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Interventions for the Mental Health and Behavior of Children and
Adolescents with Incarcerated Parents: A Systematic Review

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Abstract

Background: Parental incarceration is a traumatic experience that affects millions of children and adolescents worldwide. This population is at an increased risk of suffering from mental health problems and problematic behaviors that can lead to future delinquency, furthering the inter-generational cycle of criminality. The aim of this systematic review is to evaluate the effectiveness of different types of interventions for children and adolescents with incarcerated parents, and identify their active components and barriers.

Methods: The following databases were searched to retrieve relevant studies from 1995 to 2021: PsycINFO, Psychology and Behavioural Sciences Collection, Child Development and Adolescent Studies, SocINDEX, CINAHL, MEDLINE, Embase, and the Web of Science Core Collection. Eligible studies were articles of any study design, written in the English language that reported the results of an intervention targeting mental health and problematic behaviors among children and adolescents with incarcerated parents. A template was created to aid the extraction of data from the included studies and a quality assessment was performed using standardized tools. A narrative synthesis of the evidence of the effectiveness of interventions and their components was conducted.

Results: 16 studies, most commonly of cohort designs, were included. The majority of the studies evaluated mentoring interventions taking place in community-based and school-based settings. Interventions focusing on improving caregiver outcomes and support, and maternal attachment were found to be effective in reducing mental health problems and problematic behaviors, unlike mentoring and group interventions which had no significant effects on these outcomes. Implementation barriers include time constrictions and lack of resources. Since most studies received a ‘weak’ rating, findings should be taken with caution.

Conclusion: Overall, interventions focusing on improving caregiver outcomes and maternal attachment lead to improvements in children’s mental health and behaviors. Findings need to be evaluated with regards to the included studies’ quality of evidence. Future research should aim to conduct a comparative analysis between the effectiveness of different types of interventions, while focusing on improving the quality of the evidence.

Keywords: *parental incarceration, mental health, behavior, interventions*

1 Introduction

1.1 Parental Incarceration

In 2015, the global prison population rate totaled 10.3 million, with the United States of America (USA) in the lead with more than 2.2 million prisoners (Walmsley, 2015). Among them, there are many who are parents leaving their children behind. Parental incarceration refers to any confinement in jail or prison of at least one parent. It is estimated that millions of children worldwide have at least one parent in prison, with the rate in Europe going up to 2.1 million (Ayre, Philbrick & Lynn, 2014), and 1.5 million in the USA (Maruschak, Bronson & Alper, 2016). A growing body of research has categorized parental incarceration as one of the adverse childhood experiences (ACE) known to have short- and long-term consequences on the physical and mental health of children (U.S Department of Health and Human Services, 2011).

ACEs are traumatic events experienced during childhood that can have damaging effects on the child's health during their early and later life (Felitti et al., 1998). Parental incarceration is not only in and of itself an ACE, but it can also lead to an increased risk of exposure to other types of ACEs such as abuse, household dysfunction, and poverty (Turney, 2014; Scott et al., 2013). Moreover, many children are subjected to certain adverse events related to their parent's involvement with the law. Research has shown that child exposure to the parent's criminal activity and their arrest, the nature of the parent's sentencing, and the visitation experience are all events that can have collateral damage on their mental health and wellbeing (Dallaire & Wilson, 2010).

1.2 Mental Health Problems and Problematic Behaviors

Parental incarceration can lead to the development of many mental health problems and problematic behaviors in children and adolescents. A large scale study (Jones et al., 2013) found that children with incarcerated parents experience a significantly higher rate of mental health difficulties compared to children who do not have parents in prison. Studies also found that they are at a significantly higher risk of developing antisocial behaviors and greater rates of substance abuse compared to their peers without incarcerated parents (Davis & Schlafer, 2017; Murray et al., 2012). Likewise, this is true for criminal behavior with various studies showing a positive association between parental incarceration and the increased likelihood of children's criminal convictions and offending (van de Rakt, Murray & Nieuwbeerta, 2012; Roettger & Swisher, 2011). Labeling theory explains these associations by proposing that people may behave according to the labels attached to them by society (Scheff, 1974). Children and teens with incarcerated parents can be viewed as someone destined for a life of crime (Phillips & Gates, 2011). These social expectations can have a strong influence on their self-perceptions producing self-

fulfilling prophecies, and thus, amplifying their antisocial behavior (Bernburg, Krohn & Rivera, 2006). This also applies to official justice systems, which may display official bias by discriminating children of already convicted parents, hence increasing their risk of conviction (Besemer, Farrington & Bijleveld, 2017). These mechanisms demonstrate the cyclical nature of intergenerational criminality which has long-term detrimental effects on the livelihoods of this vulnerable population.

Parental incarceration seems to have an enduring impact well into adulthood with offspring suffering increased rates of anxiety disorders and substance use disorders (Gifford et al., 2019). Maintaining close contact with the parent can prove to be difficult because of the long distance and unavailable visiting times (Shlafer & Poehlmann, 2010). This long-term separation from a child can contribute to their insecure attachment (Murray & Murray, 2010) which has been linked to the development of various mental health problems, as well as harmful coping mechanisms (Spruit et al., 2020; Bonab & Koohsar, 2011). Additionally, the shame and stigma associated with having a parent in prison can pose a major difficulty in a child's everyday life (Phillips & Gates, 2011). This stigma can lead to reduced social support from teachers and members of the community, as well as increased hostility and rejection from their peers (McGinley & Jones, 2018). Social support has a significant effect on the quality of mental health, with reduced social support and frequent peer victimization found to be heavily correlated with increased mental health problems (Huang et al., 2021; Harandi, Taghinasab & Nayeri, 2017).

1.3 Interventions

The effects of parental incarceration on children have become an increasing concern in public health. In order to prevent future hardships for this group, many interventions have been developed to enhance their wellbeing. Mentoring is one of the most popular interventions for children and adolescents with incarcerated parents. It is defined as a developmental intervention based on a one-on-one relationship between an older person and a younger "protégé" with the aim to improve their capacity for attachment, therefore improving their wellbeing (Rhodes et al., 2002). Group interventions can provide a safe space for participants to share their experiences of parental incarceration and provide support to one another. It is important to examine which programs have proven to be the most beneficial in improving the wellbeing of this population.

1.4 Existing Reviews

After a search through Prospero and Cochrane, no systematic reviews that examine the effectiveness of interventions for children and adolescents of incarcerated parents were found. Two

previous reviews included literature reviews (Polizzotto, 2020; Johnston, 2012) that described different interventions but never truly examined their efficacy in decreasing mental health problems or problematic behaviors. These provide us with answers to important questions about the existence of different programs. Yet, there remains some unanswered queries. In the review by Johnston (2012), many services are missing reports on the outcomes of their programs. This is an important gap that needs to be addressed because understanding the effectiveness of interventions can help policy-makers push for the implementation of the most beneficial services. Therefore, conducting this systematic review will bridge this gap in knowledge by examining the effectiveness of each intervention type.

1.5 Aim and Research Questions

The aim of this current study is to conduct the first systematic review of studies investigating the effectiveness of interventions targeting the mental health and behavior of children and adolescents with incarcerated parents. This may help in the design of future interventions, and in turn, benefit policy-makers who rely on systematic reviews to produce and implement policies targeting vulnerable populations. This reviews addresses the following research questions:

- 1) What interventions have been implemented to target the mental health and problematic behaviours of children and adolescents with incarcerated parents and which settings have been conducted in?
- 2) Are the interventions effective in reducing mental health problems and problematic behaviours and how might they operate?
- 3) What are the potential barriers to implementing these interventions?

2 Methods

In order to ensure transparency and reduce any potential bias, a detailed protocol based on the initial project outline was written up (Appendix 1) prior to the start of any research activities (Stewart, Moher & Shekelle, 2012). Research Ethics Committee approval was not required since this review did not involve any collection of primary data from participants. This is also conducted in accordance with the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA) statement (Page et al., 2020). Due to the expected heterogeneity of the studies in terms of their design, the constructs that were examined, and the measures that were used, a meta-analysis was deemed to be unsuitable (Charrois, 2015).

2.1 Search Strategy

The search strategy was developed with the help from two different college librarians. To identify relevant studies, the following electronic databases were searched: PsycINFO, Psychology and Behavioural Sciences Collection, Child Development and Adolescent Studies, SocINDEX, CINAHL, MEDLINE, Embase, and the Web of Science Core Collection. These were chosen to ensure the wide coverage of a variety of different fields. Specific subject headings and keywords related to parental incarceration, mental health and problematic behaviours, and intervention were adapted for each database. Terms denoting children or adolescents were not entered as they would be implied through the keywords related to parents. The search strategy for each database is outlined in Appendix 2. The keywords related to incarceration and parents were searched in titles and abstracts only since they were deemed as important elements of the research question, and would help narrow down the search results. The searches were not limited to articles published in peer-reviewed journals, and thus, also included dissertations, theses, reports, and policy documents. This was done to reduce any publication bias (Paez, 2017). Having piloted the search strategy with no date restrictions, results dated before the year 1995 were largely irrelevant to the research question, and thus, the search was narrowed down to publications made between the 1st of January 1995 to the 1st of May 2021, the latter being the date of the last search conducted in any database. In order to increase the scope of the search, additional backward and forward citation searches were conducted. This was done by scanning the citations and reference lists of relevant articles. All records yielded by the search were imported onto EndNote Web to simplify de-duplication.

