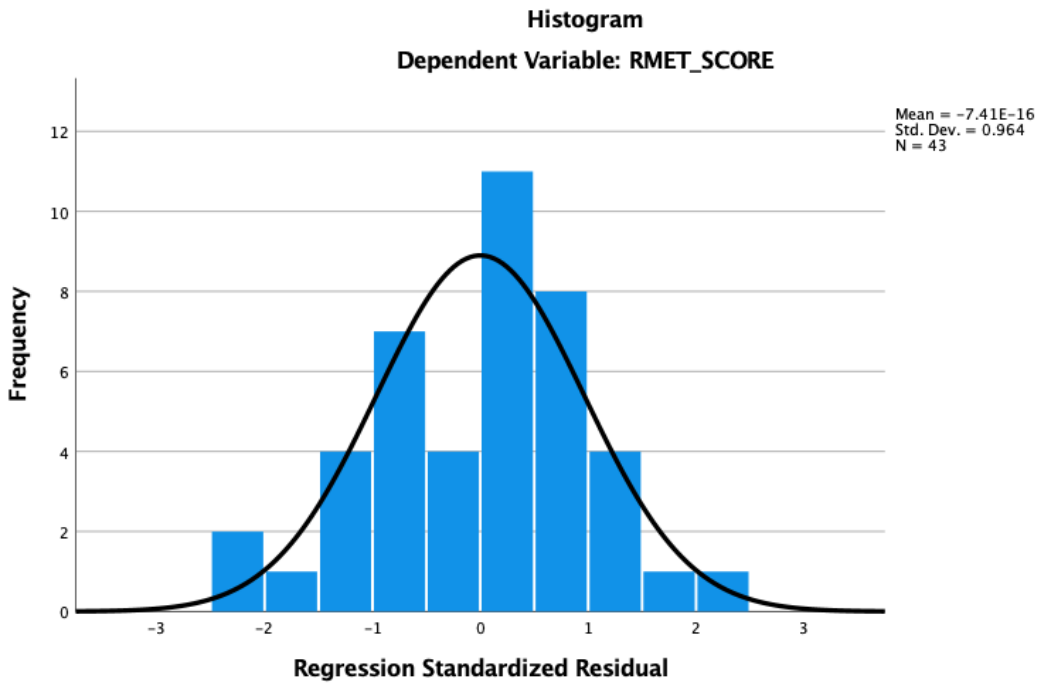
CTQ_PHYSICAL	Pearson Correlation	-.161	-.220	.478**
	Sig. (2-tailed)	.303	.157	.001
	N	43	43	43
CTQ_SEXUAL	Pearson Correlation	.005	-.201	.290
	Sig. (2-tailed)	.973	.197	.059
	N	43	43	43
CTQ_EMOTIONAL_NEGLECT	Pearson Correlation	.040	-.367*	.456**
	Sig. (2-tailed)	.801	.016	.002
	N	43	43	43
CTQ_PHYSICAL_NEGLECT	Pearson Correlation	-.217	-.334*	.412**
	Sig. (2-tailed)	.161	.029	.006
	N	43	43	43
Age2	Pearson Correlation	-.357*	.312*	-.100
	Sig. (2-tailed)	.019	.042	.526
	N	43	43	43
Edu2	Pearson Correlation	.418**	-.038	-.134
	Sig. (2-tailed)	.005	.811	.392
	N	43	43	43
RMET_SCORE	Pearson Correlation	.658**	-.088	-.264
	Sig. (2-tailed)	<.001	.574	.088
	N	43	43	43
GERT_SCORE	Pearson Correlation	1	-.004	-.201
	Sig. (2-tailed)		.978	.197
	N	43	43	43
RFQ_c	Pearson Correlation	-.004	1	-.698**
	Sig. (2-tailed)	.978		<.001
	N	43	43	43
RFQ_u	Pearson Correlation	-.201	-.698**	1
	Sig. (2-tailed)	.197	<.001	
	N	43	43	43

