Sexual Offending and Autism Spectrum Disorders

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Abstract

Purpose – Studies have found innate vulnerabilities which potentially may increase the risk of an individual with autism spectrum disorders (ASD) finding themselves involved with the criminal justice system as a result of being charged with a sexual offence. The purpose of the present review is to evaluate the literature which has explored sexual offending in individuals with ASD.
Design/methodology/approach – A systematic PRISMA review (PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was conducted using internet-based bibliographic databases (PsycINFO, MEDLINE, Psychology and Behavioral Sciences Collection and PsycARTICLES) in order to access studies which investigated to any degree the association between ASD and sexual offending.
Findings – Only a small number of case reports (N = 7) on sexual offending in individuals with ASD and a small number of prevalence studies (N = 7) were identified.
Research Implications – Research is urgently required to identify the specific requirements and needs of sexual offenders with ASD in order to inform an appropriate treatment strategy for successful outcomes.
Originality/value – Relatively few studies and reviews have investigated the area of ASD and sexual offending specifically.

Key words: autism spectrum disorder; ASD; AS's; sexual offending; sexual offences

1.1. Introduction

The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V) now includes the new name of Autism Spectrum Disorder (ASD) to encompass four previously separate disorders: autistic disorder (autism), Asperger's Syndrome (AS) disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS) (DSM-V, American Psychiatric Association, 2013). ASDs are typically characterised by impairments in social reciprocal interactions and communication and restricted, repetitive pattern of interests and behaviour (American Psychiatric Association (APA), 2000, 2013). The "true" extent of ASD prevalence is still unknown (Fernell,

Eriksson, & Gillberg, 2012). However, it is considered to be present in at least 1% of the general population (Simonoff, 2012)..

Background

Mawson, Grounds and Tantam (1985) were the first to report a case where there was an association between AS and violent crime. Only a few years later, Baron-Cohen (1988) reported the case of a 21-year-old man who had a history of recurrent violence towards his 71-year old girlfriend. However, a review highlighted that individuals with AS are no more likely to commit violent crime compared to the general population (Ghaziuddin et al., 1991). That individuals with ASD are not at increased risk of offending has been found by more recent studies (Woodbury-Smith, Clare, Holland, and Kearns, 2006; Mouridsen, 2012). Individuals with ASD may actually be less likely to commit violent crime (Mouridsen, Rich, Isager, & Nedergaard, 2008) and the large majority of individuals with ASD are law-abiding (Murrie et al., 2002; Woodbury-Smith et al., 2006). In their systematic review on the literature looking at ASD in the criminal justice system, King and Murphy (2014) concluded that there is no evidence to support the theory that individuals with ASD are disproportionately over-represented in the criminal justice system. The studies reviewed also revealed the variety of crimes committed by individuals with ASD and, importantly, the predisposing factors involved. They highlighted the sparse evidence in support of the frequently maintained over-representation of individuals with ASD committing particular types of offending behaviour. King and Murphy (2014) suggest that more research is carried out using population samples which are representative of everyone with a diagnosis of ASD. The fact that many of the studies looking at sexual offending and ASD involved case studies does emphasise the need for more empirical research in this area.

A few papers have reported cases where an individual with ASD has engaged in a sexual offence or inappropriate sexual behaviour. Inappropriate behaviours can include anything from giving a stranger a kiss (Clements & Zarowska, 2000), intruding on the personal space of an individual that they are infatuated with (Green, Gilchrist, Burton, & Cox, 2000; Howlin, 1997; Katz & Zemishlany, 2006), to inappropriate acts of masturbating (e.g., masturbating in a public place) (Haracopos & Pendersen, 1992; Ray, Marks, & Bray-Garretson, 2004). Some studies have also reported cases of individuals with ASD who have become sexually violent (Fujikawa, Umeshita, & Mutura, 2002; Kohn, Fahum, Ratzoni, & Apter, 1998; Murrie, Warren, Kristiansson, & Dietz, 2002). However, while some studies indicate that individuals with ASDs are no more likely to commit violent crime compared to the general population, there are some studies which have suggested that it is important to recognise that in individuals with

ASD impairments in the social domain coupled with a desire for attachment or sexual relations may subsequently lead to sexual offending behaviour (Murrie & Warren, 2002). Increased understanding of these ASD impairments are important for informing appropriate treatments. Increased understanding of these issues faced by some individuals with ASD is also crucial if we are to avoid unjust harsh sentencing (Freckelton, 2013) such as in the case of Jacob Fisher in Nebraska who received a prison sentence (20-to-60 months) for stealing underwear from a neighbour (WOWT News, 2011). The purpose of the present review is to evaluate the literature which has explored sexual offending in individuals with ASD in order to investigate whether studies have found innate vulnerabilities which potentially may increase the risk of an individual with ASD finding themselves involved with the criminal justice system as a result of being charged with a sexual offence. Sexual offending or sexual offences covers a variety of criminal offenses including rape, unlawful sexual intercourse indecent assault, indecent exposure and gross indecency with a minor. This review will look at studies across this range of sexual offending behaviours.

2.1. Method

Internet-based bibliographic databases (PsycINFO, MEDLINE, Psychology and Behavioral Sciences Collection and PsycARTICLES) were searched in order to access studies which investigated to any degree the association between autism spectrum disorders and sexual offending. The flowchart below outlines the process of eliminating non-relevant papers (following PRISMA guidelines, Liberati, Altman, Tetzlaff, Mulrow, Götzsche, Ioannidis, et al., 2009)], (see Figure 1). The search included all publications dated between 2002 and 2015. Duplicates were excluded prior to the retrieval of references. Searches on all four databases were originally conducted on 30th April 2015. The following search criteria were entered into the four databases: [ASD OR autis* OR asperger*] AND [“sex* offend*” OR pornography OR indecent assault OR rape OR voyeurism].

