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A Systematic Review of the Effectiveness of Psychological Approaches in the Treatment of Sex Offenders with Intellectual Disabilities

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Abstract:	Background: Despite considerable advance and growth in the evidence base for psychological interventions as treatment for sex offenders with Intellectual Disabilities (ID), there remains limited evidence to support their effectiveness. This systematic review seeks to evaluate the effectiveness of psychological interventions on reducing re-offending rates for sex offenders with ID. Methods: A search of ten electronic databases, grey literature and reference lists were conducted using PRISMA methodology. Results: A number of studies appeared to establish positive treatment outcomes, demonstrated by improvements in attitudinal change, victim empathy and sexual knowledge. However, reductions in sexual re-offending during the follow-up period were not consistent across the studies. No studies with an adequate control comparison were identified during the search. Conclusions: The current review provides limited evidence on the effectiveness of psychological interventions for sex offenders with ID, whilst also highlighting the need for further research.

Introduction

Over the last decade many Western governments have revised their criminal justice responses to dealing with sex offenders in an attempt to reduce reoffending (Brown, 2001). The effects of this have been two-fold, more harsh and punitive punishments and prison sentences, and greater financial investment in the development of treatment programmes, for people with and without Intellectual Disabilities (ID) (Schmucker & Lösel, 2008).

The vast majority of people with an ID will never commit an offence (Holland *et al.* 2002; Simpson & Hogg, 2001 a & b). Nevertheless, it is often suggested that sexual offending in this group is overrepresented in comparison to other types of offending behaviour (Daskalou, 2001; Walker & McCabe, 1973). From the current evidence it is difficult to estimate the true prevalence of people with ID who are sex offenders due to a range of methodological issues (Lindsay, 2002; McBrien, 2003; Simpson& Hogg, 2001a). However, estimates suggest that the rate of offenders with ID convicted of a sexual offence is 3.7%, compared to 4% of offenders convicted without ID (Hayes, 1991; Swanson & Garwick, 1990). Many of the studies which have found people with ID to be overrepresented in the sexual offender population have been conducted within high secure hospitals, medium secure units or prisons (Lindsay, 2002) and are not representative of the wider ID population.

Psychological treatment approaches for offenders appear to have moved away from psychoanalytical and behavioural approaches, and have given way to cognitive-behavioural based treatments (Aos *et al.* 2006; Brown, 2010) which aim to reduce the risk of sexual reoffending by changing the offender's cognitions and attitudes (Beck, 1995). This is either done directly by addressing offending behavior, or by treating an underlying mental illness, to reduce the likelihood of subsequent re-offending (Gordon & Grubin, 2004).

There is a growing evidence base for the use of adapted CBT programmes for offenders with ID, which have been shown to be effective in reducing the risk of sexual re-offending (Lindsay *et al.* 1998a; Lindsay *et al.* 1999; Murphy *et al.* 2007). These programmes have been modified to

address cognitive impairments including: difficulties comprehending abstract concepts and problems with working memory (Sturmey, 2004). A number of previous studies have highlighted the effectiveness of group CBT for sex offenders with ID (Lindsay *et al.* 1999; Lindsay *et al,* 2006; Rose *et al.* 2002; Rose *et al.* 2012), which are considered by some as the most effective form of treatment for this particular group (Large& Thomas 2011).

This systematic review aims to synthesise current evidence and evaluate the effectiveness of psychological treatments for people with ID who are sex offenders.

Method

This review was conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive search of the scientific literature was carried out using the following electronic databases:

- EMBASE (1980 to 2014 week 30)
- MEDLINE (1946 to July Week 3 2014)
- PsycINFO (1980 to July Week 1 2014)
- PsycARTICLES Full Text (1975 to July 2014)
- CINAHL (1985 to July 2014)
- Applied Social Sciences Index and Abstracts (ASSIA) (1987 to July 2014)
- Web of Science (1980 to July 2014)

A search of the gateways was conducted on The Cochrane Library (CENTRAL), as well as searches of grey literature databases (Open Grey) and dissertation and thesis databases (WorldCat Dissertations and Theses). Peer review journals relating to ID were examined for relevant papers and the reference lists of relevant systematic reviews were manually searched

for further articles of relevance. Finally, contact with established researchers in the field was made to identify unpublished manuscripts or data and on-going studies. The following search terms were individually applied to the databases within the PICO format (see Fig.1).

ENTER FIGURE 1 AROUND HERE

The initial search results were screened by hand and the titles and abstracts were examined to ensure that papers met the eligibility criteria. Following this two independent reviewers applied pre-specified inclusion criteria to the identified studies prior to quality assessment, data extraction and synthesis. All potential studies retrieved through searching were assessed against specific inclusion and exclusion criteria. The study designs considered included RCTs, prospective and retrospective cohort studies, case-control studies, comparison studies, cross-sectional studies, case series and case reports. No limits were applied to trial design at the initial searching stage. In order to be considered, studies were required to report on participants who had either been convicted, received a caution, admitted via self-report or be strongly suspected (e.g. eye-witness accounts) of committing any type of sexually abusive behaviour or sexual offence, as well as those who had voluntarily sought help for illegal sexual behaviour. Studies also needed to report on the use of a psychological therapeutic intervention, aimed at reducing sexual reoffending.

The primary outcome measure ofeffectiveness considered within this review was the reduction or the absence of future offending. The definition for sexual re-offending included new convictions, charges, re-arrests, incarcerations, self-report or strong evidence of committing further sexual offences. Secondary outcome measures considered included cognitive distortions, victim empathy, sexual knowledge, other non-sexual re-offending behaviour and change in supervision levels i.e. move to a less restrictive environment.

Results

A total of 1660 articles were identified from the electronic search and hand searching of reference lists yielded a further four. 120 duplicate articles were removed and a further 1480 irrelevant articles were excluded. The remaining 64 articles were examined against the eligibility criteria. Of these 52 were excluded on one or more of the following grounds: study populations that did not specifically look at sexual offending, participants who had no diagnosis of ID or dealt solely with people not aged over 18 years, interventions which were not psychological in nature and papers that were descriptive and did not comment on outcomes (see Fig. 2).

ENTER FIGURE 2 AROUND HERE

In total twelve papers were identified (see table 1). Of these, three were carried out by the same collaborative research group (Heaton & Murphy 2013, Murphy *et al.* 2007 and SOTSEC-ID, 2010) and therefore all used the same treatment manual, thus will be analysed together and referred to as SOTSEC-ID (2010) unless necessary to refer to them separately. Murphy and colleagues' (2007) study was the pilot study whilst the Heaton and Murphy (2013) study was the longer term follow-up for SOTSEC-ID (2010). Each of the included studies was also assessed to determine the quality of their methodological design using the Methodological Quality Checklist designed by Downs and Black (1998), adapted by Cahill and colleagues (2010).

ENTER TABLE 1 AROUND HERE

Methods

Study population & characteristics

The total number of participants within the ten studies equaled 174 (range 3 to 46). All of the studies reported solely on male participants and the mean age ranged from 23.75 years (Lindsay *et al.* 1998b) to 44 years (Heaton& Murphy, 2013). The SOTSEC-ID (2010) study was made up of 86% white British and fewer than 5% from each of the following groups white Irish,

white other, Indian and Afro-Caribbean, however, the majority of studies did not provide information on the ethnicity of participants. Only two of the studies identified using a comparison group (Keeling *et al.* 2007; Lindsay and Smith 1998).

Definitions

ID was defined as participants who were known to or were receiving local learning disability services in three studies (Craig *et al.* 2006; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010) and by full-scale IQ measures in the mild or borderline range (SOTSEC-ID, 2010). Craig and colleagues (2012) only included participants with a Full Scale IQ of 55 to 79. No prior inclusion criteria were provided by Lindsay and Smith's (1998) study, however the mean full-scale IQ was below 70 in both groups of participants.

The SOTSEC-ID (2010) study used a broad definition of sexually abusive behaviour which included any sexual act that would be defined as illegal by the criminal justice system (CJS) or any sexually related behaviour that lacked consent from the other party involved and would be considered illegal within the jurisdiction it took place in (SOTSEC-ID, 2010). In the SOTSEC-ID follow up study, Heaton and Murphy (2013) also included any inappropriate behaviours that were of concern ('chain behaviours'). The remaining studies did not pre-define sexually abusive behaviour (Craig *et al.* 2006; Keeling *et al.* 2007; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Lindsay& Singh *et al.* 2011; Smith, 1998; Rose *et al.* 2002; Rose *et al.* 2012).

