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PREVENTING SEXUAL ABUSE OF CHILDREN

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Preventing sexual abuse of children: risk assessment and interventions for adults at risk of offending

Preface

Forte, the Swedish Research Council for Health, Working Life and Welfare, is mandated by the Government to fund, communicate and evaluate research, in order to set research priorities and identify knowledge gaps. Forte also has a national responsibility to coordinate research within several specific areas, including children and adolescents. Prevention of sexual offences against children is therefore a highly relevant field of research within Forte's mandate.

Sexual offending against children is generally considered highly repugnant. Although protecting children from sexual abuse has the highest priority in society, previous systematic reviews have disclosed a lack of good quality research on interventions for individuals at risk, partly due to ethical and methodological difficulties associated with conducting randomized controlled trials.

To determine the current state of knowledge in this research field, Forte was directed by the Swedish Government to evaluate interventions for adults who have committed, or are at risk of committing sexual abuse against children, as well as methods for assessing the risk of an adult (re)offending sexually against children. Professor Niklas Långström appraised the scientific literature and authored the report and an external reference group reviewed a draft report and provided feedback.

The current report summarizes the scientific evidence in support of preventive medical and psychological interventions for offenders and adults at risk of committing child sexual abuse, and assessment of sexual recidivism risk. We also highlight scientific uncertainties and research priorities, and list suggestions for policy and practice.

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Summary and conclusions

Sexual abuse of children under 18 years of age, or child molestation, is a substantial global problem with psychological, social, and economic consequences for victims and their families, society, and offenders. Apart from the obvious importance of protecting children from any abuse or neglect, the high prevalence and adverse consequences of child sexual victimization are further strong arguments for the development and provision of effective preventive interventions.

The aim of this report was to assess the current state of knowledge of interventions for adults who have committed, or are at risk of committing, sexual abuse of children; to evaluate methods for assessing the risk that an adult will commit sexual abuse of children, and offender needs and responsiveness to treatment.

To identify research on interventions, literature searches were conducted. Firstly, we repeated and extended the literature search conducted by the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) for a 2011 report on the same topic [1], to include studies published from January 2010 and onwards. Secondly, a separate literature search was conducted to identify studies of the predictive validity of risk assessment methods published from 2010 and onwards. The written report was reviewed by an external reference group.

In accordance with recent systematic reviews, we found that the available research is insufficient to allow conclusions on the effects of interventions targeting individuals at risk, in preventing sexual offending against children. In contrast, systematic reviews suggest that current risk assessment instruments are generally moderately effective at predicting an individual's risk of relapse into sexual offending. However, the ability of instruments to correctly identify those who will not recidivate is much higher than their precision in identifying those who will reoffend sexually. There is also a need for better prioritization, planning, and coordination of treatment research at the international level, including high quality, evidence-generating studies.

Current state of knowledge

- During 2011–2015, the scientific support for interventions used in treating adults who have committed, or are at risk of committing, sexual abuse against children was investigated in several systematic reviews. The overall conclusion is that the evidence is insufficient to determine the effects of such interventions in preventing sexual abuse of children. Unfortunately, most existing studies have major methodological shortcomings and do not provide a clear and consistent picture of the benefits and risks of existing treatments. This conclusion applies to both psychological and medical or pharmacological treatments.
- For adolescents who committed sexual offences on children, limited scientific evidence suggests that multisystemic therapy (MST) prevents recidivism.
- With respect to adults and adolescents who have not committed sexual abuse against children, but are at increased risk of doing so, there is a lack of evidence about the effectiveness of preventive methods.

- Research on sex offender treatment indicates that treatment may be more successful if it follows the risk, needs, and responsivity (RNR) principles for effective correctional system practice.
- Systematic instruments or tools for assessing risk of sexual recidivism in child sexual offenders, for example the Static-99R/Stable 2007/Acute 2007, the Violence Risk Scale: Sexual Offender version (VRS:SO) or the Sexual Violence Risk-20 (SVR-20), have moderately high predictive values or precision in determining the risk of reoffending. The overall precision is better than random, and instruments are better at correctly identifying those at low risk of reoffending risk than those at high risk. None of the modern risk assessment instruments targeting this population is clearly superior to others.

Research priorities

- Research into treatment of individuals at risk of sexual offending is challenging, both ethically and methodologically. However, there is an urgent need for more high-quality research to determine treatment effectiveness and foster the development of interventions in large studies, involving multiple sites and/or several countries. This would require collaboration at an international level. Studies may benefit from using intermediate outcome measures or markers of relapse risk during or after treatment but before the “hard outcome” of actual recidivism in sexual crime.
- The limited support found for MST for adolescents who sexually abused other children needs replication to strengthen the evidence base.
- For adults and adolescents who have not committed sexual abuse of children but are at increased risk of doing so, there is a distinct need to develop effective interventions.
- Independent high-quality research is needed into instruments for assessing the risk of child sexual offender recidivism, preferably on the predictive validity of dynamic or modifiable risk factors, such as those disclosed by the Stable 2007 and the popular structured professional judgment format SVR-20.
- Further work is required to establish a common language for risk communication, which could be broadly applicable across assessment settings (courts, corrections, child welfare) and not necessarily linked to any particular risk tool.

Policy and practice recommendations

- Provide and document comprehensively the content and outcome of individualized treatment for adult sexual offenders against children.
- Systematic use of structured risk assessments with child sexual offenders should help to prioritize offenders for treatment and to target their individual risk factors with appropriate interventions according to the RNR principles for effective offender rehabilitation. Prioritize treatment of child sexual offenders with medium to high estimated recidivism risk, preferably within the framework of a controlled observational study.

- Offer help-seeking, non-offender risk individuals assessment of dynamic risk factors for sexual offending against children and possible contributory mental disorders and provide individualized treatment based on RNR principles.
- Despite the lack of satisfactory national data on predictive validity, the Static-99R/Stable 2007/Acute 2007 and the VRS:SO may also be used, with caution, in Sweden.

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Preventing sexual abuse of children: risk assessment and interventions for adults at risk of offending

1. Introduction

Sexual abuse of children under 18 years of age, or child molestation, is a substantial global problem, with psychological, social, and economic consequences for victims and their families, society, and offenders. Systematic reviews suggest that in the general population, the global averages for men and women reporting sexual abuse before the age of 18 years are 7–8 and 18–20 percent respectively [2,3].

In victimized children, sexual violence is strongly associated with impaired health. However, the inappropriate design of available research often precludes strong conclusions about possible causal effects [4], see also [5] and references therein.

Prevention of child sexual abuse

Aside from the obvious importance of protecting children from any abuse and neglect, the high prevalence and adverse consequences of child sexual victimization are further strong arguments for developing effective preventive interventions. Treatments currently used to prevent recidivism among child molesters are presented in Fact Box 1.

This report addresses the effects of such preventive methods for identifying

- adult perpetrators of child sexual abuse and
- adults at risk of committing child sexual abuse.

The first group includes sexual offenders of children who have been convicted in court or are at least known to authorities. The second group comprises those not known or convicted but at risk of committing child sexual abuse, for example, individuals with a sexual interest in children, but with sufficient concurrent, more or less changeable, protective factors to prevent them from actually committing a sexual offence. Such factors include, but are not limited to, sufficient impulse control, social problem-solving skills, and ability to weigh one's own needs against those of others and visualize the negative consequences for oneself of any sexual or other criminal act. Appropriate social support and the absence of substance use disorder, sexual preoccupation or paraphilic sexual interest, are other examples. However, if the balance of the number and strength of the respective protective and risk factors changes, individuals could still progress to actual sexual abuse of children. Other individuals at increased risk are those who seek out and consume child abusive material/pornography, and of course, those who have actually committed child sexual abuse, but are as yet unknown to the legal system.

Assessment of risk of reoffending

The second focus of this report is assessment of the risk of criminal recidivism among sexual offenders of children (see Fact Box 2). Valid risk assessment methods are important for several reasons. The first is to provide the criminal justice system with estimates of risk of criminal recidivism. Although sexual offenders are more likely to reoffend with a non-sexual than a sexual offence, the risk for sexual recidivism is a primary concern for those managing offenders within correctional and forensic mental health systems. Risk assessment for general criminal and sexual recidivism is fundamental to making placement decisions, including client safety and the security of other inmates, staff, family members and society at large. The evidence-based risk, needs, and responsivity (RNR) principles for effective correctional work [6] suggest also other applications: for matching limited treatment resources to individual offender risk and, with some assessment tools, for identifying the most important causal risk factors and needs to be targeted in individual treatment plans for each offender (Fact Box 3).

Different levels of prevention require adapted measures and interventions

To contextualize the findings and suggestions in this report, it is important to recapitulate the three different levels of preventive intervention, which are intended to conceptualize and guide public health interventions aimed at changing cognitions, attitudes, emotions and behaviour.

The first level is *universal or primary preventive interventions*, directed towards all individuals in broad target groups, for example all young men, all children in primary school etc.

The second level constitutes *selective or secondary preventive interventions*, directed towards risk groups, for instance adults at risk of sexually abusing a child. Individuals in such risk groups are specifically characterized by one or more risk factors: in this example, paedophilic disorder or sexual preoccupation (hypersexual interest) (see Fact Box 4). Recently, a large nationwide study revealed that sexual offending tends to aggregate in certain families [7]. The likelihood of a male being convicted for a sexual crime was four to five times higher in families where a first-degree male relative (father or brother) had been convicted of a sexual offence. Thus another example of a selective intervention could target adolescents who were sexually abused by a parent or sibling, primarily to help the young person cope with victimization, but also to manage, for example, anger, emotional instability, and sexual preoccupation, all of which are risk factors that the victim himself will commit sexual abuse.

The third level is the *indicated or tertiary prevention level*. It represents interventions for those known to have a specific health issue or problem behaviour, such as those known or convicted for child sexual offences.

It is important to note that risk assessment measures and interventions developed and validated for one level cannot be expected to function equally when transferred to another of the three intervention levels. For example, risk assessment instruments developed for the indicated or tertiary prevention level are much less likely to correctly predict an outcome when applied at the (universal) population level. This is primarily related to the expected base rates of a risk factor and outcome, for example child

molestation. This could cause the rate of false negatives to increase substantially, that is, incorrectly classifying as low risk (and hence overlooking) individuals at heightened risk of committing, for example, child sexual abuse.

The opposite situation would apply if a prediction measure developed for the universal or selected level is used at the indicated preventive level. This could lead to false positives, that is, classification of individuals as being at heightened risk when, in fact, they are not.

Interventions developed for the universal and selected levels are generally much briefer and less complex than those for the indicated level and are often provided as treatment programmes. Specifically, this report focuses on interventions and treatment programmes for indicated (known child sexual offenders) and selective levels (those at risk of committing child sexual abuse).

For these reasons, it is important to consider carefully the prevention level for which a specific risk assessment format or intervention was developed.

Fact Box 1. Treatments currently used to prevent recidivism among child molesters.

- Psychological interventions for offenders overall are typically based on behavioural or psychodynamic theories and methods. Behavioural interventions referred to as behaviour modification or -therapy build on classical conditioning or operant learning theory, and focus explicitly on changing behaviour.
- Psychodynamic interventions for sexual offenders stem from a common root in psychoanalytic theory but have less often been tested in robust trial designs.
- Cognitive behavioural therapeutic (CBT) approaches, sometimes combined with relapse prevention components, dominate psychological interventions for adult child molesters. CBT methods are intended to reduce explicit problem behaviour by improving buffering or coping behaviours or social skills. The latter is achieved by changing underlying thoughts, attitudes, emotions, and physiological sexual arousal. CBT formats could involve elucidating links between individual offender thoughts, feelings and actions related to offending behaviour. Other treatment foci include modification of misperceptions, irrational beliefs and reasoning biases associated with sexual offending.
- Relapse prevention techniques aim to help offenders identify and avoid high risk situations; again by monitoring thoughts, feelings and behaviours associated with offending and promoting alternative ways of coping with deviant sexual thoughts and desires.
- In Sweden, the major treatment provider is the Swedish Prison and Probation Service (SPPS), which uses a national, medium-risk sexual offender treatment programme, developed by the Canadian Correctional Services and adapted, with minor modifications, for Swedish conditions.

This programme is primarily administered in a group format, but also includes individual sessions. Structured interventions against common co-occurring problems such as substance misuse and attention-deficit/hyperactivity disorder (ADHD) are often added for clients are required.