In addition to these database searches, numerous permutations of ASD and sexual offending were entered into Google Scholar and thoroughly searched for articles which were not identified through the database searches, for instance, [ASD AND sexual offence]; [autism AND sex offending]; [ASD AND sexual assault]. These searches only returned 13 additional potentially relevant articles. A number of references contained in the papers identified as relevant from the database searches were also examined for possible inclusion in this review. Given the limited amount of research that has been conducted investigating ASD in relation to sexual offending, this review took an inclusive approach to the studies which were deemed relevant to include in the final review. Therefore it was decided that this review would be more inclusive than exclusive.

Abstracts for each reference were obtained and screened using the following criteria:

Inclusion criteria:

1. Human study population
2. Studies which investigated the association between ASD and sexual offending (associations, prevalence, etc).

Exclusion criteria:

1. Paper not published in English
2. Dissertations
3. Book reviews
4. Papers which focused on witnesses with ASD in the criminal justice system, not suspects or offenders
5. Papers which looked at the sexuality in individuals with autism spectrum disorder rather than sexual offending per se.

Screening:

In the first stage, papers were rejected which:

Did not include an investigation of sexual offending in individuals with ASD.

Were identified as reviews or commentaries based on title/abstract alone.

Focused on witnesses with ASD in the criminal justice system, not suspects or offenders.

Were papers which investigated ASD in terms of sexual awareness or development in young people with ASD as opposed to sexual offending behaviours.

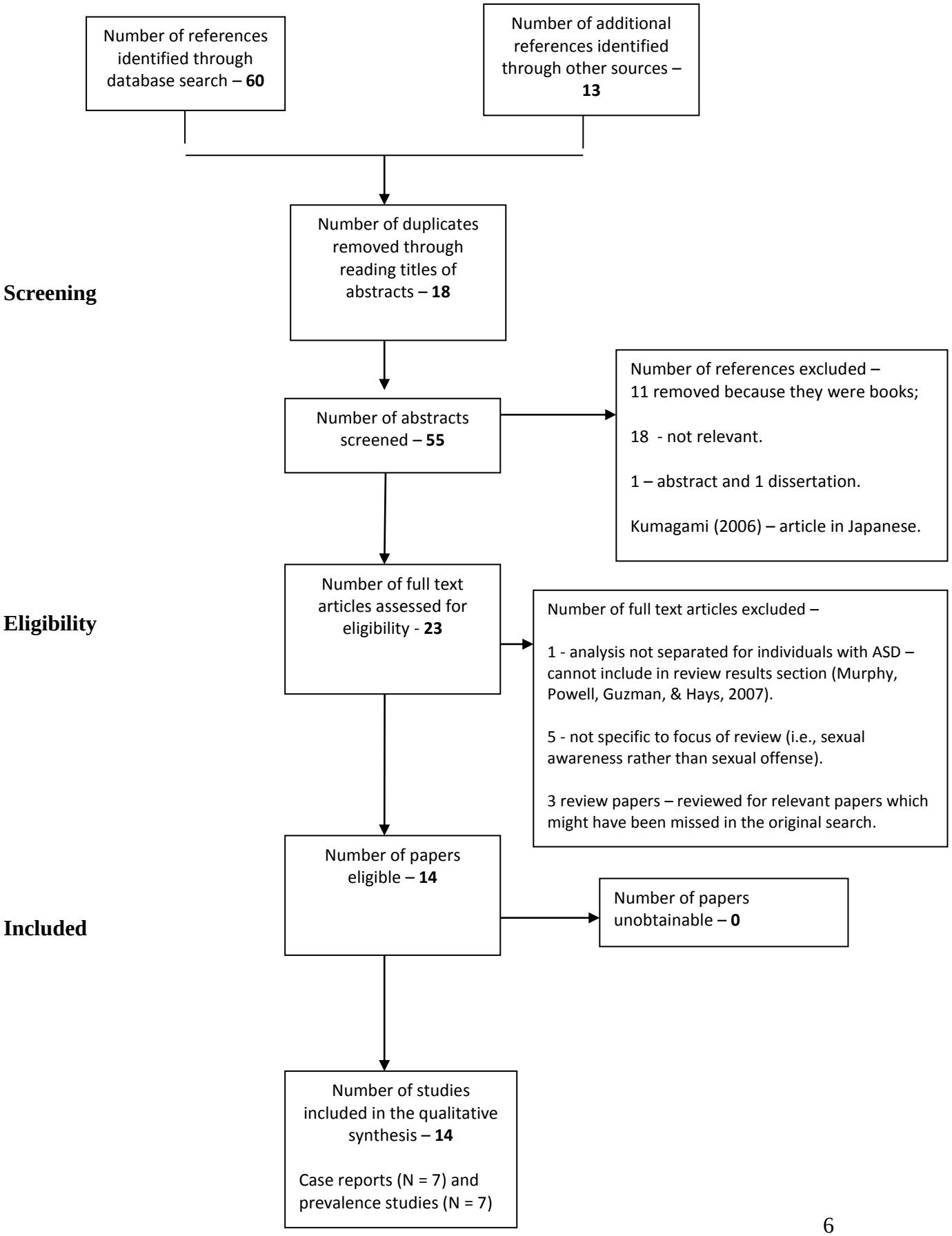
For the next stage papers were going to be rejected which:

Were commentary papers or reviews (not clear from reading the abstract alone).

