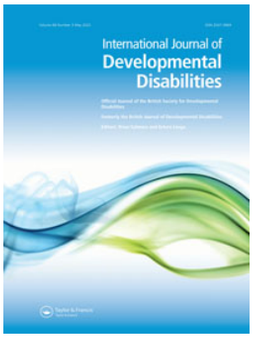

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Non-pharamacological treatment for individuals with autism spectrum conditions who display harmful sexual behaviour

Kate Dredge[1]* **and John Rose**[2]

[1]North Oxfordshire Learning Disability Team, Oxford Health NHS Foundation Trust, Banbury, UK; [2]School of Psychology, The University of Birmingham, Birmingham, UK

Background: Specific treatment and interventions for individuals with Autism Spectrum Conditions who display harmful sexual behaviour have yet to be widely evaluated. This review aims to consolidate and assess the quality of research exploring non-pharmacological interventions for individuals with Autism Spectrum Conditions who display harmful sexual behaviour.
Method: A systemic search of electronic databases was conducted. Articles were considered for inclusion, according to identified inclusion and exclusion criteria. At the end of the search, ten papers were deemed suitable for inclusion.
Results: Ten studies were considered eligible for review, including a study of follow-up data of one of the original studies. Quality assessment indicated that the majority of papers provided weak research evidence, with only two papers receiving an "adequate" rating. A consistent methodological flaw was the lack of control groups for group interventions.
Conclusions: There is currently a very small research base exploring non-pharmacological interventions for individuals with Autism Spectrum Conditions who display harmful sexual behaviour. The current research is littered with methodological flaws, however reveals some useful information regarding the use of functional behaviour assessment and individualised treatment planning, as well as some of the limitations of using adapted group CBT interventions. Suggestions for future research include; studies evaluating the effectiveness of behavioural interventions for individuals with Autism Spectrum Conditions who display harmful sexual behaviour, studies which include female participants, studies which utilise control groups where appropriate, and an evaluation of interventions for those with Autism Spectrum Conditions without Intellectual Disabilities.

Keywords: harmful sexual behaviour, treatment, autism, non-pharamacological, sex offend

Introduction

It is increasingly recognised that pharmacological treatments for Harmful Sexual Behaviour (HSB) should be used as a second line approach, and that non-pharmacological options should be pursued first, thus non-pharmacological interventions form the basis of this review.

Much of the existing literature concerning Autistic Spectrum Conditions (ASC) and HSB consists of case studies of those with ASC who have displayed offending behaviour. To date, the prevalence of offending behaviours in this population remains unclear. Several studies have alluded to the over-representation of those with ASC in the criminal justice system, although it is important to consider that such studies often fail to detail the type and nature of the offending behaviour, as well as being considered to have major methodological faults (Hellemans *et al.* 2007, King and Murphy 2014, Sevlever *et al.* 2013).

It is hypothesised that obsessional interests, dismissal of social conventions (including an ability to distinguish between public and private places), a poor ability to decode social gestures and language along with a limited repertoire of appropriate behaviour, often viewed as traits of individuals with ASC, can result in a variety of HSB (Haskins and Silva 2006, Murrie *et al.* 2002). The NSPCC defines HSB as: "using sexually explicit words and phrases, inappropriate touching, using sexual violence or threats and full penetrative sex with other children or others", and considers that children and young people who develop HSB harm both themselves and others (NSPCC 2018). Additionally, the repetitive and ritualised behaviours often displayed by

Correspondence to: John Rose, School of Psychology, The University of Birmingham, Edgbaston, Birmingham B15 2TT, UK. Email: j.l.rose@bham.ac.uk
*previously at The University of Birmingham

Table 1. Terms utilised in systematic search of databases.

Intervention	Autism	Sexually Offend
Treat* OR	ASD OR	Sex* Offend* OR
Therap* OR	Asperger* OR	Psychosex* Beh* OR
Beh* Modif* OR	Autis* OR	Sex* Harm* Beh* OR
Educat* OR	Autism Spectrum Disorder OR	Paraphil* OR
Interven*	Disab* OR	Sex* Abus* OR
	ASC OR	Sex* Beh*
	Pervasive Develop* Dis*	

Abbreviations: *=Boolean search modifier allowing search for truncated terms, OR = Boolean search operator allowing search for multiple terms relating to a single cluster, "AND"= Boolean operator used to combine the two search clusters.

those with ASC may result in sexual behaviours becoming a preferred activity for the individual (Sullivan and Caterino 2008). Hellemans *et al.* (2007) described incidents of compulsive masturbation, as "autistic" fetishism with the ritual use of objects, fascinations with a sexual connotation and strange fears associated with sex. Immediate confession (likely related to difficulties in deception and poor theory of mind skills), lack of empathy and sexual frustration have also been considered relevant factors with regard to contributory factors to sexual offending in those with ASC (Murrie *et al.* 2002, Lerner *et al.* 2012, Wing 1981).

Adapted sexual offending programmes

The Prison Reform Trust highlighted the importance of adapted programmes for those individuals with learning difficulties and disabilities, both terms are used in the U.K. to describe people with Intellectual Disabilities (although professionals in the field use the term learning disabilities), as defined in Valuing People Now (Loucks 2007, Department of Health 2009). There is some support for the efficacy of adapted programmes for people with ID (Heppell *et al.* 2020) where positive change in knowledge, attitudes and behaviour have been demonstrated. Clinical observations suggest very little progress is made by those with ID who are enrolled on mainstream offending behaviour programmes (Craig and Hutchinson 2005). "Valuing People Now" raised concerns that those with ID are at risk of continued offending because of unidentified needs and consequent lack of support and services, often further confounded by a lack of staff training and experience.

Prior to applying these interventions to an ASC population however; it is important that a comparison is conducted between the sexual profiles of those with ASC and ID, prior to replicating findings and suggesting interventions for those with ID for those with ASC (Sevlever *et al.* 2013) .

Aim of the review

Specific treatment and interventions for individuals with ASC who display HSB have yet to be widely evaluated. This review aims to review the current evidence base for specific interventions, to identify which interventions have been utilised with this population, to reflect on and evaluate their effectiveness in order to guide clinical practice in this area, and to highlight areas for future research and development.