- In non-SPPS outpatient settings, more eclectic interventions are often used. This could involve some focus on offender childhood trauma, victim empathy, or poor self-esteem. Associated psychiatric morbidity is often addressed.
- Child molesters may be prescribed medications which lower sexual drive or libido, including testosterone-suppressing hormonal drugs such as progestogens, antiandrogens, and gonadotropin-releasing hormone (GnRH) analogues. Non-hormone drugs which affect libido through other mechanisms but also modulate other risk factors such as emotional instability, obsessions/compulsions and aggression include selective serotonergic reuptake inhibitor antidepressants (SSRIs) and antipsychotics.
- Androgen-lowering medications are used relatively seldom. The major exception is for sexual offenders receiving healthcare-based treatment from providers such as forensic psychiatric care and the outpatient services related to the Preventell national helpline against problematic sexuality (see below).

Source: The Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) [1]

Fact Box 2. Assessment of risk of sexual recidivism.

- Sexual offenders commit new sexual offences less frequently than popularly believed; about ten percent of imprisoned sexual offenders in Sweden are reconvicted for a new sexual offence within ten years of release from prison. This also applies to sexual offenders of children. Systematic reviews of the international literature suggest similar but slightly higher figures.
- Although the undisclosed figures are high, international studies based on anonymous self-reports and extended follow-up suggest that it is highly likely that the average sexual offender will never commit another sexual crime.
- On average, sexual offenders recidivate more often by committing non-sexual violent crime than new sexual offences.
- The strongest risk factors (albeit only weak to moderately strong) for sexual recidivism among known sexual offenders include *sexuality-related* risk factors: sexual deviance or paraphilic interest (see Fact Box 4), preoccupation with sex or hypersexuality, and impulsivity as well as generally antisocial attitudes and lifestyle.

- Known risk and protective factors are systematically combined into structured risk assessment instruments to improve prediction and associated decision-making and treatment planning.
- For adult sexual offenders, risk assessment instruments which, in addition to static or unchangeable risk factors, also consider dynamic or changeable risk factors (stable and acute), are increasingly being used in Sweden and internationally. The most common are the Static-99R in combination with Stable 2007 and Acute 2007, the Violence Risk Scale: Sexual Offender version (VRS:SO) and the Sexual Violence Risk-20 (SVR-20).

Source: The Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) [1] and Hanson et al. (2005) [8]

Fact Box 3. Risk-need-responsivity (RNR) principles.

- The risk, need, and responsivity (RNR) model describes three successful principles for effective work to reduce recidivism among criminal offenders.
- The more of these three principles that are followed, the better the chance of overall intervention success.
- The model, originally developed in Canada by Don Andrews and James Bonta, has been validated by independent research.
- The risk principle emphasises that criminal recidivism can be predicted with certain precision, and that more intense and lengthier interventions should be prioritized for medium- and high-risk offenders.
- The need principle stresses the importance of addressing criminogenic needs in the design and delivery of treatment; that is, risks/needs likely to be causally related to the development and persistence of criminal behaviour.
- The responsivity principle states that treatment design and provision should generally follow the principles of social learning theory and practice, for example by using cognitive behavioural therapy (CBT) and be tailored to the individual learning style of the offender (accounting for impulsivity, attention deficit, intellectual disability etc).

Source: The Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) [1]

Assessing the risk of reoffending

During the past 20 years, empirical knowledge about the precision of risk assessment of sexual offenders has increased substantially. Major risk factors have been identified and organized into structured risk tools, which are now widely used in correctional and forensic mental health services. Internationally, the most commonly used are the *Static risk tools* [9]. The different versions (Static-99, Static-99R, Static-2002, Static-2002R, and BARR-2002R) all use commonly available criminal history information to estimate the likelihood of sexual or violent recidivism.

Whereas there is scientific and professional consensus that structured risk assessments are on average more accurate than unstructured professional or clinical opinion, professionals continue to debate how best to summarize risk and protective factors into a comprehensive risk statement. Importantly, any scientifically credible assessment must integrate what is generally known about offenders (group data) with knowledge of the specific characteristics and life circumstances of the particular individual. Put simply, evaluators who emphasize the similarity of the specific offender to other offenders usually prefer the use of empirically-derived actuarial risk assessment tools. Actuarial risk tools provide a list of risk factors, an explicit method of combining the factors into an overall evaluation, and recidivism rates associated with final risk classifications. They allow little or no client-specific adjustment of risk estimates.

In contrast, evaluators who emphasize the differences between the individual and other offenders often have limited confidence in actuarial risk tools. Instead, they emphasize case analysis, leaving the overall summary judgement to the professional discretion of the evaluator. Structured professional judgement risk tools identify the relevant risk factors, but do not provide explicit methods for combining the factors into an overall score, nor do they provide recidivism rates associated with nominal risk categories (low, moderate, or high risk).

Fact Box 4. Paedophilia and Paedophilic disorder.

- Paedophilia and hebephilia are paraphilias, patterns of sexual attraction characterized by persistent and recurrent sexual fantasies, urges, or behaviours involving prepubescent children (paedophilia) or children in early puberty (hebephilia), usually aged 12 years or younger. Little is known about the causes of paedophilia, but putative risk factors include genetic vulnerability to sexual attraction to children, neurodevelopmental impairment, and childhood sexual victimization.
- Importantly, paedophilia is *not* diagnosed as a mental disorder, *paedophilic disorder*, unless the person has acted on these sexual urges (that is, committed a sexual offence against a child), or until these sexual urges or fantasies cause marked distress or disruption of interpersonal relationships. The most commonly applied diagnostic criteria are found in the Diagnostic and Statistical Manual of Mental Disorders, currently in its fifth version (DSM-5).
- Many offenders against children do not fulfil diagnostic criteria for paedophilic disorder (but might instead be sexually opportunistic) and may not even have paedophilic sexual interest.
- Some individuals with paedophilic sexual attractions will not commit sexual offences against children, because they have few other risk factors and the community setting provides protective factors which reduce the likelihood of their acting out sexually according to their paraphilic interest).
- Paedophilia, although a moderately strong risk factor for sexual abuse of children, is neither necessary nor sufficient for someone to commit child sexual abuse.
- Both men and women could fulfil the diagnostic criteria for paedophilic

disorder; but as with most paraphilias studied, men are overrepresented.

Source: The Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) [1]

2. Assignment

In 2015, the Swedish Ministry of Health and Social Affairs commissioned the Swedish Research Council for Health, Working Life and Welfare (Forte) to evaluate interventions used in treating adults who have committed, or are at risk of committing, child sexual abuse. Forte was also directed to evaluate methods for assessing the risk of adults committing child sexual abuse, as well as their needs and responsiveness to treatment (S2015/04650/SAM).

3. Objectives

To assess the current state of knowledge of:

- effectiveness of interventions for treating adults who have committed, or are at risk of committing, child sexual abuse,
- methods for assessing the risk of adults sexually abusing children, and
- needs and responsiveness in regard to treatment.

A related aim is to highlight scientific uncertainties and research needs.

4. Specific questions

- How effective are treatment methods targeting adults who have committed sexual offences against children, in preventing sexual reoffending?
- How effective are preventive methods targeting adults at risk of sexual offending against children?
- How valid are methods for assessing the risk of adults sexually (re)offending against children?
- Which is the best way to assess treatment needs and responsiveness to treatment?
- What scientific uncertainties exist within the field and how may they be addressed?

Inclusion criteria and limitations

POPULATIONS

- Adults who have committed child sexual offences (for example rape, sexual exploitation, sexual molestation)
 - Individuals charged with child sexual offences

- Individuals self-reporting child sexual offences
- Adults at risk of sexual offending against children
 - Individuals charged with child pornography offences
 - Individuals who self-report paedophilic or hebephilic sexual preferences

Exclusion criteria

Children under the age of 13 years with problematic sexual behaviour.

INTERVENTIONS

- Psychological and psychoeducational interventions
 - Cognitive behavioural therapy (CBT) with or without relapse prevention
- Pharmacotherapy
 - Antiandrogenic drugs including LHRH-agonists
 - Selective serotonin reuptake inhibitors
- Methods for assessing the risk of child sexual abuse by adults
- Methods for assessing treatment needs and treatment responsiveness
 - risk, need, and responsiveness principles (RNR)

Exclusion criteria

Historical treatments seldom or never used today, or treatments which are ethically questionable.

For assessment methods, studies are included where the titles or abstracts describe that the work examined the predictive validity of entire risk assessment instruments, not just subscales. The constructor's original calibration or studies which examined only specific risk factors (for example sexual deviance or psychopathy) are excluded.

CONTROLS

Standard treatment or "treatment as usual", or adult individuals who for some reason (other than those below) did not receive active treatment.

Exclusion criteria

Studies not following the intent to treat principle in that the control group comprised adults who either refused to participate in treatment or who withdrew from treatment.

OUTCOMES

Sexual offending against children, defined in one of the following ways:

- Registered suspicion of sexual offending against children
- Conviction on charges of sexual offending against children
- Breaches of conditions while serving a sentence for sexual offending
- Self-reported sexual offending against children

Previous studies suggest that primary studies rarely specify whether sexual recidivism involves child victims. Therefore, outcomes related to sexual recidivism, regardless of victim age, for example (aggravated) rape or sexual coercion of adults, were accepted.

Study design

Systematic reviews, randomised controlled trials (RCT), prospective controlled observational studies, and prospective case-control studies. A follow-up period of at least one year.

Language

Studies written in English or the Scandinavian languages.

5. Methodology for literature review

A literature search was conducted by the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) in the Health Technology Assessment (HTA) report "Medical and psychological methods for preventing sexual offences against children", published in 2011 [1]. The search strategy included searches in the databases PubMed, PsycInfo, SocIndex, Academic Search Premier, ASSIA, ProQuest Sociology, PsycArticles, Cochrane Trials and the National Criminal Justice Reference Service Abstracts. Studies in all languages from all countries were considered for inclusion as were studies not published in peer-reviewed journals (also known as "grey literature"; for example doctoral dissertations, master's theses, conference presentations, and government reports). The search string ("sex offen*" OR "sexual offen*" OR "sexual recidiv*" OR molester*) AND ("risk assessment" OR sensitivity OR specificity OR predict*) was used.

The current review applied the same search strategy. Studies published earlier were assumed to have been included in SBU's report, thus the literature search covered publications between January 1, 2010 and August 31, 2015.

A separate literature search was undertaken to identify studies of the predictive validity of risk assessment methods. The search criteria comprised the acronyms or full names of the following risk assessment tools: Sexual Violence Risk-20 (SVR-20); Risk for Sexual Violence Protocol (RSVP); Sex Offender Risk Appraisal Guide (SORAG); Violence Risk Scale: Sexual Offender version (VRS:SO or VRS-SO); Structured Risk Assessment Forensic Version (SRA-FV); Static-99/Static 99 or Static-99R/Static 99R; STABLE-2007; ACUTE-2007; Screening Scale for Pedophilic Interests (SSPI); Juvenile Sex Offender Assessment Protocol-II (J-SOAP-II); Juvenile Sexual Offence Recidivism Risk Assessment Tool-II (J-SORRAT-II); Estimate of Risk of Adolescent Sexual Offence Recidivism (ERASOR); Juvenile Risk Assessment Scale (JRAS); Structured Assessment of Violent Risk in Youth (SAVRY). Studies published before 2010 were excluded, on the assumption that they had been included in previous systematic reviews [10, 11].

The abstracts of a total of 789 publications on treatment and other preventive interventions and 365 studies addressing predictive validity of risk assessment instruments were screened. After assessment of relevance to the search topic, an overall total of 198 publications remained. In all, 14 systematic reviews and individual studies fulfilled the above inclusion criteria and are briefly reviewed in the report (abstracts of included studies are presented in Appendix 2). No formal grading of bias according to the instruments AMSTAR (for systematic reviews), STROBE (for cohort

or other controlled observational studies) or CONSORT (for parallel group RCTs) was undertaken.

The written report was reviewed by an external reference group.

6. Results

Three systematic reviews [1,12,13] and one study [14] on interventions to prevent sexual reoffending among known sexual offenders against children were included. Also included were another three systematic reviews on treatment for sexual offenders in general (not only child molesters) [15-17]. Despite extensive searches, no eligible controlled study of the effect of interventions for non-offenders at risk of sexually abusing children was identified. Hence, all included treatment studies examined interventions for adult men known to have committed at least one act of child sexual abuse already.

Four systematic reviews [11,18-20] and three individual studies [21-23] on assessment of sexual recidivism risk were also included.

Additional studies, although not eligible for inclusion, are cited in the review to provide background and contextualization of the current findings.