Any of the above points raised in the first stage of rejection which was not obvious from title/abstract alone.

Lastly, review papers and book chapters which were clearly reviews were excluded and if they were relevant, the key ones are covered in the introduction and/or discussion. Full documents were obtained for the remaining records.

Figure 1. Flow of information through Systematic Review



3.1. Results

3.1.1. Case Studies

This review identified only a small number of case reports (N = 7) on sexual offending in individuals with ASD. This is in direct contrast to the significantly large accumulations of studies which have investigated the possible association between sexual offending and intellectual disability (e.g., Lindsay, 2002) or acquired brain injury (e.g., Simpson, Blaszczynski, & Hodgkinson, 1999).

In the first case study, Chan and Saluja (2011) report on a case of a boy who was previously diagnosed with autism following an acquired brain injury. According to parental report, he began to display inappropriate behaviour towards young girls at eleven years of age (before his brain injury), which appeared to be due to an abnormal level of restricted interest and persistent preoccupation in the private regions of young girls. Later, there were four incidents where he peeped at young girls in the toilet and was caught twice by police and given a caution. A few months later he re-offended but no charges were pressed. Cases such as this emphasise the complexities surrounding diagnosing the individual with ASD with a sexual deviance disorder when the sexual component of the individual's behaviour cannot be determined as they are not able to express it in a precise manner (Chan & Saluja, 2011).

The second case study published by Brendel, Bodkin, Hauptman and Ornstein (2002) described the case of a man they refer to as Mr C who is a 49-year-old Caucasian male (never married) computer programmer with a history of depression and only possible diagnoses of AS, obsessive-compulsive disorder (OCD), and attention-deficit disorder (ADD). Mr C revealed after a few sessions that his "obsession with pornography" was the primary reason for his inability to get to sleep at night. This obsession was excessive in that every evening well into the early hours he would spend time viewing pornographic internet sites and his pornography collection which comprised of "thousands" of videos. Mr C also had amassed a significantly large collection of "paper dolls" which were created from mainstream and pornographic magazines (Brendel et al., 2002).

In the third case study paper, Griffin-Shelley (2010) discuss the five years of treatment for an adolescent sex offender and sex addict, who was adjudicated at 14 and was given a diagnosis of AS. He was caught engaging in inappropriate sexual contact with an 11 year-old nephew and a 9 year-old

male family friend. The difference in age between himself and his victims was only two and four years respectively. This raises important issues surrounding whether this case involved sexual offending or normal sex play. There were also other inappropriate behaviours with two younger female siblings and two incidents of problematic internet sexual activity (viewing pornography). An evaluation carried out by an independent psychologist provided some detailed insight into the offending behaviour. The psychologist (Eichel) found that the individual in this case longed for interpersonal connectedness but was frustrated by not knowing how to successfully obtain such connectedness with someone and also could not understand why he is odd and the responses he sometimes received from others. The psychologist suggested that it would be more clinically appropriate to consider these alleged sexually offending behaviours as manifestations of a "deeper, more autistic compulsivity combined with a deep but primitive longing for intimate physical contact" (Eichel, 2004). The treatment for the client presented in this case was similar to the treatment recommended for clients with developmental disabilities by Ray and colleagues (2004) and Matich-Maroney and colleagues (2005). Griffin-Shelley (2010) argues that the exclusively sexual offending approach adopted in this case was not the most effective in terms of treatment outcome. Instead, the combination of sexual offending and sexual addiction treatments is potentially the most effective.

The fourth case study paper by Milton, Duggan, Latham and Tantam (2002) described the case of a Caucasian male in his early thirties with AS (Asperger's syndrome). His convictions can be categorised in three main types (acquisitive offences, direct sexual assaults and indirect sexual assaults). He had a history of recurrent sexual offences which included sexual touching of young female's private regions; watching women in public toilets and pretending to be a gynaecologist and interviewing women about their experiences over the phone. He reported that he had a long history of being fascinated with women's genitalia. The main focus of this fascination was the image of a woman being gynaecologically examined by a doctor. He would pose as a medical researcher and go on telephone 'chatlines' to ask the women he spoke to for details of their gynaecological examinations while he frequently masturbated. The Multiphasic Sex Inventory (MSI, Nichols & Molinder, 1984) was used to assess this individual's sexual attitudes and behaviour. Validity scores on this measure indicated that he was providing deliberately inaccurate answers to questions on the scales of sexual deviance and indications that he was minimalising his paraphilic behaviour. There was evidence of the need for sex education and also the presence of cognitive distortions with respect to the accountability of his offending behaviour. In their formulation of this case, Milton and colleagues (2002) explored the combined impact of the individual's diagnosis of AS, his paraphilic behaviour and the offending behaviour. Based on their formulation, they put forward the possibility that the individual in this case may have not only obtained immediate sexual

gratification from his behaviour but also have received pleasure from the perceived power and a sense of mastery that he had with women.