Method

Search strategy

PsychInfo, Medline, Embase and PsychArticles were systematically searched on 14th February 2021. These electronic databases were chosen in an attempt to encapsulate psychology, psychiatry and healthcare interventions, it is unlikely that any relevant papers would not be included on at least one of these databases. No limits were applied in relation to published/unpublished status, or language, to reduce potential bias. The search terms, displayed in Table 1, were truncated to account for spelling variations, maximising the possibility of identifying all relevant articles. Where papers described a significant and systematic element of pharmacological intervention they were excluded so that any potential changes reported could not attributed to the pharmacological intervention. The Boolean operator "AND" was used to combine the four search clusters. References lists of identified papers were also hand searched for any other relevant literature, and experts in the fields of sexual offending, offending behaviour programmes, and working with adolescents with ASC were also contacted.

Procedure

In total, 5134 articles were identified through database searching, reducing to 4342 after duplicates were removed. The titles and then the abstracts were then screened for relevance, leaving 87 potentially eligible articles. The reference lists of these articles were then hand searched, with one more article being identified. Seven experts in the field were contacted via email, resulting in another article being identified. The full texts of these 89 articles were assessed for eligibility against the inclusion and exclusion criteria (see Table 2). At the end of this process a total of 10 articles were identified as eligible for the current review.

Table 2. Inclusion and exclusion criteria for the review.

Inclusion Criteria	*Exclusion Criteria*
Include study if it meets the following criteria: • Participants with identified ASC • Any type of study design • Non-pharmacological intervention • Must contain original data • Peer Reviewed Journal • Any date of publication • Concerns HSB directed toward self or others	Exclude study if it meets any of the following criteria: • Individuals with ASC are not the research focus • Does not include participant data • Does not include HSB • Not in a peer reviewed journal

Results

Ten papers were included within the current review, spanning 14 years (2002 – 2016). The papers included describe CBT interventions (Craig *et al*. 2012, Heaton and Murphy 2013, Murphy *et al.* 2007, SOTSEC-ID 2010, Shenk and Brown 2007) and multi-component interventions (Dozier *et al.* 2011, Ray *et al.* 2004, Thompson and Beail 2002, Griffin-Shelley 2010, Pritchard *et al.* 2016), through group and individual interventions.

Consideration was given to the inclusion of both SOTSEC-ID (2010) and Heaton and Murphy (2013) as individuals in the later paper were included in the former. It was decided that the paucity of the current evidence base required inclusion. The Heaton and Murphy (2013) paper discussed findings at 44 months post intervention follow-up for a subset of participants in SOTSEC-ID (2010), which provides useful information of the social validity of the intervention. The papers are considered as linked papers, with only follow up data being presented from the Heaton and Murphy (2013) paper, to avoid over-representation of participants.

Consideration was given to two papers authored by Melvin *et al.* (2020a, 2020b) which aimed to explore the experiential experiences of group members with ASC in adapted sex offender treatment groups, and the clinicians who facilitated these, respectively. While both papers provided important insights from both group member and clinician perspective, they did not serve to evaluate the effectiveness of the interventions per se, therefore they were not included in the final sample.

Data extraction and quality review

A template for data extraction was applied to each paper, based on guidance from the Cochrane Handbook of Systematic Reviews of Interventions, summarised in Tables 3 (6 case studies) and 4 (4 group studies), (Higgins and Green 2008).

The framework proposed by Reichow *et al.* (2008) was developed to be applied applied to studies with ASC participants

Two protocols are proposed, one for group research and one for single case research, both of which are utilised in the current review.

To assess adherence to the protocol, two studies (one case study, one group study) were rated against the quality framework by a colleague independent to the review. Overall adherence was good, with no differences on ratings of overall quality.

The majority of papers in the current review were rated "weak" according to the quality review framework (Reichow *et al.* 2008). Only two papers in the review received an "adequate" rating, both of which were case studies (Dozier *et al.* 2011, Shenk and Brown 2007) Table 3).

The group interventions were rated as "weak" due to having no control group, whereby a causal relationship cannot be established between intervention and outcome (Kazdin 2003). It is likely that professional nervousness and ethical considerations regarding withholding interventions, that could potentially protect others, are the reason for the lack of control (Heaton and Murphy 2013, Murphy *et al.* 2007, SOTSEC-ID 2010, Craig *et al.* 2012).

Reichow *et al.* (2008) determine that studies receiving a "weak" rating are not included in this process, as the conclusions drawn based on such research should be considered tentative. As only two of the case studies included in the current review were rated as "adequate", it is suggested that, at the current time, there is little evidence-based practice or even promising evidence-based practice for interventions for those with ASC who display HSB.

Narrative synthesis

The synthesis provides an overview of the studies included in the current review. The studies are referred to by the numbers they are given in Table 3.

(For the remainder of the review, studies will be referred to according to their corresponding number)

What are the pertinent features of research relating to non-pharmacological interventions for individuals with ASC who display HSB?

Country of origin

All studies included in the review involved participants from either the UK (six) (2, 4, 3, 7, 10, 6) or the USA (four) (1, 5, 8, 9).

Table 3. Summary of pertinent data extracted from case studies.