2.2 Eligibility Criteria

Studies were included in the systematic review if they evaluated the effectiveness of an intervention for children or adolescents with incarcerated parents, if the intervention focused on reducing mental health problems or problematic behaviours, if measures pertaining to mental health problems or problematic behaviours were used, and if outcomes were reported by either the child or their caregiver.

Studies were excluded if they: were case studies; were reviews (literature, systematic or meta-analysis); described a parenting intervention for incarcerated parents; had a population of interest older than 19 years of age; did not report the effect of the intervention; did not report the relevant outcomes; had missing abstracts; did not have a full-text available; were written in any non-English language; were published before 1995; or were books.

2.3 Study Selection and Screening

Following the removal of duplicates using EndNote Web, the remaining results were imported onto Rayyan, a collaborative systematic review data management software which was used to screen titles and abstracts (Ouzzani et al., 2016). A first reviewer screened titles and abstracts for eligibility. Afterwards, the full-texts for the articles that met eligibility criteria were reviewed in more detail. To ensure objectivity, a second reviewer independently screened a sample of 10% of the total records. Any divergences in decisions were resolved through discussion.

2.4 Data Extraction and Quality Assessment

Data from the included studies was extracted onto a template specifically produced for this review (Appendix 3). For each study, the data extracted was divided into subsections that included: sample characteristics, study characteristics, methods, and results.

The “Quality Assessment Tool for Quantitative Studies” developed by the Effective Public Health Practice Project (EPHPP) was used to assess for risk of bias in included studies (EPHPP, 1998). This tool was selected for its focus on appraising interventions, its application to a wide selection of different quantitative study designs, and its inter-rater reliability (Armijo-Olivo et al., 2012). The studies were given either a strong, moderate or weak rating on six different components: selection bias, study design, confounders, blinding, data collection method, and withdrawals and dropouts. The Critical Appraisal Skills Programme (CASP) Qualitative Research Checklist (2018) was used for the assessment of qualitative studies. The tool uses a yes/can’t tell/no system on 10 different questions. Both tools can be viewed in Appendix 4. For mixed method studies, a mixture of both checklists was used to assess quality. The second reviewer assessed the quality of 20% of the included studies, and any variances in ratings were discussed.

2.5 Narrative Synthesis

Due to the heterogeneity of the studies, we were not able to conduct a meta-analysis. Therefore, a narrative synthesis was conducted by grouping the studies based on the type of interventions. This was done to facilitate answering the second research question. Since this review included both quantitative and qualitative studies, some studies did not report any effect sizes. For that reason, the direction of effect was the standardized metric used to synthesize the intervention effects across the studies. The “Synthesis Without Meta-analysis” (SWiM) guidelines were used to aid the transparent narrative synthesis of results (Campbell et al., 2020).

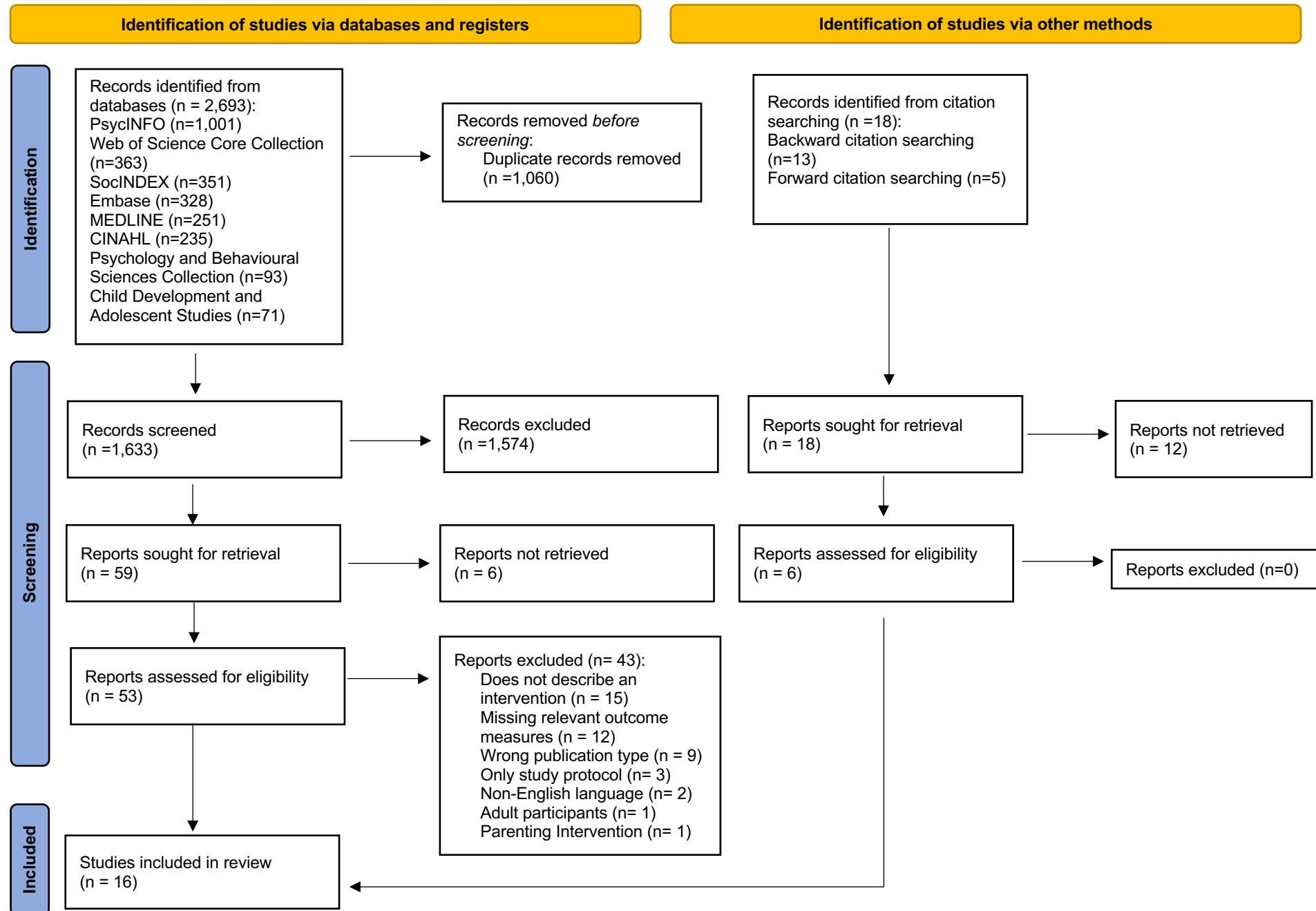
The target journal chosen for this review is the journal of Child and Adolescent Mental Health since they publish multidisciplinary works that advance the knowledge on the mental health and behaviors of children and adolescents. A link to the author guidelines can be found in Appendix 5.

3 Results

3.1 Study Selection

The primary database searches yielded 2,711 studies, including 18 from citation searching. After importing the latter into EndNote Web and de-duplicating them, a total of 1,633 records remained for title and abstract screening. Another 1,568 records were excluded for various reasons: wrong population ($n = 959$), studies did not measure target outcome ($n = 332$), studies described parenting interventions ($n = 134$), studies were reviews or meta-analyses ($n = 57$), wrong publication type ($n = 52$), missing abstracts ($n = 24$), and studies focused on adults who experienced parental incarceration ($n = 10$). Full-texts for the remaining 59 records were assessed for eligibility. The full-texts of 6 different studies were not accessible online. Of the remaining 53 records, 43 were excluded on grounds that they did not explore the effectiveness of an intervention ($n = 15$), did not measure the relevant outcomes ($n = 12$), were the wrong publication type ($n = 9$), only described a study protocol ($n = 3$), were non-English language ($n = 2$), included adult participants over 19 years old ($n = 1$), and described a parenting intervention ($n = 1$). In the end, 16 studies were included in the final synthesis. The inter-rater reliability between the first and second reviewers on the randomly selected 10% sample was 93%, indicating high levels of agreement. A detailed PRISMA flowchart of the study selection process can be viewed in Figure 1.

Figure 1. PRISMA flowchart of study selection process



3.2 Study Characteristics

Settings. Detailed information on study characteristics can be found in Table 1. Approximately all studies (n=15) took place in the United States of America with only one taking place in Iran. Most interventions were conducted in a community-based setting (n=7) with one being compared to a home-based intervention. Home-based interventions (n=3) included one that was conducted simultaneously in a prison setting. Two studies evaluated interventions conducted exclusively in a prison setting while three studies evaluated ones conducted in schools. The rest of the intervention settings included a clinical (n=1), a non-profit organization (n=1) and a home-based setting (n=1). One study looked at the effects of a parenting intervention on children's outcomes meaning it was not conducted in a specific setting.

Sample Characteristics. Most participants were recruited from programs conducted by non-profit agencies (n=10), followed by three studies recruiting from schools. The rest were selected from a clinic (n=1), a prison, (n=1), and a secondary data set (n=1). Sample sizes were wide-ranging with one study only involving three participants, 11 studies with sample sizes ranging between 10 and 85, and four studies with the largest sample sizes ranging between 103 and 351. The age of all the samples ranged from a minimum of 3 years old to a maximum of 18 years old. Most studies had a higher rate of female participants (n=11) with one study focusing exclusively on them. Ethnicity compositions were inconsistently reported with three studies not reporting any ethnicity groupings. However, in order to make sure that samples were representative of the population, ethnicity compositions of the rest of the 13 studies were extracted. A total of nine studies reported higher rates of ethnic minorities. Finally, most participants experienced either paternal or maternal incarceration (n=12) with two of those studies reporting the percentages of each. The rest were made up of three studies reporting on maternal incarceration and only one study reporting on paternal incarceration.