Interventions to prevent sexual offending

ADULTS CONVICTED OF SEXUAL CRIME IN GENERAL

Before addressing research specifically on sexual offending against children, it is relevant to outline what recent systematic reviews have concluded on sexual offenders in general. Most relevant treatment studies included data for both main groups of “contact” sexual offenders; those convicted of rape of an adult and sexual abuse of a child¹. Studies reporting separate data on child sexual offenders, or studies with a mixed sample in which more than 70 percent were child sexual offenders, could be analysed in the child molester-specific systematic reviews to be discussed later.

Psychological interventions

Dennis et al. conducted a systematic review, an update of a previous Cochrane report, to assess the effects of psychological interventions on adults who have sexually offended or are at risk of sexual offending in general, without focusing specifically on child molesters [15]. In 2010, the authors searched computerized databases for RCTs only comparing a psychological intervention with standard care/another psychological therapy for adults convicted of a sexual offence, or who voluntarily sought treatment for illegal sexual behaviours.

Ten RCTs covering 944 adults, all men, fulfilled their quality criteria. However, only one out of five studies of cognitive behavioural therapeutic (CBT) interventions presented data on the primary outcome, sexual reoffending. The largest study

¹ Usually under the age of 14–16 years, depending on age of sexual consent in a specific setting.

(Marques et al.) applied the most complex intervention and compared it to no treatment. However, no difference was found with respect to sexual crime reconvictions.

Two very small trials out of four (total n=70) which tested a behavioural intervention provided analysable data. These two studies had insufficient statistical power, but fewer subjects in the treatment group were charged with “anomalous behaviour” and this was considered to be an encouraging outcome. Finally, one study compared a psychodynamic group intervention with probation (n=231). With respect to rearrests for sexual reoffending, the 10-year follow-up disclosed a non-significant trend towards poorer outcome for treated subjects.

Pharmacological interventions

Khan et al. reported on a Cochrane-based systematic review and specifically addressed the effect of the two main classes of medications prescribed to prevent sexual offending for adults at risk of, or convicted for, sexual crime in general, not only child molestation [16]. Databases and two trial registers were searched up until July 2014. The authors also requested experts in the field to submit unpublished or ongoing studies. They included prospective RCTs of antilibidinal medications, intended to prevent sexual offences. Studies had to be controlled, that is include comparison subjects who received no treatment, treatment as usual or “standard care” including psychological treatment, or placebo medication.

Seven studies, none published later than 1995, were identified and provided data on a total of 123 participants. Most subjects had been convicted for various sexual offences, including exhibitionism, rape of an adult and child molestation. Six studies examined the effectiveness of testosterone-suppressing drugs including cyproterone acetate (CPA, registered as Androcur® in Sweden) and medroxyprogesterone acetate (MPA, registered as Depo-Provera® in Sweden). No report addressed newer drugs, particularly selective serotonergic reuptake inhibitor antidepressants (SSRIs) or gonadotropin-releasing hormone (GnRH) analogues. The overall quality of evidence was judged as poor, the heterogeneity of the precluded meta-analysis. Concerns about bias were most pronounced with respect to concealment of allocation (to treated versus not treated), blinding of outcome assessors, and poor outcome data. Notably, the participants’ acceptance and compliance with treatment was not high. For example, rates of attrition were as high as 54 percent and unconventionally, results were reported only for those who completed treatment.

However, apart from the main outcome, reduction of sexually abusive behaviour, the included studies also reported a variety of additional, so-called secondary, outcomes. For example, these results suggested that although self-reported deviant sexual fantasies, interest and arousal may be reduced by testosterone-suppressing drugs, actual deviancy itself is not reduced. The possible effects of testosterone-suppressing drugs were tested for no longer than six to eight months. Six studies provided information on adverse events. Considerable weight gain was reported in two trials of oral MPA and CPA. Importantly, given the association between hormonal antilibidinal medication and mood changes, no suicide attempts or deaths were reported in any study. The most severe side effects, neurological movement disorders and drowsiness, were seen in a trial of antipsychotic medication.

Finally, Schmucker et al. conducted an update of their prior meta-analysis in 2005 to include only higher quality research: studies based on comparisons of equivalent

treatment and control groups and official measures of recidivism as outcome [17]. In contrast to Dennis et al. who included only RCTs with adult sexual offenders, Schmucker et al. identified 29 eligible studies, covering a total of 4939 adolescent and adult sexual offenders undergoing treatment and 5448 subjects for comparison [15]. They also analysed whether the outcome was moderated by treatment, offender or methodological characteristics. Only psychosocial treatments, mainly CBT, but none of the pharmacological studies fulfilled the authors' eligibility criteria. The reported mean effect size for sexual recidivism was small but statistically significant (OR=1.41, $p<0.01$) corresponding to an average recidivism rate of 10.1 percent in treated versus 13.7 percent in untreated offenders. CBT and multisystemic therapy (MST) as well as studies with small samples, medium- to high-risk offenders, more individualized treatment, and good descriptive validity were associated with better effects. In contrast with community-based treatment, no significant mean effects were associated with treatment in prisons.

Conclusion: The systematic reviews by Dennis et al. and Khan et al. concluded that the research base on intervention effectiveness is insufficient, whereas Schmucker et al. emphasized that the considerable study heterogeneity complicated generalization to other settings. Khan et al. also drew attention to uncertain tolerance to pharmacological treatment, as all studies were too small to detect adverse effects and were of short duration, which is inconsistent with clinical practice. As testosterone-lowering treatment is mandatory in several countries, these shortcomings are of concern (see also [5]).

Future trials should concentrate on high-quality study designs; RCTs and other high-quality (low bias) quasi-experiments, particularly from outside North America. Trials should include sufficient numbers of offenders followed for at least five years at risk after treatment, include exhaustive reporting, and stratify findings for child molester and adult rapist categories. Pharmacological trials should include newer medications like GnRH analogues and the characteristics of those who refuse or withdraw from treatment should be compared with offenders who complete treatment.

ADULTS CONVICTED OF SEXUAL OFFENCES AGAINST CHILDREN

The literature search identified three recent systematic reviews (2011 or later) concerning adults at risk for and/or convicted of child molestation. A comparison of the reviews is presented in Appendix 1.

The Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) conducted a health technology assessment (HTA) report in 2011 and the results were reaffirmed by an updated literature search in May 2013 [1,5].

The SBU report addressed current interventions (psychological and medical/pharmacological) designed to prevent reoffending among known child sexual abusers and prevention for individuals (adults, adolescents and children) at risk of sexually abusing children. RCTs and prospective observational studies were eligible. Primary outcomes were arrests, convictions, breaches of parole conditions, and self-reported sexual abuse of children after a follow-up of one year or more.

The literature search identified 1447 abstracts, of which 167 studies were read in full text. In all, 145 were excluded, primarily because they were reviews or commentaries with no original data, had no control group, or because outcomes were reported only for mixed sexual offender groups and not specifically for sexual offenders against

children. Of the 22 remaining eligible studies, 14 were excluded due to high risk of bias.

Consequently, the remaining eight included studies had low to moderate risk of bias. Three studies concerned adolescent sexual offenders and children under the age of 13 years, with sexual behavioural problems directed towards others. The evaluated psychological treatments were usually in the format of manual-based CBT group therapy. Manuals prescribe to therapists how to cover various topics in a specific sequence, provide exercises and suggest homework assignments and directions on how to sustain a therapeutic climate. Notably, no studies of medical treatment with anti-testosterone inhibiting drugs fulfilled the inclusion criteria.

Five remaining studies focused on treatment effects for adult child sexual offenders. One single RCT included child sexual offenders at moderate risk of sexual recidivism [24]. This treatment was based on CBT and relapse prevention, but failed to ascertain any effect (risk ratio=1.10; 95% CI 0.78 to 1.56). The result should not, however, be interpreted as support that the investigated method is ineffective. Although the study was judged to have low risk of bias and was by far the largest RCT conducted to date (n=484; with similar proportions of treated and control subjects), it was underpowered. That is, it included too few subjects given a likely effect of the tested treatment, the sexual recidivism rate and the length of the follow-up period to satisfy the statistical preconditions for disclosing a possible treatment effect.

The four included observational studies had moderate risk of bias and were focused on child sexual offenders judged to have higher [25] and lower [26-28] sexual recidivism risks at baseline, respectively. However, these studies were judged to have various shortcomings which precluded overall conclusions about treatment effects.

Since the SBU report, two additional systematic reviews have been published. Grønnerød et al. conducted a systematic review and meta-analysis², of psychological treatment trials for convicted child sexual offenders. Fourteen studies published in peer-reviewed journals from 1980 or later were selected and rated according to pre-specified quality criteria. They included 1421 adult offenders in psychotherapy compared to 1509 non-treated controls, with an average follow-up of three years. Recidivism was defined as rearrest or reconviction. The meta-analysis revealed a negligible treatment effect ($r=0.03$) for the nine out of fourteen studies evaluated as good or weak (the remaining five were all rejected due to methodological shortcomings).

Walton et al. also conducted a systematic review of the effectiveness of psychological treatment for identified adult child molesters. Databases and two trial registers were searched up until July 2014 and the authors also contacted experts for unpublished or ongoing studies and screened the reference lists of systematic reviews and primary studies. One RCT and nine observational or cohort studies were included, with 2119 participants essentially divided equally between those receiving the investigated interventions and comparison subjects. Average recidivism rates were 13.9 percent for treated and 18.6 percent for untreated child molesters, corresponding to a small treatment effect. However eight out of the ten studies were assessed as having flawed designs. This meant substantial bias that would “blur the picture”, that is increase the likelihood of incorrectly concluding that a tested treatment was either effective or ineffective.

² A meta-analysis is a statistical method for quantitatively weighing together the findings from several individual studies.

Conclusion: For adults who committed sexual abuse of children, the scientific evidence, based on three recent systematic reviews, is insufficient to determine whether any treatment can reduce sexual crime recidivism or entails any risks for participants. The lack of knowledge applies to both benefits and risks of psychological treatment as well as pharmacological treatment (medication), for example with testosterone-inhibiting drugs.

Subgroups of child sexual offenders

Adult female child sexual offenders

The literature search failed to identify any eligible studies addressing treatment of adult female sexual offenders against children. The most likely reason is that it is difficult to conduct a controlled study with appropriate statistical power for this small subgroup of convicted child molesters, particularly as they have substantially lower rates of sexual reoffending than their male counterparts [29].

Adolescent sexual offenders

Although not a major focus of this report, adolescents constitute an important subgroup of sexual offenders, for several reasons:

- Some 20–30 percent of those who commit sexual abuse of children are themselves under 21 years of age [30,31]. In fact, adolescents who sexually abuse usually target their own siblings, peers and romantic partners.
- Committing an initial sexual offence at an early age is a risk factor for sexual recidivism. Hence, effective early interventions might contribute meaningfully to an overall reduction of child sexual abuse.
- Because of their non-adult status, adolescent sexual offenders have rights and needs which need to be addressed. These young offenders often have concurrent problems, including behavioural disorders and substance abuse. Antisocial personality traits including social norm violations, criminality and substance abuse co-occur during adolescence and may develop into antisocial personality disorder in adulthood. In other adolescent offenders, psychiatric disorders, intellectual disability, or substantial social adversities may co-occur.

Youths who commit sexual assault can have complex needs, requiring intervention from social services, child and adolescent psychiatry and other community authorities. Compared to adult sexual offenders, young offenders tend to be more clearly distinguished by general risk factors for criminal behaviour, rather than sexuality-related factors such as sexual preoccupation and paraphilic disorders.

For adolescents who committed sexual abuse, the 2011 SBU report concluded that there is limited evidence³ that MST prevents reoffending. The effectiveness of other interventions could not be determined because of the lack of adequately informative research. MST is a family-oriented treatment approach, which focuses on improving communication between parents and young people, and is based on systemic family theory and social learning theory in conjunction with treatment components from, for example, CBT. Importantly, this was the most promising finding in regard to treatment of child sexual offenders in the SBU report. A two-year follow-up of a

³ Using the GRADE-system (Grading of Recommendations Assessment, Development and Evaluation).

previous RCT⁴ evaluated MST effectiveness for juveniles who sexually offend [32]. More specifically, the authors examined whether the effects reported at the 1-year follow-up of MST interventions, in terms of problem sexual behaviours, delinquency, substance use, and out-of-home placement, persisted at the two-year follow-up. Caregiver and youth-reported MST treatment effects were sustained for all four outcomes during the second year of follow-up. The exception was substance use. Sexual offence rearrests were too few to allow statistical analysis, whereas no inter-group difference was reported for arrests for nonsexual crime. This suggested that MST achieved favourable longer-term results in reducing recidivism in juvenile sexual offenders.