Substantial heterogeneity was present with regards to the offending histories of participants in the included studies in this review. Six studies provided qualitative descriptions of each of the participants and their previous offences (Craig *et al.* 2006; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Rose *et al.* 2002; Singh *et al.* 2011; SOTSEC-ID, 2010), while theSOTSEC-ID study (2010) also included data on sexually abusive index behaviours, previous offences and type of contact with the CJS. In comparison, Rose and colleagues (2012) provided the briefest description of offending history, reporting only that 25% of participants had offended against children, while

75% had offended against adult women. Two studies recruited groups of participants that had all been convicted of either offences against children or indecent exposure (Lindsay & Smith, 1998) and exhibitionism (Lindsay *et al.* 1998b) whereas other studies included participants regardless of whether they had been charged or convicted for the sexually abusive behaviour (Craig *et al.* 2006; Rose *et al.* 2002; SOTSEC-ID (2010)). SOTSEC-ID (2010) acknowledged that men with ID who display sexually abusive behaviour are often not reported to the police or are diverted out of the CJS, therefore, participants who are strongly suspected of committing the offence (for example by eye-witness accounts) were included.

Three of the studies reported on pharmacological medications in addition to their psychological intervention. Those participants not taking any medication were recorded at 50% (Murphy *et al.* 2007 pilot study) and 73% in another study (SOTSEC-ID, 2010) whilst Singh *et al.* (2011) reported that none of their participants were taking any psychotropic medication. The remaining studies did not provide any further data on either medications or other interventions that could impact on outcomes.

Study setting

Eight studies were conducted in the UK within secure and community-based services (Craig *et al.* 2006; Craig *et al.* 2012; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Lindsay & Smith, 1998; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010), one in an Australian correctional facility (Keeling *et al.* 2007) and a further one in a mental health facility in the United States (Singh *et al.* 2011).

Baseline assessment

The principal measure used to assess participants' level of intellectual functioning was the WAIS-III/R (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010). In addition one participant in Craig and colleague's (2006) study had not been formally assessed because he was new to the

service, therefore, clinicians provided an approximation of his IQ based on their clinical expertise. Furthermore, one individual in Keeling and colleagues' (2012) study was found to a slightly higher full-scale IQ than in the mild or borderline range but was included in the study as he was illiterate and it is not detailed what assessments were used to conclude that participants functioned at the mild level of ID in Singh and colleagues' (2011) study. Details of the studies' mean full scale IQs are provided in table 1. In addition to the IQ estimates, three studies used the VABS to measure the degree of impairment in adaptive behaviour (Craig *et al.* 2006; Craig *et al.* 2012; SOTSEC-ID, 2010) and two studies used the BPVS to measure receptive language (Craig *et al.* 2012; SOTSEC-ID, 2010).

Intervention

Cognitive-behavioural therapy

A CBT group approach was used in all but one of the included studies (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b Lindsay& Smith, 1998; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010). The interventions were conducted by a variety of professionals including a consultant forensic psychologist and trainee forensic psychologist (Craig *et al.* 2006; Craig *et al.* 2012), a clinical psychologist supported by team members from a variety of disciplines (SOTSEC-ID, 2010) or by therapists who had been working with the participants prior commencing the treatment programme (Rose *et al.* 2012). A number of studies followed standardised treatment manuals (Craig *et al.* 2012; Lindsay& Smith, 1998; Rose *et al.* 2012; SOTSEC-ID, 2010). Therapists using the SOTSEC treatment manual had all received prior training before administering treatment. The six participants in Lindsay and colleague's study (1998) weresplit into two different groups for treatment dependent on whether they had committed offences against girls or boys.

The targets for the intervention included: sex education (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010), cognitive distortions

(Craig *et al.* 2006; Craig *et al.* 2012; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Lindsay& Smith, 1998; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010), victim empathy and awareness (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Lindsay & Smith, 1998; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010), relapse prevention (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010) and offence cycles (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010). Other topics included self-disclosure of their offences (Keeling *et al.* 2007; Rose *et al.* 2012), sex, the law and consent (Rose *et al.* 2002), finding other sexual outlets (Rose *et al.* 2002), and issues of denial and minimisation (Lindsay *et al.* 1998a; Lindsay *et al.* 1998b; Lindsay & Smith, 1998; SOTSEC-ID, 2010).

The frequency and duration of treatment did not vary considerably across the studies. Typically the CBT was conducted on a weekly basis and varied from 2 to 2.5 hours per session and the duration of the treatment programme ranged from 4 months to 2 years, with follow up periods varying between 6 to 4 years. In two studies participants were involved in treatment for varying lengths of time depending on their length of probation (Lindsay *et al.* 1998a; Lindsay *et al.* 1998b).

Mindfulness

Singh *et al.* (2011) used mindfulness as an intervention to teach adult sexual offenders with an ID to learn to control their deviant sexual arousal. The sessions lasted between 30 to 60 minutes and were held four times per week. Participants were required for between-session homework to record their sexual arousal and when how often they'd practiced mindfulness. Participants were taught mindfulness skills consisting of *meditation on the soles of the feet* and a *mindfulness observation of thoughts*.

Outcomes

Re-offending

No follow-up was conducted on participants following the mindfulness intervention (Singh *et al.* 2011). All of the remaining studies using CBT as a treatment approach provided outcome data on further sexual re-offending at different time points during the follow-up period. Five of the ten studies reported that at least one of the participants engaged in further sexually abusive behaviour during the follow-up period (Heaton & Murphy, 2013; Lindsay *et al.* 1998a; Lindsay & Smith, 1998; Rose *et al.* 2012; SOTSEC-ID, 2010).

Rose *et al.* (2012) documented that only 1 of the 12 participants had committed a further sexual offence during the 18-month follow-up and it was not stated what type of sexual offence this was. In Lindsay and Smith's (1998) study 4 out of 11 participants were either strongly suspected or had been charged with further sexual offences during the follow-up period. Similarly there was no record of the type of sexual offence or level of seriousness. Lindsay and colleagues' (1998a) study report that one of the six participants were suspected of further re-offending, however, no further information was given regarding this. For the three studies using the SOTSEC-ID treatment programme, Heaton and Murphy (2013) found that overall 11 of the 34 participants had engaged in further sexual offences both during the 1-year treatment group, as well as afterwards during the 6-month follow-up and longer follow-up period. The majority of these sexual offences were non-contact for example stalking, indecent exposure, public masturbation or verbal sexual harassment and a very small minority were contact offences including touching others' genitals either clothed or unclothed. SOTSEC-ID (2010) found that 3 of the 46 participants sexually reoffended during the treatment programme, all of which were non-contact sexual offences, and 4 out of the 46 sexually reoffended during the 6-month follow-up (2 engaged in non-contact offences i.e. public masturbation and a further 2 engaged in contact offences of touching others' genitals). Murphy *et al.* (2007) documented that 1 out of 8 sexually re-offended during the treatment programme (non-contact offences i.e. public masturbation and indecent exposure). At the 6-month follow-up none of the individuals had any convictions for sexual offences, however, 3 of the 8 men had engaged in sexual offences (both non-contact offences and contact offences such as non-consensual sexual touching through

clothing). In contrast, Craig *et al.* (2006) provided data reporting that none of their six participants were charged or convicted of sexually re-offended during the 12-month follow-up period. Likewise none of the 14 participants in Craig and colleague's (2012) study were reconvicted for further sexual offences during the follow-up period and none of the four participants were reported to have re-offended since their first conviction in the study conducted by Lindsay *et al.* (1998b). Only the 11 participants with special needs were followed up in Keeling and colleagues' (2007) study and no further convictions for sexual offending were reported during this follow-up. Rose and colleagues (2002) also reported that none of their five participants were reported or suspected to have engaged in any further sexual offences either during the period of the group or follow-up.

The mean length follow-up period after the treatment programme, which sexual re-offending was measured varied considerably, from 6 months (Craig *et al.* 2012; Murphy *et al.* 2007; Rose *et al.* 2002; SOTSEC-ID, 2010) to between 6 and 6.5 years (Lindsay *et al.* 1998b). In addition, the three studies conducted by the SOTSEC group included data relating to participants committing further sexual offences during the course of the treatment programme (Heaton & Murphy, 2013; Murphy *et al.* 2007; SOTSEC-ID, 2010).

None of the participants who had attended the SOTSEC-ID treatment programmes were reported to have engaged in any further *non-sexual* offences (Heaton & Murphy, 2013; SOTSEC-ID, 2010). Furthermore, no participants had perpetrated any *non-sexual* offences during the 6 month or extended follow-up period (Heaton & Murphy, 2013; SOTSEC-ID, 2010).

