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Adolescent Sex Offenders with Autism Spectrum Conditions: Currently Used Treatment Approaches and Their Impact

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Abstract

Aims: Offending behaviour in adolescents with autism spectrum conditions (ASC) is rare.

However, some theoretical links have been drawn between sexual offending and autism-typical deficits. Although research in this area is scarce, case-studies have begun to evaluate the impact of treatments for juvenile sexual offenders with ASC. This review aimed to summarise the available treatments for this group and their impact on young people (YP).

Methods: A systematic literature review was conducted. Six online data-bases were searched for studies detailing interventions with adolescent sexual offenders with ASC.

Results: Six case-studies were reviewed. Interventions consisted of detailed assessments, staff training, peer support, medication, and adapted cognitive-behavioural therapy. One case-study used narrative techniques. Only two studies reported on objective and measurable treatment effects whilst the remainder relied solely on anecdotal evidence. Studies presenting quantitative data found a decrease in sexual arousal, absconding, sexually harmful/inappropriate behaviour, and masturbation to deviant fantasies. Anecdotal evidence pointed to increased insight, flexibility, ability to open-up, and reintegration. The overall quality of studies was low with one exception. Research and clinical implications are discussed.

Conclusions: Whilst some benefitted from the currently used treatment options, results cannot be generalised due to methodological flaws.

[word count abstract: 194]

Keywords: autism spectrum condition; adolescent; sex offender; treatment

Introduction

Autism spectrum conditions (ASC) are neurodevelopmental disorders characterised by difficulties in the domains of social-communication and restricted or repetitive interests or behaviours (American Psychiatric Association, 2013). The term ASC will be used as opposed to other commonly used descriptors as it was the most highly endorsed term by a large sample of people with autism from the UK (Kenny et al., 2016). Current global estimates suggest a prevalence of 0.76% in the general population with rates being three times higher in males (Baxter et al., 2015).

ASC frequently co-occurs with intellectual disability (ID). A population-based study in Western Australia found that 70% of those with ASC also had an ID (Bourke, de Klerk, Smith, & Leonard, 2016) and in another study 28% of those with ID also had an ASC (Bryson, Bradley, Thompson, & Wainwright, 2008). Difficulties in separating ASC and ID are compounded by an overlap of problem areas between both conditions. For example, it is often unclear whether difficulties in understanding others are due to verbal intelligence deficits, social communication difficulties as found in ASC, or a combination of both.

Whilst difficulties persist throughout life, there are many areas in which individuals with ASC develop in much the same way as their neurotypical peers. As a consequence, they experience similar societal demands and developmental tasks (Attwood, 2006). Negotiating peer and adult relationships is challenging during adolescence (DeHart, Cooper, & Sroufe, 2004) warranting a novel set of knowledge and skills (White & Robertson-Nay, 2009), but for someone with marked difficulties in social interactions and communication this poses additional pitfalls.

Adolescence is also characterised by a need to develop a sexual identity (Erikson, 1968) and a desire to explore and experiment sexually (Tolman & McClelland, 2011). A recent comparison of autistic adolescents with matched controls confirmed that the two groups are

indistinguishable on most aspects of sexual behaviour, desire, and attitudes (Dewinter, Vermeiren, Vanwesenbeeck, Lobbestael, & Van Nieuwenhuizen, 2015). However, young people (YP) with ASC face additional challenges in living a sexually fulfilling life due to a frequent lack of socio-sexual knowledge compared to their peers, lack of social contact with adolescents without ASC, lack of opportunity to be alone and intimate with somebody else, and difficulties in making sense of what is and what is not acceptable within interpersonal relationships (Griffiths as cited in Hénault, 2006, p. 30).

ASC and Overall Offending

Whilst people with ASC are more likely to have been victims of (sexual) crimes, which is in itself a risk factor for future perpetration of sexual offences (Brown-Lavoie, Vicili, & Weiss, 2014; Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005; Sevelever, Roth, & Gillis, 2013), they are no more likely to commit crimes than neurotypically developed people (de la Cuesta, 2010; Mouridsen, 2012; Rutten, Vermeiren, & Nieuwenhuizen, 2017). However, people with ASC appear to be over-represented within forensic settings with prevalence rates varying between 2.5 and 15 percent (Rutten et al., 2017). The same systematic review found rates of offending of 5-26 percent in people with ASC which was not higher than in the general public. Browning and Caulfield (2011) suggested that in those rare cases where crimes were committed they seemed connected to autism-typical deficits.

ASC and Sexual Offending in Adolescence

According to Ryan, Laversee, and Lane (2011) an adolescent sex offender is a minor who commits a sexual act with a person of any age when the offence is against the victim's will, without consent, or perpetrated in an aggressive, exploitative, or threatening manner.

Juveniles were found to commit between one quarter and one third of all sexual crimes (Erooga & Masson, 2006; Hackett, 2004; Hoghugh et al., 1997) with YP with diagnoses of

ASC (Kumagami & Matsuura, 2009; 't Hart-Kerkhoffs et al. 2009) or ID being over-represented amongst juvenile sex offenders (Bagley 1992; Bailey & Boswell, 2002; James & Neil, 1997; Manocha & Mezey, 1998). Several clinical features of ASC have been proposed as contributing factors to sexual offending in this group. These include, hypo- or hypersensitivity and potentially associated desire to stimulate certain areas of the body (Bogdashina, 2003; Hénault, 2006), restricted interests and stereotypical behaviour regarding sex or sexuality, social-communication and interaction difficulties impacting on their ability to encode the subtleties of social situations (Hénault, 2006), and difficulties in terms of theory of mind (Baron-Cohen, 1995; Kohn, Fahum, Ratzoni, & Apter, 1998). With the possibility of an additional ID, people may lack an understanding of what is appropriate behaviour (e.g., Timms & Goreczney, 2002).