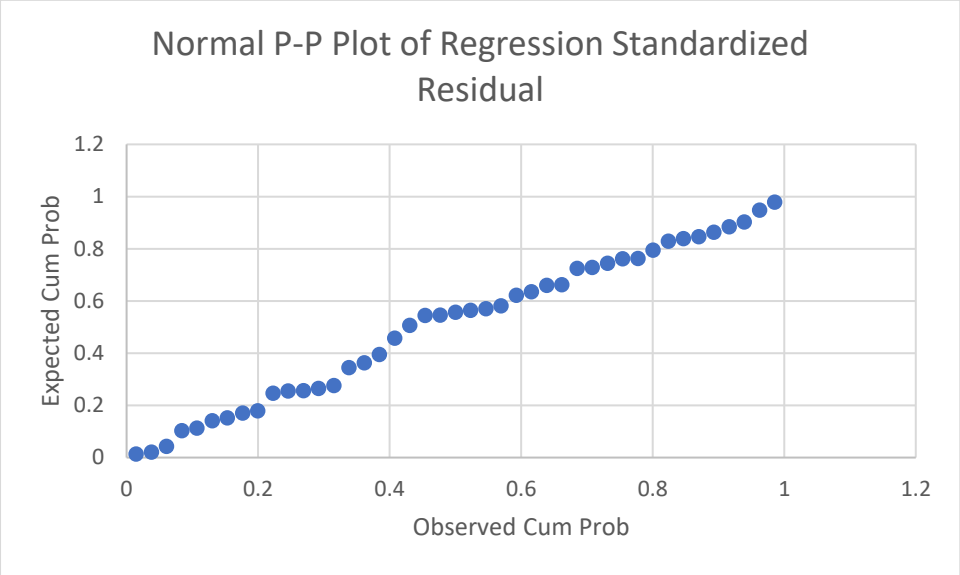
Correlations

		CTQ	CTQ_EMOTIONAL	CTQ_PHYSICAL	CTQ_SEXUAL	CTQ_EMOTIONAL_NEGLECT	CTQ_PHYSICAL_NEGLECT	Age2	Edu2	RMET_SCORE	GERT_SCORE	RFQ_c	RFQ_u
CTQ	Pearson Correlation	1	.782**	.909**	.768**	.836**	.808**	.121	-.230	-.084	-.108	-.292	.486**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	.438	.138	.593	.492	.057	<.001
	N	43	43	43	43	43	43	43	43	43	43	43	43
CTQ_EMOTIONAL	Pearson Correlation	.782**	1	.754**	.476**	.594**	.567**	-.058	-.033	-.014	-.099	-.256	.410**
	Sig. (2-tailed)	<.001		<.001	.001	<.001	<.001	.713	.834	.929	.529	.097	.006
	N	43	43	43	43	43	43	43	43	43	43	43	43
CTQ_PHYSICAL	Pearson Correlation	.909**	.754**	1	.573**	.691**	.705**	.093	-.176	-.113	-.161	-.220	.478**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	.552	.258	.472	.303	.157	.001
	N	43	43	43	43	43	43	43	43	43	43	43	43
CTQ_SEXUAL	Pearson Correlation	.768**	.476**	.573**	1	.523**	.447**	.125	-.115	.059	.005	-.201	.290
	Sig. (2-tailed)	<.001	.001	<.001		<.001	.003	.425	.463	.709	.973	.197	.059
	N	43	43	43	43	43	43	43	43	43	43	43	43
CTQ_EMOTIONAL_NEGLECT	Pearson Correlation	.836**	.594**	.691**	.523**	1	.719**	-.029	-.238	-.007	.040	-.367*	.456**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	.855	.125	.963	.801	.016	.002
	N	43	43	43	43	43	43	43	43	43	43	43	43
CTQ_PHYSICAL_NEGLECT	Pearson Correlation	.808**	.567**	.705**	.447**	.719**	1	.145	-.235	-.193	-.217	-.334*	.412**
	Sig. (2-tailed)	<.001	<.001	<.001	.003	<.001		.355	.129	.214	.161	.029	.006
	N	43	43	43	43	43	43	43	43	43	43	43	43
Age2	Pearson Correlation	.121	-.058	.093	.125	-.029	.145	1	-.606**	-.282	-.357*	.312*	-.100
	Sig. (2-tailed)	.438	.713	.552	.425	.855	.355		<.001	.067	.019	.042	.526
	N	43	43	43	43	43	43	43	43	43	43	43	43
Edu2	Pearson Correlation	-.230	-.033	-.176	-.115	-.238	-.235	-.606**	1	.224	.418**	-.038	-.134
	Sig. (2-tailed)	.138	.834	.258	.463	.125	.129	<.001		.149	.005	.811	.392
	N	43	43	43	43	43	43	43	43	43	43	43	43
RMET_SCORE	Pearson Correlation	-.084	-.014	-.113	.059	-.007	-.193	-.282	.224	1	.658**	-.088	-.264
	Sig. (2-tailed)	.593	.929	.472	.709	.963	.214	.067	.149		<.001	.574	.088
	N	43	43	43	43	43	43	43	43	43	43	43	43
GERT_SCORE	Pearson Correlation	-.108	-.099	-.161	.005	.040	-.217	-.357*	.418**	.658**	1	-.004	-.201
	Sig. (2-tailed)	.492	.529	.303	.973	.801	.161	.019	.005	<.001		.978	.197
	N	43	43	43	43	43	43	43	43	43	43	43	43
RFQ_c	Pearson Correlation	-.292	-.256	-.220	-.201	-.367*	-.334*	.312*	-.038	-.088	-.004	1	-.698**
	Sig. (2-tailed)	.057	.097	.157	.197	.016	.029	.042	.811	.574	.978		<.001
	N	43	43	43	43	43	43	43	43	43	43	43	43
RFQ_u	Pearson Correlation	.486**	.410**	.478**	.290	.456**	.412**	-.100	-.134	-.264	-.201	-.698**	1
	Sig. (2-tailed)	<.001	.006	.001	.059	.002	.006	.526	.392	.088	.197	<.001	
	N	43	43	43	43	43	43	43	43	43	43	43	43

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).





ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	96.599	3	32.200	1.216	.317[b]
	Residual	1032.471	39	26.474		
	Total	1129.070	42			

a. Dependent Variable: RMET_SCORE

b. Predictors: (Constant), Edu2, CTQ, Age2

Coefficients[a]

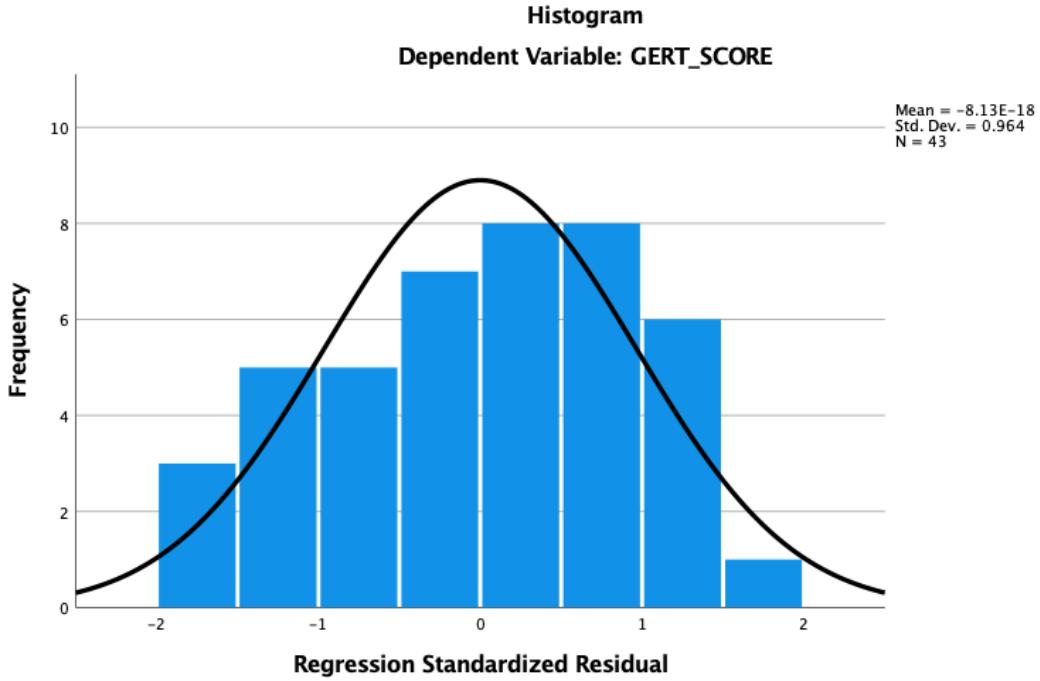
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	24.943	3.416		7.301	<.001	18.033	31.853					
	CTQ	-.008	.034	-.038	-.245	.808	-.076	.060	-.084	-.039	-.037	.947	1.056
	Age2	-.796	.659	-.233	-1.208	.234	-2.128	.536	-.282	-.190	-.185	.632	1.583
	Edu2	.797	2.112	.074	.377	.708	-3.476	5.069	.224	.060	.058	.607	1.646