Cognitive distortions

Six studies reported a significant improvement in cognitive distortions directly following treatment (Craig *et al.* 2012; Lindsay & Smith, 1998; Rose *et al.* 2012; SOTSEC-ID, 2010). Not all of the studies conducted statistical analyses yet trends towards a reduction in negative cognitive attitudes were still apparent (Lindsay *et al.* 1998b). A number of different

psychometric assessments were used to measure cognitive distortions, these included: Questionnaire of Attitudes Consistent with Sexual Offending (QACSO; Craig *et al.* 2012; Lindsay& Smith, 1998; Rose *et al.* 2002; Rose *et al.* 2012; SOTSEC-ID, 2010), Sexual Offenders Self Appraisal Scale (SOSAS; Craig *et al.* 2012; SOTSEC-ID, 2010) and the Accountability scale of the Multiphasic Sex Inventory (Craig *et al.* 2006). These improvements in cognitive distortions were maintained at the 6-month follow-up (SOTSEC-ID, 2010) and the longer-term follow-up (mean length 44 months) using the QACSO (Heaton & Murphy, 2013; SOTSEC-ID, 2010). However, two studies found no significant change in cognitive distortions using the SOSAS (SOTSEC-ID, 2010; Murphy *et al.* 2007) and QACSO (Rose *et al.* 2002). SOTSEC-ID (2010) found less significant changes using the SOSAS in comparison with the QACSO while Craig and colleagues (2012) found significant changes using the QACSO but not using the SOSAS.

Sexual Knowledge

Five of the studies provided pre-and post-group outcome data on sexual knowledge, using the Socio-Sexual Knowledge & Attitudes Assessment Tool (SSKAAT-R; Rose *et al.* 2012), Sexual Attitude and Knowledge Assessment (SAKS; Craig *et al.* 2012; SOTSEC-ID, 2010), Sexual Behaviour and the Law Scale (Rose *et al.* 2002) and the Sex Knowledge and Beliefs subscale - MSI (Craig *et al.* 2006). Two of the studies provided data on whether this change in sexual knowledge was maintained at follow-up (Rose *et al.* 2002; SOTSEC-ID,2010). Two of the five studies demonstrated significant improvements in sexual knowledge following the group (Rose *et al.* 2012; SOTSEC-ID, 2010). Improvements in the men's knowledge were maintained at follow-up (Heaton & Murphy, 2013; SOTSEC-ID, 2010) whereas the other three studies did not report any significant differences (Craig *et al.* 2006; Craig *et al.* 2012; Rose *et al.* 2002)

Victim Empathy

Significant improvements in victim empathy pre- and post-group were recorded in three studies (Craig *et al.* 2012; Keeling *et al.* 2007; SOTSEC-ID, 2010). Heaton and Murphy (2013)

also found highly significant improvements from pre-group to follow-up, in the SOTSEC-ID study. Four out of five participants showed an in increase victim empathy using the VES in Rose and colleagues' (2002) study, however, these improvements were not found to be statistically significant.

Sexual Arousal

All three participants in Singh and colleagues' (2011) study self-reported improvements to deviant sexual arousal following treatment and they also reported that the mindfulness intervention was more effective than using their own preexisting self-control methods.

Change in supervision levels

Two studies examined change in supervision levels (SOTSEC-ID, 2010; Rose *et al.* 2012). Of these one study found that 25% (3 individuals) were able to move to placements with relatively less supervision, although 1 out of the 12 required a higher level of security (Rose *et al.* 2012). Likewise, there was a 37.5% reduction in participants living in secure services i.e. requiring lower supervision levels following the treatment programme (Heaton & Murphy, 2013).

Discussion

The main aim of this review was to evaluate the effectiveness of psychological treatments available for adult sex offenders with ID.

Outcomes

The studies demonstrate significant improvement in cognitive distortions between pre- and post-group for six studies; however, the impact in terms of reducing the likelihood of further sexually abusive behaviour is unclear given differences in the criteria used for reoffending and lack of comparison of those who reoffended against those who did not reoffend. In fact, two of the five studies to report no further incidents of sexual offending during the follow-up period

did not to find any significant improvements in cognitive distortions using the MSI (Craig *et al.* 2006) and QACSO (Rose *et al.* 2002), while one of these studies did not conduct any statistical analyses (Lindsay *et al.* 1998b) and another did not use a specific questionnaire to examine cognitive distortions (Keeling *et al.* 2007). However, Craig *et al.* (2006; 2012) may have underestimated the rate of sexual re-offending as their measure of offending was solely based on official records, which are known to underestimate re-offending rates. Cognitive distortions measured by the QACSO appeared to significantly change in four of the five studies which used this outcome measure, in comparison to the SOSAS and accountability scale on the MSI which demonstrated fewer significant changes. Results comparing changes to cognitive distortions using pre intervention- and follow-up are likely to have been affected by the differences in length of the treatment programmes. Lindsay and Smith (1998) recommend that a lengthier treatment programme of at least two years is necessary people with ID who are sex offenders, in order to improve the chance of changes in attitudes consistent with sexual offending being maintained at follow-up. Likewise Lindsay and colleagues (1998a) propose that the length of treatment/probation is strongly linked to the amount of change in cognitive distortions. Similarly insufficient time to learn and master the mindfulness skills was cited as one of the possible reasons whyparticipants' self-control was not found to be clinically significant (Singh *et al.* 2011).

The results synthesis also demonstrated significant increases in victim empathy and sexual knowledge following treatment. Overall, CBT for sex offenders with ID appears to show some promise in terms of improvements in attitudes consistent with sexual offending, sexual knowledge, victim empathy and sexual arousal, however, the lack of a control group makes it particularly challenging to conclude whether these improvements are due to the treatment itself or whether they would have taken place anyway in the absence of treatment.

Treatment effects

Research suggests that treatment effects vary in proportion to the severity of offences committed, on a continuum ranging from 'situational child molesters' to 'predatory paedophiles and rapists' (Maletzky& Steinhauser, 2002). In the papers reviewed the lack of disaggregation of outcome data for different types of offenders leaves the data difficult to interpret.

It is important to note that treatment and offender characteristics can have a moderating effect on the relationship between sex offender treatment and outcomes. For example treatment characteristics such as treatment mode and setting, as well as type of treatment delivery (group or individual) and offender characteristics such as offence type, age, motivation for treatment and level of risk have been acknowledged to have a moderating effect on this relationship (Lösel & Schmucker, 2014).

A number of the included studies' participants received more than one treatment approach simultaneously i.e. both pharmacological and psychological interventions. Likewise a large proportion of sex offenders with ID either receive input from ID services or reside in residential accommodation, where staff are able to provide supplementary support alongside the primary intervention (Courtney& Rose, 2004). It would not be feasible or ethically appropriate to discontinue this additional input during the treatment programme which, therefore, makes evaluating the effectiveness of individual treatment components more challenging. Research should seek to provide sufficient detail on any additional treatment input or use matched controls, yet in reality this may be difficult to achieve and impractical.

Findings from SOTSEC-ID (2010), and Heaton and Murphy (2013) tentatively suggest that a diagnosis of autism spectrum disorder (ASD) ought to be added to the list of risk factors identified by Lindsay and colleagues (2004) for sexual re-offending in men with ID. Crucially, a diagnosis of ASD was associated with worse outcomes in two domains, 1) more likely to engage in further sexually abusive behaviour (SOTSEC-ID, 2010) and 2) more likely to display significantly poorer pre-, post- and follow-up scores on measures of cognitive distortions when

using the QACSO (SOTSEC-ID, 2010). Further research may benefit from considering the impact of ASD on future re-offending and an individual's treatment needs.

Finally, the location and setting from which participants were recruited varied between studies which may have given rise to heterogeneity as different levels of security would be associated with different severity of offences. Although the majority of treatment programmes were conducted in the community, a number of studies conducted their treatment programmes in different settings, including in the community, low secure and medium secure venues (SOTSEC-ID, 2010). Consequently, this limits the external validity of the studies' results to wider populations and comparisons between studies must be made with caution.

Comparison of findings with previous reviews

Both the narrative review by Courtney and Rose (2004) as well as the systematic review by Ashman and Duggan (2008) highlight the shortage of appropriately controlled treatment programmes for sex offenders with ID. Furthermore, discrepancies between recidivism rates are also evident in a number of studies despite the implementation of longer follow-up periods post treatment (Lindsay *et al.* 2002; Lindsay, Steptoe, Wallace, Haut & Brewster, 2013; McGrath, Livingston & Falk, 2007). Thesefindings are consistent with this review and confirm the need for more high quality research with as wide a follow-up period as possible, so that a more rigorous evidence-base can be developed.