Author(s), Date & Aims	Study Type and Rigour	Participants & Setting	Intervention & Outcomes Measured	Key Findings Relating to Interventions for Individuals with ASC who Display Sexually Inappropriate Behaviours
1. Griffin-Shelley, E. (2010) An Asperger's Adolescent Sex Addict, Sex Offender: A Case Study	**Study Type:** • Narrative Case Study • Qualitative • AB Design **Rigour: Weak**	**Participants:** • $n = 1$ • 14-year-old male • Recently been found engaging in sexual contact with an 11-year-old nephew and a 9-year-old male family friend. • Diagnosed with sex addiction. Displaying sexual offending. • During intervention, further disclosures of pictures of women with sexually inappropriate comments written on as well as additional victims (including sibling incest) were made. **Setting:** • SetUSA • Residential • Outpatient Treatment	**Intervention:** • Lengthy "uncovering" period – assessment and information gathering • Group Therapy • Psycho-Education • Relapse Prevention • Some Family Therapy offered • Outpatient individual therapy sessions **Outcome Measures:** • Reported engagement in masturbation • Reported engagement in sexual behaviours, including accessing pornography • Clinical opinion of the Author regarding sexual preoccupation	• Continued display of recidivism behaviours, although possible reduction in frequency of these noted. • Self-reported reduction in frequency of masturbation • Treatment ended prematurely • Confrontation therapy used in residential treatment not considered appropriate due to Asperger's syndrome • Clinical opinion of author in terms of treatment outcomes, influencing factors were presented. • Author suggested using addiction model of treatment rather than offender model.
2. SOTSEC-ID. (2010). Effectiveness of Group Cognitive-Behavioural Treatment for Men with Intellectual Disabilities at Risk of Sexual Offending	**Study Type:** • Case Series • Quantitative • Repeated Measures Design **Rigour: Weak**	**Participants:** • $n = 46$ (21% with ASC diagnosis) • 57% of participants required by law to complete intervention. • National trial of adapted CBT sex offender treatment programme for men with ID • Mean age − 35.3 years (SD 12) **Setting:** • Nine collaborating sites ran 13, year-long groups. • Participants came from community and secure provisions. • Each site consisted of a clinical team, based in an NHS Trust, or a clinical team based in secure services, which were often run by the independent sector. One participating site consisted of independent psychologists providing treatment to men with ID on probation.	**Intervention:** • Interventions were guided by a common treatment manual. • Intervention included several modules: Introduction to social and therapeutic framework, Sex Education, the Cognitive Model, Victim Empathy, Sexual Offending Model, Relapse Prevention **Outcome Measures:** • All group members were required to complete four measures pre and post intervention, which assessed sexual attitudes and knowledge, empathy and cognitive distortions. • Frequency and details of repeated sexually abusive behaviour was also collected at pre, post and follow up. • Some missing data in follow up phase, due to varying site resources to collate this information.	• Significant changes found in sexual knowledge, victim empathy and cognitive distortions when comparing pre and post group time-points. • Changes in sexual knowledge and one cognitive distortions measure found to still be significant at follow-up time-point (6 months). • Three men engaged in further sexually abusive behaviours during treatment year. • Four men engaged in further sexually abusive behaviours during the six-month follow-up period (many of these men had diagnosis of ASC). • A diagnosis of ASC was considered to be a factor for increased risk of recidivism (however authors warn that this should be interpreted with caution due to low *n*).
3. Murphy, G., Powell, S., Guzman, A., & Hays, S. (2007) Cognitive-Behavioural Treatment for Men with Intellectual Disabilities and Sexually Abusive Behaviour: A Pilot Study	**Study Type:** • Case Series • Quantitative • Repeated Measures Design **Rigour: Weak**	**Participants:** • $n = 8$ ($n = 4$ ASC diagnosis). • The paper details 8 participants, 2 of whom completed both treatment groups. 10 data sets were collected (2 sets each for 2 participants who completed	**Intervention:** • Treatment sessions used the CBT model and included psycho-education, discussions around sexually abusive behaviours displayed by group participants, experiences of being a victim, understanding their own sexual cycles, relapse prevention.	(findings refer to $n = 8$ – information for 2 participants who completed both treatment groups is only presented once) • Significant changes in sexual knowledge and attitudes, and victim empathy were noted when comparing pre and post group measures.

(*Continued*)

Author(s), Date & Aims	Study Type and Rigour	Participants & Setting	Intervention & Outcomes Measured	Key Findings Relating to Interventions for Individuals with ASC who Display Sexually Inappropriate Behaviours
		both treatment groups. Information provided in this review will refer to 8 participants. • Participants were all invited to the group which would last for approximately one year, and would require attendance at one two-hour session per week. **Setting:** • Two groups were run in two separate South London boroughs, UK.	**Outcome Measures:** • Information collected regarding frequency and nature of sexually abusive behaviour during the period of the intervention, and for a six-month follow-up period. • All group members completed four pre and post process measures, looking at sexual attitudes and knowledge, victim empathy and cognitive distortions.	• Cognitive distortions were found to have significantly improved. • One man with a diagnosis of ASC, engaged in further sexually abusive behaviour during both groups. These behaviours were non-contact offences. • At six-month follow-up, three men had engaged in further sexually abusive behaviour (all men had ASC, 2 of these 3 men had attended both treatment groups).
4. Pritchard, D., Graham, N., Penney, H., Owen, G., Peters, S., & Mace, C. (2016). Multi-Component Behavioural Intervention Reduces Harmful Sexual Behaviour in a 17-Year-Old Male with Autism Spectrum Disorder: A Case Study	**Study Type:** • Quantitative • Case Study • AB Design **Rigour: Weak**	**Participants:** • $N = 1$ • 17-year-old male displaying harmful sexual behaviour described as sexual touching, gestures, comments and threats). Other problem behaviour defined as; aggression, absconding, disruption, and self-harm. • Historical sexual abuse of younger sister and less able young male in a secure children's home. **Setting:** • UK • Residential Special School	**Intervention:** • A Multi-component behavioural intervention lasting 115 weeks. Intervention consisted of; points and level system, active support, CBT, SRE and an offence specific intervention delivered by the local Youth Justice Team. • Behavioural contingency contract introduced in week 66. • Prior to his arrival staff training designed specifically around his needs was delivered **Outcome Measures:** • Data collected every 30 min on pro-social and academic behaviour during school day • Data on problem behaviour recorded 24 hr per day, 7 days per week via critical incident reports	• 16 episodes of harmful/inappropriate sexual behaviour within first 12 weeks. • Relapse in problem behaviour between wk. 46 and 66 of the intervention, following earning access to a tablet computer. Sexual behaviour increased from 0 times per week to a maximum of 4 times per week • Following implementation of behavioural contingency contract in week 66, 0 reported incidents of sexual behaviour in subsequent 3 weeks. • 4 episodes of sexual behaviour recorded between week 69 and 87. • 0 episodes of sexually harmful/inappropriate behaviour in last 36 weeks of study • Authors discussed the benefit of intensive and long-term multi-component behavioural treatment in residential settings for individuals with ASC who present with sexually harmful behaviours.
5. Shenk and Brown (2007). To present the case study of a 14-year-old male with ASC, who displayed deviant sexual arousal and behaviours, along with a deficit of impulse control strategies for regulating his sexual arousal.	**Study Type:** • Case Study • AB Design • Quantitative **Rigour: Adequate**	**Participants:** • $n = 1$ • Arrested for sexually assaulting two younger children. • Previously resided in a treatment facility where he received adolescent sexual offence specific treatment for his sexually deviant behaviour. • Behaviours referred to prior sexual offences, excessive and public masturbation, masturbation to fantasies involving female family members and female sexual victims. **Setting:** • USA • Hand up Homes for Youth – legally required to successfully	**Intervention:** • CBT approach. • Strategies focus on: learning and using skills for managing and reducing sexual arousal and deviancy, challenging cognitive distortions, enhancing empathetic responding, developing and using relapse prevention plans, and communicating about emotional experience. • Daily group therapy • Weekly individual psychotherapy with a CBT therapist **Outcome Measures:** • J-SOAP-II • Data collected through a time series design	• Reassessed on J-SOAP-II and determined to be safe to return to his family home upon his discharge at week 46. Risk of sexual recidivism reduced from 52% pre-treatment to 33% at discharge. Follow up −3 months – J-SOAP-II re-administered (reduction from 33% recidivism risk post treatment to 25%). Self-reported a reduction in masturbation to deviant fantasies. • 6 months – J-SOAP-II re-administered and remained at 25%. Self-reported a consistently low frequency of masturbation, while denying masturbation to deviant fantasies.

