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Sex Offender Treatment Programs Delivered In-Person or Virtually for Adults Convicted of Sexual Offences in Various Settings: A Review of Clinical Effectiveness and Guidelines

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Abbreviations

CBT	cognitive behavioral therapy
HR	hazard ratio
ICPM	Integrated Correctional Program Model
IDD	intellectual and developmental disabilities
MA	meta-analysis
NRS	non-randomized study
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SR	systematic review

Context and Policy Issues

Sexual offending has been considered a serious crime and social issue because of the nature of the offence and its short-term and long-term effects on victims. According to the Criminal Code of Canada,[1] sexual offence involves a wide range of criminal acts ranging from unwanted sexual touching to sexual violence resulting in serious physical injury or disfigurement to the victim. It includes sexual assaults (Level 1, 2), aggravated sexual assault (Level 3) and other sexual offences addressing offences primarily aimed at children.[1,2] It is a heterogenous category involving child molesting, rape, exhibitionism, distribution and consumption of child pornography, etc.[3]

Therapeutic interventions aiming to reduce the likelihood of reoffending (recidivism) is the core of treatment programs for individuals convicted of sexual offences (sometimes referred to in the literature as sex offender treatment programs, and herein also called sexual offence programs). Various pharmacological methods (e.g., hormonal treatment with medroxyprogesterone or cyproterone acetate, serotonergic antidepressants) and surgical methods (surgical castration) have been used in individuals convicted of sex offences.[4] Comprehensive psychological treatment options including components ranging from behavior therapy, cognitive behavioral therapy (CBT) and relapse prevention have been developed as treatment programs for individuals convicted of sexual offences.[5,6] These programs cover several domains ranging from inappropriate attitudes, problematic sexual arousal and deviant sexual preferences to substance abuse, anger control, impact and empathy, relationship issues and life skills.[6] Although early evidence provided contradicting results on the effectiveness of psychological treatments for those convicted of sexual offences,[7,8] after the formation of the Collaborative Outcome Data committee in 1997 and the introduction of guidelines for quality evaluation of studies[9] rigorous high quality meta-analyses (MAs) have been done showing significant effects for CBT-based treatments for sexual offences.[10,11]

According to Correctional Services Canada, individuals who have committed sexual offences would be referred to the Integrated Correctional Program Model (ICPM) for men and the Women's Sex Offender Program (WSOP) for women.[12] Based on risk assessment, in ICPM, individuals may be assigned to a high intensity or moderate intensity CBT-based program followed by maintenance programs in an institution or in the community. Institution

and community-based maintenance programs are for individuals with high- to moderate risk of reoffending who need continued support where risk assessment can be done on an ongoing basis. There are also CBT-based programs offered to offenders released in probation to the community.[12] It is also important to incorporate culturally specific values in the sexual offence programs to better support offenders from various cultural groups. Examples of such culturally specific programs include the Tupiq program developed for Inuit males convicted of sex offences, Mamisaq Qamutiik program in Iqaluit and the program by The Native Clan Organization of Manitoba.[13,14]

In the era of telehealth, there has been interest in delivering sexual offence programs through videoconferencing or other virtual methods. The purpose of this review is to summarize evidence regarding the clinical effectiveness of sexual offence programs offered in the community, and virtually. Additionally, the report will also summarize evidence regarding the clinical effectiveness of culturally specific sexual offence programs, and evidence-based guidelines for best practice models.

Research Questions

1. What is the clinical effectiveness of sex offender treatment programs for adults convicted of sexual offences in custody versus in the community?
2. What is the clinical effectiveness of sex offender treatment programs delivered virtually versus in-person for adults convicted of sexual offences?
3. What is the clinical effectiveness of culturally specific sex offender treatment versus standard or no treatment programs for adults convicted of sexual offences from various cultural groups?
4. What are the evidence-based guidelines regarding best practice models for sex offender treatment programs delivered in-person or virtually?

Key Findings

Evidence from three systematic reviews, one overview of meta-analyses and a non-randomized study were included in this report.

Moderate- to- high quality evidence from a non-randomized study evaluating the effectiveness of the Tupiq program for Inuit individuals convicted of sexual offences showed that culturally specific values incorporated into sexual offence programs were favorably associated with reducing general and sexual reoffending compared to alternative treatment programs or no treatment.

No studies that directly compared the effectiveness of community-based sexual offence programs with custody-based programs were identified. Based on informal indirect comparisons, the systematic reviews and overview suggested that sexual offence programs delivered in community settings showed more reduction in recidivism compared to control groups than custody-based programs compared to control groups. However, in the absence of appropriate indirect comparisons, the evidence remains low quality and inconclusive.

No evidence comparing the effectiveness of sexual offence programs delivered in person and virtually were identified. No evidence-based guidelines regarding best practice models for sexual offence programs were identified.

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including Medline via OVID, PsycINFO via OVID, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were sex offenders and treatment programs. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses, any types of clinical trials or observational studies, and guidelines. The search was also limited to English language documents published between Jan 1, 2015 and Jul 9, 2020.

Selection Criteria and Methods

One reviewer screened citations and selected studies. In the first level of screening, titles and abstracts were reviewed and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Q1, 2, 4: Adults convicted of sexual offences (includes child pornography offences) Q3, 4: Adults convicted of sexual offences (includes child pornography offences) who are members of specific cultural groups (e.g., First Nations, Métis, Inuit, ESL groups, etc)
Intervention	Q1: Sex offender treatment programs (e.g., cognitive behavioral therapy, Risk Need Responsivity) delivered virtually or in-person to those released to the community (i.e., person's home/community clinics due to probation order) Q2: Sex offender treatment program delivered virtually, including both synchronous treatment (i.e., videoconference/telehealth with another person) and asynchronous treatment (i.e., online modules, resources, or exercises) Q3: Culturally specific values incorporated into the sex offender treatment program (e.g., First Nations, Metis, or Inuit values) Q4: Sex offender treatment programs delivered with any method, in any setting (i.e., delivered in-person or virtually, in custody, or in the community)
Comparator	Q1: Sex offender treatment programs delivered in-person or virtually to those in custody (i.e., correctional facility/jail) Q2: Sex offender treatment programs delivered in-person Q3: Standard or alternative sex offender treatment program; No treatment Q4: Not applicable
Outcomes	Q1-3: Clinical effectiveness (e.g., recidivism rates/repeat sex offences, change in assessed risk of reoffence) Q4: Recommendations regarding best practice models, group size and composition, use of co-facilitators, treatment frequency, intensity, and duration for different risk levels, therapeutic models employed.
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, guidelines.

Exclusion Criteria

Articles were excluded if they did not meet the selection criteria outlined in Table 1, they were duplicate publications, or were published prior to 2015. Systematic reviews in which all relevant studies were captured in other more recent or more comprehensive systematic reviews were excluded. Primary studies retrieved by the search were excluded if they were captured in one or more included systematic reviews. Guidelines with unclear methodology were also excluded.

Critical Appraisal of Individual Studies

The included publications were critically appraised by one reviewer using the following tools as a guide: A MeaSurement Tool to Assess systematic Reviews 2 (AMSTAR 2)[15] for systematic reviews, the Downs and Black checklist[16] for randomized and non-randomized studies and the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument[17] for guidelines. Summary scores were not calculated for the included studies; rather, the strengths and limitations of each included publication were described narratively.