In the fifth case study paper, Murrie, Warren, Kistiansson and Dietz (2002) described six cases of individuals with AS who had committed a wide variety of offences (arson, burglary, physical assault, sexual assault, sexual abuse and attempted murder). Four of the six cases involved sexual offending and all four exhibited a lack of victim empathy as they did not appreciate the harm their offence had on their victims. Murrie and colleagues (2002) consider this to be 'symptomatic of the core characteristics' of ASD. Although it must be pointed out that such lack of victim empathy is also found in neurotypicals who commit sexual offences which is why many treatment programmes for such individuals include an empathy training component. ''Interpersonal naiveté'' is another factor identified by Murrie and colleagues (2002) which may have contributed to the offence committed by the individuals in the case studies they describe. Murrie and colleagues (2002) also discuss a number of other factors which may be contributing to sexual offending in individuals with ASD, namely, sexual frustration, immediate confession (which may be associated with impaired deception and theory of mind ability, (ToM)), and sexual preoccupation. Murrie and colleagues (2002) described the case of a 27-year-old male (CD) diagnosed with AS whose sexual offence involved a teenage male. CD reported a history of, on a number of occasions, experiencing exploitation during times where he says that he was making genuine attempts at sexual contact with someone. CD also disclosed that he had a history of compulsive masturbation (since the age of ten he would masturbate five times a day) and had a collection of "artificial vaginas" (both commercial and home-made). Murrie and colleagues (2002) suggest that CD's sexual naiveté and his impaired understanding of social situations increased his likelihood of engaging in sexual offending behaviours. Another case described by Murrie and colleagues (2002) was of a 33-year-old unmarried male (GH) who was prosecuted for sexual assault against his nine-year-old daughter and her peer and subsequently was referred for a forensic evaluation. Since the age of 25, GH reported that he held an interest in photographing and filming children and also to having fantasies about having sex with children. In the five years before his offence, he had an intense interest in paper dolls and had a collection of them which was in the thousands. GH engaged in sexual games with the paper dolls and frequently integrated photos of himself with them and cut parts off the doll's bodies to put on his penis during masturbation. Again, as was observed in the case of CD, GH had a naïve, primitive manner of speaking even when disclosing the most disturbing of behaviours. GH also confided to having fantasies about removing body parts from humans in order to see if this could increase his understanding of women and sexuality (Murrie et al., 2002). The third case involving a sexual offence was the case of IJ, a 22-year-old male, referred for treatment following suspension from a Scandinavian university for sexually assaultive

behaviour and given probation. He had made small holes in the supply closet which enabled him to watch girls in the women's locker room of the university fitness centre. IJ denied a sexual component to his actions when asked what motivated his behaviour and consistently associated his actions to difficulties he was experiencing on one of his courses, feelings of isolation from his peers and failure to communicate with girls despite an interest in them. Eventually, his primary sexual outlet became the downloading of online pornography. The cases of GH and KL give some limited support to the idea that the existence of paraphilias should be considered to be a relevant risk factor when carrying out risk assessments of individuals with AS/ASD. In individuals who have perpetrated particularly serious, violent crime against women, fantasies of 'taking apart the body of a woman' and engaging in cutting female dolls have been found (Warren, Hazelwood, & Dietz, 1996). Murrie and colleagues (2002) crucially highlight that similar perverse fantasies in persons who are law abiding, do occur, and they do not escalate into a criminal offence. In the final case (KL) described by Murrie and colleagues (2002) involving a sexual offence, the male (KL) was arrested following an assault on two women in the female toilets at the local zoo where he was a weekend volunteer and was subsequently referred for forensic evaluation. He was open and exhibited no embarrassment or hesitation when revealing intimate details about his life and his significantly active and aggressive sexual fantasies. KL reported feelings of isolation and loneliness. He had crushes on numerous women at work and would follow them when they moved around the building. He reported that his masturbatory fantasies involved following strange women, binding them using rope and climaxing while he used a knife to cut into their breasts (Murrie et al., 2002).

In the sixth case study paper, Haskins and Silva (2006) highlight that although considering the offending behaviour of individuals with high functioning ASD as being linked to an impaired ToM or abnormal repetitive and restricted interests may appear the easiest way to understand the offending, their offending frequently involve impairments in both these areas and varying levels of causation. The authors outline three cases in their paper which highlight this inability to mentalise and the subsequent consequences. The first case involved arson and murder so is not included here. Case 2 describes Mr B who was a middle-aged substitute teacher accused of touching a number of adolescent female students. He was charged with several counts of child annoyance and was found guilty on two counts and given probation. Mr B was reported to have inappropriately touched the shoulder area of numerous adolescent female students. Mr B. received a diagnosis of DSM-IV-TR Pervasive Developmental Disorder-NOS and Sexual Abuse of Child, but did not fulfil the criteria for DSM-IV-TR criteria for any Paraphilia. Mr B was unable to develop friendships or relationships. He also failed to recognise how his actions might be perceived by the students and others. Moreover, the compulsive nature of his touching behaviour is consistent with repetitive and stereotyped behavioural patterns (Haskins & Silva, 2006). Case 3,

described by Haskins and Silva (2006), involved the case of Mr C who was a deaf man referred for outpatient psychotherapy primarily because of his display of inappropriate sexual behaviour. Mr C compulsively solicited male strangers for sex contact which caused him to be banned from some public places and eventually led to an incident where he suffered a physical assault. Mr C, who was white, tended to fixate on and solicit black males and only solicited white males if they had an occupation that interested him. For example, he propositioned a white elevator repair man due to his fascination with elevators and construction sites. In addition to AS, Mr C also had a diagnosis of Dysthymia and Major Depressive Disorder. Mr C had a history of impaired social skills, he lacked friends and was unable to maintain a job. Mr C exhibited impaired ToM as he compulsively approached males for sexual contact with no recognition of the potential hostile reaction he might receive from heterosexual males (Haskins & Silva, 2006).