However, Higgs and Carter (2015) advised caution when making causal links between ASC and offending as this may detract focus from other contributory factors such as co-morbid psychiatric disorders or adverse environments, which increase the risk of offending in much the same way as in neurotypically developed YP (Kumagami & Matsuura, 2009; Mouridsen, 2012). Moreover, a recent study was unable to find significant differences between adolescents with and without ASC in their ability to correctly judge the appropriateness of different sexual situations (Visser et al., 2017). Despite this result, it seems evident that difficulties in understanding verbal and non-verbal ways of communication as well as other people's state of mind, may pose a risk for sexually harmful/inappropriate behaviour; at least in some cases.

Sex Offender Treatment

Early intervention in tackling sex offending is indicated by longitudinal studies that have shown that some adolescent sex offenders continue offending in their adulthood (Hendriks & Bijleveld, 2008; Nisbet, Wilson, & Smallbone, 2004; Vandiver, 2006). Existing treatment

models for juvenile sex offenders are typically based on interventions for adults and most use a cognitive-behavioural approach (Vollmer, Reyes, & Walker, 2012). Although there is evidence for the effectiveness of cognitive-behavioural therapy (CBT) in the treatment of adult sex offenders without ASC (Hanson et al., 2002), literature on the effectiveness of sex offender treatment programmes for those with ASC is scarce. For example, Melvin, Langdon, and Murphy (2017) only identified 13 case reports in their systematic review. Results were variable and no clear conclusions could be drawn potentially due to the heterogeneity in those offenders on the autistic spectrum. However, authors suggested that CBT treatment appeared less effective for those with ASC and an ID.

Several influential reviews attempted to summarise the effects of treatments for sexual offenders with ID (Cohen & Harvey, 2016; Lindsay, 2002). Whilst promising findings were reported, authors highlighted a lack of rigorously designed research for this population. For those with diagnoses of ID and/or ASC, the Tizard Centre is at the forefront of developing the evidence-base. Pioneering research projects include effectiveness studies of CBT-based treatment approaches such as SOTSEC-ID (Youth Sex Offender Treatment Services Collaborative – Intellectual Disabilities) and Keep Safe, a CBT group programme for YP (University of Kent, 2019).

Research on neurotypical adolescent sex offender treatment is equally scarce. Two systematic reviews have been published: one included 10 papers (Dopp, Borduin, & Brown, 2015), and the other included 11 (Winokur, Rozen, Batchelder, & Valentine, 2006). Significant but small effect sizes for sexual or non-sexual recidivism were found. Some of the included studies did not support a beneficial effect of CBT upon re-offending. The authors suggested that this might have been due to non-randomised design, too narrow operationalisation of treatment success, and other serious methodological limitations. Dopp et al. (2015) highlighted the

current discrepancy between the evidence-base of CBT interventions for juvenile sex offenders and its seemingly ubiquitous use.

In the UK, the National Institute for Health and Care Excellence (NICE; 2016) recommend a multi-agency approach in the treatment and management of harmful sexual behaviour (HSB) in children and YP. Risk should be thoroughly assessed ideally using risk assessment tools. NICE recommends the involvement of families and carers from an early stage. Interventions should include sexual and psycho-education and manualised programmes such as AIM or Turn the Page. Psychotherapeutic approaches based on CBT, multi-systemic therapy, psychodynamic psychotherapy, strength-based approaches, and systemic therapy are recommended.

Current Review

Whilst there appears to be some evidence for the effectiveness of sex offender treatment programmes for neurotypical adolescents, for adults with ASC, and people with ID, there is no current review of evidence for their effectiveness with adolescents with ASC. This population would need interventions that are tailored both to their age and to their ASC presentation and would need to be suitable for those with and without ID. Studies of adult ASC, adolescents without ASC, and adolescents with ID, are therefore relevant, but not conclusive. The current review aimed to identify the currently used treatment options specifically tailored for young sex offenders with ASC (with or without ID) and to review their impact.

Methodology

Search Strategy

Five literature data-bases were searched namely PsycINFO, ASSIA, Medline, PubMed and ERIC. The main search was conducted in May 2017 and updated in August 2018. The following search terms were used:

1. sex offen* OR sexual offen* OR sex* harassment OR rape OR sex* abuse OR sex* inappropriate behav* OR sex* harmful behav*
AND
2. autism OR autistic OR ASD OR ASC OR autism spectrum disorder* OR asperger* OR pervasive developmental disorder OR autism spectrum*
AND
3. treatment OR therapy OR psychological therapy OR psychotherapy OR intervention* OR CBT OR management OR rehab*
AND
4. child* OR adolescen* OR minor OR young person OR young people OR juvenile OR youth

Inclusion/Exclusion Criteria

All peer-reviewed studies in English detailing treatment and management strategies of YP with a diagnosis of ASC who offended sexually were included. Articles on YP who exhibited sexually inappropriate behaviour (e.g., disrobing/masturbation in public) but did not commit offences were excluded. In this review, 'young people' refers to individuals under the age of 18. The age limit was chosen due to fundamental differences in service provision for offenders detained under the Mental Health Act (2007) over the age of 18 as well as in criminal law. Research papers exclusively on risk factors, assessment tools/considerations, or

prevalence were excluded. No date limitations were applied to the search as there has not been a review of this kind and the authors aimed to capture all published research meeting the inclusion/exclusion criteria. Research including participants with and without ID was included because of the large number of YP with dual diagnosis.