(*Continued*)

Author(s), Date & Aims	Study Type and Rigour	Participants & Setting	Intervention & Outcomes Measured	Key Findings Relating to Interventions for Individuals with ASC who Display Sexually Inappropriate Behaviours
		complete a sexual offender treatment programme in a residential treatment facility.		
6. Thompson, A., & Beail, N. (2002). The Treatment of Auto-Erotic Asphyxiation in a Man with Severe Intellectual Disabilities: The Effectiveness of a Behavioural and Educational Programme	**Study Type:** • Case Study • AB Design • Qualitative **Rigour: Weak**	**Participants:** • $n = 1$ • 18-year-old male referred by GP for an MDT case conference regarding his engagement in auto-erotic asphyxiation. • Parents would interrupt him when they were aware of him engaging in this behaviour, and would often find him red faced and breathless to the point of collapse. • Onset of behaviour was approximately 2 years prior to referral. Described as occurring at least once per day, and as more likely to occur during the early morning. **Setting:** • UK • Treatment initially took place in outpatient setting and then later transferred to patient's home.	**Intervention:** • Staged intervention procedure • Desensitisation to his penis using three life like models. Teaching skills for appropriate masturbation. Home practice was encouraged and monitored. **Outcome Measures:** • Participant engaged in three process measures; 1) ability to grip and touch the model, 2) quality of movement on the model, 3) number of movements on the model. • Observations of any unprompted generalisations during treatment were recorded. • Weekly frequencies of auto-erotic asphyxiation recorded by parents throughout assessment and intervention stages and at 6 months follow up	• The author discussed that the study did not find that behavioural interventions would eliminate auto-erotic asphyxiation. • Participant continued to engage in the behaviour. • The authors discussed a reduction in the dangerousness of the behaviour, although dangerousness or severity of masturbatory behaviour was not able to be objectively defined or measured. • Some generalisation to masturbatory behaviours, however this was considered to be extremely slow.
7. Heaton, K., & Murphy, G. (2013). Men with Intellectual Disabilities who have Attended Sex Offender Treatment Groups	**Study Type:** • Case Series • Repeated Measures Design • Quantitative **Rigour: Weak**	**Participants:** • $n = 34$ (21% with ASC diagnosis) • Adult men with ID, who displayed sexually abusive behaviour resulting in their completing an adapted sex offender treatment programme. **Setting:** • UK • Seven treatment sites	**Intervention:** • Follow up of 34 of the original 46 men from the SOTSEC-ID programme. **Outcome Measures:** • Mean length of follow up – 44 months, SD 28.7, range 15-106. • All participants completed four process measures looking at sexual attitudes and knowledge, victim empathy and cognitive distortions.	• Significant increases were found in sexual attitudes and knowledge when comparing pre, post and current follow-up period. • Significant changes in victim empathy were noted between pre and post, and pre and the current follow-up. Changes between post measures and current follow-up were not significant. • The SOSAS showed no significant changes in cognitive distortions over time, however changes in the QACSO were significant between pre and post and pre and follow-up. • 11 of the 34 men engaged in further sexually abusive behaviour. • Two of the men committed a far higher number of further sexually abusive behaviours than the other participants since the start of the treatment group. Both men had ASC and were engaging in non-contact offences. • ASC found to be a variable associated with sexual recidivism.
8. Ray, F., Marks, C., & Bray-Garretson, H. (2004). Challenges to Treating	**Study Type:** • Qualitative • Case study	**Participants:** • $n = 4$ (The review describes 2 of these, one case involved an	**Intervention:** • Treatment in one case focused on "expanding awareness of and make	• Recidivism is noted in the two cases describing treatment

(*Continued*)

Author(s), Date & Aims	Study Type and Rigour	Participants & Setting	Intervention & Outcomes Measured	Key Findings Relating to Interventions for Individuals with ASC who Display Sexually Inappropriate Behaviours
Adolescents with Asperger's Syndrome who are Sexually Abusive	• AB Design **Rigour: Weak**	individual who has displayed sexually coercive behaviour toward younger children, and one case of an individual who displays sexually inappropriate behaviours including sexualised and/or violent statements and gestures). • Adolescent males (14-17 years) with Asperger's Syndrome and Pervasive Developmental Disorder seen by the authors for a variety of sexual, anti-social and paraphilic behaviours **Setting:** • Author's Offices • USA	room for new experiences and ideas". The intervention also involved some work with direct care staff to demonstrate that his desire for sameness and more about survival than wilful defiance. • The second case focused on helping him to "develop a language for describing the internal compulsions that drive his inappropriate behaviours" **Outcome Measures:** • Effectiveness of the intervention is commented upon by the authors	• Author's report improvements in; awareness of need for management strategies, flexibility and willingness of the individuals to try new things, observed stabilisation of behaviour, emotional regulation skills. • Several recommendations are made by the authors for intervening with adolescents with AS and PDD who display sexually abusive behaviours.
9. Dozier, C., Iwata, B., & Worsdell, A. (2011). To present the case of a 36-year-old male who is reported to have engaged in bizarre sexual behaviour in the presence of women wearing sandals.	**Study Type:** • Case Study • ABAB Design **Rigour: Adequate**	**Participants:** • 36-year-old male • 20-year history of inappropriate sexual (masturbatory) behaviour – consisted of dropping into a prone position near the feet of another person and gyrating his pelvis on the floor. **Setting:** • USA • Sessions were conducted in a relatively empty room at the participant's work facility. • Generalisation sessions were conducted in a work area, cafeteria and outside space.	**Intervention:** • Sensory Extinction sessions – similar to baseline sessions with the addiction of an athletic protector around the participant's waist to minimise sensory stimulation when he gyrated on the floor. • Response-Interruption/Time-Out intervention (RI-TO) – straps on the backpack were gently pulled and participant given a one-minute time out if he attempted to engage in the behaviour. **Outcome Measures:** • Therapists monitoring frequency of inappropriate sexual behaviours	• Sensory extinction – latency to the behaviour initially increased but subsequently decreased to baseline levels. • RI-TO latencies increased until the participant consistently refrained from engaging in the target behaviour.
10. Craig, L., Stringer, I., & Sanders, C. (2012). Treating Sexual Offenders with Intellectual Limitations in the Community	**Study Type:** • Case Series • Quantitative **Rigour: Weak**	**Participants:** • $n = 14$ (38% met criteria for ASC) • Mean age: 35 years (Range 19-61 years) • All participants were convicted sexual offenders who were	**Intervention:** • CBT Model • 14-month treatment programme • Intervention consisted of five main components; sex education, cognitive distortions, offending cycle, victim empathy and relapse prevention. **Outcome Measures:**	• A significant difference was found when comparing victim empathy pre and post treatment. • Significant change was noted when comparing cognitive distortions pre and post intervention using the QACSO, however no significant differences were found when comparing SOSA scores pre and post intervention.

