



Physical and Psychosocial Impacts of Parental Incarceration on Children and Adolescents: A Systematic Review Differentiating Age of Exposure

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Received: 2 February 2021 / Accepted: 11 January 2022 / Published online: 25 February 2022
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Abstract

The externalizing and internalizing behavioral impacts of parental incarceration on their children has been widely examined. However, understanding the breadth and depth of possible negative impacts on children at different developmental stages, and whether protective factors can be identified to offset such impacts, has been limited. This review systematically reviewed 57 articles and extended the developmental outcome to six key impact themes, with some articles identifying more themes than others: behavioral ($n = 34$), mental health ($n = 26$), social relationships ($n = 17$), academic performance ($n = 17$), substance use ($n = 10$), and short-term and long-term physical health ($n = 6$). To provide a global review, this study examined research across nations from Western to Eastern countries, consisting of 126,690 children and adolescents with incarcerated parents against 577,445 peers with no parents of such histories. Most children and adolescents exposed to parental incarceration are vulnerable to mental health impacts including anxiety, behavioral issues and school performance. The earlier the exposure to parental incarceration, the greater the risk of marijuana use, sexually transmitted infection and multiple partnerships in adolescence. These challenges often continue into emerging adulthood. This review found that the well-being of parents, positive family relationships and successful co-parenting can offset some adverse impacts. Future research lines and implications for preventive support to such children, adolescents and families are discussed.

Keywords Parental incarceration · Child outcome · Physical health · Behavioral outcome · Mental health

Introduction

Parental incarceration is conceptualized as an adverse childhood experience due to its stress and detrimental consequences on children's externalizing and internalizing behaviors (Turney, 2018). Children with incarcerated parents face the separation from a significant primary caregiver, can experience a traumatic change in childcare environment, and may suffer from an abrupt and ambiguous loss of parent. However, there has been a limited understanding of the breadth and depth of physical and psychosocial outcomes related to parental incarceration across developmental stages. There also is a limited effort to understand

how outcomes may vary across countries and their different justice systems. The limited understanding is alarming given the number of children around the world who are exposed to parental incarceration. Approximately three million American children have at least one parent behind bars on any given day (Sykes & Pettit, 2014), and at least 10 million (one in eight children in the U.S.) have experienced parental incarceration at some point in their lives (Joy, 2013). Elsewhere, around 800,000 children within the European Union have a parent at prison on any given day (Children of Prisoners Europe, 2014) and at least 350,000 Canadian children are affected by parental incarceration (Withers & Folsom, 2007). In Asia, at least one million Chinese children have one or both parents in prison (Sevenants, 2014) and around 54,000 South Korean children had an incarcerated parent in 2017 (Kim, 2020). To understand the more global effects of parental incarceration, this review examined the child outcomes from physical and mental health to performance at school and substance use, across nations and children's developmental stages.

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Children are a vulnerable population because of their dependence on adults to care for them and protect their best interest. Attachment theory states that the key influence on a child's sense of security is grounded in the availability of the caregiver that provides the attachment (Ainsworth et al., 1978; Bowlby, 1958). As such, the bond between the primary caregiver and the child is regarded as the child's "first attachment relationship" (West et al., 1994). Studies have shown that this relationship is the foundation for the child's healthy growth and development because of its influences on the structure and function of the child's developing brain. Parents, who usually perform the primary caregiving roles, are expected to provide the source of trust, protection and safety to the child, anchoring a long-term effect on the child's cognitive, social and emotional development (Corriveau et al., 2009; Erozkhan, 2016). Therefore, separation from parents due to parental incarceration may have detrimental effects on children's wellbeing and development.

Children who experience major changes or disruptions in their family structure may face adverse effects on their behaviors, development, academic success and health, regardless of their age or gender (Carlson, 2006). When the parent as primary caregiver is incarcerated, their abrupt unavailability for an extended period of time causes feelings of distress, separation and loss in the child. Children often face the negative emotions of distress, sadness, and confusion when they experience the unexpected absence of parents (Hogan et al., 2003; Yau & Chung, 2014) and these complex emotions could leave children susceptible to the suffering of stigma, anger and deterioration in health (Philbrick, 2002). Most of these troubling feelings and behaviors are similar to the symptoms of post-traumatic stress disorder, with parental incarceration being conceptualized as an adverse childhood experience (Arditti, 2012).

Suffering significant loss when growing up is not uncommon, and often results in grief. When such grief arises from ambiguous and often shame-bearing loss, coping can be even more difficult. Ambiguous loss is defined as "a loss that may not be recognized" (Guidry et al., 2013, p. 5) and often is related to the separation from an incarcerated parent, because the nature of the offence often could not or should not be clearly articulated to children. Without a clear understanding of the absence of parents, children with incarcerated parents are often left feeling abandoned, confused and depressed about the ambiguity until an explanation is given. This ambiguous loss and separation from parents could bring physical, behavioral, emotional and social problems to children, such as sleep loss, headaches, fatigue, fear and avoidance, anxiety, depression, anger, over-activity, crying, apathy and difficulty or inability to make and sustain friendship or trust in incarcerated parents and caregivers (Betz & Thorngren, 2006; Erozkhan, 2016; Murray & Murray, 2010).

The sudden change and instability of caretaking environments also may have a compounding effect on the negative experience of separation. Children and adolescents being forcibly separated from their parents may feel as though they have missed out on important parts of life that most other children enjoy and may feel a certain amount of jealousy or envy when comparing themselves to other children who are raised by their parents. Sons of incarcerated parents may particularly face higher risk factors for antisocial behaviors, delinquency, psychopathology and criminality (Murray & Farrington, 2005). Paternal incarceration also increases the risk of expressive or "acting out" delinquent behaviors including fighting, harming others, and damaging property as they progressed towards adolescence and adulthood (Porter & King, 2015).

Current Study

The purpose of this review is to provide a better understanding of the impact of parents' incarceration on the well-being and development of their children, for a more thorough and benchmarking comparison that includes outcomes that may often be overlooked in previous studies, such as social relationships problems. This study also assesses the cross-national evidence of parental incarceration as a risk factor and/or its possible causal effect on physical and psychosocial problems; and investigates the protective factors that may ameliorate the effects of parental incarceration on children and adolescents. Finally, the study also examines how parental incarceration effects may vary depending on children's developmental stage, ranging from childhood to emerging adulthood.

Methods

This systematic review follows the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) guidelines (Moher et al., 2009), protocols and conventions of the Campbell Collaboration (The Campbell Collaboration, 2019). See Fig. 1 for the PRISMA flow chart of paper selection strategy.