Quality Assessment

Yin's (2014) criteria were used to systematically assess the quality of the identified case-studies. Yin's framework helps the reader to determine whether case-studies have sufficient construct validity, internal validity, external validity, and reliability. Although no cut-off scores are provided for this tool, for the purpose of this review a score of six and above (more than half of the maximum score) was considered qualitatively good.

Results

[Figure 1 about here]

Figure 1 outlines the systematic literature search process. Six papers were selected for review. All papers were case-studies detailing treatment packages with multiple components. A summary of the included studies can be found in Table 1. Each paper was rated independently by all authors. A moderate inter-rater reliability was found with Cohen's $\kappa=0.513$. A consensus by discussion was sought where initial scoring differed.

[Table 1 about here]

Available Interventions

The interventions for young sex offenders with ASC described in these papers are complex and multi-faceted catering for the complexity of presentation and needs generally found in people with ASC. Treatment packages were predominantly delivered in residential settings (Griffin-Shelley, 2010; Kohn et al., 1998; Pritchard et al., 2016; Ray, Marks, & Bray-Garretson, 2004; Shenk & Brown, 2007) and included a range of interventions. The available

treatment components used will be reviewed first followed by the effects of the treatment packages as a whole.

Detailed Assessment

Five papers highlighted the importance of a thorough assessment to establish the client's history along with their specific needs. Griffin-Shelley (2010), Pritchard et al. (2016), and Ray et al. (2004) recommended that family and carers are included at the assessment stage to build a fuller picture of the client. Two articles (Pritchard et al., 2016; Ray et al., 2004) suggested the use of Applied Behaviour Analysis (e.g., Cooper, 2007) to explore motivating factors and antecedents to SHB. Both included an assessment of cognitive distortions in episodes of offending, and explored whether clients had a history of masturbation to deviant fantasies. Additionally, Griffin-Shelley (2010) and Shenk and Brown (2007) recommended the use of psychometric tests and structured clinical judgement tools (e.g., Juvenile Sexual Offender Assessment Protocol, J-SOAP-II, Prentky & Righthand, 2003; Adolescent Sex Offender Risk Check-List, ASORCL, Perry & Orchard, 1992). However, the validity of the use of JSOAP-II and ASORCL is questionable as these tests have not been validated for the ASC population. Intellectual and social functioning were considered in some papers. For example, a formal assessment of social and adaptive behaviours using the Vineland Adaptive Behaviors Scale (Sparrow, Balla, & Cicchetti, 1984), and of intellectual functioning using the Wechsler Intelligence Scale for Children (Wechsler et al., 2004), informed case conceptualisations in two of the papers (Griffin-Shelley, 2010; Shenk & Brown, 2007). One paper also reported the use of psychodynamic tools: the Rorschach Inkblot Test and the House-Tree-Person Drawing Test (Griffin-Shelley, 2010).

Staff Training

Several papers highlighted staff training as a requisite for successful treatment (Pritchard et al., 2016; Ray et al., 2004). In addition to general training on ASC, information gathered at

assessment was conveyed to the wider team to ensure an understanding of the client, above and beyond general knowledge of ASC (Ray et al., 2004). This was felt to improve staff consistency as well as needs- and strengths-based treatment adaptations (Pritchard et al., 2016).

Peer Support

As YP on the autistic spectrum often lack certain social skills, access to peers was seen as a helpful adjunct to therapy (Griffin-Shelley, 2010; Pritchard et al., 2016; Shenk & Brown, 2007). This was provided in both formal and informal spaces during their residential treatment. A platform to engage with others in an appropriate and non-harmful way was thus provided where attachments to others could be formed, social skills practiced, and existing difficulties normalised.

Cognitive-Behavioural Therapy

Most identified articles used cognitive and/or behavioural techniques although the nature of these varied. In terms of behavioural interventions, one study reinforced pro-social behaviour through praise and access to recreational activities (Ray et al., 2004). In another, Pritchard et al. (2016) introduced a sophisticated token economy utilising monetary incentives to reduce harmful/inappropriate sexualised and aggressive behaviour, and absconding. In response to aggression, sexually harmful/inappropriate behaviour, or absconding the client's community visits were restricted. Shenk and Brown (2007) utilised exposure and response prevention (ERP) as an intervention for deviant sexual behaviour. Inappropriate sexualised behaviour, deviant sexual fantasies, and arousal at times when masturbation would have been inappropriate were successfully reduced through use of various relaxation and distraction techniques. When the client had access to privacy he was encouraged to masturbate to previously agreed non-deviant fantasies.

In terms of cognitive work, thinking errors promoting offending behaviour and circumventing victim empathy were explored with conventional but adapted CBT techniques such as thought challenging (Griffin-Shelley, 2010; Ray et al., 2004). As people with ASC often struggle with perspective-taking and theory of mind, work in the cognitive domain was seen as a particular helpful way to minimise the risk of future offending (Griffin-Shelley, 2010; Pritchard et al., 2016; Ray et al., 2004; Shenk & Brown, 2007).