Summary of Evidence

Quantity of Research Available

A total of 478 citations were identified in the literature search. Following screening of titles and abstracts, 432 citations were excluded and 46 potentially relevant reports from the electronic search were retrieved for full-text review. One potentially relevant publication was retrieved from the grey literature search for full-text review. Of these potentially relevant articles, 42 publications were excluded for various reasons, and five publications met the inclusion criteria and were included in this report. These comprised three systematic reviews (SR),[18-20] one overview of meta-analyses (MAs),[21] and one non-randomized study (NRS).[22] Appendix 1 presents the PRISMA[23] flowchart of the study selection.

Additional references of potential interest are provided in Appendix 5.

Summary of Study Characteristics

Four SRs,[18-21] (one being an overview of MAs)[21] and one NRS[22] were identified and included in this report.

The included SRs[18-20] and overview[21] had broader inclusion criteria than the current report. The overview[21] considered MAs of adolescent and adult individuals convicted of sexual offences and included all types of formally developed and validated sexual offence programs. Two of the SRs[19,20] considered studies of adolescent and adult individuals convicted of sexual offences and the third SR[18] considered studies conducted among all types of adjudicated adult offenders. One of the SRs[20] also considered any kind of therapeutic measures (psychological, pharmaceutical, non-sexual offence specific) as eligible interventions.

Only the characteristics of the relevant subset of studies and the results relevant to this report will be summarized in the sections below. Additional details regarding the characteristics of included publications are provided in Appendix 2.

Study Design

The overview of MAs,[21] published in 2016, included eleven MAs among which three were relevant to this report. An update to one of these MAs[10] was included separately in the current report.[20] It was not possible to estimate the primary study overlap within the three MAs as this information was not available in the overview.[21] However, none of them provided direct comparative evidence relevant to the current report; instead conclusions were based on informal indirect comparisons of effect sizes between MAs.

The SR and MA authored by Gannon and colleagues[18] in 2019 searched for studies that had a comparator arm (randomized and non-randomized). The search was conducted in February 2018 and included 70 studies among which 44 were sexual offence specific primary studies. The SR by Marotta P.L (2017)[19] included primary studies with a single treatment arm, multiple case studies, quasi-experimental studies and randomized controlled trials published between 1999 and 2014. The SR included 18 primary studies; however, none provided findings on comparisons relevant to this report. Lastly, the SR and MA authored by Schmucker and Losel[20] was an update of the SR published in 2005.[10] This MA was initially published in 2015[24] and an identical report was published in 2017 with more details included in the appendix. The 2017 version was considered for the current report.[20] Quasi experimental studies with an equivalent or matched control arm and randomized controlled trials identified in the search executed in 2011 were considered. Case reports and studies with <5 participants in each arm were excluded. The report included 27 primary studies. However, none of the primary studies included in these SRs[18-20] provided direct comparative evidence relevant to the current report.

The NRS included was retrospective observational in design and was published in 2015.[22]

Country of Origin

The included overview of MAs was by authors from the USA.[21] The authors of the SRs were from the UK,[18] USA[19] and Norway.[20]

The NRS was conducted in Canada.[22]

Patient Population

Two of the included SRs[18,20] and the overview[21] considered studies conducted among adult individuals convicted of sex offences. The SR by Gannon et al.[18] excluded studies in offenders under 18 years of age, and those with a learning disability, cognitive impairment or a significant mental disorder leading to commitment to a mental health facility. The MA by Marotta P.L.[19] included only the studies of adults with intellectual and developmental disabilities (IDD) who were convicted of sexual offending. Study participants were required to have an index offence of sex offending or were referred to treatment programs for inappropriate sexual behaviours.

For the NRS, the study population included a treatment arm of 61 Inuit male individuals convicted of sex offences serving sentences in Fenbrook institution in Ontario, Canada. They were assessed to be at moderate to high risk for reoffending through Static-99 which is a measure of static risk factors associated with reoffending. Static-99 measures risk factors such as previous sexual offences, age, deviant sexual interests and the range of potential victims.[25] All individuals in the study had committed at least one sexual offence, but they may not have been serving their sentence for a sexual offence. Individuals with active mental health problems were excluded. The comparison group consisted of 114 Inuit

individuals convicted of sex offences who were serving their sentences in institutions outside of Ontario. Distribution of factors such as overall static risk of reoffending (risk based on the individual's criminal history), overall dynamic risk of reoffending (dynamic criminogenic risk factors based on employment, marital/family, associates, substance abuse, community functioning, personal/emotional and attitudes); education, employment, previous adult convictions and failed conditional release were similar between the two groups (P = NS). However, the treatment group had fewer individuals with past sex offence or sex related offence compared to the comparison group (P<0.01).

Interventions and Comparators

Relevant to the current report, the interventions considered in the SRs[18-20] and overview[21] were institutional and community-based sexual offence specific psychological treatments. In the SR of studies among individuals with IDD, modalities such as CBT, problem solving therapy, dialectical behavioral therapy, mindfulness and relapse prevention were specified.[19] The considered comparators included no treatment or alternative treatments.[18-21] Thus, none of the included SRs, and those identified within the overview provided direct comparative evidence relevant to this report.

In the included NRS,[22] the intervention was the Tupiq program.[14] The Tupiq program is a culturally specific sexual offence program integrating Inuit values, language and the Arctic environment in the program content. The holistic treatment approach incorporates Inuit cultural values with CBT in reducing dynamic risk factors. In the study, the Tupiq program was delivered in institutional settings, and involved group therapy, skill development and individual counselling sessions. The treatment program took 18 weeks to complete with 290 contact hours and was provided by an Inuit correctional officer trained and supervised by a clinical psychologist. The Inuit healing component of the program was provided by an Inuit elder, and each participant was connected to a counsellor in their home community as part of the community link component of the program. The comparators in were either a culturally non-specific program for individuals convicted of sex offences, a culturally specific but not Inuit specific program or no treatment. In the study, among the 114 individuals in the control group, 82 individuals received no treatment whereas 32 participants received either a culturally non-specific or Inuit non-specific program.[22]

Outcomes

The main outcome considered in the included studies was recidivism. Among the SRs and the overview of MAs, two reviews[20,21] evaluated the outcome overall recidivism (including sexual and non-sexual recidivism), and two reviews[18,21] evaluated the outcome sexual recidivism. The outcome general recidivism (non-sexual recidivism) was considered separately in the overview of MAs.[21] The SR by Marotta P.L.[19] considered victim empathy, sexual knowledge, attitudes in favor of offending, cognitive distortions along with behavioral recidivism or relapse as outcomes of interest.

In the NRS by Stewart et al.,[22] the outcomes of interest were revocation, general reoffending, violent reoffending and sexual reoffending after release from the institution. Revocation refers to the revocations of conditional release and included revocations for technical violation of conditions of release (e.g., failure to report to parole officer) and revocations for criminal offences. Reoffending information regarding the participants after release were obtained from the Canadian Police Information Center which is a centralized system recording all criminal offences across Canada. Participants were followed up from the time of release from the prison until outcome data collection in 2009. Median follow up

time in the Tupiq group was 910 days and that in the comparison group was 601 days (P = 0.08).