(*Continued*)

Author(s), Date & Aims	Study Type and Rigour	Participants & Setting	Intervention & Outcomes Measured	Key Findings Relating to Interventions for Individuals with ASC who Display Sexually Inappropriate Behaviours
		serving probation orders or prison licences. • Participants were assigned to one of two treatment groups **Setting:** • UK	• Participants completed four process measures pre and post intervention which looked at victim empathy, sexual knowledge and attitudes and cognitive distortions. • Frequency of sexually harmful behaviour • RRASOR was used as an actuarial risk assessment measure as a comparison point with other studies • 42.8% ($n = 6$) of men were followed up for approximately 12 months, while the rest ($n = 8$) were followed up for 6 months.	• No significant change was found when comparing sexual attitudes and knowledge pre and post treatment. • None of the men were reported to have been charged or reconvicted for a new sexual offence during the follow up period. • The authors note that they are unable to conclude whether a lack of recidivism was due to the intervention or whether it was the result of implicit socialisation skills acquired during the intervention or the result of continued probation supervision.

Settings

Six of the ten studies described interventions that took place within a community setting, although some participants were still residing within residential or secure settings (2, 3, 10, 6, 7, and 8). One study described a lengthy intervention, beginning in a residential setting and transferring to the community (1), another a specialist residential school (4) and another a residential treatment facility in which the individual was legally required to reside at (5). One study did not specify the setting (9).

Study samples

A total of 76 participants were recruited through all of the studies included in this review, 32 of whom were described as having a formal diagnosis of ASC. Five of the studies described single case studies (1, 4, 5, 9, 6), another described a small case series of two participants (8). The remaining four studies described group designs with participant numbers ranging from eight to 46 (2, 3, 7, 10).

Seven of the ten studies did not describe the ethnicity of participants, one described 86% of participants as white British while the other participants formed less than 5% of "white Irish", "white other" and of Indian or Afro-Caribbean origin (2), while the other two describe their participants as "white" or "white British" (5, 4). As all of the research has been conducted in either the UK or USA with the majority of participants being described as "white" or "white British". The generalisabity of research findings to other countries may be limited.

What are the characteristics of individuals with ASC who display HSB?

A poor description of participants was a consistent flaw among the papers (Reichow 2011). Information made available in the papers has been collated to offer a description of characteristics, however it is not considered possible to establish whether this is representative given the limited information.

Gender and age

All participants included in the review are male, highlighting a significant gap in the literature concerning females with ASC who display HSB. Participants included in this review range from 14 (8, 5) to 61 years of age (10). Two studies provided a mean age with no range (2, 3). The large range of ages is a relative strength of the current review.

ASC

All group studies provided information of the prevalence of ASC within their sample, which ranged from 21% (2) to 50% (3). Two studies identified the

diagnostic measure used to give an ASC diagnosis (2, 10); as The Diagnostic Criteria Checklist (Howlin 1997). Two studies did not provide details of diagnostic measures, however provided an operational description of ASC characteristics (8, 1).

Additional diagnoses, symptoms or difficulties

All studies made reference to the presence of ID. Some studies included participants with a full-scale IQ between 70-79 (5, 2, 3, 10). The participant described by Thompson and Beail (2002), had severe ID (FSIQ < 45). Papers included in the review do not consider those without a dual diagnosis of ASC and ID, a limitation of the current research base.

Murphy *et al.* (2007) noted four of eight participants had a dual diagnosis of ASC. Other dual diagnoses reported were Schizophrenia ($n = 2$), Mood Disorders ($n = 2$) and Personality Disorder ($n = 2$). SOTSEC-ID (2010) referred specifically to dual diagnoses, with four participants diagnosed with ASC during childhood, six diagnosed with ADHD and 76% had contact with psychiatric or ID services as children. They reported in their sample; Personality Disorders 31%, Mood Disorder's 16.7%, Anxiety Disorder 12%, and 9.5% schizophrenia or other psychotic disorder.

Many participants had experienced adverse childhood experiences and had been a victim of abuse (2,3). Experiences included; physical and psychological trauma (8), sexual abuse (2, 3) and parental death during childhood (3). Highlighting this demographic data is a relative strength of the papers, with such factors being identified as contributing factors to HSB recidivism among individuals with ASC, however the group studies do not identify which of these factors were experienced by those with ASC (Sevlever *et al.* 2013).

Descriptions of HSB

Some papers included only illegal HSB, whereas others included HSB which were not illegal but which posed a risk of harm to the individual or the public, as such, findings should be interpreted with caution. In addition, one paper refers to HSB directed toward the self, in a case of auto-erotic asphyxiation by a male with ASC and severe ID (6). Non-contact HSB included; public masturbation, stalking, indecent exposure, sexual harassment, sexualised comments and threats, sexualised gestures, indecent phone calls, obscene letters and one case of an individual dropping to the floor in a prone position gyrating in front of female members of the public. Contact offences included; oral sex, penetration, attempted rape, rape, buggery, sexual assault and enforced touching of the perpetrator. Many studies referred to child victims (1, 4, 8, 5, 3) with SOTSEC (2010) noting that in over 60% of their participants, the victim was a child and Craig *et al.* (2012) describing 93% of their sample having been convicted of sexual contact with a child under the age of 16. It is important to note that these studies do not identify which of these offences were committed by those with ASC. Griffin-Shelley (2010) and Pritchard *et al.* (2016) described inter-familial abuse of a younger sister and Murphy *et al.* (2007) referred to the victim of one of their participants being a "younger child relative". Early *et al.* (2012) and Ray *et al.* (2004) both refer to incidents of participants massaging and tickling the feet of others. Deviant sexual fantasises were described in a number of studies ranging from; wanting to "smell the rear ends" of female staff (8) to fantasising about following two young girls with a view to sexually assaulting them and killing them (4).