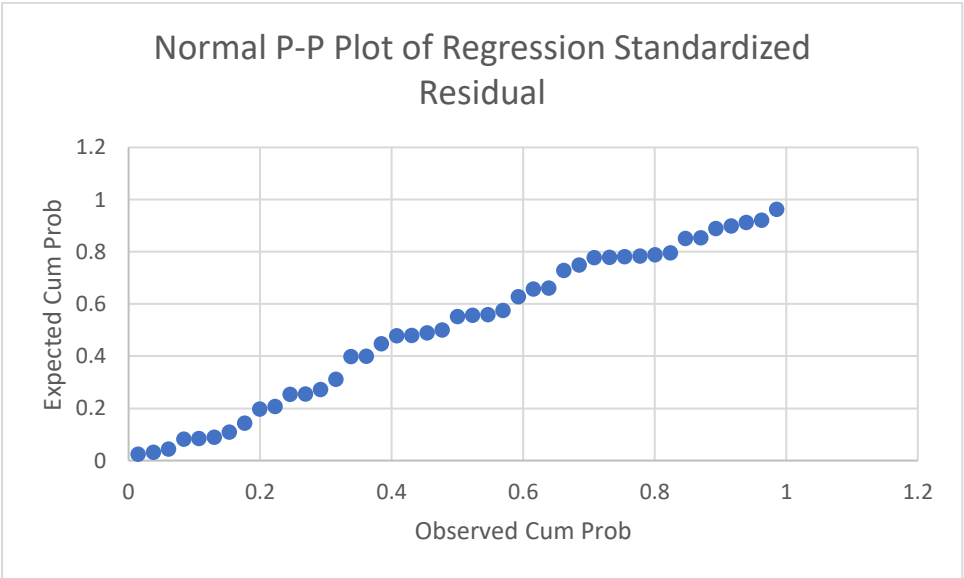
a. Dependent Variable: RMET_SCORE

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	24.943	-.046	3.294	<.001	18.784	31.427
	CTQ	-.008	.004	.038	.828	-.076	.072
	Age2	-.796	-.099	.736	.294	-2.366	.512
	Edu2	.797	-.036	2.142	.699	-3.744	4.612

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples





ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	225.739	3	75.246	3.086	.038[b]
	Residual	950.912	39	24.382		
	Total	1176.651	42			

a. Dependent Variable: GERT_SCORE

b. Predictors: (Constant), Edu2, CTQ, Age2

Coefficients[a]

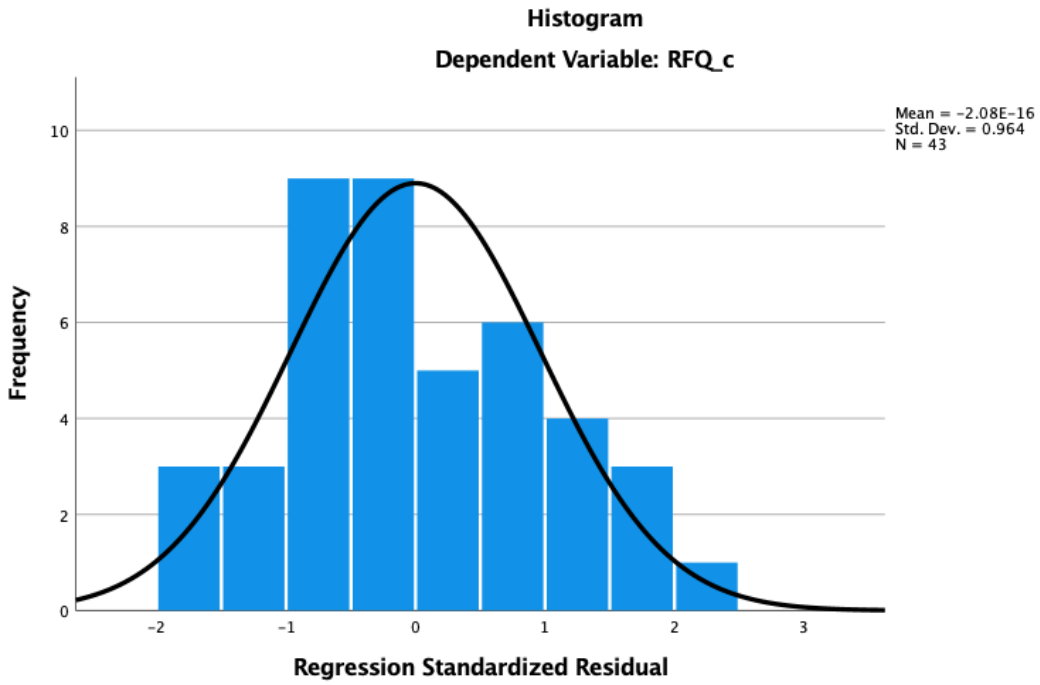
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	17.704	3.279		5.400	<.001	11.073	24.336					
	CTQ	-.003	.032	-.015	-.103	.918	-.069	.062	-.108	-.017	-.015	.947	1.056
	Age2	-.572	.632	-.164	-.905	.371	-1.850	.706	-.357	-.143	-.130	.632	1.583
	Edu2	3.459	2.027	.315	1.706	.096	-.641	7.559	.418	.264	.246	.607	1.646

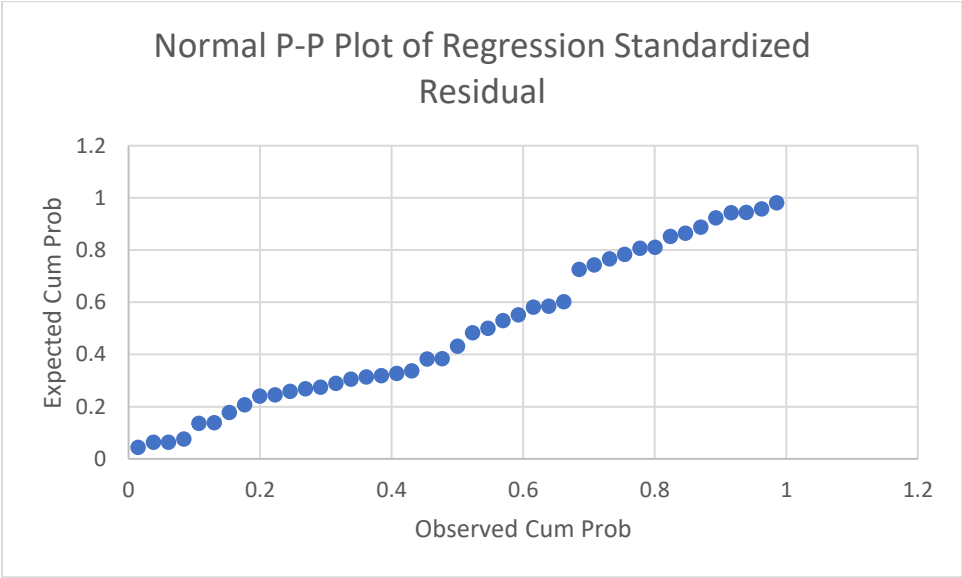
a. Dependent Variable: GERT_SCORE

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	17.704	.183	2.895	<.001	12.483	23.940
	CTQ	-.003	-4.996E-5	.033	.917	-.066	.062
	Age2	-.572	-.056	.657	.375	-1.996	.560
	Edu2	3.459	-.085	1.922	.078	-.668	6.894