In the final case study paper identified by this review, Ray, Marks and Bray-Garretson (2004) outline the case of Bill who was a 17 year old client with characteristics of PDD. Bill exhibited paraphiliac tendencies to other client's clothes. He selects the clothing of individuals who he perceives to be sexually attractive and also intimidating. Bill would steal the clothes to use during masturbation. After engaging in these incidents, Bill reports feeling a sense of mastery and also a reduction in his feelings of anxiety and therefore tends to engage in these behaviours in circumstances where his environment is disorganised or distressing to him. Ray and colleagues (2004) have observed in their practice that there are greater rates of homosexual fantasies and behaviours in their clients with ASD. Others have suggested that individuals with ASD are not as sensitive to social disapproval and so this is one possible explanation for the higher rates of more unusual sexual expression (Hénault & Attwood, 2006). Ray and colleagues (2004) in their paper discuss the case of Will, a 16 year old Caucasian male from New England who was referred to their residential treatment facility. At seven years of age he was diagnosed with AS. Will had been involved in numerous incidents of both sexually coercive and aggressive behaviour to both male and female children. A trend of behaviour during these incidents was the massaging or tickling of the victims' feet. Will reports being attracted to females that are of a similar age to himself but his victims are grade-school aged children and he indicated that his "social disability" is his rationale for targeting the younger age victims as he is much less awkward socially with this age group. This is potentially problematic due to the association that is being strengthened between his deviant behaviours with young "compliant" children and his sexual gratification. Will's fixations, which have their origins in AS, when combined with other AS symptoms such as his social isolation and impaired emotional awareness/empathy, increases his risk of engaging in behaviour which is beyond that of the typical "eccentricities" of ASD. Addressing Will's patterns of deviant sexual arousal and activity

as well as increasing his emotional competence and appropriate social relatedness would be the most effective approach to treatment. Another case described by Ray and colleagues (2004) is that of Max, a small, 14 year old male of African American/Caucasian heritage who had a diagnosed ASD. He had an extensive history of sexually inappropriate behaviours that were becoming increasingly more offensive. Statements or gestures which are sexualised and/or violent are frequently and compulsively made by Max. Max has since developed an orientation or view of the world which is sexualised (a view only compounded by his impaired social abilities) as he exhibits in his play, interpersonal interactions and daydreaming an obsessive preoccupation with themes of sex and violence. Physically and behaviourally, Max presents as someone significantly younger than his chronological age.

3.1.2. Prevalence Studies

The case studies reviewed above provide some rich data regarding the co-occurrence of sexual offending and ASD. Seven studies were identified which investigated the prevalence (Mouridsen, Rich, Isager, & Nedergaard, 2008; Långström, Grann, Ruchkin, Sjöstedt, & Fazel, 2008; ‘t Hart-Kerkhoffs, Jansen, Doreleijers, Vermeiren, Minderaa, & Hartman, 2009; Kumagami & Matsuura, 2009; Bleil Walters et al., 2013; Søndenaa, Helverschou, Steindal, Rasmussen, Nilson, & Nøttestad, 2014). [See Table 1. for studies looking at prevalence of ASD].

4.1. Discussion

This review revealed a modest number of case studies (N = 7) and prevalence studies (N = 7) which have investigated sexual offending in individuals with ASD. This is an important area to investigate particularly given the numerous inadequacies which have been raised with regard to the way in which the criminal justice system responds to the needs of individuals with ASD (Higgs & Carter, 2015).
From the seven identified prevalence studies there appears to be inclusive support for the theory that there is a higher prevalence of individuals with ASD who have become involved in the criminal justice system due to sexual offending. For instance, in the study by Långström and colleagues (2008), of the 422 participants, only two participants with an ASD diagnosis had received a conviction for a sexual offence. Also, in the study carried out by Mouridsen and colleagues (2008), in the group with atypical autistic disorder (N = 86) there were no cases of sexual offending. However, in the control group (N = 252) there were two cases of sexual offending (0.8)). In the group with AS (N = 114) there were four cases of sexual offending (3.5) and in the control group (N = 342) there were three cases of sexual

offending (0.9). However, Sutton and colleagues (2013) based on their sample of male adolescents (N = 37) who had been adjudicated delinquent for sexual offending and who were sentenced to a treatment intervention, 22 (60%) were found to fulfil the diagnostic criteria for an ASD. In their study which investigated all the forensic examination reports over a decade where the charged individual had a diagnosis of ASD and were also charged with either a violent (N = 21) or a sexual (N = 12) offence in Norway, Søndenaa and colleagues (2014) found that only two sexual offenders were identified as having special interests related to their offending. Moreover, although 't Hart-Kerkhoffs and colleagues (2009) found that there were significantly greater ASD symptom levels compared to that found in the healthy control group, the levels of ASD symptoms in the juvenile sex offenders were lower when compared to those found in the ASD group.