In regard to treatment research, young offenders are fewer than their adult counterparts and the risk of recurrence of sexual crime is low. In Sweden therefore, it would be very difficult to assemble adequately large groups of subjects for a formal scientific evaluation (compare with reasoning for adult child sexual offenders). Notably, previous studies suggest that the risk, need and responsivity (RNR) principles for effective treatment of criminal offenders apply to young law-breakers [33-35].

Child pornography offenders^{5,6}

A narrative review of research into online child pornography offenders suggested that they had high levels of sexual pre-occupation, deviant or paraphilic sexual interests, and interpersonal and affective deficits [36]. Their levels were higher than those reported for contact child sexual offenders. However, child pornography offenders otherwise functioned relatively well and were not generally antisocial; they had less wide-reaching and varied offending histories than contact child sexual offenders.

Online solicitation offenders^{7, 8}

Less is known about online solicitation offenders than about child pornography offenders. In a study published in 2013, a national US sample of law enforcement agencies was used and detailed telephone interviews were conducted with investigators in individual cases of arrests for Internet-related sexual offences against children [37]. Cases involving online sexual communication included 143 online-meeting offenders and 139 know-in-person/online offenders. These two offender groups were compared.

Online-meeting offenders were less likely to have criminal backgrounds. However, deception was used in only a minority of cases and also by some know-in-

⁴ Borduin et al. 2009 which was included in the SBU report and led to the “limited evidence”-grading in the SBU report.

⁵ “Child pornography offender” legally denotes a sex offender category that uses existing child sexual abuse material for their own sexual gratification. Depending on legislation, anyone involved in the production of such material, in contrast, is likely to commit (direct) sexual offence(s) against children.

⁶ Studies reviewed for this offender subgroup were not formally rated for risk of bias.

⁷ Studies reviewed for this offender subgroup were not formally rated for risk of bias.

⁸ Online solicitation child sexual offenders are also known as luring or traveller child sexual offenders. They are adults who sometimes misrepresent themselves as being of similar age to the child or adolescent being targeted online and lure and manipulate victims into illegal real life sexual interactions.

person/online offenders. It may be that mobile and online risks are substantially intertwined with pre-existing offline risks in children's lives.

Conclusion: Implementing multisystemic therapy (MST) for adolescent sexual offenders (who usually target other children/adolescents), could help reduce repeated child sexual offending.

It remains unclear whether solicitation offenders differ meaningfully from contact sexual offenders known to the child and child pornography offenders, respectively. Further research is needed to determine whether risk, treatment, and supervision needs differ.

NON-OFFENDER ADULTS AND ADOLESCENTS AT INCREASED RISK OF CHILD SEXUAL ABUSE

This category comprises individuals with a sexual interest in children, but with sufficient concurrent, more or less changeable, protective factors to prevent them from committing actual sexual abuse. With respect to adults and adolescents who have not committed child sexual abuse but are at increased risk of doing so, the literature search failed to identify any studies on effectiveness of prevention which were eligible for inclusion.

Research indicates that at least a proportion of adults at risk of sexually abusing children can be reached for potentially effective interventions. In the United Kingdom (UK) and Germany, helplines have existed for many years: StopitNow and Prevention Project Dunkelfeld respectively. People who experience problematic sexuality/being at risk of committing child sexual abuse can call anonymously for counselling, and referral for preventive treatment. A study from 2015 reported on CBT treatment of a subsample of primarily undisclosed, help-seeking individuals with paedophilic or hebephilic sexual interests, in the Prevention Project Dunkelfeld [38]. Participation was anonymous and subjects were assigned (not randomized) either to participate in a one-year CBT treatment or to a waiting list. Among the 53 subjects who underwent treatment, self-reported emotional deficits and offence-supportive cognitions decreased and sexual self-regulation improved. In contrast, no before-to-after changes were observed among the 22 untreated control subjects on the waiting list. Although not eligible for inclusion in our systematic review, this promising finding should be followed up by methodologically stronger research.

A Swedish project, Preventell, is a manned national telephone helpline partly modelled after the Dunkelfeld project and established in 2012 at the Karolinska University Hospital (see [39] or www.preventell.se). The collective experience from these helplines suggests that it is possible to “lower thresholds” and establish contact with thousands of individuals who are at risk of offending but are often unknown to the legal system, and to motivate many of them to participate in preventive treatment.⁹

⁹ Head psychologist, Dr Katarina Görts Öberg reports (personal communication Nov 30, 2015) that CASM (Centre for Andrology & Sexual Medicine, Karolinska University Hospital, Huddinge, Sweden), for example, has numerous patients who quite openly self-report on their sexual risk behaviour(s). This occurs despite the legal obligation of staff to report ongoing harm or risk of harm to children, or the potential breach of professional patient

Conclusion: For adults who have not committed sexual abuse of children but are at increased risk for of doing so, the scientific evidence is insufficient to determine whether any intervention can prevent offending. It is therefore important to develop effective interventions.

RECENT, AS YET UNEVALUATED, MODELS FOR PREVENTING CHILD SEXUAL OFFENDING

The Good Lives Model

Critics have argued that traditional CBT and relapse prevention approaches based on the RNR principles focus too much on risk reduction and not enough on the offenders' strengths and promotion of their well-being. In contrast, the popular Good Lives Model (GLM) model of offender rehabilitation suggests that offending results from the perpetrator's failure to fulfil their basic human needs in ways that do not harm others. Hence, enhancing offenders' skills and ability to achieve what they value in life should lead to more motivated clients in treatment, more satisfying, fulfilling lives and goals inconsistent with offending.

However, there is insufficient empirical evidence to support GLM efficacy. For example, a recently published study evaluated changes in psychometric scores over treatment among 601 convicted sexual offenders in the UK (not only child molesters). Sexual offenders were either serving sentences in the community or on probation in the community following release from custody [40]. The authors compared offenders who attended a traditional relapse prevention programme with those who participated in a revised version of the same programme based on the GLM. However, for the majority of the measures examined, no differences emerged in treatment-related changes or in the proportion of participants who withdrew from treatment.

Circles of Support and Accountability

The programme Circles of Support and Accountability (COSA) was developed in Canada during the 1990s. It is a restorative, justice-based, community re-entry programme for high-risk sexual offenders with little or no pro-social support. In contrast to other programmes, COSA is not really a treatment but a relapse-prevention intervention. COSA uses especially trained community volunteers who provide offenders or "core members" with rigorous support on release into the community. The volunteers also help offenders to make risk management plans work and to develop adequate skills for reintegration into the community. In a small RCT by Duwe et al. the effectiveness of COSA on recidivism outcomes was evaluated in a treatment and a control group (n=31 in each group) [14]. The results suggested that COSA significantly reduced three of the five recidivism measures examined. However, comparison of "hard" outcomes was not possible; none of the offenders participating in COSA had been rearrested for a new sex offence, compared to one offender in the control group.

Conclusion: Although the Good Lives Model (GLM) is an interesting theoretical and practical contribution to treatment engagement of sexual offenders, empirical research has not shown GLM to be superior to conventional treatment for retaining offenders

confidentiality implied in reporting to the police. As well as being motivated to undergo psychological treatment, a substantial proportion of the clients actually request anti-testosterone medication.

in treatment. GLM has yet to establish itself as a credible, comprehensive treatment programme.

As yet, no firm conclusions can be drawn about possible effects and generalizability of the Circles of Support and Accountability (COSA) to other settings. Moreover, it should be noted that COSA is unlikely to be relevant for more than approximately five to ten percent of all convicted sexual offenders; those with high recidivism risk and poor pro-social bonds, who are willing to participate.

UNIVERSAL OR PRIMARY PREVENTIVE INTERVENTIONS

A substantial proportion of all sexual violence against children and adolescents is committed by other children and adolescents, including the victims' siblings, peers and partner. This is one reason why a variety of universal or primary prevention programmes have aimed to foster children's and adolescents' awareness of acceptable versus unacceptable touching and secrecy as well as simple protective strategies. Other programme targets include cognitions and attitudes that excuse or support transgressions of sexual boundaries. Although not formally addressed in this review, such programs deserve a brief mention.

For example, a recent systematic review noted that school-based education programmes, taught since the 1980s, are the most widely used primary strategy for prevention of child sexual abuse [41]. The authors presented a Cochrane systematic review of such school-based education programmes against child sexual abuse. Twenty-four trials (with a total of 5802 participants) were identified and suggested evidence of improvements in protective behaviours and knowledge among children exposed to school-based programmes, regardless of programme type. The findings also indicated increased disclosure of child sexual abuse following participation in school-based education programmes. However, the authors recommended longitudinal or data linkage studies to assess the possible effects on prevention of actual child sexual abuse.

Another systematic review addressed published RCTs of primary prevention interventions aimed at reducing physical, sexual, and psychological intimate partner violence (IPV) perpetration and victimization among adolescents [42]. One cluster-randomized trial of the Safe Dates intervention measured sexual IPV perpetration separately from other IPV (physical and psychological). Safe Dates showed marginal to small but positive effects annually, including a final four-year follow-up. There were no differential effects of the intervention between adolescents who reported and those who did not report sexual IPV perpetration at baseline, nor between male and female adolescents.

Two RCTs measured sexual IPV victimization. In the Safe Dates trial, there was no significant difference in this outcome between the intervention and control groups during the first data collections, whereas four years after the intervention, Safe Dates participants were significantly and moderately less likely to report sexual IPV victimization. Intervention effects did not vary by gender. Six months after the school-wide *Shifting Boundaries*' intervention, the prevalence and frequency of sexual IPV victimization declined statistically and moderately by up to 50 percent. Similarly, a systematic review published in 2014 showed that Safe Dates and *Shifting Boundaries* were the only primary prevention strategies addressing youth perpetration of sexual violence which demonstrated effects on sexually violent behaviour in rigorous outcome evaluations [43].

However, there are other possible targets for universal or primary prevention of child sexual abuse. For example, teachers, childcare personnel, and clergy are important professionals in children’s lives. They are often knowledgeable about child development issues and in unique positions with respect to important in prevention efforts. An independent, multi-site RCT evaluating *Stewards of Children*, a child sexual abuse prevention training for childcare professionals, was published in 2015 [44]. A total of 352 childcare professionals recruited from children's advocacy centres across three US states were randomly assigned to in-person or web-based training, or a waitlist control. The intervention had an impact on knowledge, attitudes, and preventive behaviours in regard to child sexual abuse and no differences were found between training modalities.

Conclusion: Recent systematic reviews suggest that primary prevention interventions, Safe Dates and Shifting Boundaries, against adolescent sexual violence have marginal to moderate effects on sexual violence perpetration and victimization. Further, a recent RCT on prevention training directed at childcare professionals showed impacts on knowledge, attitudes, and preventive behaviours in regard to child sexual abuse.

NOT EVERY SEXUAL OFFENDER SHOULD RECEIVE INTENSIVE TREATMENT

A study in 2013 investigated whether clinically based treatment assignment was related to risk level in a sexual offender sample from The Netherlands [45]. A substantial proportion of sexual offenders, especially child molesters, received overly intensive treatment. In contrast, another substantial proportion, particularly rapists, received treatment of less intensity than indicated by their estimated baseline recidivism risk. A subsequent study found that risk levels in a clinically selected outpatient treatment group did not differ from a representative sample of sexual offenders referred to outpatient treatment in the Netherlands or in a large Canadian sample [46]. This indicated that low risk offenders had been over-included in a high-intensity outpatient treatment group.

Clinical selection for treatment without systematic use of validated structured risk assessment instruments may lead to poor matching between level of recidivism risk and treatment intensity disclosed by the risk principle. This may become both counter-therapeutic and unnecessarily costly.

An additional study quasi-experimentally evaluated the outcome of high-intensity inpatient sexual offender treatment in the Netherlands with regard to sexual and violent (including sexual) recidivism [47]. Static-99R risk levels (see risk assessment section below) of these 266 offenders were assessed retrospectively and sexual and violent recidivism were compared between treated and untreated offenders while controlling for level of baseline risk. After a mean follow-up period of 148 months, the base rate of sexual recidivism was 15 percent. The authors found marginally significant lower sexual recidivism rates for treated high-risk sexual offenders only. No treatment effects could be ascertained for low and low-moderate risk offenders.