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples





ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.035	3	2.012	3.757	.018[b]
	Residual	20.881	39	.535		
	Total	26.916	42			

a. Dependent Variable: RFQ_c

b. Predictors: (Constant), Edu2, CTQ, Age2

Coefficients[a]

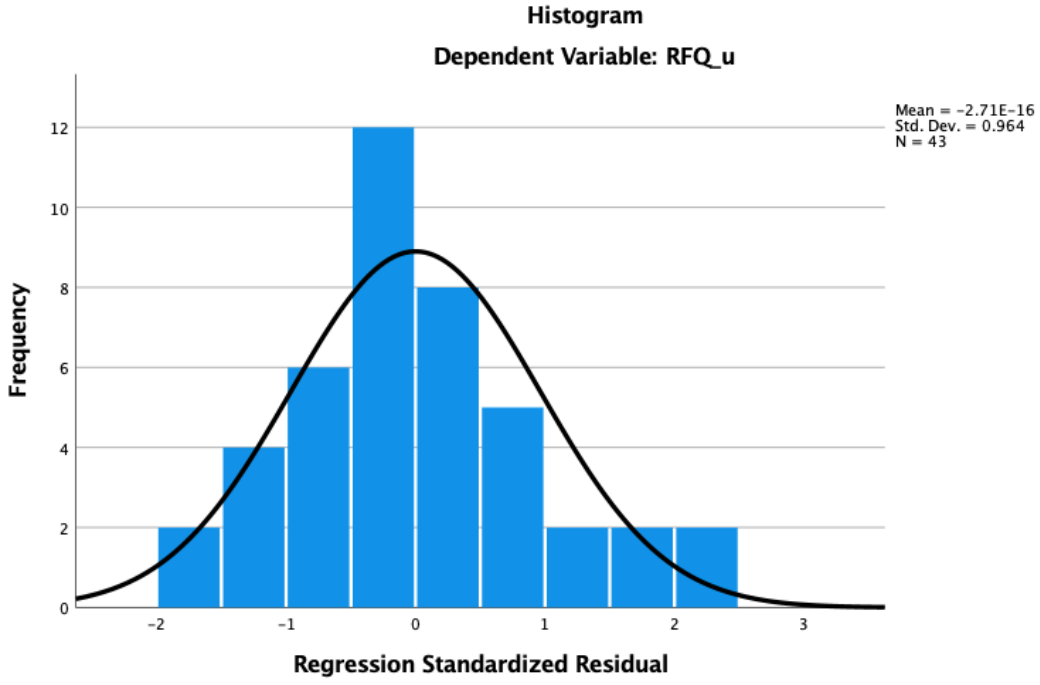
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.044	.486		2.148	.038	.061	2.026					
	CTQ	-.010	.005	-.309	-2.133	.039	-.020	-.001	-.292	-.323	-.301	.947	1.056
	Age2	.237	.094	.449	2.528	.016	.047	.426	.312	.375	.357	.632	1.583
	Edu2	.271	.300	.163	.903	.372	-.336	.879	-.038	.143	.127	.607	1.646

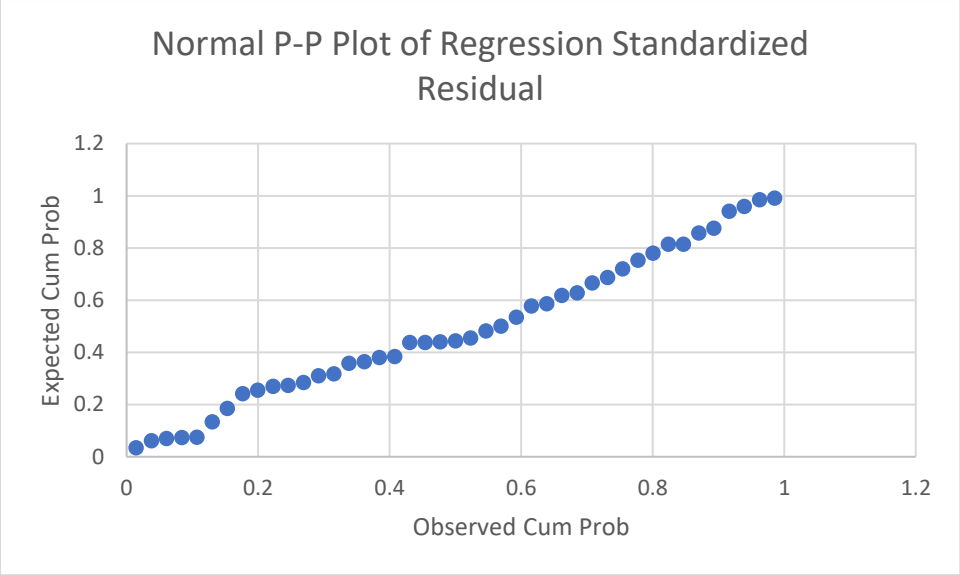
a. Dependent Variable: RFQ_c

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	1.044	.013	.412	.012	.326	1.934
	CTQ	-.010	-6.112E-5	.004	.021	-.019	-.002
	Age2	.237	-.005	.083	.008	.063	.389
	Edu2	.271	-.015	.274	.327	-.268	.776