All seven case studies clearly emphasise the importance of recognising that there are innate vulnerabilities which may increase the risk of an individual with ASD being charged with a sexual offence most notably: impaired ToM, repetitive and stereotyped behavioural patterns and persistent preoccupation. Abnormal level of restricted interest and persistent preoccupation in the private regions of young girls was found in the case of the young boy described by Chan and Saluja (2011). The case of Mr C described by Brendel and colleagues (2002) highlighted Mr C's excessive "obsession with pornography" which he reported was the primary reason for his inability to get to sleep at night. Mr C's pornography collection also comprised of "thousands" of videos. Griffin-Shelley's (2010) case of an adolescent sex offender detailed how the psychologist suggested that the alleged sexually offending behaviours in this adolescent should be considered manifestations of a "deeper, more autistic compulsivity combined with a deep but primitive longing for intimate physical contact" (Eichel, 2004). In the case reported by Milton and colleagues (2002) they describe how they requested an evaluation from a specialist in ASDs (co-author DT) given their concern that there was evidence of a PDD, with the possibility that the obsessional behaviour and paraphilic behaviour were consequences of the PDD. The ASD features which may have contributed to the sexual offending according to Murrie and colleagues (2002) in the cases they reported were ''Interpersonal naiveté'', sexual frustration, immediate confession (which may be associated with impaired deception and ToM), and sexual preoccupation. Haskins and Silva (2006) highlight that although considering the offending behaviour of individuals with high functioning ASD as being linked to an impaired ToM or abnormal repetitive and restricted interests may appear the easiest way to understand the offending, their offending often involves impairments in both these areas and varying levels of causation. For instance, one of the cases described was that of Mr B who was unable to develop friendships or relationships and failed to recognise how his actions might be perceived by others. The compulsive nature of his touching behaviour is consistent with repetitive and

stereotyped behavioural patterns. Lastly, Ray and colleagues (2004) outline the case of Max (adolescent male) who they found displays interpersonal interactions and day dreaming an obsessive preoccupation with themes of sex and violence in his play.

Overall, the studies identified in this review highlight the importance of clinicians working with ASD, recognising that impairments in the social domain coupled with a desire for attachment or sexual relations may subsequently lead to sexual offending behaviour (Murrie & Warren, 2002). Consideration must therefore be given to the recognition of the social impairments inherent in ASDs and the consequences of these impairments (Freckelton, 2011). Difficulty with the capacity to develop appropriate, consenting sexual relationships as a result of impaired social cognition, as in all of the cases mentioned above, may be one of the factors which increases the risk of sexual offending in individuals with ASD (Higgs & Carter, 2015). For instance, there is support for the notion that an individual with ASD's impaired ability to appropriately interpret the victim's negative reactions (such as facial expression, tearfulness, etc) to their sexual advances (attempts to engage the target of their affection) is one of the factors which underlie their sexual offending behaviour (Freckelton & List, 2009). Unfortunately, there have been few studies which have attempted to empirically investigate this, which is problematic given the importance of this knowledge for both sentencing and informing the development of preventative interventions (Mouridsen, 2012).

Another factor which has been suggested to be contributory to sexual offending in individuals with ASD is the tendency to engage in private sexual behaviours in public places (e.g., masturbating or revealing private body areas) (Ruble & Dalrymple, 1993; Van Bourgondien & Reichle, 1997; Kalyva, 2010). This may also result in the sexual exploitation of individuals with ASD (e.g., person(s) may convince an individual with ASD to expose their genitals as a joke in a public place). Sevlever and colleagues (2013) posit that this kind of sexual offending behaviour comprises the majority of sexual offences related to individuals with ASD. However, it is important to emphasise here that there are no studies which have found that individuals with ASD are more likely to engage in violent sexual offences such as rape and sexual assault (Sevlever et al., 2013). Individuals with ASD may have difficulty expressing their sexuality within the context of an appropriate relationship due to limited or no experience of being in an intimate relationship which may contribute to offending behaviour due to sexual frustration (Murrie et al., 2002). Other explanations put forward as factors contributing to sexual offending in individuals with ASD are difficulties with impulse control and empathy which results in the individual failing to appreciate the consequences of their behaviour and act ‘‘without thinking’’ (Haskins & Silva, 2006; Ray & Marks, 2004). It has also been suggested that the ‘‘obsessional’’ interest often

found in individuals with ASD can lead to offending behaviour if the obsessional interest has a sexual component or is perceived by the individuals as being sexually related (Murrie et al., 2002; Haskins & Silva, 2006). Related to this, compared to individuals without ASD, individuals with ASD may be more likely to engage in stalking behaviour (e.g., monitoring the movements of the target of their affection). Therefore, some studies have indicated that individuals with ASD engage more often in attempts to interact with a romantic interest despite there being no evidence of reciprocation from the target to their affections/interests (Stokes & Newton, 2007). Such behaviours are increasing the chances of the individuals with ASD being in contact with the criminal justice system. Here again, social naiveté appears to underlie the stalking behaviour in some individuals with ASD (Sevlever et al., 2013).

4.1.1. Limitations

It is possible that the search terms utilised in the search for the present review failed to capture all of the relevant research in the area of sexual offending and ASD. This was the reasoning of conducting the additional searches on 'Google scholar' using specific search criteria as discussed in the methods section in order to try and minimise this potential limitation as much as possible.

4.1.2. Clinical Implications

The findings from the studies identified in this review highlight a number of innate vulnerabilities which may increase the risk of an individual with ASD being charged with a sexual offence most notably: impaired ToM, repetitive and stereotyped behavioural patterns and persistent preoccupation. These vulnerabilities in a sexual offender with ASD needs to be recognised and appropriate addressed in treatments/intervention. Indeed, there have been some recent advancements which have recognised the clinical importance of this. For instance, in order to improve the therapeutic outcome, Sutton and colleagues (2013) recommend a modification to the traditional treatment protocol for offenders with ASD (which typically focuses on individual and group talk therapy) to ones which are tailored to the learning styles of the individuals (e.g., visual learning, modelling with practice and feedback) and limiting the contact that the offenders with ASD have with the sex offenders without a diagnosis of ASD. Deterrent programmes for individuals with ASD should attempt to bridge the gap between sexual knowledge and impaired social and ToM abilities. Intervention strategies should address the following areas: the development of sexual knowledge, modelling of socially desirable behaviours, social-skills training/retraining (which also focuses on the development of social boundaries), customary courting and

dating behaviours and socially acceptable sexual behaviours in many sexual offenders with ASD (e.g., Koller, 2000).