Criteria of Inclusion and Exclusion of Studies

The following inclusion criteria were adopted for this review: (1) original academic peer-reviewed articles published in English or Chinese; (2) studies employed qualitative, quantitative or mixed methods; (3) studies involved children who experienced parental incarceration by age 18. Eligible articles in Chinese were included in order to explore the perspectives from the Eastern context since publications

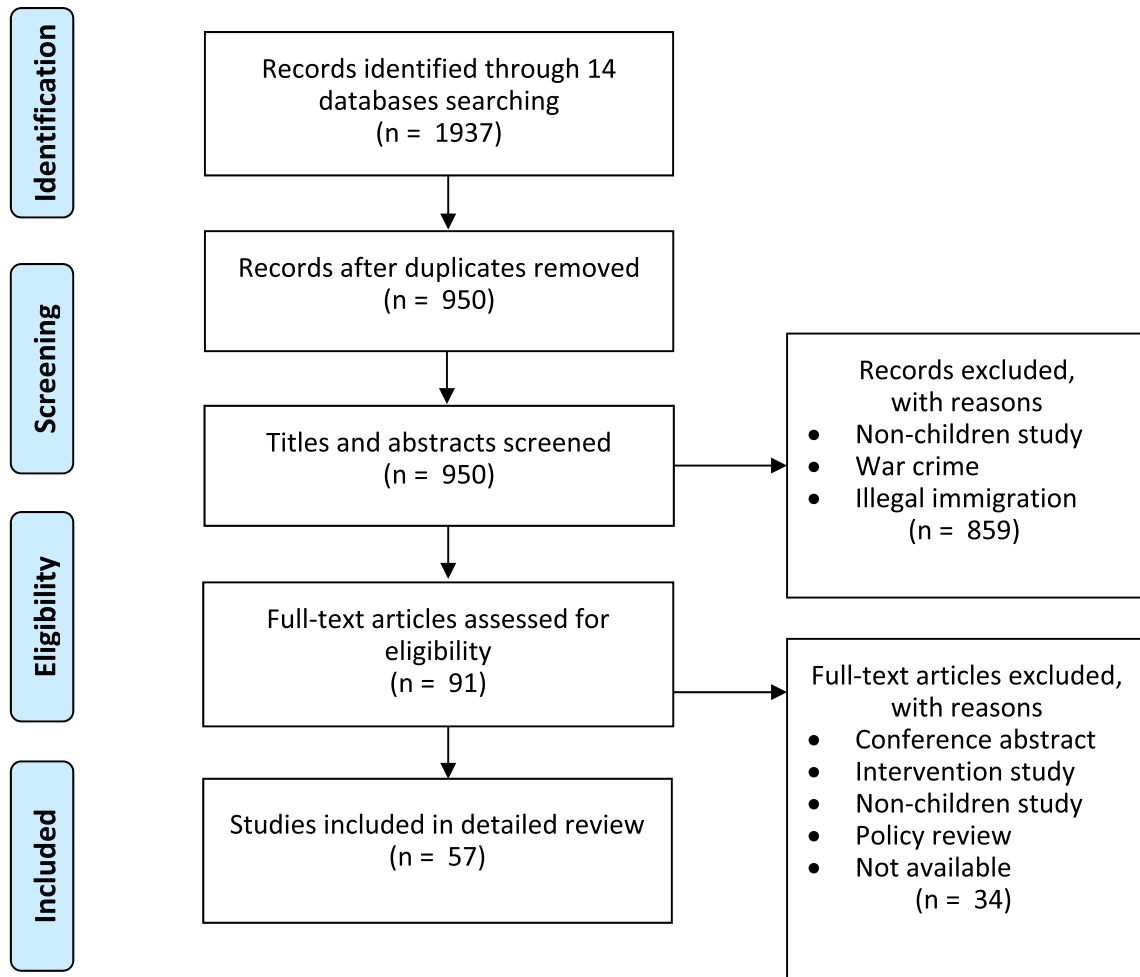


Fig. 1 PRISMA flow chart

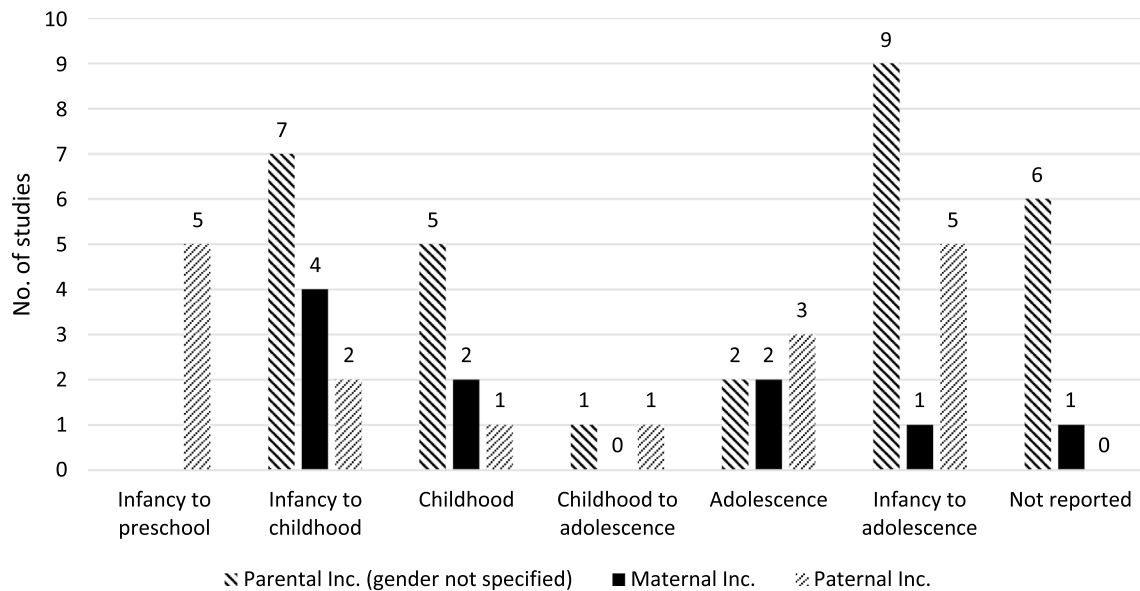


Fig. 2 Article distribution by age of exposure and types of parental incarceration

Table 1 Ratings of included studies using Mixed Methods Appraisal Tool Version 2018