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples





ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.032	3	2.011	5.143	.004[b]
	Residual	15.247	39	.391		
	Total	21.279	42			

a. Dependent Variable: RFQ_u

b. Predictors: (Constant), Edu2, CTQ, Age2

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	95.0% Confidence Interval for B Upper Bound	Correlations Zero-order	Correlations Partial	Correlations Part	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	.321	.415		.772	.445	-.519	1.160					
	CTQ	.014	.004	.475	3.412	.002	.006	.022	.486	.479	.462	.947	1.056
	Age2	-.128	.080	-.272	-1.597	.118	-.290	.034	-.100	-.248	-.216	.632	1.583
	Edu2	-.280	.257	-.190	-1.091	.282	-.799	.239	-.134	-.172	-.148	.607	1.646

a. Dependent Variable: RFQ_u

Bootstrap for Coefficients

Model		B	Bootstrap[a] Bias	Bootstrap[a] Std. Error	Bootstrap[a] Sig. (2-tailed)	Bootstrap[a] 95% Confidence Interval Lower	Bootstrap[a] 95% Confidence Interval Upper
1	(Constant)	.321	-.001	.380	.400	-.503	1.037
	CTQ	.014	2.770E-5	.004	.004	.005	.022
	Age2	-.128	.000	.080	.113	-.295	.024
	Edu2	-.280	-.001	.231	.235	-.750	.180

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Paper 3: Executive Summary

Childhood Trauma and Social Cognition in Sexual Offenders

Word Count: 2493 (Excluding title page and references)

Overview

This summary outlines a research project considering the predictive relationship between childhood trauma and social cognition, when controlling for age and level of education, in adult males who are serving a prison sentence for a sexual offence. The summary is written for professionals working with this population, and anyone with an interest in this area. The process was in part informed by discussions with prisoner representatives at the prisoners' council forum.

Background

What is a sexual offence?

Crimes considered a sexual offence include unwanted touching, unwanted exposure, harassment, assault and rape. Key aspects are that they are sexually motivated, unwanted by the recipient and can occur within any relationship. (Dills et al., 2016; Indrayana, 2017; Mas'udah, 2022; ONS, 2024).

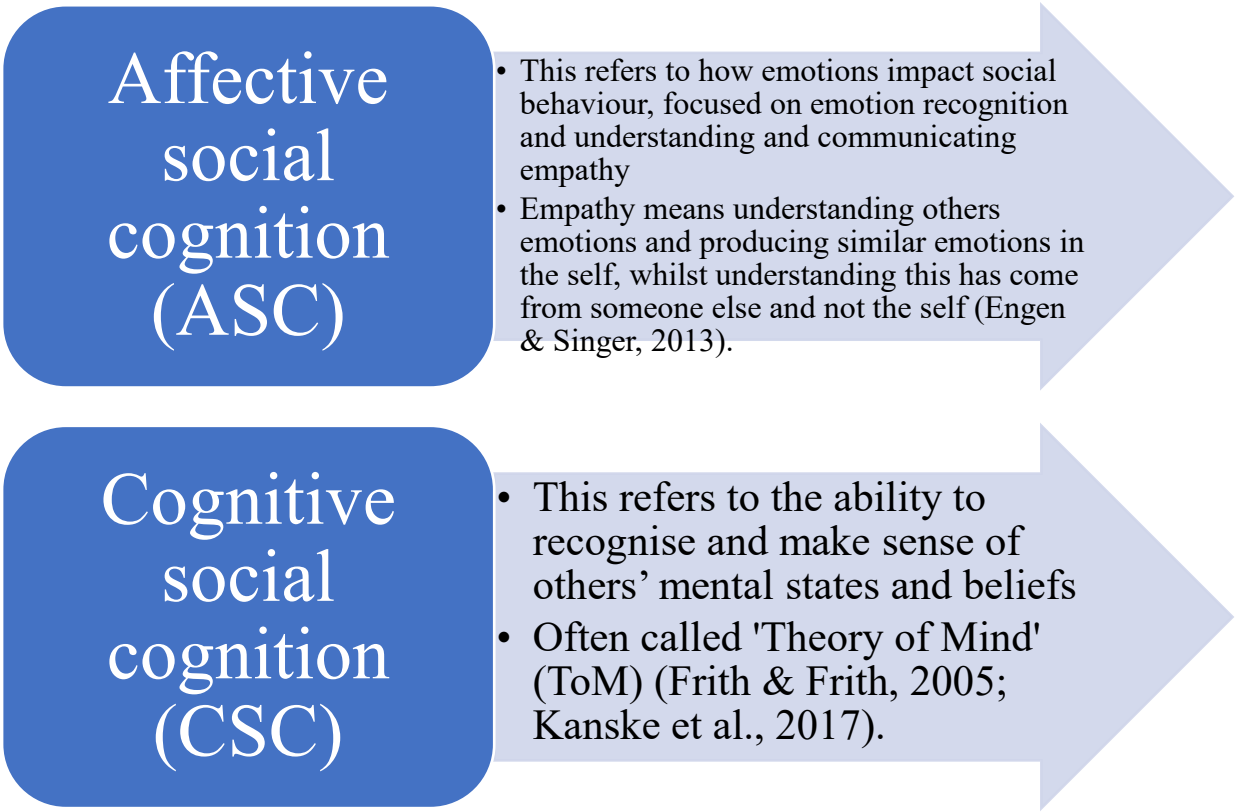
Some facts:

- 193,566 sexual offences occurred in England and Wales between March 2021-22 (ONS, 2024)
- Figures have continued to increase over the last decade, with a 31% rise from the year ending March 2021 to March 2022 (ONS, 2024)
- Between 50% and 87% of survivors of sexual violence are reported to experience PTSD in their life (Creamer et al., 2001)
- Survivors further report heightened rates of depression, substance misuse, and suicidality are also reported (Kilpatrick et al., 1997; Mgoqi-Mbalo et al., 2017; Ng et al., 2018)

What is social cognition?

Social cognition refers to mental processes relating to how people see, make sense of, and interact with the world, including how they understand the thoughts, intentions, and behaviours of others (Arioli et al., 2018). Such processes impact how people form relationships, whether they behave in a socially acceptable way and how they manage their own mental wellbeing (Nelis et al., 2011; Salazar Kämpf et al., 2023).

There are two key types of social cognition:



However, some recent theory suggests these aspects are always connected, and one cannot occur without the other (Schurz et al., 2021).

Example – If Tim is trying to understand what is going on with John when he is slamming doors, he will need to try and make sense both of his external emotional expression (ASC) as well as trying to acknowledge what he might be thinking (CSC). He would have to use his combined knowledge about emotions (ASC), perspective-taking (CSC) and how events or thoughts have impacted John's mental state (CSC).