What is the nature of non-pharmacological interventions for individuals with ASC who display HSB?

Individual and group interventions included in the review target a range of problem behaviours, and include several different components. Multi-component interventions make causal effect impossible to establish, an important consideration when evaluating their effectiveness (Reichow *et al.* 2008).

Individual interventions

Ray *et al.* (2004) described one individual who had been engaging in sexually coercive and aggressive behaviour toward children. A persistent pattern of behaviour involved tickling and massaging the feet of the victims, as a means of a stimulus for sexual arousal and a means to gain access for further physical contact. Increasingly, offences were considered as "progressing toward more invasive aggressive themes". Ray *et al.* (2004) utilised individual functional assessment and formulation, as well as a focus on the external environment of the individuals. The intervention included staff training and positive reinforcement every time the individual engaged in a new activity or demonstrated positive social interactions. The individual was described as having become more flexible in his thinking and had begun to acknowledge the need for help to manage his sexual behaviours. Additionally, he was considered to have become more aware of the impact of HSB on others. The same paper describes a second detailed intervention for a participant who made frequent sexualised and/or violent statements or gestures, considered to be becoming progressively more offensive. Functional assessment guided an intervention which involved structuring of the individual's external environment, to keep him busy and occupied while supporting him to develop adaptive methods with which to manage his urges. Any direct challenge of his "curiosities" was avoided. The authors noted the utility of narrative approaches, including naming and externalising the problem, and utilised a visual aid which

encouraged him to switch his mind to positive memories when feeling overwhelmed. As with the previous intervention, praise and positive reinforcement were utilised to maintain motivation and engagement. It was reported, the participant's behaviour was considered to be stabilising, and he was beginning to develop a sense of mastery over his difficulties,t no reference to the impact of the intervention upon HSB was made (8).

Shenk and Brown (2007) described an individualised intervention for a participant arrested for sexually assaulting two children, he was also masturbating excessively after frequent sexual arousal, including fantasies involving female family members and female sexual victims. A functional assessment informed an intervention utilising exposure and response prevention, role-play, homework assignments, metaphor and daily self-monitoring, including the individual teaching of skills and engagement in daily, offence specific, group therapy. Individual weekly psychotherapy with a cognitive behavioural emphasis aimed to treat sexual deviancy, and sessions were later used for more traditional CBT interventions aimed at considering consequences and developing victim empathy. The participant continued to report sexual thoughts about his sister and fantasises regarding his victim during the intervention. He self-reported a significant decrease in his sexual arousal and frequency of masturbation, with reported longer-term gains at three- and six-month follow-up, of not masturbating to any deviant sexual fantasies, while maintaining a consistently reduced frequency in times masturbated per week. A decrease in Thom's risk on the Juvenile Sexual Offender Assessment-II (J-SOAP-II) (Prentky *et al.* 2000) was noted at 3 months follow.p,.

Griffin- Shelley (2010) described a multi-component intervention for an individual convicted at 14 years of age, following sexual contact with an 11-year-old nephew and an eight-year-old male family friend. The intervention included an extended, functional assessment and "uncovering" period, followed by a systemic environmental intervention. The intervention also included; CBT, introduction to an offence model, family therapy, group and individual therapy. Following discharge, the individual entered individual and group therapy for sexual offending, including a psycho-educational group, a psychotherapy group and a Sex and Love Addicts Anonymous meeting. The individual was also required to abstain from masturbation, following historical use of this to manage anxiety. Upon completion of the intervention the individual was described as less anxious and more open and honest during individual therapy, despite a continued difficulty in identifying required personal change, suggesting an ability to socialise to the therapeutic model. The participant continued to display HSB, lying about using the Internet during the third month of his return to the community, and continuing to ask intrusive, inappropriate questions of his therapist. The impact of the intervention on HSB remains unclear.

Dozier *et al.* (2011) described a response-interruption/time out intervention aimed to reduce inappropriate masturbatory behaviour. They described the participant as dropping to the floor and gyrating his pelvis on the floor at the feet of females wearing sandals. Functional analysis, treatment and generalisation sessions were conducted three to five times per day, five days per week. The intervention provided a response-interruption/time out condition. Straps were attached to a rucksack worn by the client, which a therapist used to lead him away when he began to initiate the target behaviour. After a one-minute time out he was permitted to move freely again. During the intervention, the use of both straps of the rucksack was eliminated by first reducing to one strap, and then using a small loop on top of the rucksack to lead to individual to time out. Following the intervention, the target behaviour was eliminated, and evidence of generalisation and maintenance were seen when the rucksack was modified. The replicability of this intervention is a relative strength of this paper, when compared with the other case studies in the review, with helpful levels of detail provided by the authors. No further incidents of the inappropriate masturbatory behaviour were recorded during a six-month follow-up (9).

Pritchard *et al.* (2016) described a multi-component, cognitive behavioural, intervention for an individual who was engaging in inappropriate sexual touching, gestures, comments and threats. A functional assessment was conducted, followed by person specific staff training, weekly community meetings, and a points and level system which incorporated a differential reinforcement of other behaviour (DRO) schedule (Cancio and Johnson 2007, Hagopian *et al.* 2002), active support (AS), CBT, sex and relationships education (Gadd and Hinchcliffe 2007) and an offence-specific intervention. In week 66 of the intervention, a behaviour contingency contract was introduced following challenging behaviours associated with the use of the client's tablet computer. During the first 12 weeks of placement 16 episodes of HSB were recorded, none of which involved physical contact. Between weeks 46-66 HSB increased. These behaviours consisted primarily of sexual comments and gestures. No episodes were recorded in the last 36 weeks of the study (4).