The current review found evidence to suggest that cognitive distortions significantly decrease following treatment which appears to be in line with the previous review by Courtney and Rose (2004). They reported that treatment was successful in changing participants' attitudes towards offending. Additionally, previous research has found significant improvements in participants' sexual knowledge following psychologically based sexual offender treatment programmes (Lindsay *et al.* 1992), which is also consistent with the present review. The time spent in treatment appears to be a key factor in terms of progress and future

reoffending rates. A greater length of time in treatment is associated with superior improvements in cognitive distortions and reduced re-offending rates over a longer period of time (Courtney & Rose, 2004; Keating, 2000; Lindsay *et al.* 1998a). Day (1994) reported better outcomes when the length of treatment was over two years; as did Lindsay and Smith (1998a) who reported significantly better outcomes for offenders treated over a two-year period in comparison to those treated for one year. While a number of longer-term evaluations have been conducted on sexual offender treatment programmes for non-intellectually disabled populations (6 year follow-up; McGrath *et al.* 2003 to 10 year follow-up; Zgoba *et al.* 2003), this appears not to have been the case for the included studies in this review, with the exception of Heaton and Murphy's (2013) follow up of the SOTSEC-ID (2010) study which used a relatively long follow-up period for this field of research. They followed up some of their participants for over 8 years, although the mean length of follow-up was just over 3 years. Furthermore, it may go some way to explaining why no significant improvements in cognitive distortions were found post- treatment in the in the shortest treatment programmes (7 and 4 months) (Craig *et al.* 2006; Rose *et al.* 2002).

Methods

There were difficulties recruiting sufficient numbers of eligible participants. Studies tended to exclude participants if their cognitive impairment was considered too great to be able to benefit from participating in the study i.e. lacked sufficient verbal skills. The heterogeneity of participants across the studies constituted a further methodological concern given the limited number of eligible participants i.e. sex offenders with ID undergoing psychological treatment. Furthermore, they differed on a range of dimensions, for example level of security, type of service, their legal status, co-morbid conditions and previous offending histories, making comparison between studies morechallenging. In addition, a wide range of categories of offenders were considered, for example all three SOTSEC-ID studies included rapists, stalkers and exhibitionists, as well as those whose index behaviour constituted indecent phone calls.

Interestingly, of the included studies, the limited number of controlled comparisons makes it difficult to ascertain whether the treatment effects were indeed due to the treatment programme itself. **Had we constrained the inclusion criteria to adequately controlled trials there would have been no studies, at best one, to review**. Whilst one included study had proposed to collect data for 'waiting list' controls, insufficient data was ascertained therefore these findings were not documented in the paper (SOTSEC-ID, 2010). Keeling and colleagues (2007) were one of the few studies to include a comparison group with two groups of mainstream and special needs participants, however, there was no follow-up data for the mainstream group making comparisons in offending behaviour difficult to draw.

The majority of studies used standard assessment methods for the classification of ID. Studies used a variety of approaches to assist with the classification including the WAIS-III/-R, WASI, BPVS, VABS as well as the classification of 'in receipt of ID services'. Though the majority of studies reported an average full-scale IQ for participants of below 70, there were still a number of participants included in the studies who did not fulfill the requirements for an ID and were not within the standard error of an IQ 70, but were included since they were in receipt of ID services or were found to be suitable as they were illiterate. While it is true that the cut off point for ID, an IQ under 70, is an arbitrary distinction, the overrepresentation of people with borderline levels of intelligence within study samples may result in findings that do not accurately reflect the ID population. Furthermore, the heterogeneity of methods used to classify ID may have hampered the comparability of research. Future research should seek to assess both impairments in intellectual and adaptive functioning, as measured by a Wechsler-based IQ measure and the VABS, which would allow for easier comparisons between research studies (McBrien, 2003).

Included studies varied significantly in their operational definition of sexual re-offending andthe methods used to measure it. Many of the studies used a broad definition of sexual re-offending in order to capture all known sexually abusive behaviours and those who might be at

risk of offending, hence providing a more comprehensive overview by not only relying on official re-arrest and reconviction data (Heaton & Murphy, 2013; Rose *et al.* 2002; SOTSEC-ID, 2010). On the contrary four studies (Craig *et al.* 2006; Craig *et al.* 2012; Keeling *et al.* 2007; Lindsay *et al.* 1998a) consulted only official records and solely reported charges and reconvictions. The difficulty with relying on official sources to measure further sexual offences is that they are known to underestimate re-offending rates (Falshaw *et al.* 2003). Likewise, a review by McBrien and Murphy (2006) found that carers may not even report alleged sexual offences, such as rape, if they had been committed by an individual with ID. The inclusion of unofficial sources may therefore provide a more accurate representation of sexual reoffending to supplement official records (Marques *et al.* 1994). This disparity in the definition and measurement of re-offending during the intervention and follow-up period not only introduces further heterogeneity into the results but also makes it very challenging to make accurate comparisons across studies to compare effectiveness. It is likely to have contributed to the striking differences between sexual re-offending rates between studies, during the group, in the immediate follow-up period and in the extended follow-up period.

A vast array of psychometric scales have been used in the literature to measure changes in constructs closely related to sexual offending i.e. questionnaires to measure cognitive distortions, sexual knowledge or victim empathy. It is crucial that the selected measures are both reliable and valid for the intended population, in this case sex offenders with ID. The studies considered in this review, used a range of ID and non-ID specific measures. One of the included studies used the SOSAS which tended to show less significant changes than the QACSO, both of which were used to measure changes in cognitive distortions. Although the reasons for these findings were not entirely clear, some of the authors suggested that SOSAS may be a less sensitive measure and the double negative questions may have been difficult for individuals with ID to comprehend (SOTSEC-ID, 2010).

The follow-up periods in the included studies ranged from 6 months to 6.5 years, which will inevitably have an effect on the number of further sexual offences recorded. Likewise, the length of treatment programme varied significantly between studies, ranging from 7 to approximately 36 months.

It is important to note that in all of the SOTSEC-ID studies participation was mixed and included both those who had volunteered and those that were legally required to attend treatment under a probation order, while other studies' participants had all attended voluntarily (Rose *et al.* 2012). Lösel and Schmucker (2005) have found somewhat better outcomes with voluntary sex offender treatment compared to mandatory participation.

Using a group treatment approach was the most common way of delivering CBT to sex offenders, and in comparison, there appears to be little experimental evidence for the use of individual CBT with this group of offenders. There do appear to be significant benefits to delivering CBT to sexual offenders in a group setting. Ware and colleagues (2009) propose that group treatments are at least as effective as individual treatments. Groups offer a supportive network to the individual which may help to facilitate the sharing of problems through group discussions. Other group members also play a necessary role in the therapeutic process by promoting change to cognitive distortions and denial through peer challenges (Barker& Beech, 1993). They also provide the opportunity to address specific criminogenic needs of the sexual offender population which would not necessarily be available in individual treatment. For example helping to develop social skills, providing the opportunity to form appropriate relationships with other group members and the possibility of feeling like a valued member of the group, thereby improving the individual's self-esteem (Beech & Fordham, 1997). Improvement in some of these key areas may help to facilitate a reduction in re-offending (Thornton *et al.* 2004). Furthermore, on a practical level group treatment by its very nature is regarded as more convenient and cost-effective (Di Fazio *et al.* 2001). Alternatively, a meta-analysis by Schmucker and Lösel (2012) suggested that treatment programmes delivered in a

group format were less effective than programmes that included some individual treatment sessions or those that were entirely individual. This finding suggests that some element of differentiation is necessary as per the specific needs of the offender. The quality of treatment delivery and nature of the therapeutic alliance between clinician and participant has been found to have a positive impact on the treatment outcomes of offending behaviour programmes (Kozar & Day, 2012). Only one study in this review anticipated that staff would act as therapeutic change agents, however, they did not report data on this issue in terms of their impact of their role on treatment outcomes and therefore it could not be addressed in the qualitative analyses (Rose *et al.* 2012).

The effect of supervision on outcomes can have a tendency to be overlooked by researchers. It is difficult to make valid comparisons in settings where restrictions meanthat there is little opportunity to reoffend and it is therefore difficult to draw comparisons of the effectiveness of sex offender treatment programmes. The issue of supervision can occur anytime during a study; Murphy and colleagues (2007) reported that up to 1 out of 8 participants needed to be moved to a placement with higher levels of supervision, due to continued engagement in sexually abusive behaviours. The movement between levels of security is a valid measure particularly to those moving to placements with lower levels of security (Murphy et al. 2007). The other remaining studies did not examine this outcome measure. The level of daily supervision and support offered is likely to affect future recidivism, for example a study by Craig *et al.* (2006) reported that for those in the study receiving 24 hour supervision there was no evidence of reoffending, whereas studies where there is little or no supervision often reported higher reoffending rates (Lindsay et al. 1998a; Lindsay & Smith, 1998). In the studies that have been written to date interpretation of results needs to take this into account as **it is likely to limit** what can be inferred from the findings.