No.	Author and year	Criteria from the mixed methods appraisal tool																									
		Qualitative					Quantitative RCT					Quantitative non-randomised					Quantitative descriptive		Mixed-methods								
		1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5	
1	Aaron (2010)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
2	Andersen (2016)										1	1	1	1	1												
3	Antle (2019)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
4	Besemer (2018)										1	0	1	1	1												
5	Besemer (2011)										1	1	1	1	1												
6	Boch (2019)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
7	Cho (2009a)										1	1	0	1	1												
8	Cho (2009b)										1	1	1	1	1												
9	Dallaire et al. (2015)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
10	Dannerbeck (2005)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
11	Davis (2017a)										1	1	1	1	1												
12	Davis (2017b)										1	1	1	1	1												
13	Gaston (2016)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
14	Haskins (2014)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
15	Haskins (2017)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
16	Khan (2018)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
17	Kinner (2007)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
18	Kjellstrand et al. (2019)	1	1	1	1	1					1	1	1	0	1							1	1	1	1	1	
19	Kjellstrand et al. (2020)	1	1	1	1	1					1	1	1	0	1							1	1	1	1	1	
20	Kjellstrand et al. (2018b)	1	1	1	1	1					1	1	1	0	1							1	1	1	1	1	
21	Kjellstrand and Eddy (2011)	1	1	1	1	1					1	1	1	0	1							1	1	1	1	1	
22	Kjellstrand et al. (2018a)	1	1	1	1	1					1	1	1	0	1							1	1	1	1	1	
23	Kopak (2016)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
24	Lawrence-Wills (2004)																					1	1	1	1	1	
25	Le (2019)	1	1	1	1	1					1	1	0	1	1							1	1	1	1	1	
26	Lee (2013)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
27	McGee (2017)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
28	McKay (2018)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
29	McLeod (2019)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
30	Michael (2018)																					1	1	1	1	1	
31	Miller (2015)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	
32	Murfić (2016)	1	1	1	1	1					1	1	1	1	1							1	1	1	1	1	

Table 1 (continued)

No.	Author and year	Criteria from the mixed methods appraisal tool																											
		Qualitative					Quantitative RCT										Quantitative non-randomised				Quantitative descriptive				Mixed-methods				
		1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5			
33	Muftić (2018)																												
34	Murray (2005)	1	1	1	1	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1			
35	Murray (2008)																												
36	Nichols (2016)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
37	Nyländer (2018)	1	1	1	1	1	1	1	1	1																			
38	Poehlmann (2005)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
39	Poehlmann (2008)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
40	Porter (2015)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
41	Roettger and Swisher (2011)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
42	Roettger et al. (2011)	1	1	1	1	1	1	1	1	1		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
43	Ruhland (2020)											0	1	1	1														
44	Shaw (2019)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
45	Sheehan (2011)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
46	Shlafer (2010)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
47	Shlafer (2012)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
48	Song (2018)															1	1	1	1	1	1	1	1	1	1	1			
49	Swisher and Roettger (2012)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
50	Tasca et al. (2014)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
51	Turney (2014)	1	1	1	1	1	1	1	1	1						1	1	0	1	1	1	1	1	1	1	1			
52	Turney and Haskins (2014)	1	1	1	1	1	1	1	1	1						1	1	0	1	1	1	1	1	1	1	1			
53	Wang (2011)																												
54	Washington (2018)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
55	Wildeman (2010)	1	1	1	1	1	1	1	1	1						1	1	0	1	1	1	1	1	1	1	1			
56	Will et al. (2014)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			
57	Woodard (2016)	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1			

1 = yes, 0 = no. See supplementary note (Online Appendix A) for corresponding appraisal checklist items

on the Chinese population were rare. Studies that cannot differentiate between household incarceration and parental incarceration (PI) were excluded, so as reviews, chapters, editorials, letters, case reports and conference abstracts. Children of parents being convicted without confinement in jails or prisons and others held as a prisoner of war were excluded (Fig. 2).

Search Strategy

A literature search on 14 relevant databases was performed (i.e., Academic Search Complete, CINAHL Plus, The Cochrane Library, Criminal Justice Abstracts, Education Collection, Embase, Education Resources Information Center, MEDLINE, PsycINFO, PubMed, SAGE, Scopus, Sociological Abstracts, Web of Science). These databases were chosen due to their extensive coverage and rich academic content such that the articles included in the above fourteen databases would be highly related to the research topic of parental incarceration and its impacts on children. All databases were searched from January 1, 1980 to August 31, 2019 with the following search keywords: (Child* OR son* OR daughter* OR parent* OR mother* OR father* OR maternal* OR paternal* OR grand* OR care*) AND (Prison* OR jail* OR imprison* OR incarcerat* OR detention OR penitentiary) AND (Antisocial OR externali?ing OR delinquen* OR crim* OR aggressi* OR violen* OR internali?ing OR mental health OR mental illness OR depress* OR anxiety OR anxious OR psychological OR educat* OR grade OR academic OR achievement OR performance OR relationship OR substance OR drug).

Screening of Eligible Studies

The screening procedures of eligible studies were as follows: titles were reviewed to include the potential articles related to the topic; abstracts were reviewed to narrow down the article list; full texts of articles were examined to identify the relevant articles; and citations of potential articles were reviewed to obtain additional potential articles.

Assessment of Article Quality and Risk of Bias

Article quality and risk of bias was assessed using The Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018) for qualitative, quantitative, and mixed methods studies (see Table 1 for ratings and Online Appendix A for assessment items). The MMAT is designed to appraise methodological quality of five categories of studies: qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed methods studies across five criteria. Studies were assigned one point for each criterion based

on the category of study design. For qualitative design, studies were assessed on the design appropriateness to research question, adequacy of collection methods, adequacy of findings, sufficient interpretation of results, and coherence of data sources, collection, analysis and interpretation. For non-randomized studies, participant representativeness, appropriateness of measurement, data completion, confounders analysis, and check of exposure were appraised. All studies included in this review met 80% quality criteria or above.

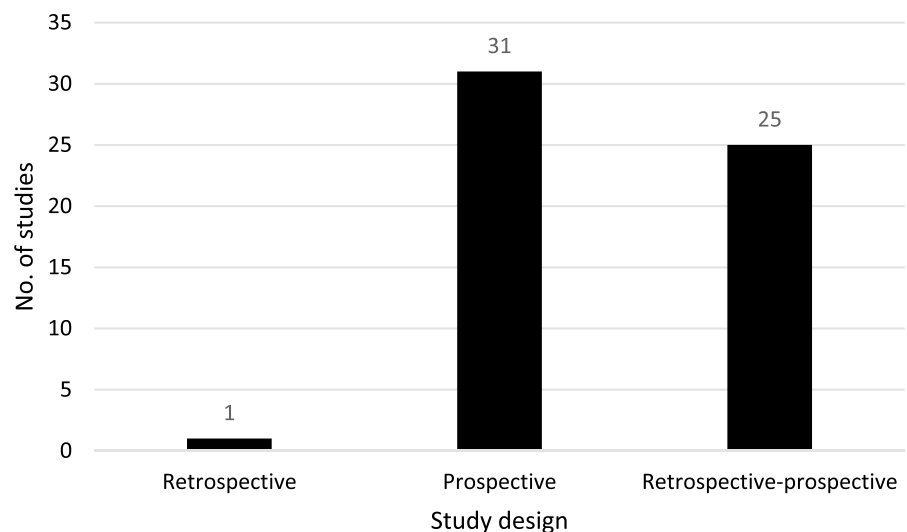
Results

Description of All Eligible Studies

After detailed screening, 57 articles consisting of one retrospective, 31 prospective and 25 retrospective-prospective studies were included for eligibility (Fig. 3). There were 43 studies conducted in mixed-methods and 14 in quantitative methods. None of the included studies was solely qualitative. Table 2 shows that 46 of the included studies were conducted in the United States with three each conducted in England and Australia, one each from Sweden, Denmark, China, South Korea and Israel. After the eligibility screening, all included studies were published after 2000, despite the inclusion period starting from 1980. Fifty-six studies were written in English, and one in Chinese. Three studies focused on children and adolescents with incarcerated parents in Asian jurisdictions, including ethnic Chinese (Wang et al., 2011), ethnic Korean (Song et al., 2018), and ethnic Israeli (Michael, 2018). Characteristics of all eligible studies are given in Online Appendix B.