In agreement with a systematic review by Hanson et al. of sexual offender treatment studies, treatment seems more effective when attuned to risk level [48].

Conclusion: According to the risk principle of the RNR model, sexual offenders at medium and high risk of reoffending should be prioritized for longer and more

intensive treatment whereas those with low recidivism risk should be offered shorter and less intensive treatment.

Assessment of sexual recidivism risk

PREDICTIVE VALIDITY

Tully et al. conducted a systematic review of the effectiveness of sex offender risk assessment tools in predicting sexual recidivism of adult male sexual offenders [20]. Electronic databases were searched and experts contacted to help identify relevant studies. The authors identified 43 unique studies. Although most current risk assessment tools had at least moderate predictive accuracy for sexual reoffending in adult male sexual offenders, the VRS:SO and the Structured Risk Assessment (SRA) instruments stood out because of larger effect sizes. However, these two instruments had much less empirical validation than the other evaluated instruments and the available research may have been the subject of developer bias.

Frequently used sexual offender risk tools are moderately accurate in ranking offenders in terms of likelihood of sexual recidivism. For the highest risk groups, 40 to 50 out of 100 would be expected to be apprehended for committing a new sexual offence within five years. In contrast, the lowest risk offenders have expected sexual recidivism rates of about 2 out of 100 after five years. Seemingly counterintuitively, none of the available sexual offender risk assessment tools are able to identify offenders who are virtually certain to reoffend sexually (expected recidivism rates of 85 percent or higher).

There is ongoing discussion in the scientific community about the best methods for quantifying predictive accuracy. In research studies, predictive accuracy is most commonly reported in the form of indices of discrimination, or the extent to which recidivists are different from non-recidivists. For example, the Area Under the Curve (AUC) from Receiver Operating Characteristics (ROC) curve analyses describes the probability that a randomly selected recidivist would have a more unfavourable risk score than a randomly selected non-recidivist. Other measures of discrimination include correlation coefficients, odds ratios (from logistic regression) and hazard ratios (from survival analysis). All these indices are measures of relative risk. None provides information about absolute risk or the likelihood of recidivism for offenders with a particular score or within a particular risk category.

Although criminal history and demographic variables are valuable risk markers, psychologically meaningful variables provide more useful guidance for treatment and supervision activities. Consequently, several specialized risk assessment instruments have been developed to include primary variables be useful for case management. These measures include the STABLE-2007, Violence Risk Scale: Sexual Offender Version (VRS:SO) and the Sexual Violence Risk-20 (SVR-20). In general, these risk scales are not markedly more accurate than measures including only static, historical factors. However, both criminal history and clinical variables add incrementally to risk prediction and including both types of information is considered best practice in offender risk assessment.

Conclusion: The systematic review by Tully et al. concluded that current risk assessment tools have at least moderate predictive accuracy for sexual reoffending in adult male sexual offenders. However, there is variability in the primary research and more independent high quality research is needed, especially on structured professional judgment (SPJ) procedures which also include dynamic risk factors.

CLASSIFICATION OF RECIDIVISM RISK

Another challenge faced by risk assessors is the lack of a uniform language to describe risk assessment results. Although evaluators and decision-makers like using nominal risk categories (for example low, moderate, high), these terms are interpreted variably by different individuals, even by different professionals working within the same practice setting [49].

Although there is general agreement that offenders can be ranked from low to high risk, there is no consensus on the number of risk categories, nor where the thresholds for these categories should lie. For example, Static-99R has four risk categories and Static-2002R has five. Although both scales have a “moderate-high” category, few offenders are actually placed in the moderate-high category by both scales. One study in 2006 found that fewer than eight percent of sexual offenders were consistently classified as high risk or low risk across five risk scales commonly used with sexual offenders [50]. Similarly, a meta-analysis by Singh et al. reported substantial variability in recidivism rates for the “high risk” sex offender category across eight risk scales, whether generated by actuarial or structured professional judgment methods [19]. Several quantitative indicators can be used to index the information included in risk scale scores, including percentile ranks, relative risks and estimated recidivism rates (see [51]). For structured professional judgement tools, the risk categories (such as *low*, *medium* or *high*) primarily communicate recommendations with respect to the intensity of supervision and treatment efforts.

Although there has been relatively little research on the calibration of risk tools, the available findings suggest that there are important differences in the observed recidivism rates across samples and settings [52,53]. Consequently, risk assessment tools are better at determining relative risk (Sexual offender *A* is more likely to reoffend than sexual offender *B*) than determining the proportion of offenders like *A* who will reoffend.

Conclusion: Evaluators and decision-makers involved in offender risk assessment should be mindful that words (for example *low*, *medium*, or *high*) used to describe risk levels may not be interpreted as intended. Percentile rank, relative risk and estimated recidivism rates are helpful to clarify or anchor the risk labels used.

PREDICTIVE VALIDITY WHEN ASSESSMENT INSTRUMENTS ARE APPLIED TO POPULATIONS WHICH DIFFER FROM THOSE USED FOR THEIR CONSTRUCTION

Singh et al. conducted a systematic review of common violence risk assessment instruments, Static-99, SORAG and SVR-20, developed for different offender groups [11]. As expected, instruments designed for more specific populations, such as sexual offenders and violent juvenile offenders, were more accurate at predicting reoffending

risk. Moreover, the more closely the demographic characteristics of the tested sample resembled the original validation sample of the tool, the higher the predictive validity.

A later systematic review by Fazel et al. also compared predictive values [18]. Accuracy estimates for risk assessment tools for sexual offenders had good negative predictive values (the instrument's ability to identify correctly those who will not recidivate in sexual crime) with a median of 0.93. However, positive predictive values (the instrument's ability to identify correctly those who will recidivate sexually) were poorer at 0.23. In comparison, the AUC of the ROC, the classic measure of an instrument's ability to rank or differentiate between the average recidivist and non-recidivist, across all possible scores of an instrument, was 0.74. Instruments for sexual reoffending risk were less accurate with respect to positive predictive values than instruments designed for non-violent sexual and general recidivism, respectively.

A study published in 2004 reported that the predictive validity for sexual offender risk assessment tools may vary by ethnicity or migration status [54]. One possible explanation for this finding could be that the predictive validity generally deteriorates when assessment tools are applied to populations different from those used for construction and initial validation. A national cohort of all adult male sexual offenders released from prison in Sweden 1993–1997 was used. Subjects ordered to leave Sweden on release from prison were excluded and data for the remaining 1303 adult male sexual offenders were stratified into three subgroups, based on citizenship. Eighty-three percent of the subjects were of Nordic ethnicity, and non-Nordic citizens were either of non-Nordic European (n=49, referred to as European) or African or Asian descent (n=128). The Static-99 was equally accurate among sexual offenders of Nordic and European descent for the prediction of any sexual and any violent nonsexual recidivism, respectively. In contrast, Static-99 could not differentiate African Asian sexual or violent recidivists from non-recidivists.

A study by Smallbone et al. found poor short-term predictive validity of the Static-99-R for indigenous but not for non-indigenous Australian sexual offenders [22]. Further, a study by Varela et al. reported that Static-99R predictive validity was poorer among Latino than among black and white sexual offenders [55]. For aboriginal offenders in Canada, a meta-analysis by Babchishin et al. suggested that the standard risk assessment tools can predict for both aboriginal and non-aboriginal sexual offenders, but that the predictive accuracy is lower for aboriginals than for Caucasians [21] (see also [52]).

A recent study attempted to develop a new structured risk checklist for predicting criminal recidivism among adult male child pornography offenders¹⁰ [56]. The authors identified sexual recidivism predictors based on police case files of 266 adult male child pornography offenders in the community. At a 5-year follow-up, nine percent had committed a new child pornography offence, three percent a new contact child sexual offense and 11 percent had committed any new sexual offence. Risk factors included in the Child Pornography Offender Risk Tool (CPORT) were younger offender age, any prior criminal history, any contact sexual offending, any failure on conditional release, indication of sexual interest in child pornography material or

¹⁰ Child pornography offender" legally denotes a sex offender category that uses existing child sexual abuse material for their own sexual gratification. Depending on legislation, anyone involved in the production of such material, in contrast, is likely to commit (direct) sexual offence(s) against children.

(pre)pubescent children, more boy than girl content in child pornography, and more boy than girl content in other child depictions.

Conclusion: Systematic reviews indicate that risk assessment instruments for sexual reoffending are more accurate at predicting reoffending risk in offender groups which resemble those used initially for instrument construction and validation. Moreover, instruments are more accurate at identifying those who will not recidivate in sexual crime than those who do reoffend sexually

Studies also suggest that professionals assessing reoffending risk among sexual offenders should consider potential variability in predictive validity across varying ethnicity as this may affect precision and fairness in testing.

Preliminary evidence indicates that current risk assessment tools may be less appropriate for application to child pornography offenders. Therefore, revision and empirical evaluation are needed before widespread implementation. The newly developed Child Pornography Offender Risk Tool (CPORT) needs cross-validation but could become a helpful risk assessment tool for adult male child pornography offenders.

PREDICTIVE VALIDITY OF INSTRUMENTS ADDRESSING ADOLESCENT SEXUAL REOFFENDING

A 2012 systematic review studied tools developed for the prediction of adolescent sexual reoffending: the Juvenile Sex Offender Assessment Protocol-II (J-SOAP-II), the Estimate of Risk of Adolescent Sexual Offense Recidivism (ERASOR), the Juvenile Sexual Offense Recidivism Risk Assessment Tool-II (J-SORRAT-II), and the Static-99 [57]. The authors identified 33 published and unpublished studies involving 6196 male adolescents who had committed a sexual offence (mostly against peers or younger children). Total summary scores for all four instruments significantly but weakly predicted sexual reoffending, with aggregated AUCs of 0.64 to 0.67 (corresponding bivariate correlations 0.12 to 0.20). Hence, proper assessment of adolescent sexual offenders (who usually target other children/adolescents), could help reduce repeated child sexual offending.

A prospective Swedish study of the ERASOR is currently underway, investigating societal interventions following assessment and predictive validity as regards criminal recidivism.

Conclusion: In accordance with the RNR principles, systematic risk assessment of young perpetrators of sexual abuse, using a tailored and validated decision aid, could help determine recidivism risk and identify potentially causal risk factors, on which to focus treatment.

Importantly, risk assessment tools should also be used for overall identification of young people with sexually abusive behaviour but at low risk of relapse, so that they are not subject to unnecessarily excessive treatment or exposed to young offenders with higher recidivism risk.

7. Overall conclusions

The available research is insufficient to allow any conclusions about the effects of interventions for adults in preventing sexual offending against children. In contrast, systematic reviews suggest that current risk assessment instruments are generally moderately effective at predicting an individuals' risk of relapse in sexual offending. However, the instruments have much higher ability to identify correctly those who will not recidivate than their precision in identifying those who will reoffend sexually.

8. Scientific uncertainties and research needs

Interventions to prevent sexual offending against children

WHY ARE THERE SO FEW HIGH QUALITY TRIALS?

Several factors contribute to the lack of well-conducted evaluations of potential crime-reducing effects of interventions for perpetrators of child sex crimes:

1. The logistic consequences of the judicial system controlling the individual sex offender's sanction. Placement decisions, offender safety, security concerns and restrictions all decrease the evaluators' control over sources of bias and increase the risk of incorrect conclusions about possible intervention effects.
2. Poor or varying initial attitude to undergoing treatment. Most offenders do not seek treatment, but because they have violated the law, they are offered the opportunity, or may be required to take part in recidivism-reducing interventions. The shamefulness of the crime of child molestation boosts offender denial and minimization of personal responsibility, victim consequences, and personal rehabilitation needs.
3. The offenders' individual cognitive functioning and personality could also contribute to lower feasibility of including and retaining them in interventions (treatment or control conditions) throughout the study period.
4. Social acceptability of treatment research on violent or sexual criminal recidivism is not strong; randomization, for example, may be considered unethical or politically unacceptable. Fears of reoffending among clients randomized to control conditions who would deliberately be denied what is assumed to be the best possible treatment (although that is the hypothesis to be tested) may foster demands for either treatment of all or closure of programmes when control subjects relapse and reoffend.

“There seems to be a strong moral imperative driving the nature of treatment for sexual offenders against children, which has been contaminated by the public focus on punishment as the only acceptable outcome after conviction. These moral anxieties may have impeded researchers in exploring different research designs and clinical practitioners in using advances in treatments within the broad spectrum of cognitive behavioural interventions.”