Conclusion

The search for effective psychological interventions for sex offenders with an ID is an important area of concern, one which cuts across different groups of people, namely clinicians, policy makers and those sex offenders in receipt of care, each of whom will have different vested interests in the efficacy of the treatment.

Given the limited evidence base identified in this review, professionals face an ethical dilemma. They are obliged to offer treatment to sex offenders with an ID to reduce the likelihood of further re-offending, in some cases this treatment is even mandatory, yet they lack a solid evidence base on which to base their decisions.

This field suffers from a dearth of high quality evidence and without such evidence unequivocal conclusions cannot be drawn about the effectiveness of treatment for sex offenders with an ID. As a result previous reviews have questioned whether it is even ethical to be providing treatment to such a vulnerable and high-risk population (Ashman & Duggan, 2008; Kenworthy *et al.* 2008; Dennis *et al.* 2012).

The use of stricter experimental designs, in particular RCT evidence is imperative to strengthening the evidence base in this field and will enable clinicians to select interventions based on sound methodological evidence as opposed to evidence from non-ID populations and clinical expertise (Ashman & Duggan, 2008). In practice, however, it is clear that this area of health and social care is fraught with a host of methodological complexities and ethical concerns.

Notwithstanding these difficulties, it is crucial that the search for effective sexual offender treatments for those with an ID continues, as the problem is not one that will dissipate. It will continue to remain a concern to clinicians and criminal justice agencies. Evaluating the effectiveness of treatments for different types of sex offences or across different treatment sites may be a fruitful area of future research since research has tended to focus on them as one homogeneous group. In fact, the heterogeneity of this group of offenders is clear and by virtue

of this different treatments may be necessary to fit their different criminogeneic needs (Endicott, 1991). The additional needs of sex offenders with ID, for example for those who have ASD, in relation to risk of re-offending is also worthy of further investigation.

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Figures and Tables

Population/Problem	Intervention	Comparison	Outcome
Offending: Sex Off exp Rape/ exp Child Abuse/or exp Sexual Abuse exp Paraphilias/or paraphili$.mp. exp Pedophilia/or p?edophil$ or child molest.mp. (exhibitionism or exhibitionist).mp. (indecent adj3 (exposure or assault)).mp. (sadis$ or frotteur$).mp. (rape or rapist).mp. voyeur$.mp.	(cognitive therap$ or cognitive behavio?ral therap$ or cbt).mp. exp Behavior Therapy/ exp Cognitive Therapy/ exp Psychotherapy/ (psychological adj3 (therap$ or interv$ or treat$)).mp. (psychoanalytic$ therap$ or psychodynamic therap$ or psychotherap$).mp. (group therap$ or behav$ therap$).mp.		Reoffending

necrophil$.mp. child abus$.mp. (sex$ adj2 (assault$ or abus$ or pervert$ or inappropriate$)).mp.			
Diagnosis of intellectual disability: exp Intellectual Disability/ exp Developmental Disabilities/or developmental dis$.mp. (intellectual dis$ or learning dis$ or learning diff$).mp. (mental retardation or mental impairment).mp. (mental handicap or mental subnormality).mp.			