There are three key measurable types of social cognition:

- **Theory of Mind** – understanding the mental states of others (Frith & Frith, 2005)
- **Emotional recognition** – identifying emotions in others through their expressions, body language and tone of voice (Brackett et al., 2013).
- **Mentalising** – understanding mental states/emotions underlying behaviours (Fonagy et al., 2016). Which can be separated into two types:

- Hypermentalising – over-interpretation of others' mental states – generally making inaccurate or exaggerated conclusions
- Hypomentalising – under-interpretation of others' mental states – generally confused by others' thoughts/feelings/behaviours

Childhood trauma:

This study considers these types of major childhood trauma:

- Emotional, physical and sexual abuse
- Emotional and physical neglect

Such early trauma has been linked with poorer performance on measures of social cognition later in life, such as ToM and emotion recognition (Gama et al., 2017; Morán-Kneer et al., 2022; Russo et al., 2015).

Attachment theory:

In attempting to explain this link, we must consider attachment theory. This suggests that early interactions with caregivers impact how we learn to understand the world and ourselves (Bowlby et al., 1992). Based on these experiences, children form different types of attachments to caregivers, often categorised as 'secure' or 'insecure'.

Children with secure attachments generally develop better ToM and are better at recognising emotions (Jethava et al., 2022; Szpak & Białecka-Pikul, 2020). Insecure attachments styles are linked with misunderstanding social cues, avoiding emotional closeness and experiencing more difficulties in forming relationships (Dagan et al., 2022).

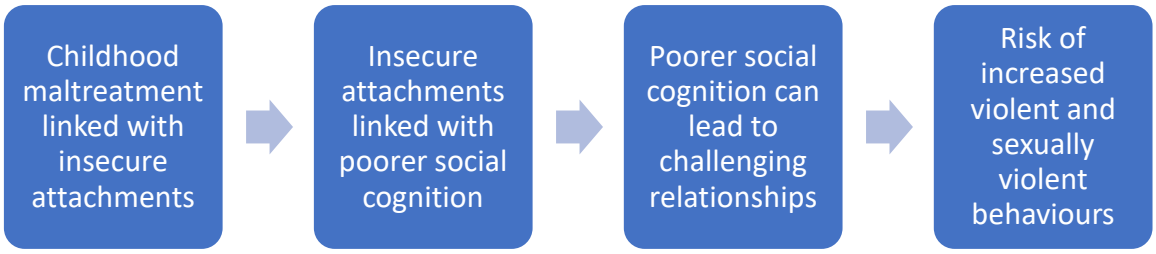
What does this have to do with sexual violence?

Research also suggests that people who commit sexual offences often have experienced childhood trauma, which might include physical, emotional, or sexual abuse (Levenson et al., 2016; Malamuth & Hald, 2016). As discussed, childhood trauma is related to poorer social cognition, which is said to be a risk factor for general violent behaviour (Engelstad et al., 2019; Gauci & Hollin, 2012).

Potential explanations for the link between social cognition and violence include;

- Exposure to aggressive behaviours through family/peers/media, which could normalise and cause imitation of aggression/violence (Bandura & Walters, 1977).
- Falsely interpreting aggression from others when trying to understand their intentions and therefore responding with anger (Crick & Dodge, 1996).
- People displaying aggressive behaviours may be worse at noticing signs of distress, such as fearful facial expressions (Marsh & Blair, 2008).

In summary:



Why complete this study?

There is currently a lack of reliable research completed exploring the link between childhood trauma, social cognition, and sexually violent behaviour. This is significant given the lifelong impacts of sexual violence on victims, and reports of increasing sexual violence.

Better understanding the link between early trauma and social cognition, which may play a role in violent behaviour, would increase abilities to provide appropriate rehabilitative support to offenders, and possibly provide preventative support to young people experiencing difficulties.

Predicted outcomes of the study:

Prediction One: Increased childhood trauma would predict worse ToM, when controlling for age and level of education

Prediction Two: Increased childhood trauma would predict worse emotion recognition, when controlling for age and level of education

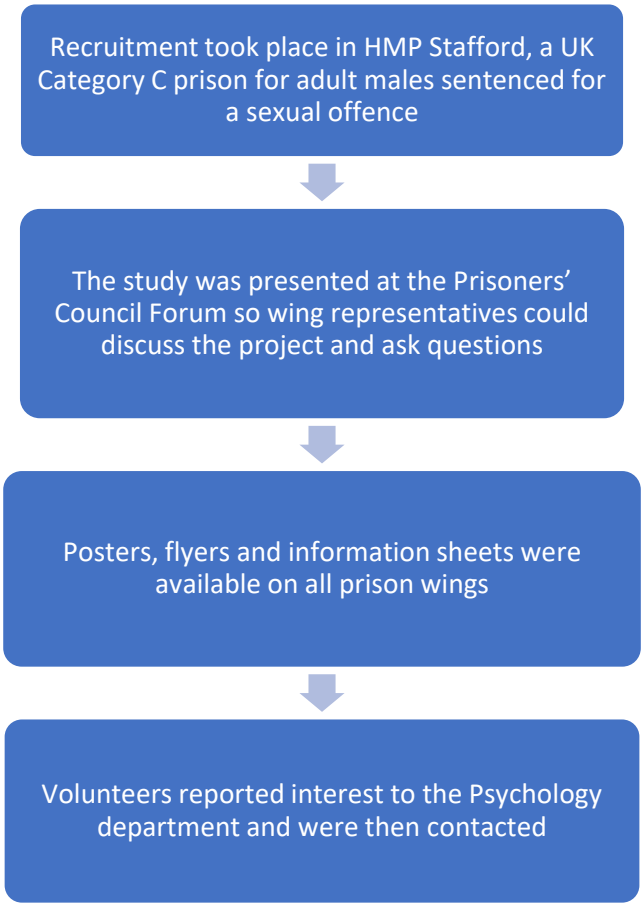
Prediction Three: Increased childhood trauma would predict overinterpreting other peoples' thoughts and feelings (hypermentalising), when controlling for age and level of education

Prediction Four: Increased childhood trauma would predict difficulty understanding other peoples' thoughts and feelings (hypomentalising), when controlling for age and level of education

Method

The study was approved by Staffordshire University Ethics Committee and HMPPS Ethics Committee and was open from the 4th of March until the 8th of May, with a total of 11 days of data collection. There was no incentive to take part in the research.

How were participants recruited?



Who could take part?

Inclusion Criteria	Exclusion Criteria
English-speaking Males Serving a prison sentence for a sexual offence at HMP Stafford	Formal diagnosis of Autism Diagnosed brain injury Receiving care under Assessment, Care in Custody and Teamwork (ACCT) No 1:1 working due to risk

What did taking part involve?

Data was collected all at one point in time, known as a 'cross-sectional study'. Information was collected in person by the researcher in a 45-minute appointment. All participants gave written informed consent. Four measures were then completed (see below). Demographic data was collected. All information was anonymised and a debriefing statement was provided at the end of the session, which gave details of confidential sources of emotional support available within the prison if needed (e.g., Chaplaincy, Listeners and the 'Samaritans phone' provided by the prison).