Summary of Critical Appraisal

Additional details regarding the strengths and limitations of included publications are provided in Appendix 3.

Systematic reviews and overview of meta-analyses

The included SRs[18-20] and overview[21] included study objectives that were well described and reported components of population, interventions and outcome. Two SRs conducted the review using methods published a priori.[18,20] Several electronic databases and references of identified reviews were comprehensively searched for relevant literature by all SRs and the overview.[18-21] Two SRs[18,20] and the overview of MAs[21] considered published and unpublished studies eligible and searched for them in dissertation databases and using expert consultations. Quality assessment of the included studies were conducted in the three SRs using predetermined scoring methods which were reported clearly covering main domains of study methodology.[18-20] In two SRs, MA was conducted using random effect weighted models using appropriate combining of effect sizes from the included primary studies.[18,20] Effects of predetermined variables were analyzed using separate moderator analyses[18,20] and heterogeneity was measured using the I^2 statistic[18,20] and Cochran's Q.[18] One SR thoroughly investigated the effects of possible publication bias using funnel plots, trim and fill tests and fail safe N tests.[18] Minimal publication bias was found by the reviewers.[18]

The overview of MAs[21] had several limitations. The authors did not report a flow chart showing literature screening and study selection. A list of excluded MAs with reasons for exclusion was not provided. These make the review less reproducible. Quality assessment of the included MAs was not done. Information regarding overlap of primary studies across the included MAs, to avoid possible overrepresentation of some primary studies, was not provided. Considering the search periods of the included MAs, it is possible that some primary studies could be included in multiple MAs leading to over representation of their results in the analysis thereby influencing the review results. The MAs in the overview compared the effectiveness of sexual offence programs between treatment and no treatment control groups within community and institutional settings separately. Informal narrative comparisons were used in the overview to draw conclusions comparing treatment effectiveness in various settings. Such comparisons are improper without a formal quantitative analysis (such as network meta-analysis or indirect comparisons), making the results less valid and the assumption of transitivity unmet. Lastly, reporting discrepancies were observed in the overview, i.e., the included MAs, their corresponding effect sizes and the overall result were reported differently in the forest plot and in the text. It is possible that an incorrect forest plot was included in the publication but was unclear. The overall direction of the results was the same in both, and thus conclusions remained the same.

As for the limitations in two SRs[18,20] included in the current report, the characteristics of the included studies were described in groups of variables and not by individual study. For example, one SR[20] reported 10 of its primary studies were done in prison settings, but it was unclear which were those 10 studies. Literature searches in two SRs[19,20] were conducted more than 24 months prior to publication, resulting in recently published studies likely to be missed. Especially in the SR by Schmucker and Losel[20] published in 2017, search was executed in 2011. Lastly, the results relevant to the current report from the two

SRs[18,20] were from moderator analysis, and no formal indirect comparisons were done. The comparative effectiveness of treatments for individuals convicted of sexual offences in community and institutional settings were reported narratively. Like the overview, without accurate indirect comparisons between community settings and institutional settings, narrative comparison has low validity.

Non-randomized study

One NRS was included this report.[22] The objective of the study was well described with population, intervention, comparators and outcomes clearly described. Comparative analysis was done using appropriate statistical tests, simple outcome data for the main study findings were reported, potential confounders were listed and addressed in the analysis. As the study was conducted in Canada, and the Tupiq program was specifically developed for Inuit individuals convicted of sex offences, the results of this study could be generalizable to other Canadian settings where Inuit individuals convicted of sex offences are housed.

As for the limitations of the NRS, the observational nature of the study with no randomized allocation and blinding was a limitation of the design. Some baseline demographic characteristics of the study population were not reported, which could affect the outcome (for example age, duration of sentence). Thus, it was unclear whether the study group included juvenile or adolescent offenders. Participants in the Tupiq group and comparison groups were enrolled from different settings, making it unclear whether the environment of those institutions could have affected the outcomes. Length of follow up varied widely among the individuals, ranging from six days to more than 2500 days. Shorter duration of follow up in some individuals could affect the survival analysis and for the reoffending outcomes, even though the median follow up time was statistically not different between groups. Results were not reported with estimates of random variability such as confidence intervals, and P values of outcome rates were only reported if significant, i.e. $P < 0.05$.

Summary of Findings

The findings from the included studies that are relevant to the research questions of the current report are summarized below. Appendix 4 presents the main study findings and authors' conclusions.

Clinical effectiveness of sex offender treatment programs for adults convicted of sexual offences in custody versus in the community

Overall recidivism

No direct comparative evidence regarding the effectiveness of treatment for individuals convicted of sex offences in institutional settings and community settings was found.

Findings from one SR[20] and the overview of MAs[21] suggested that sexual offence programs can reduce overall recidivism compared to no treatment. The overview of MAs[21] found that sexual offence programs in the community produced about 17% reduction in recidivism compared to no treatment, whereas institutional treatments produced about 10% reduction compared to the control group. Some discrepancies were observed in this publication between the effect sizes and number of studies mentioned in the forest plot and in the in the results and discussion sections. Based on an informal indirect comparison of effect sizes between MAs in the overview, the authors concluded that community-based treatment could be more effective in reducing overall recidivism than institution-based programs.

However, such informal indirect comparisons could be misleading, and evidence drawn from such comparisons is of low quality.

The MA by Schmucker and Losel[20] conducted moderator analysis of the outcome overall recidivism comparing treatment and control groups in various settings. The control groups comprised no treatment or alternative treatment. The results showed that outpatient programs and hospital-based programs significantly reduced recidivism compared to control group, while prison-based programs were not associated with a significant reduction in recidivism (OR = 1.25; 95% CI = 0.85 to 1.83; k = 9). It should be noted that while 44.8% of the offenders included in the analysis were adults, at least 17.2% were adolescents. Age groups of the rest were unclear. The authors concluded that prison-based treatment programs “did not fare worse” than community-based programs. However, like the overview, the SR also did not conduct any appropriate indirect comparative analysis between the settings. For these reasons, the comparative evidence obtained from the study is of low validity.

Sexual recidivism

No direct comparative evidence regarding the effectiveness of sexual offence programs institutional settings and community settings for the outcome sexual recidivism were found.

Kim et al.,[21] in the overview of MAs, estimated the effect sizes for sexual recidivism in community and institutional settings based on results from one MA. The results showed that sexual offence specific treatment programs in community settings and institutional settings were associated with significant reductions in sexual recidivism compared to the control group (no treatment or inappropriate/ inadequate treatment) with standard mean difference of – 0.320 and – 0.273 respectively. However, as a result of the discrepancies in reporting (effect sizes as reported in forest plot and in the table of effect sizes from individual MAs) and the nature of informal indirect comparisons of effect sizes between settings, the results have low validity.

Results from one SR[18] found that compared to controls (no treatment or comparable treatment), programs delivered in institutional settings and community settings were associated with significant reductions in sexual recidivism of similar magnitude; however, no formal indirect comparison was conducted so results should be interpreted with caution.