Forty-seven analytical studies conducted in the United States were based on the National Longitudinal Study of Adolescent to Adult Health (Add Health; $n = 13$) and the Fragile Families and Child Wellbeing Study (FF/CWS; $n = 7$). Add Health is a longitudinal study of a nationally-representative sample of approximately 15,000 adolescents in grades 7 through 12 in the 1994–1995 school year. Follow-up was performed once every few years with the latest wave V conducted in 2016–2018. There were 36,734 children and adolescents compared with 98,558 of those whose parents without incarceration history in selected Add Health studies. Another significant body of studies was drawn from FF/CWS. There are six waves of publicly available data on 5000 children born between 1998 and 2000. A seventh wave has begun in 2020 when the child becomes an emerging adult. In our selection, 10,180 children and adolescents were examined against a group of 14,592 whose parents had no incarceration

Fig. 3 Study design of article based on reference period



history. Despite potential repetitive participants, studies from Add Health and FF/CWS were included since child outcomes at different waves were examined independently.

Socio-demographic Profile of Children and Adolescents with Incarcerated Parents

Age

Of a total sample of 126,690 persons experiencing parental incarceration, 6627 individuals experienced parental incarceration when they were in infancy to preschool (0–5 years old); 3833 in childhood (6–11 years old); 43,802 in adolescence (12–18 years old); 5,805 in infancy to childhood (0–11 years); 154 in childhood to adolescence (6–18 years old); and 65,818 in infancy to adolescence (0–18 years). Table 3 shows the characteristics of children and adolescents with incarcerated parents in the included studies.

Gender

Among all included studies, one study involved daughters with incarcerated parents only; five studies involved only sons with incarcerated parents; 51 studies included both. There are 43,957 sons, 44,335 daughters and 38,398 whose gender is not specified. While only half of the studies explored the effects of gender-specific difference.

Family

Children and adolescents were found to come from disadvantaged backgrounds with lower educational attainment

and more economic hardship with low family income and limited resources. Children and adolescents experiencing paternal incarceration were more likely to reside in unsafe neighbourhoods (Haskins, 2017) and under care of a range of members including mothers, grandparents, aunts, other relatives, step-parents, or other legal guardians (Aaron & Dallaire, 2010; Dallaire et al., 2015; Shlafer & Poehlmann, 2010). Twenty-three studies relied on children’s self-report to measure child outcomes, 10 with data only from parent, caregiver and mentor, one from government official record and the remaining 23 relied on multiple informants. There was no indication of children and adolescents under the supervision of institutions or other agencies for care.

Incarcerated Parent

Incarcerated parents were considerably younger than the average of 25 years of age when they had the child, less educated and had lower income. Gender of incarcerated parents has been reviewed: 28% of the studies focused on paternal incarceration only; 18% focused on maternal incarceration only; and the remaining 54% were not specified.

Caregiver

In 47 of the studies, mothers were mostly the primary caregivers of children and adolescents when the father was incarcerated. Children and adolescents experienced replacement of caregivers since parental incarceration (Song et al., 2018). Among studies that provided information on the primary caregiver of the CIP during maternal incarceration, grandparents accounted for over 60% of the samples (Dallaire et al., 2015; Poehlmann, 2005; Poehlmann et al., 2008).

Table 2 Characteristics of included studies in the systematic review

	Number of studies n = 57
Report dates	
2000s	9
2010s	48
Location	
United States	46 (n = 20 Cohort studies)
Australia	3
England	3
China	1
Denmark	1
Israel	1
South Korea	1
Sweden	1
Sampling frame	
Children in community	48
Children in clinic/court/prison	9
Study design	
Retrospective	1
Prospective	31
Retrospective-prospective	25
Child gender	
Sons only	4
Daughters only	1
Both sons and daughters	42
Not specified	10
Parent incarcerated	
Father only	17
Mother only	10
Include both father and mother figures	30
Age of children at time of parental incarceration	
Infancy to Preschool (0–5 years) only	5
Childhood (6–11 years) only	8
Adolescence (12–18 years) only	7
From infancy to childhood (0–11 years)	13
From infancy to adolescence (0–18 years)	15
From childhood to adolescence (6–18 years)	2
Range until adulthood	7
Age of children at time of outcome measurement in the studies	
Infancy to Preschool (0–5 years) only	1
Childhood (6–11 years) only	6
Adolescence (12–18 years) only	4
Young adulthood (> 18 years) only	10
From infancy to childhood (0–11 years)	3
From infancy to adolescence (0–18 years)	6
From infancy to young adulthood (0–> 18 years)	1
From childhood to adolescence (6–18 years)	10
From childhood to young adulthood (> 6 years)	4
From adolescence to young adulthood (> 12 years)	12
Informant for child outcomes	
Child only	23

Table 2 (continued)

	Number of studies n = 57
Parent/caregiver/mentor only	10
Official records only	1
Multiple	23
Comparison group (n = 42)	
Parents being incarcerated v. non PI	35
Paternal v. Maternal incarceration	3
Separation due to incarceration v. other reasons	1
Multiple	3

Table 3 Characteristics of children and adolescents with a parental incarceration history in the reviewed studies

	n = 126,690
Gender	
Sons	43,957
Daughters	44,335
Not specified	38,398
Age exposed to parental incarceration	
Infancy to preschool only (0–5 years)	6627
Childhood only (6–11 years)	3833
Adolescence only (12–18 years)	43,802
From infancy to childhood (0–11 years)	5805
From infancy to adolescence (0–18 years)	65,818
From childhood to adolescence (6–18 years)	154
Parents incarcerated	
Father only	39,111
Mother only	8786
Both father and mother figures	634
Not specified	78,159

Physical and Psychosocial Impacts of Parental Incarceration on Children and Adolescents

Reviewing past literature, outcomes on mental health impact and behavioral issues have been commonly identified as influential to child development in regard to parental incarceration. Children and adolescents were found to exhibit emotional and behavioral problems, school under-performance and abuse of substance.

The effects of parental incarceration can be accurately assessed if they can be systematically compared across gender-different parental incarcerations or when there's a parental absence due to incarceration or other family processes such as disharmony, divorce, remarriage and parental death. Such comparisons were made to explore and attempt to identify impacts of having parents in prison accurately and in detail.