Figure 1 PICO Search terms

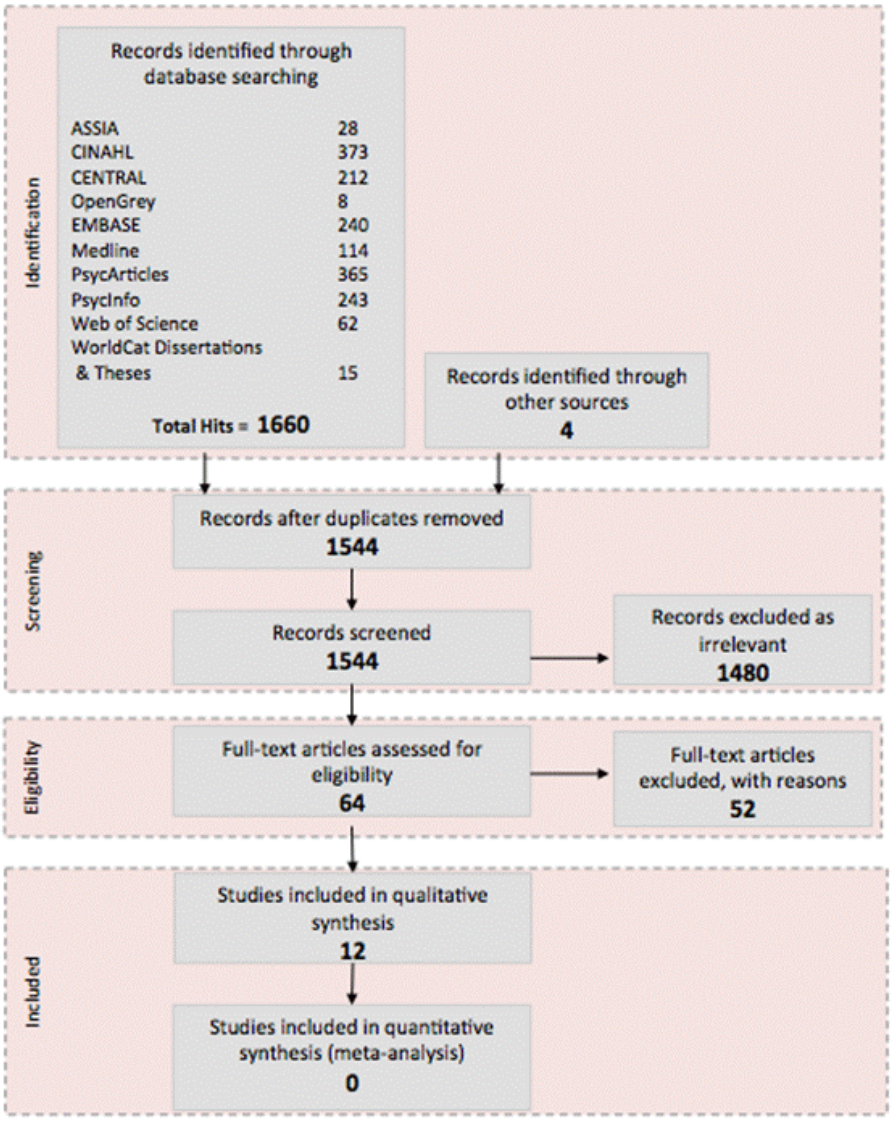

Figure 2 Search strategy and results

Table 1 Included studies meeting eligibility criteria

Study	Purpose	Study Setting	Study Population	Findings	Measures/Intervention
Craig, Stringer & Moss (2006)	To critically evaluate a community-based treatment programme for sexual offenders with learning disabilities.	UK; community-based treatment programme	**Participants:** Sexual offenders with ID diverted from the CJS because of their level of cognitive functioning **Sex:** all male **Age:** mean age 24.8 years (SD 7.46 years, range of 18 to 39 years) **Number completing:** n=6 **Ethnicity**: not known **Inclusion Criteria**: sexual offenders, in receipt of local NHS learning disability services **Exclusion Criteria:** not stated **Recruitment:** known to the local NHS learning disability services – no further details on recruitment **Baseline Characteristics:** 4/6 committed 1 previous sexual offense, 2/6 committed 2 previous sexual offenses. One participant's IQ had not been formally assessed and it was merely approximated at 60.	**Baseline Psychometric Measures**: Assessed using both the Wechsler Adult Intelligence Scale – Third Edition (WAIS-III) & Wechsler Abbreviated Scale of Intelligence (WASI). Mean IQ score 73 (range 66 – 80). **Measures completed pre/post treatment:** - Multiphasic Sex Inventory (MSI) - Coping Response Inventory (CRI) - Psychiatric Assessment for Adults with a Developmental Disability (mini-PAS-ADD) - Vineland Adaptive Behaviour Scales (VABS) **Therapeutic intervention:** Group CBT, 2 hours once a week for 7 months. Information presented in a variety of formats. 2 facilitators (one male/one female) – consultant forensic psychologist & trainee forensic psychologist. **Duration of Treatment:** 7-month treatment programme **Length of follow up:** 12-month follow up	**Further Offences:** - 0% charged/reconvicted for sexual offences during follow-up **Psychometric pre/post measures:** No significant improvements were noted for cognitive distortions following treatment Only significant differences were found for the VABS – socialization domain ($z = -2.201$, $p<0.05$) & play and leisure time scale ($z= -2.201$, $p<0.05$) following treatment. MSI scores – trend for improvements in admitting sexual interests and sexual knowledge, but not significant.
Craig, Stringer & Saunders (2012)	To critically evaluate a community-based treatment programme for sexual offenders with learning disabilities.	UK; community-based treatment programme	**Participants:** Sexual offenders with ID serving probation orders or prison licenses following a contact sexual offence **Sex:** all male **Age:** mean age 35 years (range of 19 to 60 years) Number completing: n=14 **Ethnicity:** not known **Inclusion Criteria:** sexual offenders with at least one conviction for a contact sexual offence, full scale IQ between 55 – 79, aged between 18-60 years, suitable for cognitive group therapy. **Exclusion Criteria:** mental health diagnosis preventing them from benefiting from the therapy or significant deterioration in their mental health that would disrupt participation in the group, demonstrate violent/threating behaviours, break confidentiality or if they miss more than 40% of the group sessions. **Recruitment:** not stated **Baseline Characteristics:** 11/14 participants lived in the community & 3/11 lived in probation-approved hostels. 93% (13) convicted of sexual contact with a child, 7% (1) convicted of rape of an adult. 38% met criteria for autism	**Baseline Psychometric Measures**: Assessed using both the Wechsler Adult Intelligence Scale – Third Edition (WAIS-III) & Wechsler Abbreviated Scale of Intelligence (WASI). Mean IQ score 73 (range 66 – 80). **Measures completed pre/post treatment:** - Multiphasic Sex Inventory (MSI) - Coping Response Inventory (CRI) - Psychiatric Assessment for Adults with a Developmental Disability (mini-PAS-ADD) - Vineland Adaptive Behaviour Scales (VABS) **Therapeutic intervention:** Group CBT, 2 hours once a week for 7 months. Information presented in a variety of formats. 2 facilitators (one male/one female) – consultant forensic psychologist & trainee forensic psychologist. **Duration of Treatment:** 7-month treatment programme **Length of follow up:** 12- month follow up	**Further Offences:** - 0% charged/reconvicted for sexual offences during follow-up **Psychometric pre/post measures:** No significant improvements were noted for cognitive distortions following treatment Only significant differences were found for the VABS – socialization domain ($z = -2.201$, $p<0.05$) & play and leisure time scale ($z= -2.201$, $p<0.05$) following treatment. MSI scores – trend for improvements in admitting sexual interests and sexual knowledge, but not significant.

Heaton & Murphy (2013)	To explore the re-occurrence of sexually abusive behaviour (SAB) throughout a longer follow-up period from a previous study and the potential factors associated with this	UK; multi-site of varying levels of security (both community and secure settings)	**Participants**: men who had taken part in the original treatment study (SOTSEC-ID, 2010) **Sex**: all male **Age**: mean age 44 years (SD 12.0 years, range 22 to 68 years) **Number completing**: n=34 **Ethnicity**: 85% white British **Inclusion Criteria**: had to have completed the first treatment study, history of SAB, input from ID services/diagnosis of ID and consented to take part in the research. **Exclusion Criteria**: significant incomplete data from the first study, currently experiencing severe mental health problems & completion of treatment was less than 9 months before this study **Recruitment**: all participants were those men who had taken part in the original study (SOTSEC-ID, 2010) **Baseline Characteristics**: All had used learning disability services; many had dual diagnoses (21% had diagnoses of autism spectrum disorder (ASD); 12% mood disorder diagnoses; 12% schizophrenia diagnoses; 9% personality disorder; 6% anxiety disorder). 77% of men had engaged in previous SAB before the index set . 65% of men contact abusers & 35% of men non-contact abusers.	**Baseline Psychometric measures**: WAIS-III - mean full-scale IQ was 65 (SD 7, range 52-83) **Measures completed pre/post treatment**: These were recorded pre-group, post-group, 6-month follow-up and the current 'longer-term' follow-up - Sexual Attitude and Knowledge Assessment (SAKS) - Victim Empathy Scale – adapted (VES-A) - Questionnaire on Attitudes Consistent with Sexual Offending (QACSO) - Sexual Offenders Self-Appraisal Scale (SOSAS) **Therapeutic intervention:** Group CBT administered and described in SOTSEC-ID (2010) **Duration of Treatment**: 1 year **Length of follow up**: Mean length of follow-up was 44 months (SD 28.7, range 15-106 months)	**Further offences**: - 0% further non-sexual offences during treatment, 6-month follow-up period or longer-term follow-up. - 32% (n=11) engaged in further SAB since the start of treatment (n=2) convicted & (n=7) interviewed by the police - 24% (n=8) engaged in further SAB since the end of the treatment group **Move to a less restrictive environment**: At follow-up, significantly fewer men lived in secure services (15%) compared to before treatment (24%) and more lived in the community at follow-up (85%) compared to before treatment (76%) - chi square 19.05, p<0.01 Significantly fewer men required an escort when in the community, compared with at the start of the treatment – chi square 13.49, p<0.01 **Psychometric pre/post measures**: **Significant improvements between pre and post groups**: The SAKS demonstrated a significant increase in sexual knowledge (Z = -3.283, p<0.001), the VES-A indicated a significant improvement in victim empathy (Z = -3.384, p<0.001) and the QACSO displayed a significant reduction in cognitive distortions (Z = -4.229, p<0.001). Significant improvements between pre and follow-up groups: The SAKS demonstrated a significant increase in sexual knowledge (Z = -4.440, p<0.001), the VES-A indicated a significant improvement in victim empathy (Z = -3.275, p<0.001) and the QACSO displayed a significant reduction in cognitive distortions (Z = -4.228, p<0.001). **Significant improvements between post and follow-up groups**: The SAKS displayed a significant increase in sexual knowledge (Z= -3.286, p<0.001). **Variables associated with further SAB**: Those with a diagnosis of ASD were more likely to have demonstrated SAB (chi-square 6.7, p< 0.01)

Keeling, Rose & Beech (2007)	To examine treatment outcomes for sexual offenders with special needs to those without special needs	Australia; correctional centre	**Participants**: G1 - participants with special needs & G2 - participants without special needs **Sex**: all male **Age**: G1 mean age 37.82 (SD= 6.85) range 25-46; G2 mean age 45.73 (SD=13.73) range 23-67. **Number completing**: n=22; G1 = 11 & G2 = 11 **Ethnicity**: G1 – all Australian, G2 – 10 Australian & 1 from a non-English speaking background **Inclusion Criteria**: not stated **Exclusion Criteria**: not stated **Recruitment**: the offenders with special needs were matched with offenders without special needs on 4 variables: risk category, sex of victim, offender type & age of participant **Baseline Characteristics**: G1 – 46% (n=5) single, 36% (n=4) divorced/separated, 18% (n=2) married. Using the Static-99 73% (n=8) were classified as high risk & 27% (n=3) moderate risk. 3/11 with acquired brain injury. 5 child, 4 adult & 2 adult and child sexual offences. G2 – 54.5% (n=6) divorced/separated, 45.5% (n=5) single. Using the Static-99 73% (n=8) were classified as high risk & 27% (n=3) moderate risk. 5 child, 4 adult & 2 adult and child sexual offences.	**Baseline Psychometric measures:** G1 - WAIS-III - mean IQ was 71 (SD= 6, range 63-83) G2 – IQ not measured **Measures completed pre/post treatment**: Victim Empathy Distortion Scale (QVES) Relationship Scales Questionnaire (RSQ) Social Intimacy Scale (SIS) UCLA Loneliness Scale – Revised (UCLA-R) Paulhus Deception Scale **Therapeutic intervention**: Inpatient group CBT. Split into three groups 1) for those with special needs 2) moderate and 3) high risk offenders. **Duration of Treatment**: not stated **Length of follow up**: Only G1 were followed up for an average of 16 months	**Further Offence**s: - 0% charged/reconvicted for sexual offences since the first offence until follow-up for G1 **Psychometric pre/post measures** Significant increase in victim empathy on the QVES pre and post treatment & the preoccupation subscale of the RSQ for the special needs group. Overall fewer participants from the special needs group made progress on all cognitive outcomes in comparison to the mainstream sex offenders with the exception of the SIS and RSQ preoccupied subscale
Lindsay, Neilson, Morrison & Smith (1998a)	To evaluate a community-based treatment programme for sexual offenders with learning disabilities convicted of sexual offences against children	UK; community-based treatment programme (probation)	**Participants:** male sexual offenders with an ID receiving treatment whilst on probationary sentences **Sex:** all male **Age:** mean age 31.83 (range 24-52) **Number completing:** n=6 **Ethnicity:** not stated **Inclusion Criteria:** not stated **Exclusion Criteria:** not stated Recruitment: not stated Baseline Characteristics: All men were convicted of a sexual offence against a child and were required to attend treatment as part of their probation order.	**Baseline Psychometric measures:** WAIS-R - mean IQ was 66.5 (range 62-71) **Measures completed pre/post treatment:** QACSO **Therapeutic intervention:** Group CBT with weekly sessions for approximately 2.5 hours. Split into two groups G1 for offences against boys, G2 for offences against boys. Covering topics such as responsibility for the offence, denial of intention, harm to the victim, relapse prevention and risk issues **Duration of Treatment:** varied as individuals attended for the length of their probation Length of follow up: Varying lengths but all participants were followed up for at least 4 years.	**Further Offences:** - 0% charged/reconvicted for sexual offences since the first offence until follow-up. Although they were not confident that one participant hadn't reoffended. - 9% (n=1) further non-sexual offences during follow-up **Psychometric pre/post measures** Few significant differences between the groups were identified post treatment. The Reliable Change Index showed that in both groups the highest numbers of participants demonstrating change was on the QVES. Offenders without learning difficulties made more progress than offenders withoutspecial needs, apart from on the SIS & RSQ.