General recidivism

Based on findings from two SRs identified in the overview,[21] sexual offence programs were associated with significant reductions in general recidivism in community settings (treatment versus no treatment or inadequate treatment). But within the institutional settings, the reductions in general recidivism rates were not statistically significant (treatment versus no treatment or inadequate treatment). The authors concluded that community treatment (d = –0.33) had “a larger effect in reducing recidivism” compared to institutional treatments (d = –0.20). However, as a result of the discrepancies in reporting (effect sizes reported in the forest plot and in the results text were different) and the lack of formal indirect comparisons between treatment in community versus institutional settings, the results have low validity.

Clinical effectiveness of sex offender treatment programs delivered virtually versus in-person for adults convicted of sexual offences

No relevant evidence regarding the clinical effectiveness of sexual offence programs delivered virtually versus in-person for adults convicted of sexual offences was identified; therefore, no summary can be provided.

Clinical effectiveness of culturally specific sex offender treatment versus standard or no treatment programs for adults convicted of sexual offences from various cultural groups

One NRS[22] provided evidence regarding the effectiveness of Tupiq program among male Inuit individuals convicted of sex offences.

Compared to a combined control group of individuals who were not treated and who received an alternative program, the Tupiq group was associated with a significantly lower rates of general reoffending. Individuals who did not receive the Tupiq program were about twice as likely to commit a reoffence of any kind compared to the Tupiq group (adjusted hazard ratio (HR) = 2.22, P = 0.02) as found by survival analysis. The groups were not statistically different in other outcomes namely, revocation, violent reoffending and sexual reoffending.

When individuals who received no treatment were considered separately and the three groups (Tupiq group, untreated group, alternative treatment group) were compared, the Tupiq group was associated with significantly lower rates in general reoffending and sexual reoffending (P <0.05). Individuals convicted of sex offences who received alternative treatment programs were more likely to have a general reoffence than the Tupiq group (HR = 2.72; P = 0.01), while the risk of general reoffence in untreated individuals was not significantly different to Tupiq group (HR = 1.94; P = 0.08). There were no significant differences in violent reoffending or revocation rates between the three groups. Across all four outcomes (revocation and general, violent, or sexual reoffending), the highest rates were observed in the alternative treatment group numerically, suggesting the importance of culture specific values in the treatment program.

Evidence-based guidelines regarding best practice models for sex offender treatment programs delivered in-person or virtually

No evidence-based guidelines regarding best practice models for sexual offence programs delivered in-person or virtually was identified; therefore, no summary can be provided.

Limitations

The main drawback of this report is the limited quantity and quality of relevant evidence. The included SRs did not identify any primary studies relevant to the current report. The SRs and overview provided only informal indirect comparisons regarding the clinical effectiveness of sexual offence programs in custody compared to community settings. The lack of appropriate indirect comparisons (in the form of indirect comparison or network meta-analysis) lowered the validity and generalizability of the results to practice. These limitations along with the methodological limitations outlined above resulted in low-to-moderate quality evidence. One non-randomized study was identified regarding culturally specific values incorporated into the sexual offence program, which was for Inuit individuals convicted of sex offences. No evidence regarding other culturally specific treatment programs were identified for other groups such as First Nations and Métis. No evidence comparing the effectiveness of sexual offence programs delivered in person and virtually were identified. No evidence-based guidelines regarding best practice models for sexual offence programs were identified.

Conclusions and Implications for Decision or Policy Making

Three SRs,[18-20] one overview of MAs[21] and one NRS[22] were identified to be included in this report. No relevant primary studies that compared provision of treatment in different settings to adults convicted of sexual offences were identified within the SRs or the overview.

Results from one NRS[21] suggest that the Tupiq program for Inuit male individuals convicted of sex offences, a sexual offence program with culturally specific values incorporated, was associated with lower rates and lower risk of general reoffending compared to a combined comparison group of Inuit individuals receiving no treatment or an alternative treatment. The Tupiq group was also associated with significantly lower rates in general reoffending and sexual reoffending when compared to the untreated and alternatively treated control groups separately. No evidence regarding other culturally specific treatment programs were identified for other groups such as First Nations and Métis.

The narrative comparison results from the one SR[18] and the overview of MAs[21] showed that, compared to control groups, both community-based and prison-based sexual offence programs were associated with significant reduction in sexual recidivism and informal indirect comparisons suggested that community based programs showed more reduction in recidivism compared to control group than institution based programs. Informal narrative comparisons from one SR[20] and the overview[21] reported that community-based programs were more effective in lowering general (non-sexual) and overall recidivism (compared to controls) than prison-based programs. However, in the absence of formal indirect comparison (network meta-analysis or indirect comparison) the narrative comparisons are not appropriate, making the evidence low quality and inconclusive. The SR[19] of sexual offence programs in individuals with IDD found no relevant primary studies and concluded that none of the included studies "accounted for the potential impact of treatment settings on the effective delivery of treatment."[19] No evidence comparing the effectiveness of sexual offence programs delivered in person and virtually were identified. No evidence-based guidelines regarding best practice models for sexual offence programs were identified.

The evidence, limited in quantity and quality, identified for this report highlighted the need for well-designed studies comparing the effectiveness of sexual offence programs in various settings. The evidence from one study[22] highlights the importance of culturally specific values in treatment programs for adults convicted of sexual offences such as the Tupiq program. Future research for the effectiveness of other culturally specific programs may be warranted. In this era of digitalization, providing distance treatment through online platforms and the provision of virtual counseling sessions is worth examining. One of the main barriers in delivering community based and culture specific programs is the cost associated. For example, in the Tupiq program, Inuit leaders are flown in from remote Northern communities to the correctional facility in Fenbrook.[14,22] Availability of digital options could help lower some of these costs and remove barriers to access. However, community-based treatment could also be met with other barriers such as lack of support from the community and social stigma. Assessment of risk of reoffending is of paramount importance to mitigate the risk to the community. Lastly, development of evidence-based guidelines for the best practice models for sexual offence programs delivered in community and virtually is important. The ultimate aim should be to prevent recidivism, successfully rehabilitate the individuals convicted of sex offences and reduce the risk to the community.