A few studies have highlighted the importance of sexuality education as part of the treatment strategy for individuals with ASD in order to successfully develop a fulfilling sexual relationship (e.g., He´nault, 2006). Such sexuality education programs targeted for individuals with ASD may include training relating to interpersonal skills, gender and sexual identity, masturbation, and contraceptives. Unfortunately, although there have been numerous calls highlighting the need for sex education programmes which are specific to individuals with ASD, there have been relatively few investigations of sexuality education in this population (Sevlever et al., 2013). A randomized controlled trial (RCT) was conducted by Gantman and colleagues (2012) to investigate the effectiveness of an evidence-based, caregiver-assisted social skills intervention known as 'PEERS for Young Adults', with high-functioning young adults with ASD (ages 18–23) using self- and caregiver-report measures. Treated young adults reported significantly less loneliness and improved social skills knowledge, while caregivers reported significant improvements in young adults' overall social skills, social responsiveness, empathy, and frequency of get-togethers (Gantman, Kapp, Orenski, & Laugeson, 2012). A recent RCT study investigating the effectiveness of the PEERS also supported the effectiveness of this caregiver-assisted, manualised intervention for young adults with ASD (Laugeson, Gantman, Kapp, Orenski, & Ellingsen, 2015). In summary, from as early an age as possible, education which is individualised and repetitive should be provided. Moreover, prior to commencement of sex education, social skills development is crucial (Beddows & Brooks, 2015).

4.1.3. Future Directions

The developmental processes and the relationship between sexual behaviour, selfhood and socialisation in individuals with ASD are unknown (Dewinter, Vermeiren, Vanwesenbeeck, & Nieuwenhuizen, 2013). More empirical research is needed regarding the relation between interpersonal naiveté and ASD with respect to sexual offending behaviour and sexual inappropriate behaviour (Murrie et al., 2002).
There is a challenge for practitioners to appropriately assess and differentiate an ASD as a causal factor in sexual offending as opposed to simply believing the offending to be the sole result of a 'sexually abusive motivation' (Ray et al., 2004). Research is urgently required to identify the specific requirements and needs of sexual offenders with ASD in order to inform an appropriate treatment strategy for successful outcomes (Sutton et al., 2013). Systematic investigation is also needed exploring to what degree one of the features of the core clinical phenotype of ASD, namely circumscribed interests, may be

associated with offending and other behaviours which bring this group to the attention of the criminal justice system. An appropriate method of collation of data regarding the circumscribed interests of the individual needs to be developed as well as studies exploring the efficacy of the treatment and support interventions which recognise the clinical importance of the circumscribed interests of the individual with ASD and tailor the interventions accordingly (Woodbury-Smith, Clare, Holland, Watson, Bambrick, Kearns, & Staufenberg, 2010). Lastly, parents have reported a need for guidance on how to developmentally tailor sex and relationship education for their child with ASD and a need for more effective teaching techniques (Ballan, 2012; Nichols & Blakeley-Smith, 2010; Holmes, Himle, & Strassberg, 2016). The sexual development of individuals with ASD is relatively under-researched (Dewinter, Vermeiren, Vanwesenbeeck, & Nieuwenhuizen, 2013).

5.1. Conclusion

The papers identified in this review highlight a relatively modest number of studies which have found a number of features of ASD which can contribute to sexual offending in a small minority of individuals with ASD. Some of these symptoms include: obsession or preoccupation with certain things (e.g., women's underwear), failure to conform to social conventions, impaired ToM, impaired ability to decode language and social gestures and a limited repertoire of appropriate behaviour. It is important to recognise the potential impact of these features in a sexual offender with ASD, particularly in the case of adolescent who has committed sexually inappropriate behaviour, as being labelled a sexual offender or "deviant" will only act to further exacerbate their existing impaired social and emotional abilities (Ray et al., 2004).

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Table 1. Studies which have looked at the prevalence of Autism in Sexual Offender Populations.			
Author(s)	**Sample Characteristics**	**Aim of the Study/Method**	**Main Findings**
Bleil Walters et al., 2013	The age range of the participants was between 15 and 20 years (M = 17.90). The sample comprised of Caucasians (54%), African Americans (35%) and Hispanics (10%). Twenty-seven of the adolescent sexual offenders had a diagnosis of ASD and 16 did not have an ASD diagnosis.	To investigate the self-reported presence and severity of abuse, neglect, and depressive symptoms of 43 adolescents adjudicated delinquent due to a sexual offence. They also investigated the association between childhood maltreatment and depression among adjudicated adolescent sexual offenders with ASD.	Findings revealed no statistically significant differences between the two groups (ASD and non-ASD) on any of the forms of maltreatment (abuse and/or neglect) assessed using the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1997). However, there was a difference in terms of reported history of emotional abuse and physical neglect in that, on average, adolescent sexual offenders with ASD reported low/moderate levels of both emotional and physical neglect, while the non-ASD group reported minimal/low emotional and physical neglect. Adolescent sexual offenders with ASD were found to exhibit significantly more depressive symptoms compared to the non-ASD adjudicated adolescent sexual offenders.
Kumagami & Matsuura, 2009	428 family court juvenile cases (derived from four family courts in Japan during April 2006 to March 2007) on a variety of factors including: sex, age (14–19 years).	One study investigated the prevalence of pervasive developmental disorder (PDD) in juvenile cases which were presented to the family courts of Japan.	More severe environmental factors compared to the general population in Japan were found in the juvenile delinquents with PDD. Compared to the general population referred to the family courts, there was a significantly higher rate of sex-related crimes in the PDD