Measures completed included:

Childhood Trauma

- Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 2003)
    - Self-report
    - Five areas: physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect
    - Twenty-eight statements rated on a 1 to 5 scale, where 1 means "never true" and 5 means "very often true"
    - An example statement is: 'When I was growing up, I didn't have enough to eat'.

Social Cognition

Three areas of social cognition were measured:

- Theory of mind
- Emotion recognition

- Mentalizing
    - Hypomentalising
    - Hypermentalising

Theory of Mind (ToM)

- Reading the Mind in the Eyes Task (Baron-Cohen et al., 2001).
    - Participants viewed 36 sets of eyes and chose from four options which emotion was most appropriate, such as 'Irritated' and 'Bored'
    - Scores ranged from 0 to 36, with lower scores indicating greater difficulty judging others' mental states

Emotion Recognition

- The Geneva Emotion Recognition Test Short Version (GERT; Schlegel et al., 2014)
    - Participants viewed 42 video clips shown displaying actors expressing 14 emotions
    - Participants chose an emotion from emotion wheel of 14 options, such as 'Anger', 'Pride' or 'Joy'
    - Scored out of 42 with lower scores indicating greater difficulty recognising emotions

Mentalising

- The Reflective Functioning Questionnaire (RFQ8) (Fonagy et al., 2016).
    - Participants rated agreement with 8 statements measured on a scale of 1 to 7 where 1 means no agreement and 7 means complete agreement
    - 2 subscales; certainty (RFQc) measuring hypermentalising and uncertainty (RFQu) measuring hypomentalising with six items on each subscale
    - High scores on the RFQc indicate hypermentalising and high scores on the RFQu indicate hypomentalising, whilst **lower scores on both indicate good mentalising abilities**
    - An example statement is: 'People's thoughts are a mystery to me'

Who took part?

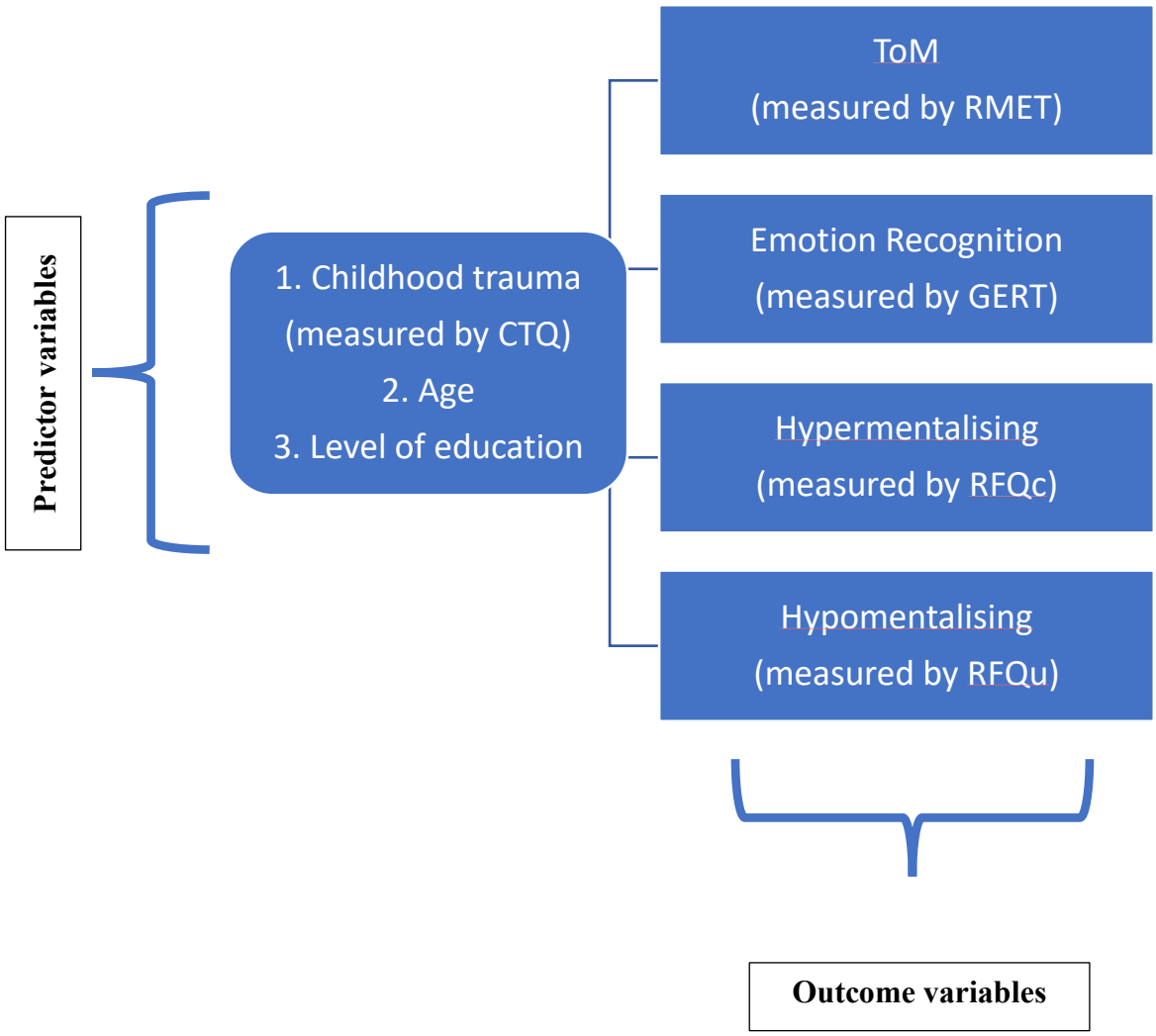
Forty-three men took part in the study. Over half of the sample were aged 50 or over (51.1%). The majority of people were White British (97.7%). An overview of characteristics is shown below:

Demographic Characteristic (N = 43)	n (%)
Age Group	
20-29	6 (14)
30-39	8 (18.6)
40-49	7 (16.3)
50-59	5 (11.6)
60+	17(39.5)
Ethnicity	
White British	42(97.7)
White and Asian	1 (2.3)
Years of Education	
Less than secondary	7 (16.3%)
Secondary	21 (48.8%)
A Level / College	10 (23.3%)
University Degree / Diploma	5 (11.6%)

How was data analysed?