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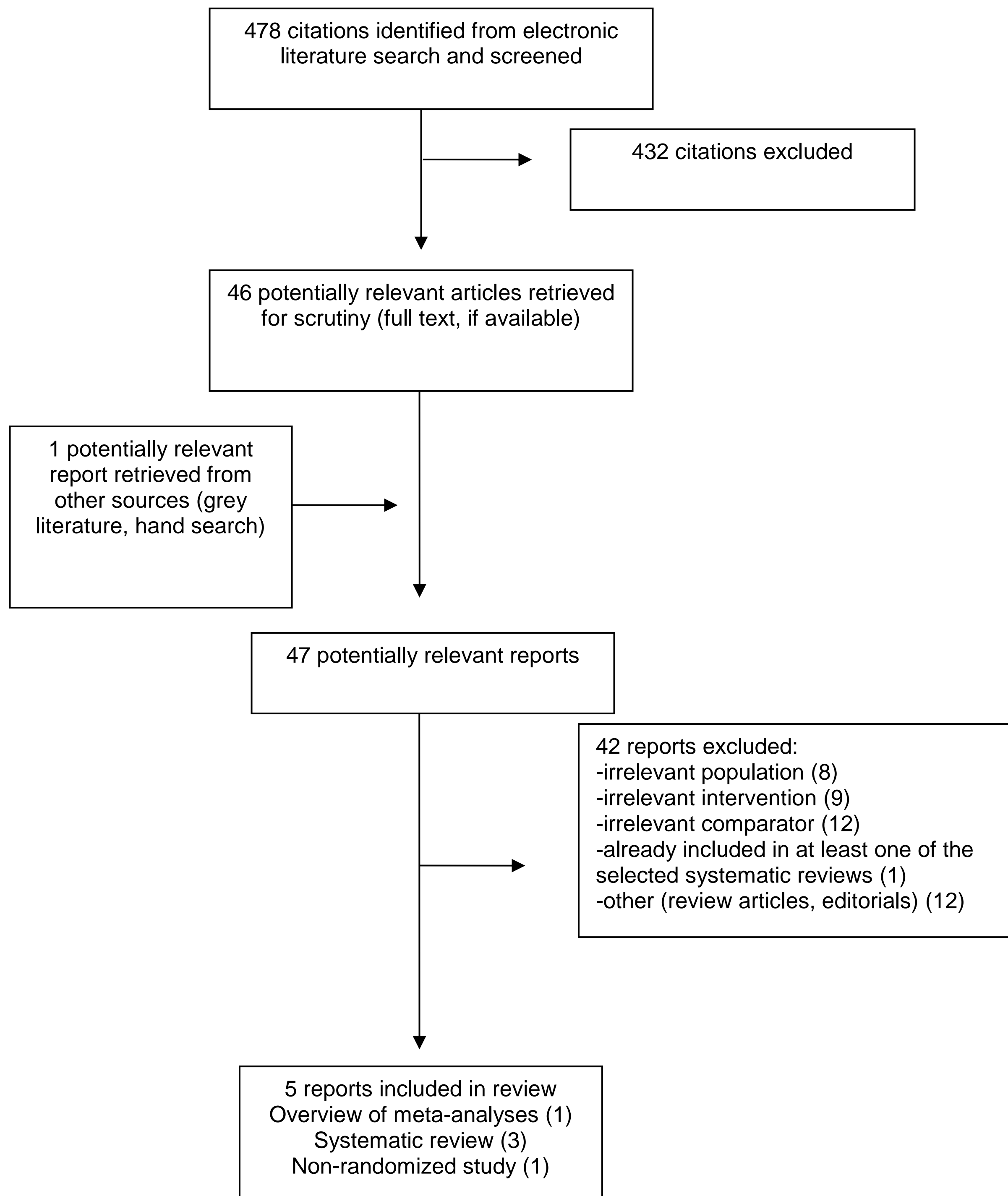
Appendix 1: Selection of Included Studies



Appendix 2: Characteristics of Included Publications

Table 2: Characteristics of Included Systematic Reviews and Meta-Analyses

Study citation, country, funding source	Study designs and numbers of primary studies included	Population characteristics	Intervention and comparator(s)	Clinical outcomes, length of follow-up
Overview of meta-analyses				
Kim et al., 2016[21] **USA** Funding source: **Non-funded**	**Study design:** Overview of MAs **Number of MAs:** 11 **Number of relevant MAs:** 3 **Number of primary studies within the included relevant MAs:** Institution setting, k = 10,[26] 21[10] and 23[11] studies. Community setting, k = 11,[26] 17[11] and 27[10] studies Mixed setting, k = 2,[26] 3[11] and 10[10] **Overlap of primary studies:** Not reported	Eligible population: Adolescent and adult individuals convicted of sex offences Relevant population: Adult individuals convicted of sex offences The population details relevant to this report are summarized below: Number of patients: 31,635 Median age: NR	**Eligible intervention:** Formally developed and validated sexual offence treatments **Relevant intervention:** - Institutional sexual offence treatments - Community sexual offence treatments: **Comparator:** No treatment or inappropriate/inadequate treatment.	**Outcomes:** Sexual recidivism Violent recidivism Any recidivism **Length of follow up:** NR
Systematic reviews				
Gannon et al., 2019[18] **UK** Funding source: **Non-funded**	Systematic review and MA of randomized and non-randomized comparative studies. **Total number of primary studies included**: 70 **Number of sexual offence specific primary studies**: 44 **Number of relevant primary studies:** 0	Eligible population: Adjudicated offenders. Relevant population: individuals adjudicated for sex offences **Excluded:** Age < 18 years, learning disability, cognitive impairment, significant mental disorder leading to commitment to a mental health facility. Number of patients in the relevant studies: N/A	**Intervention:** Offence specific psychological treatment **Relevant intervention:** Sexual offence specific psychological treatment in prison, community or special facility. **Comparator:** No treatment or comparable treatment	**Relevant outcome:** Sexual recidivism **Mean follow-up in the sex offence specific primary studies:** 76.2 months (SD = 34.2)

Study citation, country, funding source	Study designs and numbers of primary studies included	Population characteristics	Intervention and comparator(s)	Clinical outcomes, length of follow-up
Marotta. P L., 2017[19] **USA** Funding source: **Training Program on HIV and Substance Use in the Criminal Justice System (#T32 DA03780) by the National Institute on Drug Abuse (NIDA).**	Systematic review. Study designs included: - single treatment group study design with no comparison - multiple case study designs - quasi experimental designs - randomized controlled trials (pharmacological and single case study reports were excluded) **Total number of primary studies included:** 18 **Number of relevant primary studies:** None	Eligible population: Adolescent and adult individuals with IDD convicted of sex offences Relevant population: Adult individuals with IDD convicted of sex offences Individuals with an index offence of sex offending or those who were referred to sexual offence programs for inappropriate sexual behaviors were included. **Number of patients in the relevant studies:** N/A **Mean age of patients in the relevant primary studies:** N/A **Sex of patients in the relevant primary studies:** N/A	**Interventions:** Sexual offence program. **Modalities included:** - CBT - Problem solving therapy - Dialectical behavioural therapy - Mindfulness - Relapse prevention **Comparators**: - No comparison (single arm) - No treatment (control group) - Any other type of treatment	**Eligible outcomes:** victim empathy, sexual knowledge, attitudes in favour of offending, cognitive distortions and behavioural recidivism or relapse. **Relevant outcome:** Behavioural recidivism or relapse **Follow-up in the relevant primary studies:** N/A
Schmucker and Losel, 2017[20] **Norway** **Funding source:** No external funding	Systematic review and meta-analysis of experimental and quasi experimental studies-such as those with - Incidental assignment but equivalent control group - Matched controls - Randomized controlled trial. Case reports, and studies with a sample size of <10 (five in each group) were excluded. **Total number of primary studies included:** 27	Eligible population: Males convicted of sex offences Relevant population: Adult males convicted of sex offences **Number of patients in the relevant studies:** N/A **Mean age of patients in the relevant primary studies:** N/A	**Eligible intervention:** any kind of therapeutic measures to reduce recidivism (psychosocial, pharmacological treatment such as hormonal treatment, surgical castration). General offender treatment programs were also considered. **Relevant intervention:** Sexual offence treatment. Deterrent or punishing methods were excluded.	**Outcomes**: - Recidivism (sexual and non-sexual offences) **Length of follow up:** Average follow up time was 5.9 years in the included studies.