			group. Delinquents with PDD have often been found to have 'mysterious motivations' for their sex offending (Baron-Cohen, 1988). Sexual assault of a woman was found to be purely for a sexual high in many cases. Pornographic magazines or videos were found to influence the sexual offending. Essentially, the offenders with ASD used these sources as a means to model their behaviour towards women (Toichi & Sakihama, 2002). This survey found sexual crimes in two cases where the adverse childhood experiences (ACE) score was five (individuals who had suffered a severely adverse environment) and both these cases involved a conviction of a crime towards women. Juvenile offenders were found to have experienced more severe levels of stress at home, and they then directed their frustration on women who were strangers.
Långström, Grann, Ruchkin, Sjöstedt, & Fazel, 2008	Sample of 422 individuals, of which 317 had a diagnosis of autism and 105 had an AS diagnosis).	Another study reviewed Sweden's crime registry from 1988–2000 in order to determine the prevalence of violence in individuals with ASD.	Of the 422 participants, only two participants with an ASD diagnosis had received a conviction for a sexual offence. Given the retrospective collection of the data in this crime registry, there is the possible limitation that forensic cases of ASD may have been misdiagnosed or undiagnosed within this crime registry.

Mouridsen, Rich, Isager and Nedergaard (2008)	Population of 313 former child psychiatric in-patients with pervasive developmental disorders (PDD). Patients were split into three subgroups and compared with 933 matched controls from the general population (drawn from the Danish Central Persons Register). The age at follow-up ranged from between 25 years and 59 years.	In order to investigate criminal behaviour, the details were used from the convictions in the nationwide Danish Register of Criminality.	In the 113 cases with childhood autism, .9% had received a conviction. In those individuals with atypical autism (N = 86), 8.1% had received a conviction and in those individuals with AS (N = 114), 18.4% had received a conviction. The conviction rates found in the corresponding three comparison groups (for childhood autism, atypical autism and AS) were 18.9%, 14.7%, and 19.6% respectively. The individuals in the case groups were more likely to commit more serious crimes compared to those in the comparison groups. "Arson" was found to be the only criminal behaviour which significantly separated AS cases from the comparison group. "Sexual offending" only approaches statistical significance. In the atypical autistic disorder (N = 86) there were no cases of sexual offending. However, in the control group (N = 252) there were two cases of sexual offending (0.8)). In the group with AS (N = 114) there were four cases of sexual offending (3.5) and in the control group (N = 342) there were three cases of sexual offending (0.9). The authors emphasise that in individuals with PDD, serious crime is a rare event.

Søndenaa, Helverschou, Steindal, Rasmussen, Nilson, & Nøttestad, 2014	The mean age of the 12 identified sex offenders was 29.3 years (SD = 12.0). Charges were categorised in terms of what motivated the offence (e.g., revenge, misunderstandings or idiosyncratic ideas), rigidity and the whether the individuals' special interests contributed to the offence.	Investigated all the forensic examination reports over a decade where the charged individual had a diagnosis of ASD and were also charged with either a violent (N = 21) or a sexual (N = 12) offence in Norway.	Rather surprisingly, only two sexual offenders were identified as having special interests related to their offending. All offences committed by the sexual offenders were considered instrumental and they were more likely than other types of offenders to deny their charge.
Sutton et al., 2013	Sample of male adolescents (N = 37) who had been adjudicated delinquent for sexual offending and who were sentenced to a treatment intervention. The age of the participants ranged from 14 to 20 years of age (mean age = 17 years). In terms of ethnicity, 59.5% identified as Caucasian (22/37), 35.1% as African American (13/37) and 5.4% as Hispanic (2/37). All had intelligence quotients within the normal range.	A pilot study to identify individuals with ASD in a State Facility for adolescents adjudicated as sexual offenders.	Findings revealed that 22 (60%) fulfilled the diagnostic criteria for an ASD.
't Hart-Kerkhoffs, Jansen, Doreleijers, Vermeiren, Minderaa and	175 juvenile suspected sex offenders (all males, mean +/- SD age = 14.9 +/- 1.4 years) and compared this group with both a matched healthy control group (N = 500, mean +/- SD age = 14.0 +/- 1.4 years) as well	To examine ASD symptoms in a group of 175 juvenile suspected sex offenders compared with both a matched healthy control group as well as a group of children with DSM-IV-diagnosed ASD with	In the juvenile sex offenders, there were significantly greater ASD symptom levels compared to that found in the healthy control group. However, levels of ASD symptoms in the juvenile sex offenders were lower when compared to those found in the ASD group.

Hartman (2009)	as a group of children with DSM-IV-diagnosed ASD (N = 114, mean +/- SD age = 14.2 +/- 1.9 years).	regard to autistic symptoms which were assessed using the Children's Social Behavior Questionnaire (Hartman, Luteijn, Serra, & Minderaa, 2006), a standardised questionnaire. Different types of sex offenders (i.e., child molesters, solo peer offenders and group offenders) were also investigated in relation to severity of symptoms of ASD.	Interestingly, higher scores on numerous subscales in addition to higher scores on core ASD symptoms in the solo peer offenders and child molesters when compared to group offenders were found. In sum, this study indicates that levels of ASD symptoms may be elevated in juvenile suspects of sex offences compared to the healthy population. This highlights the need to consider specific diagnostic assessment in this population.