Methods. Most studies (n=11) were published in peer-reviewed academic journals between the years 1998 and 2021. Three reports were included as well as two university theses. Most studies (n=9) reported only quantitative results with six having a cohort design, two having a case-control design, and one having a controlled clinical trial design. Five studies reported both quantitative and qualitative results with three having a cohort design with qualitative components, and two having a randomized control trial design with qualitative components. Only two studies reported only qualitative results.

Interventions. Six studies looked at the effectiveness of mentoring interventions with one of them comparing it to a home-based case management and counseling intervention. Group

interventions were the second most studied type of intervention with four studies looking at their effectiveness. There were two studies that studied the effectiveness of case management and counseling interventions. The rest were equally divided between an alternative sentencing intervention (n= 1), a visitation intervention (n= 1), an educational material intervention (n= 1), a family-focused intervention (n= 1), and a prison nursery intervention (n= 1).

Measures. Approximately all studies (n= 14) considered both mental health and problematic behavior constructs with the other two studies focusing only on various mental health constructs: one focusing on both depression and anxiety; and the other focusing on self-esteem. The Child Behavior Checklist (CBCL) (Achenbach, 1991) with some of its other versions (Achenbach & Rescorla, 2001; 2000) was the most frequently used (n= 4) followed by the Behavior and Emotional Rating Scale (BERS) (Epstein, 2000) and its updated version (Buckley & Epstein, 2004) (n= 2). Three studies developed their own child self-reported and parent/caregiver surveys/scales. Focus groups (n= 1), interviews (n= 3) and reports (n= 1) were also commonly used methods especially in mixed-method and qualitative studies.

Table 1. Characteristics of Included Studies

Author(s), (Year) & Country	Sample Characteristics (sampling frame, size, age range, gender, ethnicity composition & parental incarceration)	Study Design	Intervention Description and Setting	Measures	
				Mental Health Measure	Problematic Behavior Measure
Block & Potthast, (1998) & USA	Non-profit agency N=40 7-17 y 100% Females N/A Maternal Incarceration	Cohort Study	-Visitation Intervention -Prison	Piers-Harris Children's Self-Concept Scale (Piers, 1984) + Interviews	Conner's Parent Rating Scale (Conners, 1990) + Interviews
Bruster & Foreman, (2012) & USA	Non-profit agency N=35 10-11 y 64% Males, 29.7% Females 54% African American, 24% White Either paternal or maternal	Cohort Study	-Mentoring Intervention -Community	Survey developed by the principal investigators	Survey developed by the principal investigators

Fry-Greier & Hellman, (2016) & USA	Non-profit agency N=29 8-14 y 59% Males, 41% Females 59% Caucasian, 10% Native American, 7% African American, 3% Hispanic, 21% Multiple Maternal Incarceration	Case-Control Study	-Alternative Sentencing Intervention -N/A	CBCL (Achenbach, 1991)	CBCL (Achenbach, 1991)
Lopez & Bhat, (2007) & USA	School attending 5th graders N=3 10-12 y 75% Females, 25% Males N/A Either paternal or maternal	Qualitative Study	-Group Intervention -School	Referring Party Reports + Children's Self-Reports	Referring Party Reports + Children's Self-Reports
Poehlmann-Tynan et al., (2021) & USA	Four jails in two states N=71 3-8 y 56% Males, 44% Females 31% Caucasian, 28% Black, 28% Biracial, 11% Latinx, 2% Native Americans Paternal Incarceration	RCT Study	-Educational Material Intervention -Prison and Home	JPOC (Poehlmann, 2012) + SDQ (Goodman, 1997, 2001)	JPOC (Poehlmann, 2012) + SDQ (Goodman, 1997, 2001)
Jalali, Hashemi & Hasani, (2019) & Iran	Clinical N=85 8-12 y 55.3% Females, 44.7% Males N/A Either paternal or maternal	Controlled Clinical Trial	-Group Intervention -Clinical	CDI (Kovacs & Beck, 1977) + RCMAS (Reynolds & Richmond, 1978)	N/A

Shlafer et al., (2009) & USA	Non-profit agency N=57 4-15 y 60% Females, 40% Males 49% Black, 40% Multiracial Either paternal or maternal	Cohort Longitudinal Study	-Mentoring Intervention -Community	CBCL (Achenbach, 1991) + Interviews	CBCL (Achenbach, 1991) + Interviews
ICF International, (2011) & USA	Non-profit agency N=351 6-14 y 63% Males, 37% Females 56.5% African American, 23.2% Hispanic, 8.7% White, 11.6% Other Either paternal or maternal	Longitudinal RCT Study	-Mentoring Intervention -Community	72-item Child Self- Reported Surveys + 27- item Parent/Caregiver Survey	72-item Child Self- Reported Surveys + 27- item Parent/Caregiver Survey

Conway & Keays, (2015) & USA	<p>Non-profit agencies N= BBBS Group=65 FIC Group=38 5-18 y BBBS Group=52.3% Males, 47.4% Females FIC Group=57.9% Males, 42.1% Females BBBS Group=32.3% African American, 44.6% Hispanic/Latin American, 24.6% White/Caucasian, 9.2% Other/left blank FIC Group=47.4% African American, 36.8% Latin American/Hispanic, 15.8% White/Caucasian, 15.8% Other/left blank BBBS Group=78.5% Father, 10.8% Mother, 4.6% Both, 1.5% Step-Father, 4.6% Not Indicated FIC Group=84.2% Father, 2.6% Mother, 13.2% Both</p>	Cohort Study	<p>-Mentoring Intervention VS Home-Based Case Management and Counseling Intervention -Community VS Home</p>	<p>Ohio Scales Short Form (Ogles et al., 2000; 2001) + BERS-2 (Buckley & Epstein, 2004) both rated by parents and case workers</p>	<p>Ohio Scales Short Form (Ogles et al., 2000; 2001) + BERS-2 (Buckley & Epstein, 2004) both rated by parents and case workers</p>
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Miller et al., (2013) & USA	Non-profit agency N=29 4-14 y 62% Females, 38% Males 62% African American, 38% Caucasian 62% Incarcerated Mothers, 38% Incarcerated Fathers	Cohort Study	-Family-Focused Intervention -Organization	53-item POCA (Kellam et al., 1991) + 50-item BERS (Epstein, 2000)	53-item POCA (Kellam et al., 1991)
Will et al., (2006) & USA	Non-profit agency N=125 5-18 y 82.3% Females, 17.7% Males 67.8% Black, 29% White, 4% Hispanic or Biracial Either paternal or maternal	Cohort Study	-Case Management and Counseling Intervention -Home	Focus Groups	School Attendance + FJJIS data sets + Focus Groups
Laakso & Nygaard, (2012) & USA	Non-profit agency N=23 10-16 y 52.2% Females, 47.8% Males 33.3% White, 23.8% African American, 4.8% Latino/Hispanic, 4.8% Asian American, 4.8% Pacific Islander, 0% Native American, 28.6% Multiracial, 0% Other Either paternal or maternal	Qualitative Study	-Mentoring Intervention -Community	Semi-Structured Interviews	Semi-Structured Interviews

King-White, (2012) & USA	School attending children N=11 13-14 y 82% Females, 18% Males 64% African American, 18% Caucasian, 18% Multi-Racial Either paternal or maternal	Cohort Study	-Group Intervention -School	Rosenberg Self-Esteem Scale (Rosenberg, 1965)	CBCL (Achenbach & Rescorla, 2001)
Morris, (2017) & USA	Non-profit agency N=109 M=12.48 55% Females, 45% Males 66% Black, 21% White, 13% Other Either paternal or maternal	Longitudinal Cohort Study	-Mentoring Intervention -Community	Self-Reported Sadness Scale	Standardized Scales for Deviant Behavior
Goshin, (2010) & USA	"Maternal and Child Outcomes of a Prison Nursery Program" Study N=47 M=41.5 Months 53% Females, 47% Males 45% White, 32% Black, 23% Hispanic Maternal Incarceration	Longitudinal Case-Control Study	-Prison Nursery Intervention -Prison	CBCL for ages 1.5 to 5 years (Achenbach & Rescorla, 2000)	CBCL for ages 1.5 to 5 years (Achenbach & Rescorla, 2000) + ASBI (Hogan, Scott & Bauer, 1992).
Springer, Lynch & Rubin, (2000) & USA	School attending children N=10 9-11 y 60% Females, 40% Males 100% Hispanic Either paternal or maternal	Cohort Study	-Group Intervention -School	HSS (Hare, 1980)	N/A

Key: USA= United States of America, N/A= Not Available, CBCL= Child Behavior Checklist, RCT= Randomized Control Trial, JPOC= Jail-Prison Observation Checklist, SDQ= Strengths and Difficulties Questionnaire, CDI= Children's Depression Inventory, RCMAS= Revised Children's Manifest Anxiety Scale, BBBS= Big Brothers Big Sisters, FIC= Families in Crisis, BERS= Behavioral and Emotional Rating Scale, POCA= Parent Observation of Child Adaptation, FJJIS= Florida Juvenile Justice Information System, ASBI= Adaptive Social and Behavioral Inventory, HSS= Hare Self-esteem Scale.