Four papers included the exploration and rehearsal of social skills aiming to help clients form meaningful connections to others (Ray et al., 2004) and/or to provide opportunities to gratify sexual urges in an appropriate way (Shenk & Brown, 2007). Ray et al. (2004) and Griffin-Shelley (2010) recommended incorporating this into the individual therapy of their respective programmes whereas Shenk and Brown (2007) relied on the social spaces and informal meetings between their residential service-users.

Narrative Techniques

Ray and colleagues (2004) found the use of narrative therapy techniques (White, 1990) beneficial. A 14-year old boy frequently making sexually violent or threatening comments towards peers and staff named and externalised the problem and compared it to an externalised unproblematic counterpart. The aim was to explore what was acceptable and what was not and to gain mastery over socially alienating patterns. This specific intervention was a good example of person-centred care as the team built on the service-user's strong artistic side by using narrative techniques.

Adaptations to Therapy

Three articles reported a need to adapt treatment to the service-users' specific needs. It was recommended for interventions to be simplified (Shenk and Brown, 2007) and made more concrete and experiential with additional repetition of homework and technique rehearsal

(Ray et al., 2004; Shenk & Brown, 2007). Moreover, it was recommended to refrain from using metaphors whilst the use of visual aids, cue cards, and social stories was encouraged (Ray et al., 2004). Griffin-Shelley (2010) presented a negative example. The treatment of their client had limited success despite a lengthy duration of treatment in a residential setting followed by community aftercare. The author suggested this was due to limited adaptations of interventions offered.

Medication

Psychotropic medication may be a helpful adjunct to psychological interventions. People with ASC are frequently troubled by high levels of anxiety (Attwood, 2006) which has major effects on wellbeing and may be a contributing factor to their offending. Griffin-Shelley (2010) suggested that medication targeting anxiety and rigidity such as selective serotonin re-uptake inhibitors, or in more severe cases anti-psychotics (e.g., Risperidone), can help service-users to try out new ways of coping and relating. However, it was unclear whether service-users and/or their families consented to use of medication which raises important ethical concerns.

Kohn et al.'s (1998) intervention placed emphasis on pharmacotherapy. Their participant was trialled on a wide range of medication including lithium, strong pain medication, and an anti-epileptic; none of which yielded effects upon HSB. Finally, a combination of a beta-blocker with an anti-androgen had the desired impact. That said, the authors failed to specify how and to what degree their client's behaviour changed and merely referred to a substantial improvement in sexual behaviour without further elaboration. Moreover, a discussion of common side-effects such as gynecomastia, feminisation, and sexual dysfunction was omitted.

Another paper explored the use of leuprolide acetate (a testosterone antagonist; Fosdick & Mohiuddin, 2016). Their 15-year old client took leuprolide acetate alongside intensive

behavioural therapy. Almost daily occurrence of sexually problematic behaviour ceased entirely for approximately four years. Sexual abuse of a younger sibling re-occurred during a gap in psychotropic treatment but stopped once more when the regime was re-introduced. Whilst the use of the androgen antagonist appeared to have cancelled sexual offending, this came at a cost. The participant's sexual drive ceased entirely and novel difficulties around over-eating, food-based perseverations, and high cholesterol were created. These unwelcome and highly unpleasant side-effects, alongside concerns about the importance of informed consent put the ethics of medication into question. Alternative and less invasive interventions may have had similar effects and it remained unclear whether the benefits outweighed the harms caused. Furthermore, given the high level of risk reported serious child protection concerns regarding the unsupervised access to the participant's sibling were not addressed.

Relapse Prevention

In three case-studies, extensive work went into the development of concrete relapse prevention strategies (Griffin-Shelley, 2010; Ray et al., 2004; Shenk & Brown, 2007). Griffin-Shelley (2010) found the inclusion of family at this stage particularly helpful. However, an important caveat of recruiting parents in relapse planning and continued recovery post-discharge may be the requirement to discuss arousal patterns with them. This would be inappropriate and potentially shame-inducing for any 15-year old boy.

Impact

Unfortunately, only two articles reported on objective and measured treatment outcomes. The methodologically most robust case-study (Shenk & Brown, 2007) noted a reduction in sexual arousal as measured by self-reported amount of erections per day as well as in amount of masturbation to deviant fantasies. Masturbation to non-deviant fantasies increased. These changes, however, only occurred when ERP was introduced approximately three months into

admission. Treatment gains were maintained over a six month follow-up period post-discharge. Furthermore, a reduction in risk of re-offending as measured by the J-SOAP-II and maintained over a six months follow-up was reported.

Pritchard et al. (2016) measured the incidence of aggression, absconding, and sexually harmful/inappropriate behaviour as well as the amount of community visits per week.

Aggression did not appear to change notably as incidence was low to begin with. Sexually harmful/inappropriate behaviour on the other hand fluctuated from 0.9 to 0.0 incidents per week. The largest decrease was noted following the introduction of a behaviour contingency contract 65 weeks into admission. The amount of community visits increased progressively in accordance with their points-and-levels system. It is important to note that whilst change in terms of problematic behaviours appeared small, a notable difference to previous placements was reported which had repeatedly broken down resulting in additional criminal convictions. Comparatively low incidence of challenging behaviour could have been a result of treatment or of the highly structured and closely supervised residential setting. It seemed surprising that Pritchard et al. failed to measure pro-social/academic behaviour considering that it was reinforced in their token economy. It would have been helpful to report on achieved skill points per day/week as a gauge for treatment efficacy.