Lindsay, Marshall, Neilson, Quinn & Smith (1998b)	To evaluate a community-based treatment programme for sexual offenders with learning disabilities convicted of exhibitionism	UK; community-based treatment programme (probation)	**Participants:** male sexual offenders with an ID receiving treatment whilst on probationary sentences **Sex:** all male Age: mean age 23.75 (range 25-40) **Number completing:** n=4 **Ethnicity:** not stated **Inclusion Criteria:** not stated **Exclusion Criteria:** not stated **Recruitment:** not stated **Baseline Characteristics:** All men were convicted of exhibitionism and were required to attend treatment as part of their probation order.	**Baseline Psychometric measures**: WAIS-R - mean IQ was 65 (range 64-71) **Measures completed pre/post treatment**: Attitudes Toward Exhibitionism Questionnaire Therapeutic intervention: Group CBT with weekly sessions for approximately 2.5 hours. Covering topics such as responsibility for the offence, denial of intention, victim awareness, behaviour consistent with re-offending **Duration of Treatment**: varied as individuals attended for the length of their probation **Length of follow up**: Varying lengths but all participants were followed up for at least 5 years	**Further Offences:** - 0% charged/reconvicted for sexual offences during follow-up of at least 6 years after their initial conviction **Psychometric pre/post measures** No statistical analyses were conducted on the questionnaire scores but overall the paper reports that there have been some reductions in attitudes towards exhibitionism post treatment. Possible relationship between length of treatment & extend of cognitive change is discussed.
Lindsay & Smith (1998)	To compare the effectiveness of treatment for sexual offenders with ID who have been given either a sentence of one year or two years' probation	UK; community based treatment for individuals on probation	**Participants:** male sexual offenders with an ID receiving treatment whilst on probationary sentences **Sex:** all male **Age:** Group 1 – mean age 35.7 years & Group 2 – mean age 32.8 years **Number completing:** n=14 (group 1=7 & group 2=7) **Ethnicity:** not stated **Inclusion Criteria:** sexual offender, diagnosis of an ID and currently on a 1-year or 2-year probationary sentence **Exclusion Criteria:** not stated **Recruitment:** not stated **Baseline Characteristics:** Group 1 – 3/7 convicted of offences against children, 4/7 indecent exposure. Group 2 – 5/7 convicted of offences against children, 2/7 indecent exposure	**Two groups:** Group 1 – 1-year probation order Group 2 – 2-year probation order **Baseline Psychometric Measures:** Wechsler Adult Intelligence Scale – Revised (WAIS-R) Group 1 – Mean full-scale IQ 67.7 & Group 2 – Mean full-scale IQ 69.2 **Measures completed pre/post treatment:** - OACSO **Therapeutic intervention:** Group cognitive treatment approach – groups of 4, 2.5 hours weekly. First hour – each individual's week was reviewed, next 30 minutes – informal chat & last hour – addressed issues of denial, minimisation, responsibility for the offence, harm to the victim, behaviour consistent with offending and confidentiality. Duration of Treatment: 1 year or 2 years Length of follow up: At least 2 years after probation finished	**Further Offences:** Group 1 – 28.57% (n=2) charged with crimes similar to their previous sexual convictions & n=2 strongly suspected of re-offending. Total 57.14% Group 2 – 0% re-convicted or 0% suspected of re-offending **Psychometric pre/post measures:** The questionnaire was delivered 4 times before group treatment (averaged to provide a baseline) & then monthly up until the end of probation. - Significant reductions in cognitive distortions (QACSO) across all participants during treatment - Significant difference between the 2 groups' attitudes post treatment: 1 year probation order return to pre-group cognitive distortions; 2 year probation order maintained improvements in distortions - 2-way ANOVA: significant main effect of times between testing ($F=233.6$, $p<0.001$, significant main effect between groups ($F=6.4$, $p<0.05$) & significant interaction ($F=6.54$, $p<0.05$)

Murphy, Powell, Guzman & Hays (2007)	To evaluate a group CBT programme for men with ID and sexually abusive behaviour	UK; two south London boroughs; community-based treatment programme	**Participants:** patients within ID services that had displayed sexually abusive behaviour **Sex:** all male **Age:** mean age 38.8 years (SD=14.6) **Number completing:** n=8 (10 sets of data as 2 men completed the group twice) **Ethnicity:** not known **Inclusion Criteria:** SAB (either conviction or clear evidence they had engaged in the behaviour) &a patient within the two south London boroughs' ID services. **Exclusion Criteria:** SAB that was unusual but not illegal e.g. cross-dressing or worrying e.g. starring at children, too disabled to benefit from the treatment i.e. insufficient verbal skills **Recruitment:** professionals within the 2 boroughs' ID services were asked to refer men who fit the inclusion criteria (total popn. approx. 420,000). In total 50 men were referred, but 35 did not fit the inclusion criteria. **Baseline Characteristics:** 2 in secure hospital services, 2 in residential homes, 1 in an adult placement, 2 lived with family, 1 lived alone. 4 had a diagnosis of ASD, 2 had schizophrenia, 2 had mood disorders, and 2 had personality disorders. Index SAB occurring most recently to the start of the group: 1 masturbates on victim, 2 masturbate in public, 2 rape/attempted rape, 2 sexual assault, 1 indecent exposure, 1 stalking, 3 other (indecent phone calls/letters).	**Baseline Psychometric Measures:** - WAIS-III - Mean full-scale IQ for 8 men was 67 (SD=9, range 52-83) - Adaptive Behaviour (VABS) composite mean age equivalent score 93 months (SD 47 months) - Receptive Language (British Picture Vocabulary Scale-II; BPVS-II) mean age equivalent score 116 months (SD 50 months, range 40=192 months, n=6) **Measures completed pre/post treatment:** SABs loggedduring the period of the group & 6-months following the end of the group - SAKS - QACSO - SOSAS - VES-A **Therapeutic intervention**: Group CBT, 2 hours once a week for 1 year. Men split into 2 treatment groups but both received the same programme and information. **Duration of Treatment:** 1 year treatment programme **Length of follow up**: 6-month follow-up	**Further Offences:** 0% further non-sexual offences during the running of the group 12.5% (n=1) further sexual offence during the running of the group (non-contact offence). 0% further sexual convictions at 6-month follow-up, but 37.5% (n=3) had engaged in further SAB **Psychometric pre/post measures:** Significant improvements between pre and post group (n=10): The SAKS demonstrated a significant increase in sexual knowledge ($Z = 2.31$, $p<0.02$), as did the VES-A which found a significant increase in victim empathy (VES-A – $Z = 2.31$, $p<0.02$). When both men's scores who'd repeated the group were excluded QACSO pre/post scores showed a significant improvement ($Z = 2.02$, $p<0.05$).
Rose, Jenkins, O'Connor, Jones & Felce (2002)	Pilot project to evaluate a group CBT programme for men with ID and who are alleged to have sexually offended	UK; community-based treatment programme	**Participants:** individuals with mild to moderate levels of ID who had been referred to a specialist ID psychology dept. within the NHS. **Sex:** all male **Age:** mean age 32 years (range 17-43) **Number completing:** n=5 **Ethnicity:** not known **Inclusion Criteria:** Alleged to have sexually offended & had been referred to the specialist ID psychology service from a variety of sources **Exclusion Criteria:** not stated **Recruitment:** In total 20 men were identified as suitable. Some were not felt to be appropriate for the group due to their cognitive ability and others refused to attend the group, so 6 were assigned to the group. 1 person dropped out after the first session. **Baseline Characteristics:** 2 lived in a private residence, 1 in residential homes, 1 lived with family, and 1 lived alone. 1 had a diagnosis of Asperger's Syndrome. Index SAB occurring most recently to the start of the group: 3	**Baseline Psychometric Measures:** - WAIS-R - Mean full-scale IQ was 63.2 (range 54-71) **Measures completed pre/post treatment:** SABs were monitored throughout the group & follow-up - Nowicki-Strickland Scale (NS) - QACSO - Sexual behaviour and the law scale (SBL) - VES **Therapeutic intervention:** Group CBT, 2 hours once a week for 16 weeks. 2 facilitators led the group (1 male & 1 female). **Duration of Treatment**: 16 week group intervention **Length of follow up:** 6-month follow-up	**Further Offences:** 0% further sexual offences during the running of the group or 6 month follow-up **Psychometric pre/post measures:** Significant improvements between pre and post group: The NS locus of control demonstrated significant increases following the group (t, -19.0; SD, 0.5, $p <0.000$) i.e. a more external locus of control.