3.3 Quality Assessment

Results of the quality assessment using both the EPHPP tool and the CASP checklist can be found in Table 2. Overall, most studies (n= 7) had a weak rating, while five were considered to be fair and four were regarded to be of strong quality.

In terms of study designs, four quantitative studies were found to have a ‘weak’ rating due to lack of blinding, low follow-up rates, and lacked control of confounding variables. The ones which were rated to be ‘fair’ (n= 4) had low participation rates and lack of blinding. Only one quantitative study received a ‘strong’ rating since it included features such as the use of valid and reliable measures, the control of confounders, and the blinding of participants.

In mixed-methods studies two studies were given a ‘weak’ rating due to lack of blinding, high withdrawal rates, no description of the qualitative data analysis, and no clear explanation of the qualitative methods used. Only one study was judged to have a ‘fair’ rating due to lack of blinding and low follow-up rates. However, it was deemed to be moderately strong due to a detailed explanation of the collection method, the rigorous data analysis, and clear statement of findings. Two studies were assigned a ‘strong’ rating due to strong scores on quantitative components, and the justification of the qualitative method and its thorough data analysis.

Finally, for the qualitative studies, one was deemed to have a ‘strong’ rating while the other had a ‘weak’ one. The latter did not illuminate the subjective experiences of its participants and neither did it justify the use of a qualitative design. It also omitted the explanation of the data collection method and only provided a brief discussion of the findings. The inter-rater reliability between the first and second reviewers on the randomly selected 20% sample was 100%.

Table 2. Quality Assessment Ratings for Individual Studies

Study	EPHPP						CASP	
	Component Scores							Global Score
	SB	SD	C	B	DCM	WD		
Block & Potthast (1998)	Weak	Fair	Weak	Weak	Weak	Weak	Weak	Weak
Bruster & Foreman (2012)	Fair	Fair	Weak	Weak	Weak	Fair	Weak	N/A
Fry-Greier & Hellman (2016)	Weak	Fair	Weak	Weak	Strong	N/A	Weak	N/A
Lopez & Bhat (2007)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Weak
Poehlmann-Tynan et al. (2021)	Strong	Strong	Strong	Fair	Strong	Strong	Strong	Strong
Jalali, Hashemi & Hasani (2019)	Fair	Strong	Strong	Weak	Strong	Strong	Fair	N/A
Shlafer et al. (2009)	Strong	Fair	Strong	Weak	Strong	Fair	Fair	Strong
ICF International (2011)	Weak	Strong	Strong	Weak	Fair	Weak	Weak	Fair
Conway & Keays (2015)	Fair	Fair	Fair	Weak	Strong	Weak	Weak	N/A
Miller et al. (2013)	Fair	Fair	Strong	Weak	Strong	Strong	Fair	N/A
Will et al. (2006)	Fair	Fair	Strong	Weak	Strong	Weak	Weak	Weak
Laakso & Nygaard (2012)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Strong
King-White (2012)	Fair	Fair	Strong	Fair	Strong	Fair	Strong	N/A
Morris (2017)	Fair	Fair	Weak	Fair	Strong	Weak	Weak	N/A
Goshin (2010)	Fair	Fair	Strong	Weak	Strong	N/A	Fair	N/A
Springer, Lynch & Rubin (2000)	Fair	Fair	Strong	Weak	Strong	Strong	Fair	N/A

Key: N/A= Not Available, EPHPP= Effective Public Health Practice Project, CASP= Critical Appraisal Skills Programme, SB= Selection Bias, SD= Study Design, C= Confounders, B= Blinding, DCM= Data Collection Methods, WD= Withdrawals and Drop-Outs.

3.4 Data synthesis

Due to the heterogeneity in study designs and measurement tools, a narrative synthesis was performed instead of a meta-analysis (Dixon-Woods et al., 2005). Primarily, the direction of effect was considered to synthesize the results for each type of intervention which are presented separately. This was done since many of the included studies did not report any findings from statistical tests or any effect sizes. If any kind of statistical test was conducted and indicated statistically significant results, this will be mentioned in the synthesis and an asterisk (*) will be used to signpost them in Table 3 which summarizes the results of included studies.

Table 3. Results of Included Studies

Study	Main Findings
Block & Potthast (1998)	All caregivers described some decrease in problematic behaviors, sadness, anger, and worry. Additional positive effects stemmed more from the activities than from spending time with their mothers. 92% of the girls reported making new friends in the program.
Bruster & Foreman (2012)	80% of caregivers felt that children's behaviors were improving. All of the families felt that the intervention was beneficial and was a positive source of assistance. 80% of survey respondents strongly agreed or agreed with statements such as "Mentor helps me challenge myself to succeed" and "My mentor helps me feel good about myself".
Fry-Greier & Hellman (2016)	CASM mean scores on externalizing problems (M=52.15, SD=10.49) and total problems (M=52.03, SD=10.74) were lower than CRIM mean scores on externalizing problems (M=59.90, SD=8.37) and total problems (M=60.40, SD=8.48). One-way ANOVA for externalizing problems ($F(1,51) = 7.86, p = .007$) and child total problems ($F(1,51) = 8.80, p = .005$) * are statistically significant. Effect sizes show that parental sentencing has a moderate effect size for both externalizing ($d = -0.74$) and total behavioral problems ($d = -0.78$).
Lopez & Bhat (2007)	Students who participated in this group found that the connections and support given to one another served as a positive element from the intervention. Students' feedback revealed that they found the experience to be helpful.

Poehlmann-Tynan et al. (2021)	<p>Educational materials main effect was not statistically significant on children positive ($F=2.343$, $p=.131$) or negative ($F=2.282$, $p=.136$) behaviors during jail visits. What children were told about their parent's incarceration had a medium effect size on their positive affect and behaviors ($F=4.063$, $p=.048$) *.</p> <p>Children's age was significant with older children exhibiting more positive affect and behaviors ($F=5.435$, $p=.023$) *. Visit type ($F=0.256$, $p=.615$), child previously visited father ($F=0.896$, $p=.348$), gender ($F=3.399$, $p=.070$), and witnessed father's arrest ($F=3.293$, $p=.074$) were not statistically significant.</p> <p>The RR statistic ($RR=2.055$ 95% CI [1.542, 2.737]) * shows that caregivers in the intervention group were twice as likely to tell the child a developmentally appropriate and honest explanation.</p>
Jalali, Hashemi & Hasani (2019)	<p>Depression score (Mean=15.11, SD=3.35) and anxiety score (Mean=10.67, SD=2.12) decreased in the experimental group. Independent t-test shows a significant difference between the depression scores of the experimental group compared to the control group ($t=22.27$ $p=0.001$) *. Covariance analysis shows a significant difference between the anxiety scores of the experimental group compared to the control group ($f=750.72$ $p<0.001$)*.</p>
Shlafer et al. (2009)	<p>Mean differences of CBCL internalizing scores ($M=51.28$, $SD=15.29$) and externalizing scores at 6 months ($M=55.83$, $SD=13.87$) revealed no significant differences in symptoms. However, during interviews, caregivers reported noticing changes in children's behaviors and they attribute these changes to the participation in the program. More frequent contact was significantly associated with less externalizing symptoms (partial $r= -.60$, $p=.02$)* and less internalizing symptoms (partial $r= -.58$, $p=.03$)* at 6 months.</p>
ICF International (2011)	<p>Compared to the control group, the treatment group reported better self-esteem ($p=0.04$, $ES=0.37$) * and sense of future ($p<.001$, $ES=0.43$) *.</p> <p>During follow up months, children in the treatment group reported more positive feelings about themselves (6 months=4.5, 12 months=4.5, 18 months=4.6) compared to the control group (6 months= 4.4, 12 months= 4.4, 18 months= 4.4) with significant differences at 18 months ($p<0.05$)*.</p> <p>Treatment group had a lower sense of future at baseline (4.0) compared to control group (4.2) but this increased at 6 months to reach a significant difference compared to the control group ($p<0.01$) *. However, at 18 months, this was lower (4.5) than control group (4.8) but not statistically significant.</p> <p>Treatment group had a lower rate of suspensions at 6 months (6%) and at 12 months (8%) compared to the control group (11.6%) but the difference wasn't significant ($p=0.70$, $ES= -0.03$). However, at 18 months, this increases (18%) compared to control group (10.5%) but it's not statistically significant.</p>