Anecdotal Evidence

All reviewed articles commented on anecdotal evidence, some exclusively. Despite being of interest in terms of reporting service-users' experience, comments on unmeasured treatment effects must be interpreted with caution as they are prone to bias. Two papers suggested that participants' understanding of their offending behaviour had increased; for example, acknowledging the need to regulate sexual urges, accepting some responsibility for the harm and distress caused (Ray et al., 2004), distinguishing between deviant and non-deviant sexual fantasies, and identification of antecedents for sexual arousal (Shenk & Brown, 2007).

Conversely, Shelley-Griffin (2010) reported that, whilst his client was able to recite theory regarding offending cycles, his learning remained superficial and he did not appear able to apply the theory to his own offending. Moreover, Ray et al. (2004), Shenk and Brown (2007), and Griffin-Shelley (2010) noted an increased flexibility in thinking, affect, and in affect regulation. Two papers commented on the clients' ability to self-disclose in individual and group sessions. Griffin-Shelley (2010) and Pritchard et al. (2016) both suggested that the service-users became more forthcoming about offences, their antecedents, deviant fantasies, and past traumatic experiences.

Safe reintegration of service-users into the community should be a goal of any forensic rehabilitation (Andrews & Bonta, 2006). Shenk and Brown's (2007) client successfully reintegrated back into his family and community aided by the above described extensive relapse prevention plan. Pritchard et al.'s (2016) client moved on to attend college, gained various qualifications, and transitioned successfully to a supported living placement.

Similarly, Fosdick and Mohiuddin's (2016) client resumed his education once psychotropic medication had taken effect. The service-user presented by Griffin-Shelley (2010) on the other hand, was not able to be reintegrated into his family or wider community potentially due to the fact that he had offended against his two younger sisters.

Discussion

Before discussing overall methodological considerations and synthesis of findings it must be noted that the current review only included research on nine individuals. Moreover, those YP were potentially more different than they were alike (e.g., in terms of their level of cognitive ability, the nature of their sexual offending behaviour, and their treatment setting). In light of the over-representation of ASC in forensic settings it is surprising that there is such a lack of published research and of agreed and/or evidence-based treatments for this vulnerable and

potentially high risk group.

Overall Methodological Considerations

Overall the quality of studies was poor as measured by Yin's (2014) criteria for case-studies.

Main areas of short-comings across papers were regarding internal validity and reliability.

Only one study (Shenk & Brown, 2007) was considered 'good'. In this case, the authors followed a study protocol based on psychological theory, using multiple sources of evidence matched to a clearly defined research question. Additionally, rival explanations for their findings were considered. Case-studies are generally considered the least robust research design, although they are useful in the early stages of research and can generate hypotheses. However, results cannot easily be generalised to other settings. *A priori* design of a comprehensive study protocol and the use of case-study data-bases are needed to increase generalisability and reliability (Yin, 2014). Issues around generalisability and transferability are particularly important considering that ASC manifests in vastly different needs and abilities (Higgs & Carter, 2015).

The goal of any therapeutic intervention regarding offending is to reduce the risk of recidivism (Endrass, Rossegger, & Braunschweig, 2012). In investigating this, studies must be longitudinal to ascertain whether people re-offend or not. It is conceivable that the participants changed in areas that were thought to be involved in their offending but still committed another crime, thus arguably rendering the intervention ineffective. Only one study included a follow-up period (Shenk & Brown, 2007) but it was too short to make any meaningful inferences about recidivism.

The majority of the reviewed articles failed to present convincing evidence for treatment effects. In general, researchers relied upon unmeasured anecdotal evidence rather than on standardised tools. Only two studies utilised objective measures of arousal, appropriate and inappropriate sexual behaviour (Shenk & Brown, 2007), aggression, and absconding

(Pritchard et al. 2016). However, it would have been prudent to also include standardised outcome tools and/or structured risk assessment tools which may be considered more objective (e.g., Assessment of Risk and Manageability of Individuals with Developmental and Intellectual Limitations who Offend Sexually [ARMIDILO]; Boer et al., 2012). A comparison with the normative population or using a reliable change index would have made for more robust evidence. Furthermore, Shenk and Brown (2007) used self-report measures for extremely personal data; socially desirable responding must therefore be considered and ethics of their use questioned. Additionally, some outcomes reported might have not been particularly meaningful. For example, Pritchard et al. (2016) measured the incidence of aggression, absconding, and HSB. Reductions on those parameters were seen as a decrease in deviant tendencies. It is, however, possible that the service-user simply adjusted to the rules of the service ultimately working towards discharge without achieving any real and sustained change that was generalised beyond the treatment environment and/or relevant to future risk of sexual offending.

In all case-studies the author(s) of the papers were part of the intervention. Confirmation bias and researcher allegiance effects are therefore important limitations that must be considered. This is particularly crucial in light of the predominance of anecdotal evidence as opposed to objective measures.