Study citation, country, funding source	Study designs and numbers of primary studies included	Population characteristics	Intervention and comparator(s)	Clinical outcomes, length of follow-up
	Number of relevant primary studies: None		**Eligible comparators:** - No treatment - "treatment as usual" - Another treatment different from intervention in content, intensity and specificity. - Waiting list **Relevant comparator:** Another treatment different from intervention in content, intensity and specificity.	

CBT: cognitive behavioral therapy; IDD: intellectual and developmental disabilities; MA: meta-analysis; N/A: not applicable; NR = not reported; SD: standard deviation

Table 3: Characteristics of Included Primary Clinical Study

Study citation, country, funding source	Study design	Population characteristics	Intervention and comparator(s)	Clinical outcomes, length of follow-up
Stewart et al., 2015[22] **Canada** **Funding source:** Non-funded	Retrospective observational study	Inuit male individuals convicted of sex offences with moderate to high risk of reoffending, who were released between 2001 and 2009. **Number of patients** Tupiq group, n = 61 Control group, n= 114 (Untreated group, n = 82; Alternative treatment group, n = 32)	**Intervention**: Tupiq program at Fenbrook institution. Tupiq program is a culturally specific sexual offence program integrating Inuit values, language, and the Arctic environment in program content. Involves group therapy, skill development and individual counselling. Duration of the program: 18 weeks (290 contact hours) **Comparator**: - No treatment - Culturally non-specific sexual offence program - Aboriginal, but not Inuit-specific	**Outcomes**: - Revocations - Reoffence of any crime (Includes any criminal offence resulting in provincial or federal sentence) - Reoffending with a violent crime (Included armed robbery, assault, homicide, manslaughter, assault causing bodily harm, and sex offences) - Reoffending with a sexual crime (includes any sex offence such as sexual assault, touching, pornography, incest etc.) - Time at risk till reoffence/ end of study **Length of follow up:** Time of release till data collection time in 2009. Median follow up time:

Study citation, country, funding source	Study design	Population characteristics	Intervention and comparator(s)	Clinical outcomes, length of follow-up
			sexual offence program.	Tupiq group: 910 days (SD = 808.6), range 69 to 2755 days Comparison group: 601 days (SD = 662.7), range: 3 to 2744 days P = 0.08

SD: standard deviation

Appendix 3: Critical Appraisal of Included Publications

Table 4: Strengths and Limitations of Systematic Reviews and Meta-Analyses Using AMSTAR 2[15]

Strengths	Limitations
Kim et al., 2016[21]	
• The research question and inclusion criteria for the review were well described along with components of population, interventions and outcome. • Several electronic databases were searched for eligible studies. References of identified reviews were searched for additional studies. Unpublished studies were searched for in dissertation databases. Key search words were described. • Characteristics and key results of the included MAs were described in adequate detail.	• It was unclear whether the review methods were established a priori in the form of a protocol. • It was unclear whether study selection and data extraction were done in duplicate increasing the chances of inconsistencies and errors. • A flow chart of study selection showing the number of publications included at each level of screening was not reported. A list of excluded studies and reasons for exclusion were not provided. • Quality assessment of the included MAs were not reported, nor were the quality of primary studies included in each MAs. • Information regarding possible overlap of primary studies across the included MAs were not provided. Based on the search periods, it is likely that some primary studies could be included in multiple MAs and thus be over-represented in the overview analysis. • Interventions and comparators were not compared using indirect comparison analysis but were compared narratively (informal indirect comparison). Such comparisons could be inadequate to provide valid comparative results, and the assumption of transitivity would not be met. • Some discrepancies were noted between the studies and values reported in the forest plot and those mentioned in the results section. It is unclear which of these values were accurate. • Heterogeneity of the overall analysis or the individual MAs was not addressed. Based on the diversity in population and interventions considered, heterogeneity is an important factor to consider. • Funding sources for the individual studies were not reported.
Gannon et al., 2019[18]	
• The research question and inclusion criteria for the review were well described and included components of population, interventions and outcome. • The review was conducted using a predetermined and published Open Science Framework study plan. • Several electronic databases were searched for eligible studies. Search strategy was reported. Additional sources such as references of other studies, expert consultations and listserv requests and were done to identify other eligible studies.	• It was unclear whether study selection and data extraction was done in duplicate to avoid errors. • A list of excluded studies and reasons for exclusion were not provided • Characteristics of included studies were reported in groups of coded variables and not per study making the details of each of the included study difficult to decipher. (For e.g., 25 studies were conducted in prison settings, it is unclear which are these 25 studies) • Source of funding for the individual studies were not reported.

Strengths	Limitations
• Publication restrictions were adequate. (Published and unpublished studies were included, only studies in English were considered, no study period limitation). • Quality assessments of the included studies were conducted using predetermined scoring method adapted from a previously published tool. • meta-analysis was conducted using appropriate effect estimates (odds ratio) and weighted random effects and fixed effects model. Repeat analysis were run excluding outliers to detect over-representation, if any. • Heterogeneity was measured using Cochran's Q (with P values) and I2 statistic. Effect of predetermined predictors were evaluated in separate moderator analyses. • Publication bias was assessed for each predictor variable using three types of asymmetry testing (funnel plots, trim and fill, and fail-safe N). There was minimal publication bias which was reported in detail. • The review was non-funded, and the authors had no conflicts of interests to declare.	
Marotta, P L., 2017[19]	
• The research question and inclusion criteria for the review were well described and included components of population, interventions and outcome. • The SR was conducted using PRISMA framework. • Selection of study designs were described. • Multiple electronic databases were searched for eligible studies. Ancestry analysis using references were conducted to identify additional studies. • A list of excluded studies and the reason for exclusion was clearly reported. • The characteristics of included studies were described in adequate detail. • Quality assessment of the included studies were conducted using a review of seven factors, which were described. Strengths and limitations of each if the included studies were reported. • Heterogeneity of the included studies were noted. • The author had no conflicts of interest to disclose.	• It was unclear whether the review methods were established a priori in the form of a protocol. • Search was restricted to a 20-year period (1999-2014) and was conducted more than 24 months prior to publication. • The screening, article selection and data extraction were not done in duplicate. • Funding sources for the individual studies were not reported.
Schmucker and Losel [20]	
• The research question and inclusion criteria for the review were well described and included components of population, interventions, comparators and outcome. • Review methods were established a priori as a published protocol. • The rationale for the included study designs were reported. • Several electronic databases were searched for eligible studies. Search strategy was reported. Additional sources such as previous reviews, references of other studies, handsearching of relevant journals, internet search and expert consultations were done to identify other eligible studies.	• Literature search was conducted more than 24 months prior to the publication of the review (in 2011). • Characteristics of included studies were reported in groups pf coded variables and not per study making the details of each of the included study difficult to decipher. (For e.g., 10 studies conducted in prison settings, it is unclear which are these 10 studies). • The overall results of the MA had high heterogeneity (> 45%) lowering the validity of the results.