Craissati [58]

While commenting on the evidence in support of psychological interventions among sexual offenders in general, Dennis et al. emphasised that treatment demands are based on the incorrect assumption that the tested intervention is

superior to the control [15], when intervention superiority is actually the initial, unanswered question in many practical situations, with unclear evidence in support of any treatment (formally known as equipoise). This could, unfortunately, result in the prolonged use of ineffective and potentially harmful interventions. Further, society may perceive a relative security “...*in the belief that once the individual has been treated, their risk of reoffending is reduced. Current available evidence does not support this belief.*”

5. Insufficient statistical power means that the likelihood of identifying true (non-random) treatment effects is low. This is because sexual offender recidivism rates are, fortunately, relatively low compared to the rates for offenders of non-sexual violent crime and the expected effects of a tested treatment are limited. Unless a more sensitive outcome measure or intermediate (before actual recidivism) measure can be found, the main means of compensating for this and increasing statistical power, is to include hundreds of individuals in treatment and control groups (for which treatment for various reasons did not occur) and follow them for prolonged periods of time (minimum two to three years). This is usually difficult for logistic, economic and ethical reasons, particularly in small countries like Sweden, where convicted child molesters are few compared to those who commit non-sexual violent crimes.

The scope of the problem of statistical power can be illustrated by a matched-control evaluation of the sexual offender-specific programme ROS, used by the Swedish Prison and Probation Services (Kriminalvården) since 2003. ROS is a slightly modified version of a Canadian CBT model aimed at reducing criminal relapse in sexual offenders. When evaluated in 2011, researchers at Kriminalvården followed up a total of 484 male prisoners, sentenced for sexual crimes, who initiated ROS in 2002–2009 (about 50 percent of whom were child sexual offenders)[59]. They were compared with a concomitant control group of male sexual offenders who did not participate in ROS. Confounding factors (which disturb the association between treatment and outcome) were accounted for statistically. A total of eight percent of treated sexual offenders were suspected for new sex crimes during follow-up, compared with ten percent of the control group. Those who started the programme appeared to have a small risk increase (Hazard rate=1.25, 95% CI; 0.86–1.81) in new suspected sexual offences during follow-up. However, the very broad confidence interval (95%) suggested that this difference was far from statistically significant at the conventional $p < 0.05$ -level.

OVERALL SUGGESTIONS FOR IMPROVING KNOWLEDGE ABOUT INTERVENTION EFFECTIVENESS

- More high-quality research is needed to improve the current weak empirical base for effective interventions for adults at risk of committing child sexual offences. Such research should comprise primarily sufficiently large randomized or well-controlled observational studies, in collaboration between several research centres or countries.
- Besides traditional “hard outcomes” such as register-based suspected criminal offences or convictions, a possible way to increase the statistical power of effectiveness studies is to use *intermediate outcome measures, or markers*, of relapse risk during treatment, but before actual criminal recidivism. Such dynamic or

modifiable risk factors include self-reported thoughts, fantasies and impulses involving sex with children, hypersexuality or sexual preoccupation and substance use disorder. However, unlike register-based information on suspected criminal offences or convictions, this requires self-insight as well as truthful and consistent participation by the perpetrator. At the same time, such honest self-reporting of circumstances, thoughts and emotions which increase risk raises security concerns and questions of degrees of control/freedom, because decision-makers cannot ignore these risk markers or refrain from acting on them. This, in turn, is likely to influence the participants' willingness to communicate candidly on intermediate outcomes.

- Well-controlled, high-quality studies are also highly desirable to evaluate pharmacological treatment with testosterone-inhibiting medication [9]. This treatment is quite invasive and powerful, but requires motivated clients: it is easy to actively cancel its effects, it could have serious physical side effects and is difficult to implement in an RCT format because of ethical issues and the problem of statistical power. This applies especially to potential effects on the risk of relapse in the form of new sex crimes. The few previous studies were primarily blinded, within-individual studies, addressing self-reported effects on intermediate outcomes, such as sexual preoccupation and sexually deviant (paraphilic) fantasies.

Assessment of risk of sexual (re)offending against children

- Independent high-quality research is needed into instruments for assessing the risk of recidivism by child sexual offenders, with special reference to the predictive validity of dynamic or modifiable risk factors, such as those measured in Stable 2007 and the popular structured professional judgment format Sexual Violence Risk-20 (SVR-20).
- The Risk Static-99R risk assessment instrument in combination with the Stable 2007 and Acute 2007 can be considered to be better validated than the VRS:SO and the SVR-20. It shows good interrater reliability and moderate overall predictive validity for both sexual and non-sexual criminal recidivism. However, apart from the Static-99R alone, these instruments have not been fully evaluated in Sweden.
- Another limitation is that these instruments are based on risk factors that are not necessarily causal, impairing their usefulness for intervention planning. In other words, they provide limited direction as to which causal risk factors or criminogenic offender needs should preferentially be addressed in treatment, according to the needs principle of the RNR model. Further research on causal and modifiable risk factors could help improve the precision of risk assessment and the development of more effective interventions.
- Further work is required to establish a common language for risk communication, which could be broadly applicable across assessment settings (courts, corrections, child welfare) and not necessarily linked to any particular risk tool.

9. Suggestions for policy and practice

The availability of assessment of treatment for individuals at risk of committing child sexual abuse is currently unevenly distributed across the country. Continuation of the

Preventell helpline as a national resource for the identification, assessment and treatment of people at risk of committing child sexual abuse might be considered. However, it is important that this should include instructions and financing to allow evaluation of effectiveness, see [60]. Apart from providing a low-threshold opportunity for people at risk, Preventell is also a resource for help and support to professionals, family and friends of people at risk [39]. Although it is still unclear whether preventive programmes for at-risk individuals actually reduce the risk of sexual abuse, a national telephone helpline is a necessary first step towards the development of efficient selective (secondary) treatment interventions. Within the foreseeable future, national resources like Preventell may be the safest way to secure nation-wide equality of access to evidence-based counselling and treatment for individuals at risk of committing child sexual offences.

Financial resources should be allocated for continuous evaluation of client flows and to develop and evaluate interventions, for example in the form of Internet-based treatment. Such psychological treatments are otherwise quite well developed and validated in Sweden, including interventions in cases of intimate partner violence, substance misuse, depression, and obsessive compulsive disorder. Web-based interventions may be particularly suitable for people at risk of committing child sexual abuse because of their common fear that their sexual problems could be exposed and condemned by others. Apart from measuring actual criminal acts of abuse, such studies should also measure changes in relevant intermediate risk factors during therapy, to increase the statistical power and also to disentangle what contributes to an observed effect.

An important area requiring better evidence is the substantial co-occurrence of deviant sexual interests and behaviour (paraphilic interests or disorders) and neuropsychiatric disorders; anxiety, depression, social phobia, ADHD and substance use disorders. One option for Sweden could be to expand the Preventell professional setting, to serve as a centre for training and skills development. Preventell could provide professionals in health care, social services and the criminal justice systems with evidence-based, quality-assured training, consultation and supervision on best practices to identify, assess, respond to and intervene with perpetrators and other individuals at high risk of committing child sexual abuse. Units like Preventell could also help decide when and how clients should be referred to specialists.

What to do while awaiting better empirical support for effective treatment?

In the absence of higher quality evidence from controlled studies of effective treatment of child sexual offenders, the most ethically acceptable strategy might be to assess systematically and document the following for each child sexual offender:

- Prevalence of research-based, modifiable causal risk factors for child sexual offending in each offender (see section on risk assessment instruments).
- Co-occurring and potentially contributing mental disorders, such as paraphilic disorder (paedophilic or sadistic sexual disorder), ADHD, autism spectrum disorder, substance use disorder, personality disorder, and reduced intellectual functioning.

- The dynamics of the sexual offence(s), predictors, contributing factors, potential inhibitors, including contextual factors and cognitive and emotional outcomes in offenders.

Based on these three assessment areas; provide individualized treatment and comprehensively document the content and outcome. According to the RNR principles, prioritize treatment for child sexual offenders with medium to high estimated recidivism risk. In anticipation of more robust evidence, this should preferably be undertaken within the framework of a controlled observational study to optimally and multi-factorially reduce the likelihood of future sexual offences.

Pending specific research results, it appears justifiable to offer help-seeking, non-offender risk individuals assessment of dynamic risk factors for sexual offending against children, possible contributory mental disorders and individualized treatment based on RNR principles.

Despite the current lack of adequate evaluation in Sweden, Static-99R/Stable 2007/Acute 2007 and the VRS:SO may be used, with some caution, for assessment of risk of sexual (re)offending against children. Risk assessment procedures are relatively time- and resource consuming. Hence, easy access to free-of-charge, validated, scalable risk assessment instruments such as the current beta version of the online OXREC tool (<http://oxrisk.com>) for assessing the risk of violent (including sexual) reoffending might help to provide the best available evidence for correctional practice. If used with necessary caution by an evaluator with some basic training, and combined with rehabilitative efforts, this could foster a much needed consistency of assessment across individuals, settings and nations and associated equality before the law.

10. Ethical aspects

No ethical analysis was performed within this review. Since the scientific evidence is insufficient to draw conclusions about the effects of interventions in preventing adult sexual offending against children, it is also difficult to assess ethical consequences. If benefits of treatment outweigh the risks, treatment would obviously lead to fewer sexual offences against children without concomitant unacceptable risks. In contrast, if treatment has no effect and/or is associated with higher risks than no treatment, this could lead to unchanged or even increased recidivism rates.

The 2011 SBU report included an ethical analysis [1]. One aspect which was addressed was the attitudes of healthcare personnel to treating people who have committed, or are at risk of committing, sexual offences against children. Unprofessional, judgmental attitudes and interaction could discourage help-seeking behaviour and contribute to stigmatisation and isolation, with the unintended consequence that more children will be victimized. Logistical and organizational barriers leading to unequal access to care could have ethical implications if the absence of specialised treatment leads to recidivism (assuming treatment is beneficial). Such barriers include, for example, insufficient continuity of care to complete treatment following prison sentences and unequal access to expertise for assessing and treating child sexual offenders because of geographic distances.

11. List of included publications

Interventions for preventing sexual offending

SYSTEMATIC REVIEWS

1. Dennis et al. 2012, [15]
2. Khan et al. 2015, [16]
3. Schmucker et al. 2015, [17]
4. SBU 2011, [1] (and Långström et al. 2015, [5])
5. Grønnerød et al. 2015, [12]
6. Walton et al. 2015, [13]

ORIGINAL STUDIES

7. Duwe 2013, [14]

Assessment of sexual recidivism risk

SYSTEMATIC REVIEWS

8. Tully et al. 2013, [20]
9. Singh et al. 2012 [19]
10. Singh et al. 2011, [11]
11. Fazel et al. 2012 [18]

ORIGINAL STUDIES

12. Smallbone et al. 2013, [22]
13. Varela et al. 2013, [23]
14. Babchishin et al. 2012 [21]

Appendices

Appendix 1: Comparison of population and intervention definitions as well as included studies in the three recent systematic reviews of interventions for adult offenders of child sexual abuse.

Appendix 2: Included systematic reviews and original studies, respectively.

Appendix 1

Appendix Table 1. Comparison of population and intervention definitions and included studies in recent systematic reviews of interventions for adult offenders of child sexual abuse.

Author	SBU 2011 [1] Långström et al., 2013 [5]	Grønnerød et al., 2015 [12]	Walton et al., 2015 [13]
No of included studies	16 in total, 11 excluded due to high risk of bias	14 in total, 5 had a high risk of bias	10 in total, 8 had a high risk of bias
Inclusion criteria	“Modern” psychological and medical treatment trials for individuals at risk of child sexual offending. White and grey literature.	Psychological treatment trials for convicted child sexual offenders published in peer-reviewed journals.	Psychological treatment interventions for child molesters. White and grey literature.
Included studies	Marques et al., 2005 [24]	Marques et al., 2005 [24]	Marques et al., 2005 [24]
	Procter, 1996 [26]	Procter, 1996 [26]	Procter, 1996 [26]
	McGrath et al., 1998 [28]	McGrath et al., 1998 [28]	-
	-	Hanson et al., 1993 [§] [61]	Hanson et al., 1993 [§] [61]
	-	Lambie & Stewart, 2012* [62]	Lambie & Stewart, 2012*[62]
	-	Nicholaichuk et al., 2000 [63]	Nicholaichuk et al., 2000 [63]
	-	Quinsey et al., 1998 [§] [64]	Looman et al., 2000 [65] (followed up by Quinsey et al., 1998 [64])
	Davidson, 1984 [25]	-	-
	Marshall et al., 2008 [27]	-	-
	-	Bates et al., 2004 [66]	-
	-	Craissati et al., 2009*[67]	-
	-	Marshall & Barbaree, 1988 [§] [68]	-
	-	Pithers & Cummings, 1989 [69]	-
	-	Scalora & Garbin, 2003* [70]	-
	-	Woodrow & Bright, 2011 [71]	-
	-	Zgoba & Levenson, 2008*[72]	-
	-	-	Bakker et al., 1998*[73]
	-	-	Butler et al., 2012 [74]
	-	-	Nathan et al., 2003*[75]
-	-	Rice et al., 1991 [§] [76]	

Notes:

[§] Identified in the SBU report but not rated as eligible due to outdated treatment (behavioural therapy only).