Every case-study explored the treatment of a male adolescent. Both ASC (Baxter, et al., 2015) and conviction for sexual offences are less prevalent in females (Beech, Parrett, Ward, & Fisher, 2009) which might explain the gender-biased sample. Nevertheless, a difference in outcomes between genders is a possibility that must be considered when attempting to generalise the results.

Furthermore, studies were exclusively from the UK (Pritchard et al., 2016), Israel (Kohn et al., 1998), and USA (Fosdick & Mohiuddin, 2016; Griffin-Shelley, 2010; Ray et al., 2004;

Shenk & Brown, 2007). Major differences in (mental) health care provision and between the criminal justice systems complicate attempts to compare and generalise findings to other countries. Potential subtle cultural differences with regards to sexuality, stigma around ASC, and attitudes towards criminality may compound this challenge.

Finally, three papers discussed case-studies of adolescents with ID (Fosdick & Mohiuddin, 2016; Pritchard et al., 2016; Shenk & Brown, 2007). Whilst the researchers offered suggestions of how the treatment was impacted by and adjusted for ASC-typical difficulties, none of the papers explored how cognitive impairments may have affected treatment success. It is likely that those difficulties may have had an independent effect upon service-users' offending behaviour and ability to benefit from therapy as well as on outcomes reported such as insight, cognitive flexibility, and reflective thinking as part of opening-up. It would have been helpful to comment on such influences and to suggest adjustments geared towards them.

Synthesis

It was difficult to draw any clear conclusions from the reviewed papers in light of the methodological critique presented. The literature, however, shed light upon the currently used treatment approaches for male adolescent sex offenders with ASC. The majority of interventions were delivered in residential settings by multi-disciplinary (Fosdick & Mohiuddin, 2016; Kohn et al., 1998; Ray et al., 2004; Shenk & Brown, 2007) or multi-agency teams (Griffin-Shelley, 2010; Pritchard et al., 2016). The multi-disciplinary/multi-agency element was in line with NICE guidelines for YP exhibiting HSB (NICE, 2016).

Three studies used medication (Fosdick & Mohiuddin, 2016; Griffin-Shelley, 2010; Kohn et al., 1998). Psychological treatment consisted predominantly of adapted CBT with individual and group components. In the treatment of HSB in YP, group and individual CBT was one of five models recommended by NICE guidelines (2016). All treatment packages with the exception of Fosdick & Mohiuddin (2016) included both group and individual components

which was in concordance with NICE guidelines (2016) and above discussed treatment options for neurotypically developed adolescents and those with ID. The presented interventions placed varying emphasis on different components of their treatment package such as cognitive distortions and identification of antecedents (Griffin-Shelly, 2010), reinforcement of pro-social behaviour (Pritchard et al., 2016), and ERP (Shenk & Brown, 2007). Treatment was long-term ranging from 45 weeks (Shenk & Brown, 2007) to five years (Griffin-Shelley, 2010).

The question regarding the impact of those interventions could not be answered to a satisfying degree. The available treatments appeared to have some effect on problematic sexual behaviour but the findings cannot be generalised due to short-comings in the study design. The most robust study showed a reduction in arousal and masturbation (Shenk & Brown, 2007) but results failed to convince by virtue of the study design.

Research Recommendations

The reviewed literature highlighted a wide range of avenues to follow in future research endeavours. Considering that current models and approaches are based on adult sex offenders it may be helpful to conduct further theoretical research into the sexual offending behaviour of juveniles with ASC. Theoretical knowledge could inform the development of approaches which may be more relevant for this population.

Some indication of the types of treatment that could be developed into programmes or protocols were identified by this review, i.e., adapted CBT, ERP, and social skills training.

Once a treatment protocol has been developed it can form the basis for further research.

Given the small numbers of young people with ASC who have sexually offended in the criminal justice system it is unlikely that numbers would be large enough for an RCT.

However, steps could be taken to create data-bases for multiple case-studies. Individual case-studies within data-bases could then be aggregated by using replication logic (Yin, 2014)

increasing generalisability and validity. In order to make the research more robust several further steps need to be taken: Firstly, treatment success should be clearly defined at the beginning of interventions. Secondly, success should be measured using standardised tests administered pre- and post-treatment. Thirdly, case-studies should compare any potential change in scores against the reliable change index of the measure or the normative sample. Lastly, a reasonable follow-up period should be included to investigate lasting change and rates of recidivism. In terms of homogeneity of the population the level of associated ID and the nature of the offending behaviour need to be considered and controlled for where possible. It is likely that treatment protocols will need to be different for those people with ASC with or without an ID and may vary depending on the nature of the problem behaviour; a recommendation that was also stipulated as part of NICE guidelines (2016).

It may be helpful to attempt to disentangle the different strands in the multi-faceted treatment packages to maximise treatment efficacy. This could be achieved via careful selection of outcome measures corresponding to the targets of the individual treatment elements. The interventions could also be delivered in different stages as opposed to an integrated form measuring change at the end of each stage; unless of course this poses ethical issues.

This review did not identify any qualitative studies and this seemed like a significant gap in the research. It would be helpful to have rigorously designed qualitative studies which explore participants' experience of their offending behaviour and associated treatment. Qualitative studies could also explore the views of professionals on what has and what has not proven helpful during treatment programmes.