Strengths	Limitations
• Publication restrictions were appropriate. (Published and unpublished studies were included, studies in English, German, Dutch and Swedish were considered). • Data extraction from the included studies were done in duplicate lowering the chances of errors. • A list of excluded studies with references and reason for exclusion were provided. • Quality assessment of the included studies were done using the Maryland scale of methodological rigor rating. • Author affiliation to the treatment program was addressed. • A meta-analysis was conducted using random effects weighted model and using adequate methods in combining the studies. Possible effects of risk of bias in the studies were assessed using moderator analysis (there were nor effects). • Heterogeneity was assessed using I2. Moderator analyses were conducted based on a mixed effects model to mitigate the high heterogeneity. • Impact of publication bias on study results were discussed. • Authors had no conflicts of interest to declare.	

AMSTAR 2 = A MeaSurement Tool to Assess systematic Reviews 2; MA: meta-analysis; SR: systematic review

Table 5: Strengths and Limitations of the Included Clinical Study Using the Downs and Black checklist[16]

Strengths	Limitations
Stewart et al., 2015[22]	
• The objective of the study is clearly described, and population, intervention, comparators and outcome were well reported. • The details of the intervention (Tupiq program) were described clearly. • Potential confounders were addressed and adjusted for in the survival analysis. • Simple outcome data for the main study findings were reported. • Study groups were compared using appropriate statistical methods which were adequality described. • Outcome measures were appropriate and defined clearly. • The authors had no conflict of interest to declare	• The study was observational in design with no randomized allocation and allocation concealment. • Some baseline characteristics of the study participants (for example age) were not reported. • Some estimates of random variability such as confidence intervals were not reported, significance of the results was denoted with only P values in the survival analysis. In the other comparisons, only P< 0.05 were denoted with an asterisk and the nonsignificant P values were not reported. • As the length of follow up were considered as time between release and data collection time, individuals were followed up for varying duration. • Participants in different groups were selected from nature of the intervention. • It is unclear whether a sample size calculation was done to ensure adequate statistical power.

Appendix 4: Main Study Findings and Authors' Conclusions

Table 6: Summary of Findings Included Systematic Reviews and Meta-Analyses

Main study findings	Authors' conclusion
Kim et al., 2016[21]	
Overview of 11 meta-analyses to examine the effectiveness of sexual offence programs. Findings on recidivism rates in community and institution settings were contributed by 3 MAs. **Findings from individual MAs:** **General recidivism** ▪ Community setting: (treatment vs control) Hanson et al., o Standard difference in means = – 0.857 (SE = 0.151) o Variance = 0.023; P = 0.000 Losel et al., o Standard difference in means = – 0.363 (SE = 0.101) o Variance = 0.010; P = 0.000 ▪ Institution setting: (treatment vs control) Hanson et al., o Standard difference in means = – 0.130 (SE = 0.086) o Variance = 0.007; P = 0.131 Losel et al., o Standard difference in means = – 0.082 (SE = 0.091) o Variance = 0.008; P = 0.366 **Sexual recidivism** ▪ Community setting: (treatment vs control) Hanson et al., o Standard difference in means = – 0.320 (SE = 0.122) o Variance = 0.015; P = 0.009 ▪ Institution setting: (treatment vs control) Hanson et al., o Standard difference in means = – 0.273 (SE = 0.070) o Variance = 0.005; P = 0.000 **Findings from the overview analysis:** **Overall recidivism** ▪ Community setting: (treatment vs control) Fixed effect model: o Standard difference in means = – 0.460 (SE = 0.069) o Variance = 0.005; P = 0.000 Random effect model: o Standard difference in means = – 0.509 (SE = 0.162) o Variance = 0.026; P = 0.002 ▪ Institution setting: (treatment vs control) Fixed effect model: o Standard difference in means = – 0.180 (SE = 0.047) o Variance = 0.002; P = 0.000 Random effect model:	"The research indicates that treatment in the community is more effective than treatment in institutions. Although there may be obstacles to changing existing exclusionary policies, evidence demonstrates that sex offenders, both adolescent and adult, can be treated successfully in community settings…. (future)Research can compare institutional versus community treatments for adolescent and adult offenders and highlight approaches that are most likely to reduce recidivism in these settings"[21] (p.115)

Main study findings	Authors' conclusion
○ Standard difference in means = – 0.173 (SE = 0.060) ○ Variance = 0.004; P = 0.004 The authors reported that "The grand mean effect size of community treatments was d = –0.33, suggesting that the sex offender treatments occurring in the community produced about an overall 17% reduction in recidivism, while the grand mean effect size of institutional treatments was smaller, d = –0.20, suggesting about a 10% reduction in recidivism." [21] (p.114)	
Gannon et al., 2019[18]	
Systematic review and MA of sex offence specific psychological programs in prison, community and special facility settings. None of the included studies directly compared treatment in prison with treatment in community. **Results from the moderator analysis:** All comparisons are between treatment group and control group within a setting using random effects model. ▪ **Sexual recidivism** Institution setting (treatment vs comparison) ○ OR (95% CI) = 0.67 (0.52 to 0.85) ○ N = 14,224; k = 25* ○ Q = 87.44; P <0.001 ○ I^2 = 75.55 Institution setting including outlier study (treatment vs comparison) ○ OR (95% CI) = 0.70 (0.54 to 0.92) ○ N = 29,995; k = 26* ○ Q = 163.55; P <0.001 ○ I^2 = 84.77 Community setting (treatment vs comparison) ○ OR (95% CI) = 0.61 (0.47 to 0.79) ○ N = 11,296; k = 18* ○ Q = 31.26; P <0.05 ○ I^2 = 45.61 Authors reported that, "Treatment across institutions and the community produced comparable sexual recidivism reductions. When Mews et al. was included within institutional settings, however, community programs generated comparably larger effects."[18] (p. 6) *k denotes the number of primary studies contributing to the analysis.	"However, the findings from this review across traditional and emerging specialized psychological offense programs presents converging evidence that such programs impact a broad range of offending behaviors in addition to impressive reductions in offense specific recidivism. Amidst these findings, however, lies an important moderating variable that has been neglected in previous meta-analyses: program staffing. If specialized psychological offense programs are to be effective, then our review suggests that researchers and clinicians must seriously consider these factors in addition to study design quality." [18] (p. 14)
Marotta P L., 2017[19]	
Systematic review of sexual offence programs in individuals with IDD convicted of sex offences. No relevant primary studies were included. The author reported that, "None of the studies, sampling from a combination of community, prison custodial, and secure hospital settings, accounted for the potential impact of treatment settings on the effective delivery of treatment." [19] (p.10)	"More work is needed to better conceptualize recidivism and problem sexual behaviors in this population. Few studies measured unofficial recidivism and those that did failed to specify the behaviors that constitute more subtle forms of sexual recidivism. Future studies must gather as much collateral information from multiple domains when assessing recidivism. Of equal

<table>
<tr><th>Main study findings</th><th>Authors' conclusion</th></tr>
<tr><td></td><td>importance, wide variance in follow-up times renders firm conclusions surrounding treatment efficacy problematic. Longer periods of follow-up detect greater rates of recidivism. Shorter periods restrict the window of opportunity for detection, thus introducing a bias into studies that claim reductions in recidivism after a short post-treatment period. Every effort must be made to issue reports summarizing recidivism as frequently as possible along a wide follow-up period." [19] (p.10 - 11)</td></tr>
<tr><th colspan="2">Schmucker and Losel, 2017[20]</th></tr>
<tr><td>Systematic review and MA aimed to assess the effectiveness of various treatments for individuals convicted of sex offences to reduce recidivism.