Conway & Keays (2015)	<p>BBBS group showed no significant differences on the Ohio Scales: Problem Severity (7 months= 10, 13 months= 8.6) and Functioning (7 months= 64.9, 13 months= 65.1), yet a significant decrease ($p<0.05$) * was found on the BERS Strengths scale (7 months= 105.5, 13 months= 103).</p> <p>FIC group a significant decrease ($p<0.05$) * on the Ohio Scale of Problem Severity (7 months= 9) but significantly increased again (13 months= 13.5) yet still less than at intake. Functioning significantly increased ($p<0.05$) * (7 months= 66.8) and then slightly decreased (13 months= 64.8) but that wasn't significant. On the BERS Strengths scale, scores increased significantly ($p<0.05$) * (7 months= 112.9) and slightly decreased (13 months= 111.4) but that decrease wasn't significant.</p> <p>Comparative analyses showed a statistically significant interaction effect on the Problem Severity measure of the Ohio Scale ($F=7.12$, $p<0.05$) * and on the Functioning measure of the Ohio Scale ($F=5.74$, $p<0.05$) * indicating differences between the types of services. This is also true the for BERS Strengths score ($F=10.39$, $p<0.05$) * indicating differences between the types of services.</p>
Miller et al. (2013)	<p>No changes in BERS Family Involvement ($F= 0.31$), Interpersonal Strength ($F= 0.01$), POCA Social Competence ($F= 3.18$), Behavior Problems ($F= 2.44$), Aggression ($F= 0.92$), or Concentration Problems ($F= 0.8$).</p> <p>There was a decrease in caregiver-reported POCA overt aggression/criminal behavior from pre-test to post-test ($t= 1.76$, $p<0.1$) but it is more significant from pre-test to follow-up ($t= 3.14$, $p<0.05$) *.</p> <p>Change in the outcomes did not relate to any of the variables of age, sex, time with caregiver, attendance or satisfaction, however, older children had better family involvement ($r= 0.39$) and interpersonal strength ($r= 0.41$).</p>
Will et al. (2006)	<p>Attendance rate for school year 2003-2004 was 94.6% with $SD= 6$ and for the 2004-2005 school year was 92% with $SD= 11.1$. T-test found no significant difference between the two time frames.</p> <p>Two clients in the 2003-2004 group who had previous contact with DJJ did not have any new contact since they entered the program. However, two other clients did have contact. Two clients in the 2004-2005 group who had previous contact with DJJ did not have any new contact since they entered the program, but two other clients did have contact after entrance.</p> <p>During focus groups with children, all claimed they benefited from increased visitation during therapy and the case management component.</p>

Laakso & Nygaard (2012)	<p>Through thematic analysis, 6 positive outcomes were identified from the interviews: increased self-confidence, more sociability, greater openness, evidence of trust, improved school performance, and signs of happiness.</p> <p>9 matches described increases in self-confidence, 6 matches described increases in sociability, openness and trust, and 5 matches showed improved attitude towards school. Success of match does not depend on age or gender.</p> <p>The duration of matches and similar attributes between the child and the mentor are positively correlated with emotional closeness. Mentoring can mediate the poor socioemotional climate of the children.</p>
King-White (2012)	<p>One-way analysis of variance was conducted.</p> <p>Post-test scores on delinquency for CHIPS group (59.3) and control group (63.6) showed no significant difference ($F= 1.2$, $p= 0.298$, $r= -0.315$).</p> <p>Post-test scores on self-esteem for CHIPS group (21.3) and control group (22.8) showed no significant difference ($F= 0.643$, $p= 0.443$, $r= 0.24$).</p> <p>Post-test scores on attendance rates for CHIPS group (93%) and control group (88%) showed no significant difference ($F= 0.081$, $p= 0.782$, $r= 0.08$).</p> <p>Post-test scores on aggressive behavior for CHIPS group (58.5) and control group (64.2) showed no significant difference ($F= 1$, $p= 0.342$, $r= -0.582$).</p>
Morris (2017)	<p>Fixed-effects ANOVA: BBBS program had a significant effect on CIP over time but compared to the FFCWS average the effect is non-significant. At 6 months, BBBS group has significant drops in deviant behavior but after one year of mentoring it increases above the FFCWS average, resulting in a statistically non-significant difference ($F= 0.19$, $p= 0.668$). The BBBS group self-reported levels of sadness consistently declined over the year yet the levels of sadness compared to the FFCWS average were higher. The difference was statistically significant ($F= 10.35$, $p= 0.001$) *.</p> <p>PSM: ATT for deviance at 6 months was negative suggesting improvements ($t\text{-value}= -1.536$ and -0.921) *. However, at one year, ATT was positive showing that there was no significant effect of mentoring on deviance ($t\text{-value}= 0.536$ and 0.438). BBBS group had consistently declining levels of sadness with ATT being negative at 6 months ($t\text{-value}= -1.042$ and -1.248) * and one year ($t\text{-value}= -1.011$ and -1.201) *. These results show a significant effect of mentoring on sadness.</p>

Goshin (2010)	<p>No significant differences were found between the prison nursery group and the FFCWS group on the Aggressive subscale ($F= 1.17$, $p= 0.28$) and the ADH subscale ($F= 1.09$, $p= 0.30$). The effect size of the intervention on the Aggressive ($d= 0.22$) and ADH ($d= 0.19$) scales was low.</p> <p>Significant differences were found between both groups on the Anxious/Depressed subscale ($F= 5.63$, $p= 0.02$) *. The interaction between intervention and gender was not significant ($F= 0.60$, $p= 0.44$). Mean rank differences were significant for the Withdrawn subscale ($z= -1.92$, $p= 0.05$) *. The interaction between the intervention and gender was not significant ($F= 0.122$, $p= 0.73$). No significant mean rank differences were found for the Behavior Competence subscale ($z= -0.95$, $p= 0.34$). No significant difference between mean scores for both groups ($F= 2.67$, $p= 0.11$).</p>
Springer, Lynch & Rubin (2000)	<p>Wilcoxon test revealed a significant difference between pre- and post-test results on the HSS for the intervention group ($\alpha= 0.05$, $p= 0.005$) * and no significant difference between pre-and post-test scores for the control group ($\alpha= 0.05$, $p= 0.08$). No significant differences were found between the two groups on their post-test scores ($F= 1.074$, $df= 1$). The group intervention had a moderate effect size on the outcome measure ($ES= 0.57$). Possibility of Type 1 error ($p= 0.335$).</p>

Key: CASM= Children with Alternative Sentencing Mothers, M= Mean, SD= Standard Deviation, CRIM= Children with Regularly Incarcerated Mothers, ANOVA= Analysis of Variance, CBCL= Child Behavior Checklist, BBBS= Big Brothers Big Sisters, BERS= Behavioral and Emotional Rating Scale, FIC= Families in Crisis, POCA= Parent Observation of Child Adaptation, DJJ= Department of Juvenile Justice, CUP= Children United with Parents, CHIPS= Children Having Incarcerated Parents Succeeding, CIP= Children of Incarcerated Parents, FFCWS= Fragile Families Child Wellbeing Study, PSM= Propensity Score Matching, ATT= Average Treatment Effect on Treated, ADH= Attention Deficit/Hyperactivity, HSS= Hare Self-Esteem Scale.

Note: Effects explicitly reported as statistically significant in the article are marked with an *.

3.5 Results of individual studies

3.5.1 Mentoring Interventions

Out of the 16 studies in this review, six studies looked at the effectiveness of mentoring interventions. Through interviews with both children and their caregivers, two studies found overall positive changes in the mental health and behavior of participating children. The study by Laakso & Nygaard (2012) identified six positive outcomes related to happiness, self-confidence and improved social behaviors and the study by Shlafer et al. (2009) reported positive changes in the children's behaviors after six months of mentoring. However, there were no significant improvements on the internalizing and externalizing behaviors scores of the CBCL from baseline to 6 months. The latter should be interpreted with caution since the sample size was smaller during post-test.

Two studies compared longitudinal findings between a treatment group enrolled in a mentorship program and a control group. The report by ICF International (2011) found that children enrolled in the intervention showed significant improvements in their self-reported self-esteem, sense of future, and positive feelings about themselves after 18 months of enrollment. However, when it came to suspension from school, the treatment group did not have significantly lower rates than the control group at 6 and 12 months, and at 18 months, their rates increased to levels higher than those of the control group. However, results after 6 months of enrollment have more weight since there was a lower attrition rate (18.4%) compared to the rate after 18 months of enrollment (48.9%). The study by Morris (2017) found that the intervention had a significant effect on sadness with a steady decline in levels for the treatment group. However, levels of sadness for the latter were still higher than the levels of the control group. The intervention had no significant effect on deviance after one year with no statistically significant difference between the groups. The results of these two studies are robust since their sample sizes were amongst the highest of all included studies.

The study by Conway & Keays (2015) found no significant positive changes after 7 and 13 months of enrollment on the Ohio scale and a significant negative change on the BERS Strengths scale indicating that participants were actually worse after the intervention. On the other hand, the final study by Bruster & Foreman (2012) found that the majority of survey respondents agreed that the mentoring intervention was beneficial in improving children's behaviors. Nevertheless, this study's risk of bias is quite high thus decreasing the credibility of its results.

3.5.2 Group Interventions

Four studies evaluated the effectiveness of group interventions. Out of the four, three were conducted in a school setting. The study by Lopez & Bhat (2007) found that students who participated in the group intervention gave positive feedback and described their experience as “helpful”. They connected with one another and served as positive sources of support. This study had the lowest sample size out of all the included studies meaning the results should be interpreted with caution.

The study by King-White (2012) evaluated the Children Having Incarcerated Parents Succeeding (CHIPS) school program and found that there was no significant difference between the treatment and control groups on any of the measures of delinquency, self-esteem, and aggressive behavior. Even though post-test attendance rates for the CHIPS group were slightly higher than the control group rates, the difference was also not significant.

The study by Springer, Lynch & Rubin (2000) evaluated a group intervention specifically targeting Hispanic children of incarcerated parents. Their results indicated no significant difference in post-test self-esteem levels between the treatment and control groups. However, for the treatment group alone, there was a significant increase in self-esteem levels from pre-test to post-test. The findings also indicated that the intervention had a moderate effect size on the targeted outcome measure. Yet, the authors indicated a high probability of a type 1 error thus cancelling out this effect size.