Thompson and Beail (2002) describe a behavioural and psycho-educational programme, aimed at reducing incidents of dangerous auto-erotic asphyxiation by an individual. A formulation was completed, using data from functional analysis and a collection of baseline data. The first stage of the intervention encompassed 11 sessions which focussed on desensitisation of the individual. Alongside this, psycho-educational slides and a

cartoon film were also incorporated into the sessions with the aim of demonstrating safe and hygienic masturbation. From session five, the individual was also encouraged to practice taught appropriate masturbation at home, and guidelines for prompts were provided to his parents directing them to interrupt the target behaviour. Thompson and Beail (2002) reported marked variability in the recorded frequency of auto-erotic asphyxiation behaviour throughout the baseline, intervention and follow-up periods, although note that the data failed to demonstrate a statistical reduction in the perceived severity and dangerousness of the behaviour. On completion of therapy the individual was described as learning a safe method of masturbation.

Group interventions

Murphy *et al.* (2007) described the intervention of a "Men's Group" for the treatment of HSB, which ran once per week for two hours. In the first group, topics included socialisation into the group process, naming body parts, social rules for dressing/undressing, social and sexual relationships, considering legalities of sexual relationships, emotional regulation and management, consequences of HSB, disclosure of HSB, coping with HSB, victim experiences, victim empathy, understanding offence cycles, issues of choice and consent and relapse prevention.

SOTSEC-ID (2010) described a very similar treatment manual to that described by Murphy *et al.* (2007). Alongside a reduction in HSB, it was also expected that those who engaged in the intervention would also experience an improvement in sexual attitudes and knowledge, victim empathy and cognitive distortions as related to HSB. The intervention included modules around the social and therapeutic framework, sex education, the "Cognitive Model", victim empathy, the "Sexual Offending Model" (introduced individuals to an adapted version of Finklehor's four step model of sexual offending (Murphy and Sinclair 2009) and relapse prevention. In addition, Heaton and Murphy (2013) conducted a follow up study at 44 months of 34 of these participants.

Craig *et al.* (2012) also described a manualised intervention delivered across two treatment groups in the community. They emphasised the importance of presenting information in a variety of ways, including visually and verbally, as well as making group activities as interesting and immersive as possible through the use of role-plays and games(10). Core treatment components included; sex education and the law, identifying and reconstructing cognitive distortions, developing victim empathy and relapse prevention skills. The authors noted that group sessions also examined Finklehor's model of offending and explored thoughts related to fantasy and masturbation (Finklehor 1984, Craig *et al.* 2012).

Outcome of group interventions. *Further HSB.* Murphy *et al.* (2007) and SOTSEC-ID (2010) reported some HSB during the treatment period, this ranged from one (3) to three (2) participants. HSB consisted of non-contact offences and involved; public masturbation, indecent exposure, stalking and other offences such as verbal sexual harassment. The one individual described by Murphy *et al.* (2007) as engaging in further HSB had a diagnosis of ASC, and had attended both treatment groups.

Both studies made reference to further HSB displayed during the six-month follow-up period, with a significant proportion of these behaviours being displayed by participants with a diagnosis of ASC. Murphy *et al.* (2007) found three of the eight participants had committed further HSB, all three had a diagnosis of ASC. SOTSEC-ID (2010) reported that of the four men to engage in HSB, three of them had ASC. HSB was displayed more frequently by those participants with ASC, this caused the authors to hypothesise that ASC may serve as a predictive factor of sexual recidivism, and to question the effectiveness of group CBT interventions for this population.

Craig *et al.* (2012) reported that none of the participants in their group, of 14 participants, were charged or reconvicted of a new sexual offence during their review period (initial follow-up of six months, 42.8% of the sample being followed up at 12 months). A lack of difference between those participants with ASC (38%) and those without, despite a comparable follow-up period, is an important finding for this review.

Heaton and Murphy (2013) followed up 34 participants from the SOTSEC-ID study (2010), with a mean length of follow up of 44 months. In the original study, 21% of these men had a diagnosis of ASC. No demographic information regarding the prevalence of ASC in this follow-up was reported by the authors. As with the previous two studies, they noted ASC as a potential predictive risk factor for further HSB. Statistical analysis found ASC to be a significant predictor of the likelihood of further re-offending (chi-square, 6.7, $p < 0.01$). They reported that eight of the men had engaged in further HSB at the final follow-up period (44 months). Of these eight men, four of them had also displayed further HSB during either the treatment phase or at six-month follow-up. When reviewing all follow-up periods, the authors reported that two of the individuals displayed a notably higher number of further sexually harmful behaviours when compared with the other men, with over 60 and 30 incidents respectively. Both of these individuals had a diagnosis of ASC however, the paper does not provide demographic data for participants at this follow up period as presented in SOTSEC-ID (2010), therefore it is unclear on what data they have based their findings regarding ASC and HSB.

Additional measures. All of the group interventions described in this review measured changes in victim empathy, sexual knowledge and cognitive distortions. Interestingly, in contrast to the differences in the prevalence and frequency of further sexually harmful behaviour noted above (2, 3), less significant differences appear to have been found when comparing participants with, and without, ASC on these measures.

Cognitive distortion as related to sexually harmful behaviours, were considered to have improved following group interventions in all of the studies.

Victim Empathy was measured using the Victim Empathy Scale – Adapted (VES-A) (Beckett and Fisher 1994). Craig *et al.* (2012) noted a significant difference, for all participants, on pre and post measures of Victim Empathyas did Murphy *et al.* (2007) and SOTSEC-ID (2010). This significant improvement was not maintained at initial follow-up of the SOTSEC-ID study.

Sexual knowledge was measured in all group studies using the Sexual Attitudes and Knowledge Questionnaire (SAK) (Heighway and Webster 2007). Significant improvement was found across pre and post measures in two of the interventions (Murphy *et al.* 2007, SOTSEC-ID 2010). SOTSEC-ID (2010) had reported significantly poorer SAKS scores for those men with ASC ($p < 0.05$), when compared with those without.

Discussion

The majority of studies provided weak research evidence, containing significant methodological flaws, meaning that findings should be interpreted with caution. The literature reviewed is not considered strong enough to indicate even a promising evidence-based approach to reducing HSB in those with ASC but the papers can provide some useful guidelines for clinicians (Reichow *et al.* 2008). The elements of intervention that may be helpful include, functional assessment, individual planning, CBT and psycho-education, these elements of intervention are discussed below.