Short-Term and Long-Term Physical Health

Adolescents had worse health conditions and more diseases and illnesses following parental incarceration than those not exposed to parents being imprisoned. Among the six studies assessing physical health of adolescents, two studies compared the adolescents' age difference, one study compared the adolescents' gender difference and two studies compared the gender difference of incarcerated parents. Two studies were in prospective design and the remaining four were retrospective-prospective design.

Examining the status of sexually transmitted infection (STI), parental incarceration at any age was found to double the odds of having STI than those never exposed to parental incarceration (Khan et al., 2018; Le et al., 2019). In the six studies, childhood risk of parental incarceration may affect an individual's health conditions across adolescence and into young adulthood that was varied by gender of the incarcerated parent and timing of the first experience of parental incarceration. Parental incarceration was associated with both multiple partnerships and early sexual initiation in adolescence by comparing against those who never experienced their parents being incarcerated regardless of age at first parental incarceration and racial/ethnic groups (Khan et al., 2018; Le et al., 2019). Among a group of female adolescents with the mean age of 13 years who have been experiencing current maternal incarceration, 7.3% have been teen mothers (Lawrence-Wills, 2004). Taking into the account of age at first parental incarceration, children who had parents incarcerated at a younger age were more likely to be involved in risky sexual behaviors in adolescence (Khan et al., 2018; Le et al., 2019). STI in adolescence was more strongly correlated with parental incarceration first experienced below eight years old than those who were 8–17 years old at first parental incarceration experience (Khan et al., 2018).

Young adults of mean age of 21.8 years experiencing maternal incarceration had increased odds of inconsistent condom use, and early sexual onset compared to those whose mothers were not imprisoned. Exposure to mothers being incarcerated were 5.5 times the odds of having STI while 1.7 times for having a father being incarcerated, compared

to those without such experience (Le et al., 2019). However, other studies reported that young adults with incarcerated fathers had a higher prevalence rate of developing HIV/AIDS than those with incarcerated mothers (Lee et al., 2013; Miller & Barnes, 2015). Young adults who ever experienced incarceration of both parents were reported with higher risk of developing post-traumatic stress disorder in young adulthood compared with any other type of parent figure alone (Lee et al., 2013). Exposing to parental incarceration at a younger age, for example, those experienced before 10 was associated with significant heightened odds of STI in youth (Le et al., 2019) and experienced below eight years old was more strongly correlated with multiple partnerships and STI in young adulthood than those who were 8–17 years old at first experience of parents at prison (Khan et al., 2018).

Adolescents and young adults who were exposed to parental incarceration since childhood were found to be significantly more likely to have been suffered from a great number of health maladies, including developmental delay, obesity, migraines, hearing and vision problems, bone, joint or muscle problems, respiratory illnesses such as asthma, bronchitis or emphysema, than others without such exposure (Lee et al., 2013; Miller & Barnes, 2015; Turney, 2014). However, it could not be ruled out that deprived living conditions might have led to poorer physical health. Compared with ordinary left-behind adolescents who were separated from their parents due to work at another city, adolescents currently experiencing parental incarceration, of around 13 years of mean age, performed significantly worse in physical health and were presented with symptoms such as abnormal heartbeat and pulse, loss of appetite, stomach pain and insomnia (Wang et al., 2011).

Mental Health Impact

There were 26 included studies examining the mental health outcomes of children with incarcerated parents, 10 of which were in retrospective-prospective design and the remaining 16 were in prospective design.

Both children and adolescents with incarcerated parents were at an elevated risk for emotional problems when compared to those without history of parental incarceration. They were more susceptible to depression, anxiety or panic disorders (Besemer et al., 2018; Davis & Shlafer, 2017a; Kinner et al., 2007; McGee et al., 2017; Miller & Barnes, 2015; Murray & Farrington, 2008; Swisher & Roettger, 2012; Washington, 2018) and indirectly on symptoms of withdrawal and somatic disorders via parenting mechanisms (Antle et al., 2019). For young children, the more severe the negative experience of maternal incarceration had been, the higher the chance of having internalizing problems including withdrawal or depression (Dallaire et al., 2015). Comparing the gender impact of father or mother being incarcerated,

one study found that children of incarcerated mothers, particularly older children, are significantly more likely to have mental health problems and receive related service needs, when controlling for various stressors experienced by children (Tasca et al., 2014).

Across various studies, adolescents with incarcerated parents were more likely to experience mental health impact (Shaw, 2019). Parental incarceration has been significantly identified for predicting mental health problems including school unhappiness, when holding demographics characteristics constant, including poverty and race (Shaw, 2019). Adolescents with an incarcerated parent were 2.41 times more likely to report never being happy at school (Shaw, 2019). Adolescents with current parental incarceration displayed significantly more severe internalizing problems and mental distress including anxiety, intrusive thoughts and somatization than those with formerly incarcerated parents and those without such exposure (Davis & Shlafer, 2017a). Compared with other forms of parental separation, for example, parental divorce and parental death, one study showed that parental incarceration was more strongly associated with children's attention deficit disorder/attention deficit hyperactivity disorder (Turney, 2014).

Experience of parental incarceration during childhood or adolescence was detrimental to one's mental health across the life course, which significantly predicted the exhibition of depressive symptoms in emerging adulthood (Gaston, 2016). Comparing the parent figures of incarceration, youth with both father and mother ever incarcerated during childhood reported significantly more depressive symptoms than those with only a father in prison, while those with maternal incarceration reported to possess more depressive symptoms than those with neither parent incarcerated (Kopak & Smith-Ruiz, 2016). Other studies showed youth with childhood maternal incarceration had the highest prevalence rates in depression and anxiety compared to paternal incarceration or both (Lee et al., 2013).

Behavioral Issue

There were 34 included studies examining the behavioral outcomes of children with incarcerated parents, 13 of which were in retrospective-prospective design and 20 were in prospective design and one in retrospective design.

Children with incarcerated parents were commonly reported with behavioral problems, for example, fighting, bullying, arguing and defiance (Shlafer & Poehlmann, 2010). The younger the children were, the higher the likelihood of reporting externalizing behavior in childhood maternal incarceration (Dallaire et al., 2015). In a study, 2.5 to 7.5 years old preschool children's behavioral reaction to separation from mother due to incarceration included acting out behaviors to express their anger, which was present in

40% of the children. Followed by children acting indifferent than before maternal incarceration such as detachment and shuffling around, and having sleep problems, for example, waking up in the night crying for mother (Poehlmann, 2005).