The study by Jalali, Hashemi & Hasani (2019) was conducted in a clinical setting and found that the treatment group showed a significant decrease on the depression and anxiety measures at post-test. Moreover, compared to the control group, there was a significant difference on both scores. Because of its bigger sample size and stronger quality of evidence, the findings of this study are more reliable.

3.5.3 Case Management and Counseling Interventions

Two studies evaluated the effectiveness of case-management and counseling interventions. The study by Conway & Keays (2015) found that the group undertaking the home-based case management and counseling program had a significant decrease in Problem Severity and a significant increase in Functioning and Strengths after 7 months of enrollment. However, after 13 months, these positive changes were not maintained due to a significant increase in Problem Severity scores. Participants’ Functioning and Strengths scores also decreased yet the change was not significant

therefore still sustaining the positive changes. The study by Will and colleagues (2006) found that children participating in the Children United with Parents (CUP) program had no significant changes in school attendance rates. Moreover, most children who had contact with the juvenile justice system before entering the program did not have new contact after.

3.5.4 Alternative Sentencing Interventions

The study by Fry-Geier & Hellman (2017) evaluated the effectiveness of an alternative sentencing program and found that the externalizing and total problems scores for children with alternatively sentenced mothers were significantly lower than the scores for children with normally incarcerated mothers. Moreover, the alternative sentencing intervention was found to have a moderate effect on both externalizing problems and total problems. However, the results of this study were impacted by various biases such as selection and confounding bias.

3.5.5 Visitation Interventions

The study by Block & Potthast (1998) evaluated the “Girl Scouts Beyond Bars” enhanced visitation program and found that caregivers reported a decrease in the problematic behaviors and sadness of the girls participating in the intervention. However, the results indicate that the program’s activities have more of an effect on the participants’ outcomes rather than the time spent with their incarcerated mothers. The findings of this study should be interpreted with caution since it has the weakest rating out of all included studies.

3.5.6 Educational Materials Interventions

The study by Poehlmann-Tynan and colleagues (2021) evaluated Sesame Street’s “Little Children, Big Challenges: Incarceration” educational materials intervention and found that there were no significant main or interaction effects of the intervention on children’s positive and negative behaviors during jail visits. However, caregivers who received the educational materials were significantly more likely to tell the child a developmentally appropriate explanation about their father’s incarceration which had a significant effect on the child’s positive behaviors and affect. This study has one of the strongest qualities of evidence making its findings reliable.

3.5.7 Family-Focused Interventions

The study by Miller and colleagues (2013) evaluated the effectiveness of the family-focused intervention the “Strengthening Families Program”. The child outcomes of family involvement, interpersonal strength, social competence, behavior and concentration problems, and aggression

showed no significant changes. However, there was a significant decrease in participants' overt aggression and criminal behavior from pre-test to follow-up. These results should be interpreted with caution since this study had a fair rating with strong scores on confounders and withdrawals.

3.5.8 Prison Nursery Interventions

The study by Goshin (2010) evaluated the outcomes of a prison nursery intervention and found no significant differences between the treatment and control groups on the externalizing behaviors subscales of Aggression and Attention-Deficit/Hyperactivity. The intervention had a low effect on those subscales. On the other hand, there was a significant difference on the internalizing behaviors subscales of Depressed/Anxious and Withdrawn. The intervention had a significant association with lower scores on the Depressed/Anxious subscale but not on the Withdrawn subscale. Finally, there were no significant mean differences between both groups on the Behavior Competence subscale. This study had a fair rating with a weak score on blinding.

3.5.9 Barriers

The potential barriers to implementing interventions for this population are similar to the ones encountered when trying to implement any intervention in the area of child welfare (Robertson et al., 2020; Garcia et al., 2019). The most common ones encountered are lack of human resources since many interventions either need trained staff or an adequate number of volunteers; time constrictions since most interventions need to be applied over a long period of time to see beneficial effects; and lack of access and funding since some interventions are held in settings such as clinics or prisons whereby participants need access to transportation.

4 Discussion

4.1 Summary of Evidence

This review found that community-based mentoring interventions are the most common type of intervention for this target population, with school-based group interventions coming to a close second. The overall evidence indicates that mentoring interventions do not lead to significant changes in the mental health and behavior of children and adolescents experiencing parental incarceration. However, qualitative studies that report on subjective experiences have shown the positive effects that mentoring interventions can have on the wellbeing of participants while quantitative studies found that this type of intervention does not lead to any significant improvements. This should be taken into consideration since the studies with qualitative elements tended to be rated of higher quality.

Moreover, qualitative research can add an interpretative dimension to the findings that can lead to the increased understanding of the subjective experiences of participants, and the active mechanisms of the intervention (Thirsk & Clark, 2017).

Like mentoring interventions, quantitative results of case management and counseling interventions did not find significant improvements in child functioning and problematic behavior, in contrast to qualitative results. The study by Conway & Keays (2015) compared these two types of interventions and found that there were significant differences between them with the case management and counseling intervention being more effective than the mentoring intervention. However, this study is of weak quality, meaning that both interventions might have similar efficacy levels.

The overall evidence indicates that the effectiveness of group interventions depends on the setting in which they are conducted, with the suggestion that clinically-based group interventions had a stronger effect on the outcomes compared to school-based ones, especially since the study by Jalali and colleagues (2019) had better quality than the studies exploring school-based interventions. This finding is similar to what previous studies have shown regarding clinical settings having a stronger effect than school settings (Hoag & Burlingame, 1997). This can be due to the internal threat of ‘secondary’ diffusion of treatment since participants in both groups attending the same school have a higher chance of intermingling (Gundersen & Svartdal, 2010). Similarly, the visitation intervention that was explored had elements, such as group activities and the opportunity to make new friends, that were shown to be more effective than the element of increased visits. Within the visitation intervention, the age of participants, which was between 7 and 17 years old, could have had an effect on the results since this can be a period in a young girl’s life where social support plays a more influential role on affect than family support (Weinstein et al., 2006).

For both the family-focused intervention and the educational material intervention, there was no direct effect on the children’s outcomes, however, caregivers reported improved outcomes and parenting styles. This had a significant effect on the children’s affect and behavior. Both studies had moderate to strong quality of evidence, making these findings more reliable. From previous papers about social support, the improvement of caregiver outcomes and responsive caregiving may lead to improvements in child outcomes (Wu et al., 2020; Scherer et al., 2019).

The findings of the prison nursery intervention point towards it being more effective for mental health problems than for behavioral problems. The results are somewhat to be expected since the aim of this type of intervention is to improve maternal attachment. This is shown in previous studies

which have found that interventions targeting attachment lead to improved internalizing behaviors in children (McLaughlin et al., 2012; Moss et al., 2011). The alternative sentencing intervention had a similar aim to improve maternal attachment, but its results show that it was effective for behavioral and mental health problems. This may be due to the difference in the nature of parental contact. Alternative sentencing interventions can lead to parents living with their children again, leading to an increase in parental monitoring which was found to mediate the relationship between attachment and externalizing problems (de Vries et al., 2016).

4.2 Strengths & Limitations

This systematic review exhibits several methodological strengths. Firstly, the study search process was comprehensive due to the inclusion of different interdisciplinary databases and further citation searching. The included studies contain a well-rounded mix of academic articles and grey literature which decreases the chance of publication bias (Adams et al., 2016). The recruitment of a second reviewer to independently assess the study selection process and the quality appraisal reduces potential bias that the primary researcher may have on the results. Finally, by conducting a narrative synthesis, a thorough evaluation of the heterogeneous body of evidence was possible. This created the opportunity to compare findings and highlight any gaps or patterns in the evidence (Madden et al., 2018).

However, this review has some limitations that should be noted. Firstly, it was difficult to conduct a comparative analysis of results between studies evaluating intervention types since many did not have the same study design. Certain studies written in a non-English language, or where a full-text could not be accessed had to be excluded. Therefore, there is a possibility that some relevant studies were missed. The quality of the majority of included studies was considered ‘weak’ or ‘fair’ leading to the possibility of an erroneous synthesis of findings. However, the EPHPP tool used has some of its own limitations surrounding its application to observational studies (Faraoni & Schaefer, 2016; Gerhard, 2008). Lastly, even though the addition of a second reviewer decreased some bias, they only conducted a rapid review of a small sample of studies. It would have been more beneficial to complete the full study selection, data extraction, and quality appraisal in duplicate (Perestelo-Perez, 2013).

4.3 Future Research Directions

There is a lack of high-quality studies that explore the longitudinal effects of these interventions on children’s future mental health and behaviors. Moreover, this review found a few studies that

explored the role of caregiver outcomes on children's outcomes. Hence, there appears to be a need for more research investigating this correlation. The majority of included studies have investigated the effectiveness of mentoring interventions which were found to be less successful compared to other types of interventions. Therefore, future research should focus on evaluating the effectiveness of other types of potentially successful interventions. Lastly, this review found that approximately all studies evaluated interventions conducted in the United States. However, parental incarceration is a universal experience and future studies need to explore interventions conducted in other geographical areas.