*Identified in the SBU report/Långström et al. (2013) but rated as having high risk of bias (n=11), and therefore excluded.

Appendix 2

Appendix Table 2. Included systematic reviews.

Author Year, reference no Country	Abstract
Dennis et al.* 2012, [15] Austria	<p>BACKGROUND: Sexual offending is a legal construct that overlaps, but is not entirely congruent with, clinical constructs of disorders of sexual preference. Sexual offending is both a social and a public health issue. Victim surveys illustrate high incidence and prevalence levels, and it is commonly accepted that there is considerable hidden sexual victimisation. There are significant levels of psychiatric morbidity in survivors of sexual offences. Psychological interventions are generally based on behavioural or psychodynamic theories. OBJECTIVES: To assess the effects of psychological interventions on those who have sexually offended or are at risk of offending. SEARCH METHODS: In September 2010 we searched: CENTRAL, MEDLINE, Allied and Complementary Medicine (AMED), Applied Social Sciences Index and Abstracts (ASSIA), Biosis Previews, CINAHL, COPAC, Dissertation Abstracts, EMBASE, International Bibliography of the Social Sciences (IBSS), ISI Proceedings, Science Citation Index Expanded (SCI), Social Sciences Citation Index (SSCI), National Criminal Justice Reference Service Abstracts Database, PsycINFO, OpenSIGLE, Social Care Online, Sociological Abstracts, UK Clinical Research Network Portfolio Database and ZETOC. We contacted numerous experts in the field. SELECTION CRITERIA: Randomised trials comparing psychological intervention with standard care or another psychological therapy given to adults treated in institutional or community settings for sexual behaviours that have resulted in conviction or caution for sexual offences, or who are seeking treatment voluntarily for behaviours classified as illegal. DATA COLLECTION AND ANALYSIS: At least two authors, working independently, selected studies, extracted data and assessed the studies' risk of bias. We contacted study authors for additional information including details of methods and outcome data. MAIN RESULTS: We included ten studies involving data from 944 adults, all male. Five trials involved primarily cognitive behavioural interventions (CBT) (n = 664). Of these, four compared CBT with no treatment or wait list control, and one compared CBT with standard care. Only one study collected data on the primary outcome. AUTHORS' CONCLUSIONS: The inescapable conclusion of this review is the need for further randomised controlled trials. While we recognise that randomisation is considered by some to be unethical or politically unacceptable (both of which are based on the faulty premise that the experimental treatment is superior to the control - this being the point of the trial to begin with), without such evidence, the area will fail to progress. Not only could this result in the continued use of ineffective (and potentially harmful) interventions, but it also means that society is lured into a false sense of security in the belief that once the individual has been treated, their risk of reoffending is reduced. Current available evidence does not support this belief. Future trials should concentrate on minimising risk of bias, maximising quality of reporting and including follow-up for a minimum of five years 'at risk' in the community.</p>

Author Year, reference no Country	Abstract
Grønnerød et al. 2015, [12] Norway	<p>Numerous meta-analyses and reviews have been conducted on the effectiveness of psychological treatment of sexual offenders in reducing recidivism, but no meta-analysis has been done on sexual offenders against children (SOAC) specifically. A moderate treatment effect has been shown in several evaluations of general sexual offenders, while many scholars maintain that the question remains unanswered until an adequate number of effectiveness studies with a strong research design have been carried out. In this meta-analysis, we evaluated 14 studies selected and coded according to Collaborative Outcome Data Committee (CODC) criteria. They included 1,421 adult offenders in psychotherapy and 1,509 nontreated controls, with a minimum average follow-up period of 3 years, published in peer-reviewed journals in 1980 or later. Recidivism was defined as rearrest or reconviction. Study quality was classified into strong, good, weak or rejected. The analysis revealed a treatment effect size of $r = .03$ for nine studies evaluated as Good or Weak, while all studies yielded an effect size of $r = .08$, including five studies classified as Rejected. The results show that the available research cannot establish any effect of treatment on SOAC. Despite a large amount of research, only a tiny fraction of studies meet a minimum of scientific standards, and even fewer provide sensible and useful data from which it is possible to draw conclusions.</p>

Author Year, reference no Country	Abstract
Khan et al.* 2015, [16] UK	<p>BACKGROUND: Sexual offending is a serious social problem, a public health issue, and a major challenge for social policy. Victim surveys indicate high incidence and prevalence levels and it is accepted that there is a high proportion of hidden sexual victimisation. Surveys report high levels of psychiatric morbidity in survivors of sexual offences. Biological treatments of sexual offenders include antilibidinal medication, comprising hormonal drugs that have a testosterone-suppressing effect, and non-hormonal drugs that affect libido through other mechanisms. The three main classes of testosterone-suppressing drugs in current use are progestogens, antiandrogens, and gonadotropin-releasing hormone (GnRH) analogues. Medications that affect libido through other means include antipsychotics and serotonergic antidepressants (SSRIs). OBJECTIVES: To evaluate the effects of pharmacological interventions on target sexual behaviour for people who have been convicted or are at risk of sexual offending. SEARCH METHODS: We searched CENTRAL (2014, Issue 7), Ovid MEDLINE, EMBASE, and 15 other databases in July 2014. We also searched two trials registers and requested details of unidentified, unpublished, or ongoing studies from investigators and other experts. SELECTION CRITERIA: Prospective controlled trials of antilibidinal medications taken by individuals for the purpose of preventing sexual offences, where the comparator group received a placebo, no treatment, or 'standard care', including psychological treatment. DATA COLLECTION AND ANALYSIS: Pairs of authors, working independently, selected studies, extracted data, and assessed the risk of bias of included studies. We contacted study authors for additional information, including details of methods and outcome data. MAIN RESULTS: We included seven studies with a total of 138 participants, with data available for 123. Sample sizes ranged from 9 to 37. AUTHORS' CONCLUSIONS: We found only seven small trials (all published more than 20 years ago) that examined the effects of a limited number of drugs. Investigators reported issues around acceptance and adherence to treatment. We found no studies of the newer drugs currently in use, particularly SSRIs or GnRH analogues. Although there were some encouraging findings in this review, their limitations do not allow firm conclusions to be drawn regarding pharmacological intervention as an effective intervention for reducing sexual offending. The tolerability, even of the testosterone-suppressing drugs, was uncertain given that all studies were small (and therefore underpowered to assess adverse effects) and of limited duration, which is not consistent with current routine clinical practice. Further research is required before it is demonstrated that their administration reduces sexual recidivism and that tolerability is maintained. It is a concern that, despite treatment being mandated in many jurisdictions, evidence for the effectiveness of pharmacological interventions is so sparse and that no RCTs appear to have been published in two decades. New studies are therefore needed and should include trials with larger sample sizes, of longer duration, evaluating newer medications, and with results stratified according to category of sexual offenders. It is important that data are collected on the characteristics of those who refuse and those who drop out, as well as those who complete treatment.</p>

Author Year, reference no Country	Abstract
<p>Långström 2013, [5] Sweden Update of SBU 2011</p>	<p>OBJECTIVE: To evaluate the effectiveness of current medical and psychological interventions for individuals at risk of sexually abusing children, both in known abusers and those at risk of abusing. DESIGN: Systematic review of interventions designed to prevent reoffending among known abusers and prevention for individuals at risk of sexually abusing children. Randomised controlled trials and prospective observational studies were eligible. Primary outcomes were arrests, convictions, breaches of conditions, and self-reported sexual abuse of children after one year or more. RESULTS: After review of 1447 abstracts, we retrieved 167 full text studies, and finally included eight studies with low to moderate risk of bias. We found weak evidence for interventions aimed at reducing reoffending in identified sexual abusers of children. For adults, evidence from five trials was insufficient regarding both benefits and risks with psychological treatment and pharmacotherapy. For adolescents, limited evidence from one trial suggested that multisystemic therapy prevented reoffence (relative risk 0.18, 95% confidence interval 0.04 to 0.73); lack of adequate research prevented conclusions about effects of other treatments. Evidence was also inadequate regarding effectiveness of treatment for children with sexual behavioural problems in the one trial identified. Finally, we found no eligible research on preventive methods for adults and adolescents who had not sexually abused children but were at higher risk of doing so (such as those with paedophilic sexual preference). CONCLUSION: There are major weaknesses in the scientific evidence, particularly regarding adult men, the main category of sexual abusers of children. Better coordinated and funded high quality studies including several countries are urgently needed. Until conclusive evidence is available, realistic clinical strategies might involve reduction of specific risk factors for sex crimes, such as sexual preoccupation, in abusers at risk of reoffending.</p>
<p>SBU 2011, [1] Sweden</p>	<p>The primary goal in treating individuals at risk of committing sexual offences against children is to prevent more children from becoming victims. Few crimes are considered to be as repugnant as sexual offences against children, and society highly values every offence that can be prevented. However, relatively little interest has been directed at research intended to identify which medical and psychological interventions that actually prevent individuals at risk and known perpetrators from committing sexual offences.</p> <p>The Swedish government assigned SBU to assess the effects of methods used to treat people who have committed, or are at risk of committing, sexual offences against children. Concurrently, the Swedish National Board of Health and Welfare was assigned to survey the use of such treatments in Sweden.</p> <p>This systematic literature review scrutinises the scientific evidence for preventive medical and psychological interventions directed at offenders. We identified major weaknesses in the scientific evidence, e.g. regarding the largest category of offenders; adult males. In the absence of findings from reliable research, a reasonable treatment and follow-up strategy might be to reduce sex crime-specific risk factors, e.g. sexual preoccupation, in offenders having the highest risk of recidivism.</p>

Author Year, reference no Country	Abstract
Schmucker et al. 2015, [17] Germany	<p>Objectives: Sound evaluations of sexual offender treatment are essential for an evidence-based crime policy. However, previous reviews substantially varied in their mean effects and were often based on methodologically weak primary studies. Therefore, the present study contains an update of our meta-analysis in the first issue of this journal (Lösel and Schmucker Journal of Experimental Criminology, 1, 117–146, 2005). It includes more recent primary research and is restricted to comparisons with equivalent treatment and control groups and official measures of recidivism as outcome criteria. Methods: Applying a detailed search procedure which yielded more than 3000 published and unpublished documents, we identified 29 eligible comparisons containing a total of 4,939 treated and 5,448 untreated sexual offenders. The study effects were integrated using a random effects model and further analyzed with regard to treatment, offender, and methodological characteristics to identify moderator variables. Results: All eligible comparisons evaluated psychosocial treatment (mainly cognitive behavioral programs). None of the comparisons evaluating organic treatments fulfilled the eligibility criteria. The mean effect size for sexual recidivism was smaller than in our previous meta-analysis but still statistically significant (OR = 1.41, $p < .01$). This equates to a difference in recidivism of 3.6 percentage points (10.1 % in treated vs. 13.7 % in untreated offenders) and a relative reduction in recidivism of 26.3 %. The significant overall effect was robust against outliers, but contained much heterogeneity. Methodological quality did not significantly influence effect sizes, but there were only a few randomized designs present. Cognitive-behavioral and multi-systemic treatment as well as studies with small samples, medium- to high-risk offenders, more individualized treatment, and good descriptive validity revealed better effects. In contrast to treatment in the community, treatment in prisons did not reveal a significant mean effect, but there were some prison studies with rather positive outcomes. Conclusions: Although our findings are promising, the evidence basis for sex offender treatment is not yet satisfactory. More randomized trials and high-quality quasi-experiments are needed, particularly outside North America. In addition, there is a clear need of more differentiated process and outcome evaluations that address the questions of what works with whom, in what contexts, under what conditions, with regard to what outcomes, and also why. (PsycINFO Database Record (c) 2015 APA, all rights reserved). (journal abstract)</p>
Singh et al. 2011, [11] USA	<p>There are a large number of structured instruments that assist in the assessment of antisocial, violent and sexual risk, and their use appears to be increasing in mental health and criminal justice settings. However, little is known about which commonly used instruments produce the highest rates of predictive validity, and whether overall rates of predictive validity differ by gender, ethnicity, outcome, and other study characteristics. We undertook a systematic review and meta-analysis of nine commonly used risk assessment instruments following PRISMA guidelines. We collected data from 68 studies based on 25,980 participants in 88 independent samples. For 54 of the samples, new tabular data was provided directly by authors. We used four outcome statistics to assess rates of predictive validity, and analyzed sources of heterogeneity using subgroup analysis and metaregression. A tool designed to detect violence risk in juveniles, the Structured Assessment of Violence Risk in Youth (SAVRY), produced the highest rates of predictive validity, while an instrument used to identify adults at risk for general offending, the Level of Service Inventory-Revised (LSI-R), and a personality scale commonly used for the purposes of risk assessment, the Psychopathy Checklist-Revised (PCL-R), produced the lowest. Instruments produced higher rates of predictive validity in older and in predominantly White samples. Risk assessment procedures and guidelines by mental health services and criminal justice systems may need review in light of these findings.</p>