Studies on adolescents have shown a strong association between parental incarceration and adolescents' behavioral issues after controlling for demographic characteristics (Porter & King, 2015; Roettger et al., 2011; Ruhland et al., 2020; Swisher & Roettger, 2012; Woodard & Copp, 2016). Adolescents with their parents incarcerated had greater rates of having behavioral or conduct problems (Turney, 2014). Paternal incarceration was associated with instrumental forms of delinquency in adolescence that consisted of criminal behaviors which may result in material or monetary gain (Porter & King, 2015). The experience of paternal incarceration has increased the liability for delinquency in adolescence, in particular an increased expressive form of delinquency resulting from anger and frustration, for example, destroying property and violence (Porter & King, 2015; Roettger & Swisher, 2011), which in turn reported a higher likelihood of juvenile arrest (Roettger et al., 2011). One study showed the propensity for delinquency with those experienced father's incarceration escalates much more rapidly during 12–15 years olds, drops during 15–22 years old, then gradually reaches stability in early adulthood (Roettger et al., 2011). Examining the parent figures, adolescents with incarcerated mothers reported higher number of arrests and higher arrest rate, particularly the highest number of arrests in adolescents under 18 years old, compared to other groups of parental incarceration (Kopak & Smith-Ruiz, 2016; McGee et al., 2017). In face of parental incarceration, in particular father's imprisonment, adolescent males reported higher likelihood and higher levels of delinquent behavior than females (Porter & King, 2015; Ruhland et al., 2020). Separation from parents due to parental imprisonment in young childhood predicted boys' antisocial problems in early adolescence compared to parent–child separation due to other reasons such as parent disharmony or parental death (Murray & Farrington, 2005, 2008). Relative to adolescents having a formerly incarcerated parent, those with a currently incarcerated parent reported a significantly higher likelihood of displaying problem behavior, including damage to property, theft, and physical fighting (Ruhland et al., 2020).

Studies on emerging adulthood following childhood parental incarceration showed inconclusive results. One study showed maternal incarceration negatively impacted the children and adolescents until adulthood (Muftić et al., 2016). However, another study revealed no significant differences between the impact of childhood maternal and paternal incarceration on children's offending in their young adulthood (Besemer et al., 2011).

Academic Performance

Among the 17 studies assessing the school performance of children and adolescents with incarcerated parents, there appeared to be no indication of comparisons between age-related and gender-related differences of incarcerated parents and their children. There were 8 studies of prospective design and 9 on retrospective-prospective design.

Studies found that parental incarceration was a significant predictor for children's school performance (Haskins, 2014, 2017; McLeod et al., 2019). Children who experienced paternal incarceration had lower non-cognitive school readiness and worse non-cognitive skills at school entry when age 5, which further impacted their likelihood of special education placement at age 9 (Haskins, 2014). However, another study reported children with only mothers in prison did not correlate with school under-performance (Cho, 2009a). This study indicated that young children with maternal incarceration were less likely to experience grade retention in the immediate years following their mother's prison entry; further, no associations with a decline in reading ability or mathematics performance were found (Cho, 2009a). One possible explanation to this variance could be because mothers often assumed the role of primary caregivers to their children. Therefore, any sudden change of primary caregiver may capture the attention and sympathy of the teacher to offer more support and promote the student experiencing parental incarceration (Cho, 2009a). Consistently, it was suggested that children with incarcerated fathers were more likely to experience grade retention not because of their test scores or behavioral problems but because of teachers' perception of young children's academic proficiency (Turney, 2014).

Studies on adolescence have generally shown parental incarceration was a significant negative predictor for school performance (Shaw, 2019). Controlling for demographic characteristics including age, gender, income, race and social class, parental incarceration significantly reduced adolescents' school performance (Shaw, 2019) and poorer English grades (McLeod et al., 2019). One study showed children with incarcerated parents were likely to suffer from learning disabilities and chronic school absence compared with those without (Turney, 2014). It was indicated adolescents were at greater risk of dropping out of high school and missing higher education (university), compared to counterparts (Andersen, 2016; Nylander et al., 2018). Adolescents had significantly lower levels of academic success, satisfaction with level of education attainment and reduced likelihood of graduating from university, specifically when having their father incarcerated during their childhood or adolescence (Miller & Barnes, 2015; Shaw, 2019). There was a robust negative relationship between adolescents' grades and incarceration of their parents. Adolescent males, in particular,

had lower levels of school performance than females (Shaw, 2019) and higher risks of dropping out (Cho, 2010). For adolescents of both genders, a staircase correlation was identified between educational outcomes and paternal incarceration frequency and duration (Andersen, 2016). Adolescents who experienced parental incarceration during childhood were significantly more common to receive special education classes than those without (Nylander et al., 2018).

In emerging adulthood, studies revealed parental incarceration as an exceptional risk associated with lifelong educational attainment (Nichols et al., 2016; Shaw, 2019), in particular, being male was found to have a notable effect (Shaw, 2019).

Substance Use

The impact of substance use on children and adolescents was assessed in 10 of the studies, among which one was in retrospective design, two were in prospective and seven in retrospective-prospective. Gender of incarcerated parents and the age of their children were examined in one study. While gender of children and adolescents with incarcerated parents was examined in two studies, gender difference among them was found in only one study.

Boys who experienced parental incarceration during childhood (in their first 10 years of life) had a higher likelihood to take drugs, drink and smoke heavily in late adolescence and persisted into early adulthood, compared with those who never experienced parental incarceration or other form of parental separation (Murray & Farrington, 2005).

Adolescents of incarcerated parents were more likely to use and abuse alcohol, tobacco and other drugs against those without such experience (Davis & Shlafer, 2017b; Kinner et al., 2007; Shlafer & Poehlmann, 2010). Among which, adolescents who were currently experiencing parental incarceration were at the highest risk of binge drinking, use of alcohol, tobacco and marijuana, and meeting the clinical criteria for substance abuse or dependence (Davis & Shlafer, 2017b). Adolescent girls with incarcerated fathers were significantly more likely to use alcohol and tobacco than boys at age 14 (Kinner et al., 2007). There was a tendency of consuming alcohol at a younger age when exposed to either type of parental incarceration. Early alcohol initiation at age 14 or younger was associated with paternal incarceration (Kinner et al., 2007) and was more likely to be reported by adolescents with formerly incarcerated parents than currently (Davis & Shlafer, 2017b). Adolescents were more likely to have smoked cigarettes and reported problems with drugs and alcohol if their mothers had a history of arrest and conviction since child was born but not for the history of jail time, compared to mothers with no criminal history (Shlafer et al., 2012).

The likelihood of marijuana use was higher for adolescents first exposed to parental incarceration in childhood compared to those of neither parent incarcerated (Khan et al., 2018; Kopak & Smith-Ruiz, 2016). Examining the age of first exposure to parental incarceration, there was a stronger association with marijuana use in adolescence for children who were below eight years old at first exposure than from 8 to 17 years old (Khan et al., 2018). However, the effect of age was found in reverse in cocaine use. The association between adolescent cocaine use and parental incarceration was significant only for adolescents who first experienced parental incarceration from 8 to 17 years old.