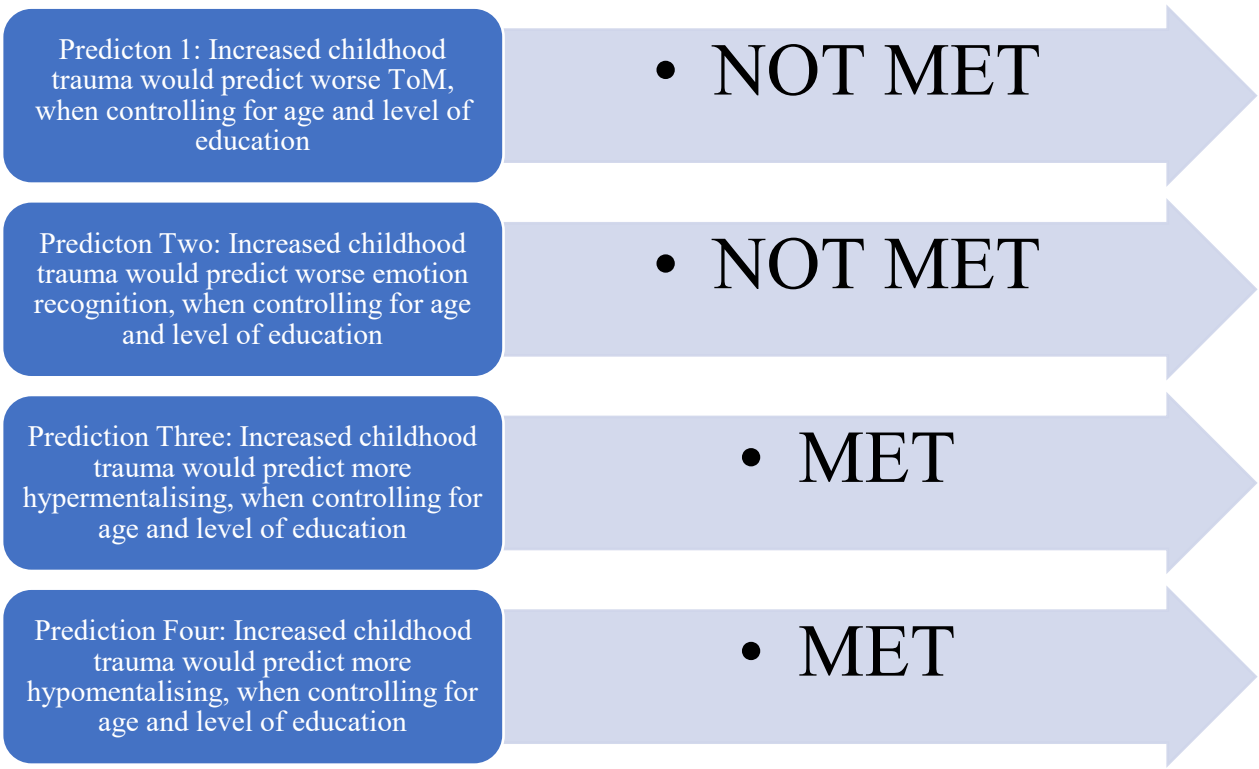
All data was analysed using SPSS, a software programme used for statistical analysis to make calculations and provide important insights. Four multiple linear regressions were run to see if childhood trauma, when controlling for age and level of education, significantly predicted ToM, emotion recognition, and hypo- and hyper-mentalising.

Regression analysis looks at the relationship between different variables (things of interest) to see whether one can predict the outcome of another. As shown in the diagram below, the predictive variable is childhood trauma, and the outcome variables are the measures of social cognition (ToM, emotion recognition, hypermentalising and hypermentalising). If the predictor is able to predict the outcome variable, then it is considered a **significant predictor**.



Key findings

Two predictions were met; childhood trauma is a significant predictor of hypermentalising and hypomentalising in this sample, but does not predict ToM or emotion recognition. Age was also a significant predictor in the case of hypermentalising only. This suggests that increased childhood trauma predicts more difficulty understanding other peoples' thoughts and feelings in this group.



Conclusions and Clinical Implications:

The research found a significant relationship between childhood trauma and hyper- and hypo-mentalising. This builds on some previous research suggesting that trauma during childhood can create insecure attachment styles, which in turn may lead to difficulties understanding and overinterpreting others' emotions and perspectives by disrupting the development of mentalising (Fonagy et al., 2016).

Hypermentalising can lead to overevaluation and misinterpretation of others' intentions (Fonagy & Bateman, 2008). Hypomentalising can lead to difficulty with understanding social information, recognising emotions, and predicting others' behaviours which in turn might cause challenges in forming relationships and behaving in a way that is acceptable to others (Bird & Viding, 2014; Dziobek et al., 2008). A lack of understanding or overinterpretation of the experiences of other people and the consequences of one's actions could potentially be a risk factor for offending behaviours such as sexual offences (Beech & Ward, 2004; Mann et al., 2010).

Childhood trauma significantly predicted mentalising difficulties in sexual offenders, therefore, it is possible offender management programs should focus on helping offenders understand and empathise with others. Incorporating treatment focused on social cognition, like Mentalisation-Based Therapy (MBT) to improve understanding of mental states and emotional regulation, could possibly reduce reoffending through development of new skills. The findings also highlight the importance of local authorities and mental health services considering social cognition in their work with young people who have experienced trauma and may be at risk of antisocial behaviours.

Limitations of the research:

- **Small sample**: Although reasonable within this underserved population, the small sample might limit the study's ability to detect small effect sizes.
- **Demographics**: The sample was mostly older White British males, not entirely representative of sexual offender prison populations and therefore cannot be generalised.
- **Self-Reporting**: The study relied on those taking part to self-report brain injuries and Autism diagnoses, which may have meant these were underreported and could have affected outcomes.

Future research should aim to:

- Recruit larger, more diverse samples and include formal screening for brain injuries and Autism.
- Consider examining the subtypes of childhood trauma (e.g. physical, sexual, etc.) and their specific effects on social cognition.
- Control for impacting variables like age, intellectual functioning, age at which trauma occurred and time in custody to see how this might impact results.

Conclusion

The study found that childhood trauma significantly predicted hypermentalising and hypomentalising in adult male sexual offenders, but was not a significant predictor of ToM, or emotion recognition. Further research is still required to control for some of the factors which might impact these results, and to try and recruit a larger, representative sample. However, the current findings suggest things to consider when designing offender

management programmes, such as including Mentalisation-Based Therapy to develop important skills.

Dissemination

The research will be shared with HMP Stafford and the Midlands Partnership Foundation Trust. This executive summary can be shared with participants of the study, should they wish to access it. The research will also be submitted to an appropriate peer-reviewed journal for publication.

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