The effectiveness of group CBT interventions results were varied with two studies finding that of their participants only those with ASC went on to display further HSB (2, 3), whereas a similar study conducted by Craig *et al.* (2012) found that none of their participants displayed further HSB, including those with ASC. It is important to note that these group interventions had been developed for those with ID rather than those with ASC, suggesting additional consideration should be applied to individuals with ASC.

Some individual interventions have shown some effectiveness in reducing and eliminating HSB. Many of these have served to highlight the importance of a functional assessment, and have considered the clinical utility of conceptualising HSB as traits of ASC, rather than viewing these behaviours as offending behaviours and intervening accordingly (1). Effective individual interventions included in the current review have included the use of a response-interruption/time out strategy (9), a multi-component intervention including aspects of CBT, psycho-education and environmental strategies (4), individual CBT (5) and a combination of behavioural and psycho-educational interventions (6).

Functional assessment of HSB

Six of the individual interventions highlighted the importance of functional assessment, to guide individualised interventions (5, 1, 4, 9, 6). Of these six papers, five demonstrated a reduction in HSB. This is in contrast with the group interventions, which did not conduct individual assessments, with the majority of group studies reporting some HSB displayed by participants with ASC during follow-up periods (2, 3). Individualised assessment and formulation provide the clinician with the option of conceptualising sexually harmful behaviours as the product of ASC traits, and using this to guide an individualised treatment plan. It was the completion of functional assessments, which afforded the variability in interventions included within the review.

Individualised intervention planning

All six of the case studies included in the review included a behavioural element in their intervention, five reported a positive effect on HSB. Behavioural components included aspects of exposure therapy (5), modelling and desensitisation (6), and principles of reinforcement (4, 8, 9).

The utility of CBT in reducing HSB in ASC, is less well supported by the papers of the review. Pritchard *et al.* (2016) incorporated aspects of CBT into their multicomponent intervention, however the design of the study, meant that causal relationships were unable to be established. Furthermore, two of the three group interventions based upon a CBT model, were not found to be effective in reducing HSB in those with ASC.

It is hypothesised that behavioural principles would be an important component of any intervention aimed at reducing HSB in an individual with ASC, particularly when considered in comparison with CBT group interventions which did not appear to be effective in reducing HSB in those with ASC. This would indicate the utility of an individualised approach when working with individuals with ASC. Further research is needed; exploring the effectiveness of behavioural interventions due to the methodological weaknesses of the papers included in the review.

Psycho-education was incorporated in the majority of interventions in the review. All group interventions incorporated a psycho-educational module, with two studies highlighting the increased sexual knowledge scores of those with ASC as a result of engagement in

the intervention (2, 3). These papers indicated that, despite an increase in sexual knowledge, those with ASC continued to display further HSB. This suggests the advantage of a multi-component approach, including a behavioural intervention, which considers all aspects of an individual's risk profile.

Only ten papers were identified for this review, this is a small number of papers and suggests that there is a need for the development of practice and research in this area. All of the papers were from research based in the U.K and U.S.A., this will limit any conclusions that can be made from the data. The research will only reflect practices in these specific countries and restrict any generalisations that can be made to other geographical areas. Additional papers may have been identified if other terms had been included to broaden the search. For example, the use of ID, forensic services or sexual abuse may have identified additional papers. While this is possible, a recent review of similar interventions for people with ID (Heppell *et al.* 2020) did not find any other relevant papers.

A significant degree of variability in the quality of the demographic information regarding the participants is provided, posing a difficulty for clinicians seeking to determine the applicability of the interventions for their service users. many of the case studies provided only limited detail regarding the interventions, making replicability difficult. A significant degree of variability in definitions of HSB throughout the papers made it difficult to draw clear hypotheses regarding effective intervention methods. Papers also included a range of behaviours from sexually harmful behaviour toward the self (6), to individuals who have committed a range of sexually harmful behaviours that have been illegal in nature (2, 3, 7, 10).

Control groups were lacking in all of the papers included in the current review, making it impossible to establish causal effect of the interventions, a problem exacerbated by multi-component interventions. (Reichow *et al.* 2008, Kazdin 2003). Much of the research was found to have inadequate power, limited visual presentation of the data, and poor demonstration of the effects of the dependant variable. Recidivism rates in many of the studies relied upon official records. This may not provide an accurate representation of future HSB, due to many individuals with ID/ASC being diverted from the criminal justice system, with their behaviours not being included in these official records (Craig and Hutchinson 2005, SOTSEC-ID 2010).

ASC has been hypothesised as a predictive risk factor for further HSB (1, 8, 7, 3, 2). The majority of group interventions included in the review, highlighted those participants with ASC as often being the individuals who engaged in further HSB. It may be that a lack of empathy and limited social reciprocity will influence those with ASC to engage in criminal activity, including HSB (Sevlever *et al.* 2013, Murrie *et al.* 2002, Allen *et al*. 2008). The interpersonal naiveté of this population has been hypothesised as contributing to the increased likelihood of these individuals to engage in frequent attempts to interact with a romantic interest in spite of a lack of reciprocity, attempts which may be interpreted as HSB. It may be that misinterpretation of signals of disinterest from others may lead the individual with ASC to persist in non-reciprocal romantic attempts (Murrie *et al.* 2002, Sevlever *et al.* 2013, Stokes *et al*. 2007, King and Murphy 2014).

Some of the interventions included within the review discussed the difficulties in treatment of individuals with ASC. ASC traits including anxiety and relationships difficulties have been hypothesised to impact upon an individuals' ability to engage meaningfully in group interventions (1, 8). Of the three group interventions, none provided details regarding the engagement of the participants, including those with ASC. It could be hypothesised that they were struggling to engage meaningfully in the process, however improving scores in sexual knowledge, cognitive distortions and victim empathy indicate an ability to engage with the group material (10, 3, 7).

Papers included in this review have described environmental and offence specific interventions which require an individual to display empathic responses toward their victims, in order to successfully proceed, a specific difficulty for many with ASC. Such challenges were also noted by Melvin *et al.* (2020b), as experienced by clinicians, specifically related to emotional empathy development and shifts in cognitive distortion. Melvin *et al.* (2020b) highlighted other benefits of group attendance, from the perspective of clinicians, for those with ASC, including the presence, and engagement with, other group members, a space within which to develop pro-social roles and relationships and increased opportunity for monitoring. Group members interviewed, also found benefit in engaging in groups, specifically related to social benefits, the availability of professional support and increased social inclusion (Melvin *et al.* 2020a).

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ORCID

John Rose http://orcid.org/0000-0003-2672-9767

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