None of the included studies directly compared treatment in prison with treatment in community.

Findings from the moderator analysis:
Recidivism
All comparisons are between treatment group and control group within a setting using random effects model.

<u>Prison setting (treatment group vs control group)</u>
o OR (95% CI) = 1.25 (0.85 to 1.83)
o Number of studies, k = 9

<u>Hospital setting (treatment group vs control group)</u>
o OR (95% CI) = 1.74 (1.04 to 2.91)
o Number of studies, k = 5

<u>Outpatient settings (treatment group vs control group)</u>
o OR (95% CI) = 1.73 (1.11 to 2.72)
o Number of studies, k = 12

<u>Mixed settings (treatment group vs control group)</u>
o OR (95% CI) = 0.54 (0.19 to 1.51)
o Number of studies, k = 2

The authors reported that, "Although there was no significant mean effect, prison-based programs did not fare significantly worse than treatment in other settings"[20] (p. 29)</td><td>"Overall, the findings are promising, but there is too much heterogeneity between the results of individual studies to draw a generally positive conclusion about the effectiveness of sex offender treatment. However, the results reveal information that is practically relevant: For example, our review confirms that cognitive-behavioral programs and multi-systemic approaches are more effective than other types of psychosocial interventions. The findings also suggest various conditions of success such as more individualization instead of fully standardized group programs, an advantage of treatment in the community or therapeutic settings instead of prisons, a focus on medium to high risk offenders, early treatment of young sexual offenders, and measures to ensure quality of implementation."[20](p.8)</td></tr>
</table>

CI: confidence interval; IDD: Intellectual and developmental disabilities; MA: meta-analysis; NR = not reported; OR: Odds ratio; SE: Standard error.

Table 7: Summary of Findings of Included Primary Clinical Study

<table>
<tr><th>Main study findings</th><th>Authors' conclusion</th></tr>
<tr><td colspan="2">Stewart et al., 2015[22]</td></tr>
<tr><td>Retrospective observational study of male Inuit individuals convicted of sex offences
Tupiq group, n = 61
Comparison group, n = 114 (included untreated group, n = 82 and alternative treatment group, n = 32)

Profiles of Tupiq and the comparison group:
Distribution of factors such as Overall static risk (risk based on offender's criminal history), Overall dynamic risk (dynamic criminogenic risk factors based on employment, marital/family, associates, substance abuse, community functioning, personal/emotional and attitudes); education, employment, previous adult convictions, and failed conditional release were similar between the two groups. (P = NS)

<u>Past sex offence/ sex related offence n (%)</u>
Tupiq group: 28 (45.9); Comparison group: 72 (66.7); P <0.01

Study findings: (Tupiq group vs combined comparison group)

<u>Revocation:</u>
o Tupiq group, n (%): 24 (39.3)
o Comparison group, n (%): 58 (50.9)
o Φ = 0.11; P = NS

<u>General reoffending:</u>
o Tupiq group, n (%): 18 (29.5)
o Comparison group, n (%): 54 (47.4)
o Φ = 0.17; P < 0.05

<u>Violent reoffending</u>
o Tupiq group, n (%): 13 (21.3)
o Comparison group, n (%): 40 (35.1)
o Φ = 0.14; P = NS

<u>Sexual reoffending</u>
o Tupiq group, n (%): 3 (4.9)
o Comparison group, n (%): 13 (11.4)
o Φ = 0.11; P = NS

Survival analyses (Tupiq group vs combined comparison group):
<u>Revocation:</u>
o Unadjusted: HR = 0.78; P = 0.29
o Adjusted: HR = NR; P = 0.17

<u>General reoffending:</u>
o Unadjusted: HR = 1.94; P = 0.01
o Adjusted: HR = 2.22; P = 0.02

<u>Violent reoffending:</u>
o Unadjusted: HR = 1.81; P = 0.05
o Adjusted: HR = 1.96; P = 0.08</td><td>"This study shows encouraging results for this innovative program for Inuit sex offenders. Tupiq's unique design combines key elements outlined in the effective corrections literature with culturally specific and linguistically sensitive material.[….] The costs of a program like Tupiq, the multiple dynamic risk factors of most Inuit offenders, and the logistical problems of delivering culturally sensitive programs to a distinct but small group of offenders point to a need to examine a strategy for the development of an Inuit-specific integrated program that will treat offenders with multiple needs in a modularized format. This is a strategy that would appear to be particularly relevant to a high needs Inuit group that is so sparsely scattered across institutions. Dynamic risk factors common to most Inuit offenders are in the areas of substance abuse, and sexual and domestic violence. In addition, given the barriers to reintegration posed by Inuit offenders serving much of their sentences far from their families and communities, it would be appropriate to assess the viability of providing a correctional intervention that targets these criminogenic areas in one integrated program and provides ongoing maintenance for the graduates of the program closer to Inuit communities and to the resources and services that form a key component of the Tupiq program." [22] (p. 1344)</td></tr>
</table>

Main study findings	Authors' conclusion
Sexual reoffending: o Unadjusted: HR = 0.44; P = 0.16 o Adjusted: HR = NR; P = 0.30 **Study findings (Tupiq group vs untreated group and alternative treatment group):** Revocation o Tupiq group, n (%): 24 (39.3) o Alternative treatment, n (%): 19 (59.4) o Untreated, n (%): 39 (47.6) o Φ = 0.14; P = NS General reoffending: o Tupiq group, n (%): 18 (29.5) o Alternative treatment, n (%): 18 (56.3) o Untreated, n (%): 36 (43.9) o Φ = 0.20; P < 0.05 Violent reoffending: o Tupiq group, n (%):13 (21.3) o Alternative treatment, n (%): 14 (43.8) o Untreated, n (%): 26 (31.7) o Φ = 0.17; P = NS Sexual reoffending o Tupiq group, n (%): 3 (4.9) o Alternative treatment, n (%): 7 (21.9) o Untreated, n (%): 6 (7.3) o Φ = 0.21; P < 0.05 **Survival analysis between three groups:** o Revocation: HR = NR; P = 0.22 o Violent reoffending : HR = NR; P = 0.10 o Sexual reoffending: HR = NR; P = 0.30 o General reoffending: HR = NR; P = 0.02 - Alternate treatment group vs Tupiq group. HR = 2.72, P = 0.01 - Untreated group vs Tupiq group, HR = 1.94, P = 0.08	

HR: hazard ratio; NR = not reported. NS: not significant; Φ = phi coefficient

Appendix 5: Further Information

Alternative population- Juvenile and adolescent individuals convicted of sex offences

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Alternative Comparator

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Alternative Intervention

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