4.4 Reflections on Learning

Since this review was conducted as an MSc dissertation, the limitations encountered were due to restrictions in time and resources. Without these obstacles, a comprehensive review of the literature would have been possible in addition to a full duplication of the processes by several other researchers. Moreover, this was the author's first time conducting a narrative synthesis which was a complicating factor due to little guidance available for reviews of this nature. Upon reflection, the author learned that there is a need to compromise between ideal systematic review methods and practical considerations.

4.5 Conclusion

The present systematic review explored studies that evaluated the effectiveness of interventions targeting the mental health and behavior of children and adolescents with incarcerated parents. The evidence indicates that interventions with elements of social and caregiver support, and increased maternal contact show some promise in improving children and adolescent's mental health and behaviors. The weak quality of the included studies should be taken into consideration when interpreting these findings. In conclusion, this review has highlighted the need to improve the quality of future studies and emphasized the components needed to build effective interventions targeting this population. The wider implications of these findings would benefit future policy-making decisions when planning and implementing future interventions.

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Appendices

Appendix 1: Research Project Protocol

Systematic Review Protocol

5 Background to Review

With an increase in the global rates of imprisonment, the effect of parental incarceration on children is an increasing concern for policy-makers. In the United States alone, the number of children with an incarcerated parent increased from 945,600 in 1990 to 1,706,600 in 2007, accounting for 2% of the country's children in total (Glaze & Maruschak, 2008). Unfortunately, these children can go unseen by healthcare systems and policy-makers. They have been called “hidden victims of imprisonment” (Cunningham & Baker, 2003) or “the forgotten victims of crime” (Matthews, 1983).

Worldwide, mental health problems affect around 10 to 20% of children and adolescents (Patton et al., 2016). There are many co-occurring risk factors that can influence the prevalence of such problems, one of which is exposure to parental incarceration. Parental incarceration can have various negative effects on children and adolescents' mental health and behavioural outcomes. Previous studies have shown a positive correlation between parental incarceration and different mental health problems and antisocial behaviours. In a longitudinal study with more than 1,000 boys with parents in prison, Murray et al., (2012) found an increase in theft rates compared to a control group. Similarly, Turney (2014) found parental incarceration to be significantly associated with behavioural or conduct problems, as well as with learning disabilities and ADD/ADHD. Many of these illnesses and behavioural problems that occur in childhood or adolescence can tend to persist well into adulthood. More importantly, evidence has shown that childhood exposure to parental incarceration seems to also have negative long-term effects that last up to young adulthood (Lee et al., 2013). These findings, and more, illustrate the need for child and adolescent focused interventions that aim to reduce mental health problems and antisocial behaviours for children and adolescents exposed to parental incarceration, and also prevent and reduce future incidence of psychopathology in their adult lives.

This systematic review will help identify the current available interventions and the potential barriers to their implementation, but more importantly, evaluate their effectiveness in reducing mental health problems and antisocial behaviours. Findings from this systematic review will hopefully inform the development of future intervention strategies for this marginalized population.

5.1 Aim

To understand what interventions may be effective in reducing mental ill-health and problematic behaviours among children and adolescents with incarcerated parents. This understanding may help in the design of future effective interventions that can later be evaluated in more in-depth studies.

6 Specific Research Objectives

1. To have an understanding of the different settings in which effective interventions can be conducted.

2. To have an understanding of the key intervention components:
 - a What are the elements that have an effect on the outcome? (Intervention setting, specific form of therapy...)
 - b How might these elements affect the outcome? (Do they help decrease the score on a certain measure? Do they not have any significant effect?)
3. To identify the potential barriers to implementing interventions.

7 Criteria for Search Strategy

3.1 Criteria for including studies in the review

7.1.1 Population, or participants and conditions of interest

Children and adolescents with at least one incarcerated parent; age range starting from 19 years old and younger since, according to the World Health Organization (2019), the age cutoff for adolescence is 19 years old.

Any gender and any severity of mental ill health or antisocial behaviours. No restrictions will be placed on the geographic locations of the studies.

7.1.2 Interventions or exposures

Any child or adolescent focused interventions with the aim to reduce mental health problems or antisocial behaviours.

7.1.3 Comparisons or control groups

If the study is a randomized control trial, there will be a control group of participants who haven't received the intervention under study.

If the study is not a randomized control trial, the outcome data will be compared to the data measured prior to the intervention.

7.1.4 Outcomes of interest

Any change in mental ill health or problematic behaviours either reported by the child or their caregiver.

3.1.5 Setting

Any setting.

3.1.6 Study designs

Quantitative or qualitative studies.

7.2 Criteria for excluding studies not covered in inclusion criteria

Studies that focus on parenting interventions.

Studies that include adults who had childhood exposure to parental incarceration.

Studies that have a case study design.
 Studies that are written in the non-English language.
 Studies done or published before 1995.
 Literature reviews, systematic reviews or meta-analyses.

8 Search Methods

8.1 Electronic Databases

- PsycInfo (EBSCO)
- Psychology and Behavioral Science Collection (EBSCO)
- Child Development and Adolescent Studies (EBSCO)
- CINAHL (EBSCO)
- MEDLINE (EBSCO)
- SocIndex (EBSCO)
- Embase (OVID)
- Web of Science Core Collection

8.2 Search Terms

The search terms will include both subject headings and keywords related to parental incarceration, mental health or antisocial behaviours, and intervention. Wildcards and truncation will be used to account for spelling variations and different word forms.

- | |
|---|
| 1. DE "Incarceration" |
| 2. DE "Parents" |
| 3. S1 AND S2 |
| 4. (incarcerat* OR imprison* OR prison* OR jail* OR penitentiary OR detention) N5 (parent* OR mother* OR father* OR maternal OR paternal) |
| 5. S3 OR S4 |
| 6. (DE "Mental Health") OR (DE "Mental Disorders") OR (DE "Behavior") |
| 7. antisocial* OR anti-social* OR delinquen* OR crim* OR offend* OR violen* OR aggressi* OR mental health OR mental disorder* OR mental illness* OR psychiatric illness* OR depress* OR anxi* OR internali* OR externali* OR psychological* |
| 8. S6 OR S7 |
| 9.(DE "Intervention") OR (DE "Treatment") |
| 10. intervention* OR treatment* OR program* OR therap* OR strateg* |
| 11. S9 OR S10 |
| 12. S5 AND S8 AND S11 |

Box 1. Search Strategy used in PsycINFO (EBSCO)

8.3 Grey literature search

The grey literature will include unpublished journal articles, dissertations and theses, and reports and policy documents. The decision to search the grey literature was made to reduce the possible publication bias.

8.4 Other methods used for identifying relevant research

Reference checking will be conducted by scanning the reference lists of all included articles.

3.5 Journals hand searched

N/A

4 Methods of Review

4.1 Details of methods

The first reviewer will screen the titles and abstracts of all the studies found. The full-text articles of the studies that meet the eligibility criteria will be retrieved and reviewed. The second reviewer will complete the same selection procedure on 10% of the sample.

4.2 Quality assessment

Since this systematic review will include all study designs, different risk of bias and quality assessment tools will be used.

The Effective Public Health Practice Project (EPHPP) tool will be used to assess quantitative studies.

The CASP Checklist will be used to assess qualitative studies.

4.3 Data extraction

The data extracted will include:

- General citation information i.e: Author(s), Publication Title, Year of Publication, Country
- Population characteristics i.e: Age, Gender, Ethnicity, Country, Paternal or Maternal Incarceration or Both, Sample Size
- Study characteristics i.e: Aim, Study Design, Sampling frame, Study Setting, Intervention Description, Comparators/Control Conditions, Barriers
- Methods i.e: Mental Health Measures, Antisocial Behaviour Measures, Analysis
- Main findings

The data extraction form will be presented as an Excel Sheet. EndNote Web will be used to keep track of references.

4.4 Narrative synthesis

A narrative synthesis will primarily be conducted and will be carried out using a framework based on the main elements from the research questions:

1. Developing an idea of where and how interventions are conducted.
2. Developing an idea of why and how interventions affect the outcomes.
3. Developing a preliminary synthesis of findings of included studies.
4. Assessing the robustness of the synthesis using the PRISMA Checklist.

4.5 Meta-analysis

If there is enough amenable data, a meta-analysis will be conducted. However, due to the expected heterogeneity of the studies, a narrative synthesis will likely be done.