A further avenue to explore would be to identify problematic sexual behaviour in the community which does not ever reach the criminal justice system. This is an area where problematic sexual behaviours often first appear (e.g., schools) and may benefit from early intervention. Research in this setting would also potentially provide access to a much larger

source of participants. Treatment programmes that might be less intense and able to be run by staff in specialist schools would be likely to be welcomed.

Clinical Recommendations

Due to the above discussed limitations of the reviewed case-studies it is difficult to propose implications for clinical practice. However, reports have shown that psychological treatment can have some impact for young men with ASC who have been exhibiting sexually inappropriate behaviour. As unmodified juvenile sex offender treatment programmes showed poor outcomes in adolescents with ASC (Higgs & Carter, 2015), clinicians might fare better following recommendations made by the reviewed papers than to use unadapted mainstream interventions. Alternative treatment approaches for neurotypical adolescents such as multisystemic therapy (Borduin & Dopp, 2015; Borduin, Schaeffer, & Heiblum, 2009; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009), 'G-map' (e.g., Wylie & Griffin, 2013), or 'Turn the Page' (Belton, Barnard, & Cotmore, 2014) which have all shown promising effects, could be modified for the ASC population. 'Keep Safe', a group-based intervention for adolescent sex offenders with ID that is currently being trialled (Malovic et al., 2018), may be used as an example of how interventions could be adapted for the ID population.

Whilst the evidence-base in this area is being built, it is important for multi-disciplinary teams to develop individualised risk assessments, formulations, and corresponding treatment plans taking into account the strengths and needs of the individual as well as the impact of and challenges associated with ASC and a potential ID. The Good Lives Model of sexual offending (Yates & Ward, 2008) may be a helpful model when formulating the offending behaviour of this group and developing interventions. Publication of such interventions as further case-studies may add to the knowledge-base. This may be paramount considering that

reviewed treatment approaches which appeared to have limited impact were largely based on models of sexual offending of adult male sex offenders without ASC.

A promising finding was that a number of parallels were identified between those interventions for neurotypically developed adolescents and those with ASC. Social skills training and reduction of cognitive distortions were recommended both by Veneziano and Veneziano (2002) systematic review and the papers discussed here. This was also the case for behavioural reinforcement to enhance social skills and reduce deviant sexual arousal, and for management of emotions. Arguably those components that have been proposed both for ordinarily developed adolescents and those with ASC are most promising. It may also be helpful to consider ERP based on the positive results of the most robust case-study.

In conclusion, research into effective treatments for adolescent sex offenders with ASC is in its infancy. Important initial steps were taken to describe interventions in this field but convincing evidence for their efficacy remains lacking. This review summarised the currently used treatment strategies and components but no clear conclusion in terms of their impact could be drawn. What can be said is that at least some can benefit from treatment and that more methodologically robust research and theory development is needed. More convincing evidence could be used to maximise treatment efficacy and thus help to preserve resources as well as ensure no unnecessary deprivation of liberty as reviewed interventions were lengthy and residential. Improved treatments may also help to save future victims from harm and support YP with ASC to live more fulfilling lives.

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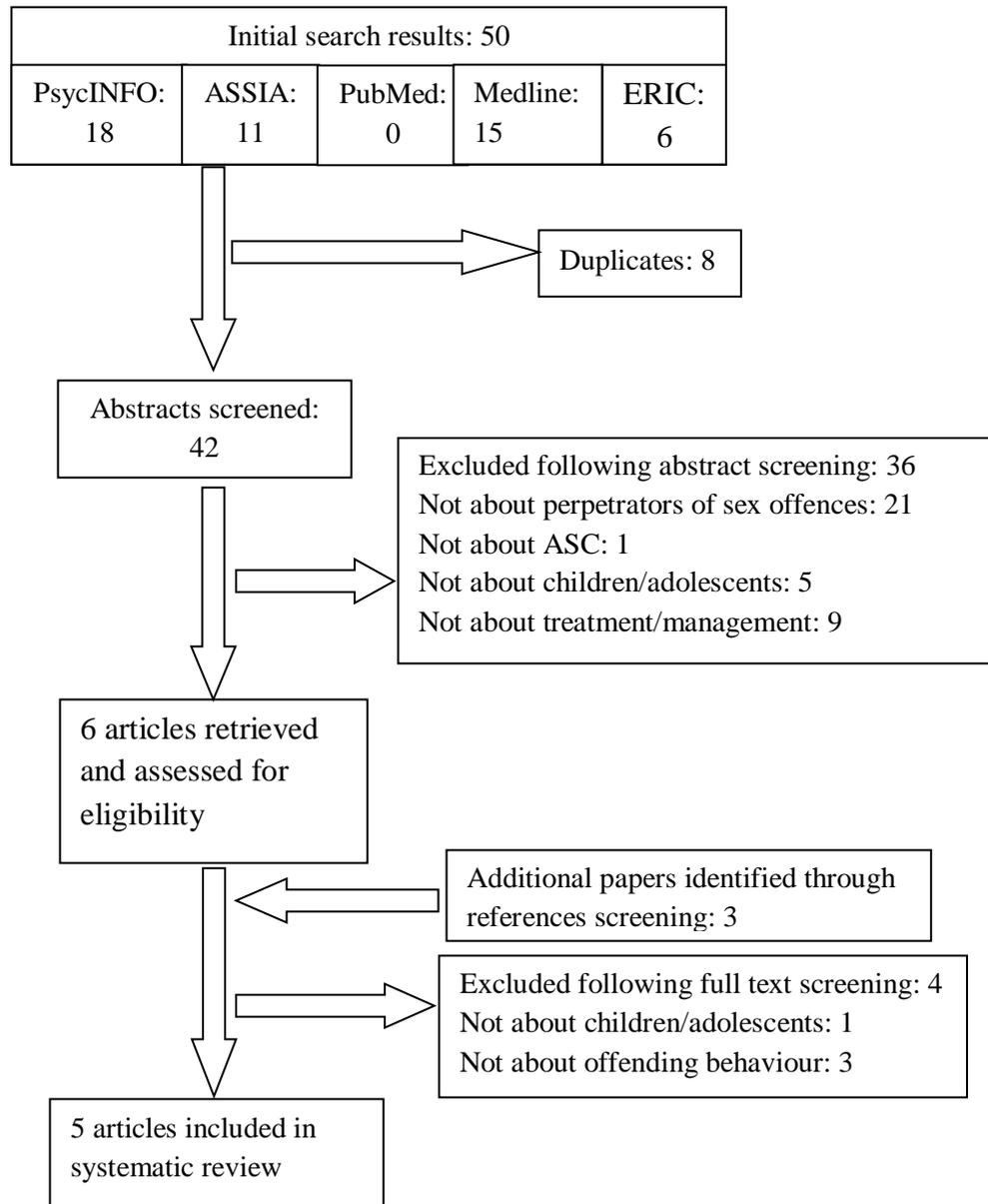