			inappropriate sexual behaviour with children & adults, 1 sexual assault & 1 sexual offence against a child.		
Rose, Rose, Hawkins & Anderson (2012)	Describe and evaluate a sex offender treatment programme, incorporating adapted CBT approaches and direct staff support, for individuals with more severe levels of ID in a community setting	UK; adapted community-based treatment programme	**Participants:** Men with ID who had been involved in sexually inappropriate behaviour but hadn't necessarily been charged. **Sex:** all male **Age:** mean age 39.5 years (range 20 to 65) **Number completing:** n=12 **Ethnicity:** not known **Inclusion Criteria:** sex offenders with an ID **Exclusion Criteria:** not stated **Recruitment:** 4 neighbouring community LD services collaborated to recruit and deliver the programme **Baseline Characteristics:** 3/12 primarily offended against children, 9/12 offended against adult women. 2/12 lived in their parent's home, 10/12 lived in supported living or residential care.	**Baseline Psychometric Measures:** - WAIS-III - mean full-scale IQ 58 (range 49-70) **Measures completed pre/post treatment:** - QACSO - NS - Socio-Sexual Knowledge and Attitudes Assessment Tool – Revised (SSKAAT-R) **Therapeutic intervention:** Adapted group CBT programme, 2 hours once a week. Supported by a Speech and Language Therapist. **Duration of Treatment:** 40 weeks **Length of follow up:** 6 month follow-up with QACSO (9/12 participated in) & 18 month follow-up	**Further Offences:** 8.3% (n=1) committed a sexual offence during the 18-month follow-up. **Drop out:** 4 men dropped out/withdrew their consent/re-offended **Move to a more/less restrictive environment:** 1 man who reoffended was moved from a community placement to a low securesetting. 3 men moved to a placement with less supervision **Psychometric pre/post measures:** - Significant improvement in attitudes measured by the QACSO (t=6.177, p<0.001) - Significant change in locus of control (NS) – participants' results suggest a more external view following treatment (t= -2.447, p<0.037) - Significant increase in sexual knowledge following the group as measured by the SSKAAT-R (t= -3.604, p<0.005)
Sex Offender Treatment Services Collaborative – Intellectual Disabilities (SOTSEC-ID, 2010)	To evaluate the effectiveness of a group cognitive-behavioural approach adapted from the treatment of mainstream sexual offenders (Marshall, Anderson & Fernandez, 1999) in terms of changes to the men's beliefs, attitudes, knowledge and recidivism rates	UK; multi-site across the UK within the NHS; took place across a range of treatment settings: 67.4% community-based venue, 4.3% low secure setting & 28.3% medium secure setting	**Participants:** Men with ID who had a history of SAB **Sex:** all male **Age:** mean age 35.3 years (SD 12.0) **Number completing**: n=46 **Ethnicity:** 86% white British and fewer than 5% from each of the following groups: white Irish, white other, Indian & Afro-Caribbean origin **Inclusion Criteria:** aged between 18-60 years, committed at least one act of SAB, associated with ID services at some stage over the course of their life. Suitable to participate in cognitive therapy, full-scale IQ in mild/borderline range. **Exclusion Criteria:** sexual behaviours classified as unusual but not illegal e.g. cross-dressing **Recruitment:** teams frommultiple sites invited men who met the inclusion criteria to participate in treatment programme **Baseline Characteristics:** 91% of the participants were receiving no treatment for their SAB at the start of the group; 73% were not on any medications at the start of the group. Many had dual diagnoses (21% had diagnoses of ASD; 16.7% mood disorder diagnoses; 9.5% schizophrenia diagnoses; 12% anxiety disorder). 76% of men had engaged in previous SAB before the index set. 69% contact abusers, 31% non-contact abusers	**Baseline Psychometric Measures:** - WAIS-III - Mean full-scale IQ 68 (SD 7.6, range 52-83) - Adaptive Behaviour (VABS) composite mean age equivalent score 10.1 years - Receptive Language (BPVS-II) mean age equivalent score 10.9 years (SD 3.2 years) - Mental Health (mini PAS-ADD) - Autism (DSM IV criteria for autism) **Measures completed pre/post treatment:** - SAKS - VES-A - QACSO - SOSAS **Therapeutic intervention:** Run across 9 participating sites (13 groups in total). Sex Offender Treatment Services Collaborative – Intellectual Disability (SOTSEC-ID; Murphy & Sinclair, 2009) coordinated the research. Run by 1 male & 1 female clinician. Usually led by a clinical psychologist and the remaining team member varied between sites. Each group had one treatment session of 2 hours, once a week. **Duration of Treatment:** 1 year **Length of follow up:** 6 months	**Further offences:** 0% further non-sexual offences during the year of treatment 6.52% (n= 3) engaged in further SAB during the year of treatment (non-contact offences) 0% further non-sexual offences during the 6-month follow-up 8.69% (n=4) engaged in further SAB during the 6-month follow-up. **Drop out:** 92% of men completed the treatment groups, of those who left 2 were due to deteriorations in mental health & 1 committed a further offence **Measures completed pre/post & follow-up:** **Significant improvements between pre and post group:** The QACSO demonstrated a significant reduction in cognitive distortions (t=8.39, p<0.001), as did the SOSAS (t = 2.25, p=0.030). The SAKS demonstrated a significant increase in sexual knowledge (Z= 3.81, p< 0.001) and the VES-A demonstrated a significant improvement in victim empathy (t=3.30, p= 0.002). **Significant improvements between pre and follow-up groups:** The QACSO demonstrated a significant reduction in cognitive distortions (t = 4.18, p<0.001) and the SAKS demonstrated a significant increase in sexual knowledge (Z = 3.60, p< 0.001). **Variables associated with further SAB:** Those diagnosed with ASD were significantly more likely to have re-offended during the follow-up period (Fisher's exact test, P=0.02) and significantly poorer QACSO scores at all 3 time points (p<0.05, p<0.01, p<0.05) & poorer SAKS scores at pre-group (p<0.05) compared to those without ASD.

Singh et al. 2011	To examine the effectiveness of mindfulness-based procedures for adult sexual offenders to control their sexual arousal	USA, forensic mental health inpatient facility for individuals with an intellectual disability	**Participants:** Adult men with an ID who had committed a sexual offence **Sex:** all male **Age:** mean age 27.3 years (range 23-34) **Number completing**: n=3 **Ethnicity:** 1 African American man, 1 Caucasian man, 1 White Hispanic man. **Inclusion Criteria:** not stated **Exclusion Criteria**: not stated **Recruitment:** not stated **Baseline Characteristics:** 2/3 sentenced for aggravated sexual assault on a minor, 1/3 sentenced for incest and rape of a child. None were on psychoactive medication. None were on any psychotropic medication.	**Baseline Psychometric Measures:** It was not stated how the authors came to the conclusion that participants functioned at the mild level of ID. **Measures completed pre/post treatment:** Self-report arousal recorded in daily logs **Therapeutic intervention:** Mindfulness therapy administered by two therapists at 4 formal sessions per week lasting approximately 30 to 60 mins. Treatment was split into 4 phases: 1) baseline which involved selecting & self-rating of arousal on stimulus materials, 2) self-control involving selection of methods to reduce arousal, 3) meditation of the soles of the feet and 4) mindful observation of thoughts. **Duration of Treatment:** 35 to 40 weeks **Length of follow up:** None	**Further offences**: No behavioural observations conducted **Drop out**: N/A **Measures completed pre/post & follow-up**: Overall the daily logs demonstrated improvements to self-control and sexual arousal but not at a clinically significant level. Mindful Observation of Thoughts meditation was more helpful than Meditation on the Soles of the Feet at controlling deviant sexual arousal. Both were more helpful than using other self-control strategies.

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