4.6 Grading evidence

N/A

5 Presentation of results

5.1 Additional material

- Protocol
- PRISMA Flow Chart
- Data extraction form and tables
- Quality of evidence table
- PRISMA Checklist

6.2 Outputs from review

N/A

6 Timeline for review

Timeline		
Start Date	Time	Task
5 March	2 weeks	Protocol write-up
19 March	13 weeks	Literature search; study screening and selection
18 June	4 weeks	Data extraction
16 July	4 weeks	Quality appraisal
13 August	5 weeks	Write up
27 August	2 weeks	Submit first draft
31 August	1 week	Edit according to feedback
7 September		Submit final report

7 References

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Appendix 2: Search Strategies

1. DE "Incarceration"
2. DE "Parents"
3. S1 AND S2
4. (incarcerat* OR imprison* OR prison* OR jail* OR penitentiary OR detention) N5 (parent* OR mother* OR father* OR maternal OR paternal)
5. S3 OR S4
6. (DE "Mental Health") OR (DE "Mental Disorders") OR (DE "Behavior")
7. antisocial* OR anti-social* OR delinquen* OR crim* OR offend* OR violen* OR aggressi* OR mental health OR mental disorder* OR mental illness* OR psychiatric illness* OR depress* OR anxi* OR internali* OR externali* OR psychological*
8. S6 OR S7
9. (DE "Intervention") OR (DE "Treatment")
10. intervention* OR treatment* OR program* OR therap* OR strateg*
11. S9 OR S10
12. S5 AND S8 AND S11

Box 1: Search Strategy for PsycINFO, CINAHL & MEDLINE (EBSCO)

1. (incarcerat* OR imprison* OR prison* OR jail* OR penitentiary OR detention) N5 (parent* OR mother* OR father* OR maternal OR paternal)
2. antisocial* OR anti-social* OR delinquen* OR crim* OR offend* OR violen* OR aggressi* OR mental health OR mental disorder* OR mental illness* OR psychiatric illness* OR depress* OR anxi* OR internali* OR externali* OR psychological*
3. intervention* OR treatment* OR program* OR therap* OR strateg*
4. S1 AND S2 AND S3

Box 2: Search Strategy for SocINDEX, Psychology and Behavioural Sciences Collection & Child Development and Adolescent Studies (EBSCO)

1. EXP Incarceration/
2. EXP Parents/
3. S1 AND S2
4. ((incarcerat* OR imprison* OR prison* OR jail* OR penitentiary OR detention) N5 (parent* OR mother* OR father* OR maternal OR paternal)).mp.
5. S3 OR S4
6. EXP Mental Health/
7. EXP Mental Disorders/
8. EXP Behavior/
9. S6 OR S7 OR S8
10. (antisocial* OR anti-social* OR delinquen* OR crim* OR offend* OR violen* OR aggressi* OR mental health OR mental disorder* OR mental illness* OR psychiatric illness* OR depress* OR anxi* OR internali* OR externali* OR psychological*).mp.

- | |
|--|
| 11. S9 OR S10
12. EXP Intervention/
13. EXP Treatment/
14. S12 OR S13
15. (intervention* OR treatment* OR program* OR therap* OR strateg*).mp.
16. S14 OR S15
17. S5 AND S11 AND S16 |
|--|

Box 3: Search Strategy for Embase (OVID)

- | |
|--|
| 1. (incarcerat* OR imprison* OR prison* OR jail* OR penitentiary OR detention) NEAR/5
(parent* OR mother* OR father* OR maternal OR paternal)
2. antisocial* OR anti-social* OR delinquen* OR crim* OR offend* OR violen*OR aggressi*
OR mental health OR mental disorder* OR mental illness* OR psychiatric illness* OR
depress* OR anxi* OR internali* OR externali* OR psychological*
3. intervention* OR treatment* OR program* OR therap* OR strateg*
4. S1 AND S2 AND S3 |
|--|

Box 4: Search Strategy for Web of Science Core Collection

Appendix 3: Data Extraction Table

Title	
Author(s)	
Publication Journal	
Year of Publication	
Country	
Sample Characteristics	
Age	
Gender	
Ethnicity	
Paternal or Maternal Incarceration or Both	
Sampling Frame	
Sample Size	
Study Characteristics	
Aim	
Study Design	
Study Setting	
Intervention Type	
Comparator/Control Conditions	
Methods	
Mental Health Measures	
Problematic Behavior Measures	
Results	
Baseline Data	
Analysis	
Main Findings	
Strengths	
Limitations	
Quality Assessment Score	

Appendix 4: Quality Appraisal Tools

A: Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies (Thomas et al., 2004)

QUALITY ASSESSMENT TOOL FOR QUANTITATIVE STUDIES



COMPONENT RATINGS

A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

- 1 Very likely
- 2 Somewhat likely
- 3 Not likely
- 4 Can't tell

(Q2) What percentage of selected individuals agreed to participate?

- 1 80 - 100% agreement
- 2 60 - 79% agreement
- 3 less than 60% agreement
- 4 Not applicable
- 5 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B) STUDY DESIGN

Indicate the study design

- 1 Randomized controlled trial
- 2 Controlled clinical trial
- 3 Cohort analytic (two group pre + post)
- 4 Case-control
- 5 Cohort (one group pre + post (before and after))
- 6 Interrupted time series
- 7 Other specify _____
- 8 Can't tell

Was the study described as randomized? If NO, go to Component C.

No Yes

If Yes, was the method of randomization described? (See dictionary)

No Yes

If Yes, was the method appropriate? (See dictionary)

No Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

C) CONFOUNDERS

(Q1) Were there important differences between groups prior to the intervention?

- 1 Yes
- 2 No
- 3 Can't tell

The following are examples of confounders:

- 1 Race
- 2 Sex
- 3 Marital status/family
- 4 Age
- 5 SES (income or class)
- 6 Education
- 7 Health status
- 8 Pre-intervention score on outcome measure

(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

- 1 80 – 100% (most)
- 2 60 – 79% (some)
- 3 Less than 60% (few or none)
- 4 Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

D) BLINDING

(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

- 1 Yes
- 2 No
- 3 Can't tell

(Q2) Were the study participants aware of the research question?

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

E) DATA COLLECTION METHODS

(Q1) Were data collection tools shown to be valid?

- 1 Yes
- 2 No
- 3 Can't tell

(Q2) Were data collection tools shown to be reliable?

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

F) WITHDRAWALS AND DROP-OUTS

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

- 1 Yes
- 2 No
- 3 Can't tell
- 4 Not Applicable (i.e. one time surveys or interviews)

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

- 1 80 -100%
- 2 60 - 79%
- 3 less than 60%
- 4 Can't tell
- 5 Not Applicable (i.e. Retrospective case-control)

RATE THIS SECTION	STRONG	MODERATE	WEAK	
See dictionary	1	2	3	Not Applicable

GLOBAL RATING

COMPONENT RATINGS

Please transcribe the information from the gray boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

A	SELECTION BIAS	STRONG	MODERATE	WEAK
		1	2	3
B	STUDY DESIGN	STRONG	MODERATE	WEAK
		1	2	3
C	CONFOUNDERS	STRONG	MODERATE	WEAK
		1	2	3
D	BLINDING	STRONG	MODERATE	WEAK
		1	2	3
E	DATA COLLECTION METHOD	STRONG	MODERATE	WEAK
		1	2	3
F	WITHDRAWALS AND DROPOUTS	STRONG	MODERATE	WEAK
		1	2	3
				Not Applicable

GLOBAL RATING FOR THIS PAPER (circle one):

- | | | |
|---|----------|----------------------------|
| 1 | STRONG | (no WEAK ratings) |
| 2 | MODERATE | (one WEAK rating) |
| 3 | WEAK | (two or more WEAK ratings) |

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

No Yes

If yes, indicate the reason for the discrepancy

- 1 Oversight
- 2 Differences in interpretation of criteria
- 3 Differences in interpretation of study

Final decision of both reviewers (circle one):

- | | |
|---|----------|
| 1 | STRONG |
| 2 | MODERATE |
| 3 | WEAK |

B: Critical Appraisal Skills Programme Qualitative Checklist (Critical Appraisal Skills Programme, 2018).



Paper for appraisal and reference:

Section A: Are the results valid?

1. Was there a clear statement of the aims of the research?

Yes
Can't Tell
No

HINT: Consider
• what was the goal of the research
• why it was thought important
• its relevance

Comments:

2. Is a qualitative methodology appropriate?

Yes
Can't Tell
No

HINT: Consider
• If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants
• Is qualitative research the right methodology for addressing the research goal

Comments:

Is it worth continuing?

3. Was the research design appropriate to address the aims of the research?

Yes
Can't Tell
No

HINT: Consider
• if the researcher has justified the research design (e.g. have they discussed how they decided which method to use)

Comments:

4. Was the recruitment strategy appropriate to the aims of the research?

Yes	<input type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider

- If the researcher has explained how the participants were selected
- If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
- If there are any discussions around recruitment (e.g. why some people chose not to take part)

Comments:

5. Was the data collected in a way that addressed the research issue?

Yes	<input type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider

- If the setting for the data collection was justified
- If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)
- If the researcher has justified the methods chosen
- If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide)
- If methods were modified during the study. If so, has the researcher explained how and why
- If the form of data is clear (e.g. tape recordings, video material, notes etc.)
 - If the researcher has discussed saturation of data

Comments:

6. Has the relationship between researcher and participants been adequately considered?

Yes	<input type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider

- If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

Comments:

Section B: What are the results?

7. Have ethical issues been taken into consideration?

Yes	<input type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider

- If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
- If approval has been sought from the ethics committee

Comments:

8. Was the data analysis sufficiently rigorous?

Yes	<input type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider

- If there is an in-depth description of the analysis process
- If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
 - To what extent contradictory data are taken into account
- Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

Comments:

9. Is there a clear statement of findings?

Yes	<input type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider whether

- If the findings are explicit
- If there is adequate discussion of the evidence both for and against the researcher's arguments
- If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)
- If the findings are discussed in relation to the original research question

Comments:

Section C: Will the results help locally?

10. How valuable is the research?

HINT: Consider

- If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature
- If they identify new areas where research is necessary
- If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Comments:

Appendix 5: Author Guidelines for Target Journal

Author guidelines for the target journal of “Child and Adolescent Mental Health” can be found through the following link: <https://acamh.onlinelibrary.wiley.com/hub/journal/14753588/forauthors.html>