Figure 1: Prisma diagramme of the systematic literature search process



Table 1.
Summary of Identified Papers

<u>Study</u>	<u>Country</u>	<u>Design</u>	<u>Participant(s)</u>	<u>Intervention</u>	<u>Outcomes</u>	<u>Quality</u>
Fosdick & Mohiuddin (2016)	USA	Single case-study	15 yr old (at start of intervention) male with ASC and intellectual disability; severe sexual aggression against younger brother and other children	Leuprolide acetate (25mg every 3 months); behavioural therapy (3-4 times per week); in community	Anecdotal: reduction in sexual aggression only during leuprolide acetate use (4 years); re-occurrence of problematic behaviour during a gap in medication; when regime was resumed no incidents for 3 years; loss of libido; over-eating and weight-gain; food-based perseverations; high cholesterol	4 out of 11
Griffin-Shelley (2010)	USA	Single case-study	14 yr old (at start of intervention) male with Asperger's Syndrome; sexual contact with four younger family members	Initially residential using CBT approach (3 yrs); then community treatment including individual therapy, psycho-educational CBT group, psychotherapy group, Sex and Love Addicts Anonymous meetings	Anecdotal: limited impact of residential treatment (client learned theory but unable to apply it to own behaviour and difficulties; continued sexual acting out); some positive change in community aftercare (opening up in individual sessions; reduction in anxiety; reduction in masturbation from 14 times a day to twice a week); continued lying and deception; failure to reconcile with family; continued difficulties with making and maintaining friends	2 / 11

Pritchard et al. (2016)	UK	Single case-study	17 yr old White British male with ASC; at age 11 sexually abused younger sister; since then numerous admissions and convictions including further sexual offences	Residential CBT-based token economy system with four levels (115 weeks); weekly individual CBT sessions; socio-sexual education; offence-specific intervention	Measured: incidence of absconding, and aggression remained low; harmful/inappropriate sexual behaviour reduced over course of admission; progressive increase in community visits Anecdotal: began to talk openly about offence and what led to it; demonstrated more respectful and appropriate demeanour with staff, family, peers; successful move to supported living post-discharge	3 / 11
Ray, Marks, & Bray-Garretson (2004)	USA	4 case-studies	1: 15 yr old male with ASC; physically and sexually threatening behaviour towards staff 2: 17 yr old male with ASC; paraphiliac tendencies towards other service users incl. masturbation with their belongings 3: 16 yr old Caucasian male with ASC; several sexually coercive and aggressive actions towards children	Residential MDT treatment package adapted for ASC and based on CBT; narrative elements; involving family/carers where appropriate	Anecdotal: more flexibility in thinking; more fluid affect; trying new ways of affect regulation; acknowledgment of need to regulate urges; acceptance of responsibility	2 / 11

			4: 14 yr old African American male with ASC; extensive history of sexually inappropriate behaviour and obsessive preoccupation with sex			
Shenk & Brown (2007)	USA	Single case-study	14 yr old White male with ASC and borderline cognitive functioning; sexual assault of two younger children; subsequently excessive public masturbation and bestiality	Highly structured residential setting using CBT approach targeting dynamic and static risk factors (45 weeks); ERP targeting inappropriate sexual behaviour and deviant sexual fantasies;	Measured: self-monitoring and re-structuring no impact on arousal or use of deviant fantasies to masturbate; reduction in arousal and masturbation once ERP commenced; generalised to family home and maintained over 6 months follow-up; decrease in risk of re-offending	6 / 11
					Anecdotal: better able to identify antecedents for arousal; ability to distinguish between deviant and non-deviant fantasies; display more emotions and empathy in individual sessions; learned more appropriate ways of connecting with others; reintegration into family and community	

Notes. ASC = autism spectrum condition; CBT = cognitive-behavioural therapy; ERP = exposure and response prevention; MDT = multi-disciplinary team; quality measured using Yin's (2014) framework