In emerging adulthood, cocaine use was strongly associated only for those first exposed to parental incarceration under 8 years (Khan et al., 2018). When the gender of incarcerated parents was considered, it was found an experience of maternal incarceration during adolescence fared worst in terms of reported longitudinal drug use outcomes. Young adults who experienced mother incarcerated at around 12 years old were reported with significantly higher rates of lifetime use of marijuana, cocaine and other drugs and initiated an earlier marijuana use, compared with only father or both parents incarcerated (Kopak & Smith-Ruiz, 2016; McGee et al., 2017). Young males experiencing fathers being incarcerated during childhood started having marijuana at a higher initial frequency and already displayed an elevated usage during adolescence (Roettger et al., 2011). The trajectories of marijuana use among young females experiencing paternal incarceration were in a similar age-deviance curve except that females had a lower frequency of marijuana and other illegal drugs' usage than males (Roettger et al., 2011).

Social Relationship

Among the 17 studies that investigated children and adolescents' social relationships, two studies compared the age difference of children and adolescents and two studies compared their gender difference. There appeared to be no indication of comparison between gender differences of the incarcerated parents. Neither age-related difference nor gender-related difference was reported. The study design of the 17 studies were categorised to six of retrospective-prospective, and 11 of prospective.

The recency of exposure to paternal incarceration was detrimental to children's social functioning, including more assertive behavior, poorer self-control and cooperation (Washington, 2018). Young children experiencing maternal incarceration had insecure-negative relationships with mothers and with caregivers, and were presented with developmental regressions including peeing in pants (Poehlmann, 2005). It was found that higher levels of conflict and antagonism

towards mothers significantly predicted lower levels of prosocial behavior in young children with incarcerated fathers (Michael, 2018).

Adolescents with currently incarcerated parents were self-reported with the lowest level of parental closeness compared to those of former parental incarceration and none, indicating a poor parent–child communication and a dissatisfying parental care in the perspective of adolescents. Such a parent–child relationship outcome was in turn a mediator of self-harm. Adolescents currently experiencing parental incarceration displayed the most risk among all types of incarceration groups, as presented with the highest rate of self-injury, suicidal ideation and suicide attempt (Davis & Shlafer, 2017a).

There was a significantly higher proportion of youth who had parents with incarceration history reported being abused or neglected by parents during childhood than those without (Dannerbeck, 2005) and they were significantly less common to report often having felt loved by and getting support from their parents when growing up than those who did not experience parental incarceration (Nylander et al., 2018).

Cross-generational Impact

Adolescent sons with parents in prison were more adversely affected than child sons in terms of behavioral problems, which led to higher number of offendings and convictions across adolescence and adulthood (Besemer et al., 2011) and gave rise to adolescents being sent to youth corrections (Shlafer et al., 2012). Father's incarceration placed young adults between 18 and 25 years of age at risk for increased delinquency which in turn heightened the likelihood of an adult arrest, conviction and incarceration before 25 years of age of those experienced paternal incarceration in early adolescence, with the association robust to controls for a wide range of demographic factors (Murray & Farrington, 2005; Roettger et al., 2011; Woodard & Copp, 2016).

Risk and Protective Factors on Physical and Psychosocial Outcomes of Children and Adolescents with Incarcerated Parents

Across various studies examining the impact of parents being incarcerated on their children, a host of variables were found to contribute to exaggerating or reducing the adversity of parental incarceration. These risk and protective factors, from interpersonal dimension to living condition, mediate and influence the severity of physical and psychosocial child outcomes in regard to parental incarceration.

Risk Factors

Parental Substance Abuse

The most recent federal offense data in the United States indicated that nearly half of incarcerated parents were serving time for drug-related offenses (Bronson & Carson, 2019). The considerable proportion of crimes attributable to drug involvement has persisted over the past two decades. A significant number of children and adolescents with parental incarceration reported their parents having a history of substance abuse compared to those without parents at prison (Aaron & Dallaire, 2010; Dannerbeck, 2005; Roettger et al., 2011; Sheehan, 2011). One study revealed that children with incarcerated mothers were more likely to have been born with substances such as drugs and alcohol in their systems than children with incarcerated fathers (Davis & Shlafer, 2017b) while another study on children experienced paternal incarceration were reported more likely to have mothers of binge drinking (Roettger et al., 2011). The pattern of parental substance abuse was most apparent in children under 5 years of age (Sheehan, 2011). Even when children were not born dependent on substances, many parents with prevalent substance abuse may not be aware of the long-term harms and adverse outcomes on children. Children and adolescents growing up in a home with substance abusing parents or born to smoking mothers were more likely to develop substance abusive patterns themselves (Clark et al., 2005; Shlafer et al., 2012). The mother's history of binge drinking was found significantly associated with an increased delinquency in their adolescent children (Roettger & Swisher, 2011). The experience of risks involving parental substance abuse placed children and adolescents at significantly and substantially high risk for intergenerational cycles of substance abusing patterns and incarceration.

Poor Spousal Relationship Among the Parents

Only 15 studies indicated the marital status of the inmate parents. Figures reported percentage of incarcerated mothers being single or never married (62.2%, Lawrence-Wills, 2004; 73.0%, Poehlmann et al., 2008), caregivers being unmarried (86.0%, Shlafer & Poehlmann, 2010) and parents being separated or divorced (22.5%, Lawrence-Wills, 2004; 34.3%, Michael, 2018). The high rates of never-married caregivers suggested a relatively low marriage rate and higher rate of unmarried childbearing. It also appeared that chances of divorce or any marital dissolution may increase due to incarceration during a marriage. Family economic decline was found to be significant for a degraded inmate-spouse relationship (Song et al., 2018). The divorce rate may be higher for couples who needed to stay apart for a longer period of time. Young boys with incarcerated fathers who

experienced separation and divorce between parents reported lower levels of family relationships qualities compared to boys with married parents (Michael, 2018).

Poor Socioeconomic Condition

Apart from a string of disruptions in family structure, many families exposed to parental incarceration experienced additional sociodemographic risk factors; for instance, the vast majority of the samples reported to be receiving public assistance, living in a single family, and having four or more children living in the home (Lawrence-Wills, 2004; Shlafer & Poehlmann, 2010). Poverty and unemployment were significantly associated with delinquent involvement of the children while family economic decline following incarceration was a significant risk factor that contributed to the internalizing behaviors displayed in children and adolescents (Song et al., 2018). This outcome may cause vicious cycles of strain to the family.

Change of Caregiver

Across various studies, children experienced a replacement of caregiver at least once since parental incarceration (Poehlmann, 2005; Sheehan, 2011; Shlafer & Poehlmann, 2010; Song et al., 2018). Children with mothers being incarcerated faced a change of caregiver more likely than with fathers. It was found that children living with the same caregiver since exposure to maternal incarceration experienced 85 times the odds of having a secure relationship with the caregiver, compared to children having one or more caregiver placements (Poehlmann, 2005). Nonetheless, children whose mother was incarcerated were more likely to be placed in foster care and Child Protection Order (Sheehan, 2011). The fragmented family and care arrangement and lack of stability in children's life could affect their attachment and future development. Children whose caregiver felt more negative about their relationship were rated with more behavior problems (Shlafer & Poehlmann, 2010) and adolescents placed in protection order started to engage in criminal behavior (Sheehan, 2011).