Author Year, reference no Country	Abstract
<p>Tully et al. 2013, [20] UK</p>	<p>PURPOSE: This study aimed to systematically review the effectiveness of risk assessment tools in predicting sexual recidivism of adult male offenders. BACKGROUND: Sex offender risk assessment aids risk management within the criminal justice system. Some tools follow an actuarial approach and some adopt structured professional judgement. There has not been a systematic review evaluating and comparing the effectiveness of those tools and appraising the overall quality of the primary research. METHODS: Six electronic databases and reference lists of relevant meta-analyses were searched. Three experts were contacted to obtain relevant studies. Inclusion criteria were applied to the identified references and the included studies were quality assessed, using pre-defined criteria, prior to data extraction and synthesis. RESULTS: Electronic search yielded 4949 hits. Of these, 1419 duplicates, 1 meta-analysis and 3382 irrelevant hits were excluded. 14 publications identified from previous meta-analyses were included. 2 non-English language duplications of publications were excluded. 89 publications that did not meet inclusion criteria and 15 inaccessible publications were excluded. 11 studies that did not meet minimum threshold criteria and 1 study that re-analysed an already included sample were then excluded, leaving 43 publications containing 43 studies. CONCLUSIONS: All included tools demonstrated at least moderate predictive accuracy, with two reporting a large effect size (VRS-SO and SRA), although these two came under much less empirical scrutiny than the others and may have been the subject of developer bias in the research that is available. The VRS-SO was found to have the highest mean quality score, this again being limited by the number of studies and developer bias. The quality of the primary research is variable. More independent high quality research is needed, particularly on structured professional judgement incorporating dynamic risk factors.</p>
<p>Walton et al. 2015, [13] UK</p>	<p>In this systematic review, the effectiveness of psychological treatment interventions for child molesters was examined. Studies were restricted to randomized control trials (RCTs), controlled trials, and cohort designs where recidivism had been used as the outcome variable. ASSIA, NCJRS, Medline, PsychINFO, EMBASE, Pro-requests Dissertations and Theses A&I, and the Cochrane Library were searched. Ten experts were contacted and the reference lists of 12 systematic reviews and 40 primary studies were observed. The number of hits was 3,019, of which 564 duplicates, 2,388 irrelevant references, and 38 that did not meet the inclusion criteria were removed. Fourteen studies using mixed samples had to be omitted because it was not possible to determine the recidivism rates of child molesters in the samples described. One RCT and 9 cohort studies were included in the data synthesis, providing 2,119 participants. In all, 52.1% received the intervention under investigation and 47.9% did not. The reported recidivism rates were 13.9% for the treated child molesters compared to 18.6% for the untreated child molesters. Three studies reported statistically significant lower recidivism rates for treated child molesters. Eight studies were assessed as weak. Four studies were assessed as having bias which increased the chance of finding a treatment effect and four studies were assessed as having bias which reduced the chance of finding a treatment effect. It was not possible to determine the direction of bias for two studies.</p>

Author Year, reference no Country	Abstract
Singh et al. 2012, [19] USA	<p>Background: Despite the widespread use of structured risk assessment instruments in the prediction of repeat sexual offending, it is not known how stable rates of sexual recidivism are in people classed as high risk. This is important, as high risk classifications are used to justify indeterminate detention decisions in an increasing number of Western countries. We investigated the extent and sources of variation in rates of sexual recidivism in sexual offenders found to be high risk by structured risk assessment instruments.</p> <p>Methods: Studies on eight widely used risk assessment instruments were identified via a systematic search of PsycINFO, EMBASE, MEDLINE, and US National Criminal Justice Reference Service Abstracts (January 1, 1995 to January 1, 2011). Rates of sexual recidivism for offenders classed as high risk were extracted, and binomial logistic regression was used to investigate potential sources of variation, including the population rate of sexual recidivism, sex, age, geographic location, instrument characteristics, and outcome characteristics.</p> <p>Results: Information on rates of repeat sexual offending was collected on 10,422 unique sexual offenders in 29 samples from 21 independent studies. Overall and mean annual rates of sexual recidivism in those classified as high risk varied both within and between instruments. Multivariable binomial logistic regression revealed that odds of sexual recidivism in high risk groups were significantly lower for each year increase in the mean age of the sample, when an actuarial instrument was used, and in studies that relied on conviction as their outcome.</p> <p>Conclusions: The rate of sexual recidivism in individuals classified as high risk by structured risk assessment instruments varies systematically. Taken alone, a classification of high risk, whether generated by actuarial or structured professional judgment methods, does not imply any particular probability of repeat sexual offending. Recent suggestions that sex offender age is insufficiently weighted by structured instruments warrant clinical attention.</p>
Fazel et al. 2012, [18] UK	<p>Objective: To investigate the predictive validity of tools commonly used to assess the risk of violence, sexual, and criminal behaviour. Design: Systematic review and tabular meta-analysis of replication studies following PRISMA guidelines. Data sources: PsycINFO, Embase, Medline, and United States Criminal Justice Reference Service Abstracts. Review methods: We included replication studies from 1 January 1995 to 1 January 2011 if they provided contingency data for the offending outcome that the tools were designed to predict. We calculated the diagnostic odds ratio, sensitivity, specificity, area under the curve, positive predictive value, negative predictive value, the number needed to detain to prevent one offence, as well as a novel performance indicator—the number safely discharged. We investigated potential sources of heterogeneity using metaregression and subgroup analyses. Results: Risk assessments were conducted on 73 samples comprising 24 847 participants from 13 countries, of whom 5879 (23.7%) offended over an average of 49.6 months. When used to predict violent offending, risk assessment tools produced low to moderate positive predictive values (median 41%, interquartile range 27-60%) and higher negative predictive values (91%, 81-95%), and a corresponding median number needed to detain of 2 (2-4) and number safely discharged of 10 (4-18). Instruments designed to predict violent offending performed better than those aimed at predicting sexual or general crime. Conclusions: Although risk assessment tools are widely used in clinical and criminal justice settings, their predictive accuracy varies depending on how they are used. They seem to identify low risk individuals with high levels of accuracy, but their use as sole determinants of detention, sentencing, and release is not supported by the current evidence. Further research is needed to examine their contribution to treatment and management. (PsycINFO Database Record (c) 2014 APA, all rights reserved).</p>

*Abstract shortened for space reasons.

Appendix Table 2. Included original studies.

Author Year, reference no Country	Abstract
Duwe 2013, [14] USA	In 2008, the Minnesota Department of Corrections implemented Minnesota Circles of Support and Accountability (MnCOA), a sex offender reentry program based on the Circles of Support and Accountability (COA) model developed in Canada during the 1990s. Using a randomized experimental design, this study evaluates the effectiveness of MnCOA by conducting a cost-benefit analysis and comparing recidivism outcomes in the MnCOA (N = 31) and control groups (N = 31). Despite the small total sample size (N = 62), the results from Cox regression models suggest that MnCOA significantly reduced three of the five recidivism measures examined. By the end of 2011, none of the MnCOA offenders had been rearrested for a new sex offense compared with one offender in the control group. Because of less recidivism observed among MnCOA participants, the results from the cost-benefit analysis show the program has produced an estimated US\$363,211 in costs avoided to the state, resulting in a benefit of US\$11,716 per participant. For every dollar spent on MnCOA, the program has generated an estimated benefit of US\$1.82 (an 82% return on investment).
Smallbone et al. 2013, [22] Australia	Actuarial risk assessment (Static-99 and Static-99-R) scores were obtained for 399 Australian adult sexual offenders who were subsequently released from prison and followed up with searches of police arrest records (mean follow-up period = 29 months; range = 15-53 months). Indigenous offenders (n = 67; 16.8%) scored significantly higher on both the Static-99 (M = 4.04 vs. 2.89, p < .001) and Static-99-R (M = 3.72 vs. 2.22, p < .001), were more than twice as likely to be arrested for sexual offenses (9.0% vs. 4.1%, ns), and were significantly more likely to be arrested for nonsexual violent (28.4% vs. 1.9%, p < .001), any violent (including sexual; 37% vs. 5.9%, p < .001), and any offenses (58.2% vs. 21.6%, p < .001). For the combined groups, predictive accuracy of both instruments was comparable to results reported elsewhere. Predictive accuracy of the Static-99 was similar for indigenous and nonindigenous offenders. The Static-99-R was only marginally predictive of any violent recidivism (AUC = .65, 95% CI = [.52, .79]), and did not predict sexual (AUC = .61, 95% CI = [.45, .77]) or nonsexual violent recidivism (AUC = .65, 95% CI = [.48, .78]), for indigenous offenders. Higher risk scores, indigenous race, and unsupervised release all contributed unique variance to any violent recidivism. Results suggest that the Static-99 may be appropriate for assessing Australian indigenous sexual offenders, but more research is needed to test the validity of the Static-99-R for this population. We conclude that practitioners should consider the potential effects of racial differences and postrelease factors, as well as static risk factors, in their assessments.
Varela et al. 2013, [55] USA	The popular Static-99R allows evaluators to convey results in terms of risk category (e.g., low, moderate, high), relative risk (compared with other sexual offenders), or normative sample recidivism rate formats (e.g., 30% reoffended in 5 years). But we do not know whether judges and jurors draw similar conclusions about the same Static-99R score when findings are communicated using different formats. Community members reporting for jury duty (N = 211) read a tutorial on the Static-99R and a description of a sexual offender and his crimes. We varied his Static-99R score (1 or 6) and risk communication format (categorical, relative risk, or recidivism rate). Participants rated the high-scoring offender as higher risk than the low-scoring offender in the categorical communication condition, but not in the relative risk or recidivism rate conditions. Moreover, risk ratings of the high-scoring offender were notably higher in the categorical communication condition than the relative risk and recidivism rate conditions. Participants who read about a low Static-99R score tended to report that Static-99R results were unimportant and difficult to understand, especially when risk was communicated using categorical or relative risk formats. Overall, results suggest that laypersons are more receptive to risk results indicating high risk than low risk and more receptive to risk communication messages that provide an interpretative label (e.g., high risk) than those that provide statistical results.

Author Year, reference no Country	Abstract
Babchishin et al. 2012, [21] Canada	There is much concern about the extent to which risk assessment tools designed to predict recidivism are equally valid for both Aboriginal and non- Aboriginal offenders. The current study compared Aboriginal and non-Aboriginal male sexual offenders on items and total scores of the original and revised Static-99 and Static-2002 scales. The study included five independent Canadian samples with Static-99 and Static-99R scores (319 Aboriginals and 1,269 non-Aboriginals), three of which also had Static-2002 and Static- 2002R scores (209 Aboriginals and 955 non-Aboriginals). Aboriginal sexual offenders scored significantly higher than non-Aboriginal sexual offenders on total scores and items indicative of general criminality and tended to score lower on items indicative of sexual deviancy. Static-99/R total scores and items generally predicted sexual recidivism with similar accuracy for Aboriginal and non-Aboriginal sexual offenders. In contrast, significant differences were found for Static-2002/R total scores and several of their items, with lower predictive accuracy for Aboriginals. The results suggest that at least some items of the Static scales are not as predictive for Aboriginal as for non-Aboriginal sexual offenders, with differences found on Static-2002/R rather than Static-99/R scales. (PsycINFO Database Record (c) 2012 APA, all rights reserved). (journal abstract)

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