Family Disruptions

Beyond the impact on spouses, children and adolescents may suffer from hardships associated with the trauma and disruption at any point during or after incarceration when there was an apparent change or perceived degradation within the family context (Song et al., 2018). Regardless of the marital status of parents, the quality of family relationship remained a non-negligible aspect influential to the quality of care that children received. Family relational factors were crucial for children's mental health development as

an important predictor for their self-esteem (Behere et al., 2017). It was found that the child's mental health problems were significantly attributed to the relationship degradation of the non-incarcerated parent and child (Song et al., 2018). The burden of forced single-parenting of the caregiver demotivated their parenting behavior. The stress caused by unstable relationships within households and reduced caregiver motivation and competence could result in insufficient child care thus impact the child negatively and cause mental health and behavioral problems (Dallaire et al., 2015; Song et al., 2018).

When examining a variety of caregiver characteristics and capability, the inability to handle caregiving roles and duties appeared to restrict children's opportunities for learning and long-term personal development. Moreover, it was reported adolescents with incarcerated parents were more likely to reside with a caregiver with lower educational attainment and experience more economic hardship than those not exposed to parental incarceration (Boch et al., 2019). In case of paternal incarceration, primary caregivers were predominantly the child's biological mothers. In case of maternal incarceration or incarceration of both parents, biological grandparents tended to take on the primary caregiving role. Challenges could be pervasive when a grandparent had to take up the primary caregiving role with little or no prior notice. It is likely that the grandparent's lack of confidence, caregiving skills and knowledge could trigger conflicting emotions in children and adolescents, leading to more negative outcomes. In instances when the grandparents reluctantly nurtured their grandchildren with feelings of failure and disappointment towards their incarcerated offspring, the effects of parental incarceration could be substantially compounded as their attachment bond with the children and adolescents was underdeveloped, undeveloped, or impaired. Consequently, the intergenerational relationship may form another vicious cycle of criminal offending if proper parenting education for caregiving grandparents were not available.

As most of the studies did not report on the nature of parenting or parenting styles of the caregivers, there was little information on their effects on dependent children and adolescents. It was reported that a greater proportion of youth with a parental incarceration had experienced severely ineffective parenting than those without such a history of parental incarceration, indicating a total lack of any discipline, supervision, guidance or structure from parents (Dannerbeck, 2005). Furthermore, the short, shallow or restricted interactions with children during incarceration as described by fathers have denied them from effective parenting (McKay et al., 2018). Since any change in the family composition and the mode of parenting style before, during, and after incarceration may drastically change the quality of care children and adolescents receive and their feelings

towards current caregivers and incarcerated parents, more attention should be paid to these areas in future studies.

Protective Factors

Positive Well-Being of the Parents

Incarcerated parent's mental health casted significant impact on their children. Their negative self-concept and inability to execute an immediate parenting role could undermine their confidence to carry out the role of parent from prison; this may remain so when they resume this role after release (Charles et al., 2019). The non-incarcerated parent caregivers were likely to face emotional and psychological difficulties due to the incarceration of their partner, which in turn may put stress and draw to their avoidance in performing the protective caregiving role for children (Song et al., 2018). The personal struggle, lack of parenting confidence and low self-esteem could create barriers that hinder parent's engagement with their children, which in turn jeopardize the quality of parent–child relationship and subsequent quality of childcare.

Supportive Co-parenting

Existing literature provided little guidance on how the event and length of incarceration changed the family contexts and affected the quality of parenting. An observed higher 16.5% of parents cohabiting among families without paternal incarceration (87.1%) than their counterparts with paternal incarceration (70.6%) suggested that changes in familial context following the event of parental incarceration could potentially lead to parental separation (Andersen, 2016). Families of paternal incarceration were found, in significance, with a higher divorce rate and a lower marriage rate compared to families without fathers being incarcerated (Andersen, 2016). Focusing on the romantic relationships between incarcerated parents and their partner, a heightened risk of depression and increased level of life dissatisfaction was found in mothers experiencing recent incarceration of a partner (Wildeman et al., 2012), and it could indirectly diminish aspects of maternal parenting practice (Turney, 2011). Even though the parenting context and economic insecurity may be improved when the mother re-partnered with a new parent figure, it remained unclear whether re-partnerships would benefit their children (Bzostek et al., 2012). Nevertheless, keeping a good and cooperative relationship with the incarcerated biological parent has been proven beneficial for children's health and development. Incarcerated father who was married to and was happier in his relationship with a partner during early incarceration was more likely to live with their young children after release (McKay et al., 2018). Consistently, children with parents who co-resided and were

in high-quality relationships performed better than others in school (Wildeman & Wakefield, 2014), and a co-parenting construct could decrease the effect of incarceration on adolescent sons' educational outcomes (McLeod et al., 2019). After comparing the frequency of physical contact and level of engagement between incarcerated fathers and their families, it was established that incarcerated fathers who sustained some level of involvement in their child's life, through co-parenting with the mothers, notably decreased the effect of sons' deleterious outcomes. Fatherhood involvement was found to reinforce children's language skills and better prepare them for educational success.

Positive Family Relationships

The event of parental incarceration could change parent relationships and cause family disruptions. Changes in parent relationship could significantly cause fathers' shared responsibility, paternal engagement and cooperation in parenting to decrease (Turney & Wildeman, 2013). On the other hand, positive parent–child communication, for instance, letter, email, telephone, video, and visitation, were more likely to decrease the odds of worse relationship and perceive improvements in all forms of intra-family relationships, including parent–child relationship and marital relationship, during incarceration (Song et al., 2018). With a higher frequency of father-child contact during paternal incarceration, fathers were more likely to live with their young child and financially support them after release (McKay et al., 2018).

Parental closeness, which is measured by children's willingness to share their problems and the perceived level of care received from parents, was found to be protecting young adolescents against mental health outcomes and antisocial behavior from the effect of parental incarceration (Davis & Shlafer, 2017a; Lawrence-Wills, 2004). Likewise, a higher level of affection towards the incarcerated fathers was related to a lower level of conduct problems in young children with incarcerated fathers (Michael, 2018). While a higher level of perceived connectedness with parent and family, i.e. adolescents' self-report of how close they feel to their family and parents, from adolescents predicted a reduction in truancy and higher academic achievement despite experiencing parental incarceration (Nichols et al., 2016). Adolescents living with both biological parents and closeness with the incarcerated father were found to be significantly associated with a decrease in delinquent tendency (Roettger & Swisher, 2011). Youth with childhood experiences of parental incarceration received significantly more support from their relatives, compared with those who did not have parents in prison (Nylander et al., 2018). Similarly, extensive familial and kin support were found to be moderating factors of paternal incarceration on mothers' emotional wellness and their attitudes towards parenting. A healthy and cooperative

relationship between incarcerated parent and spouse was found to have positive spill-over effects on outcomes of children experiencing parental incarceration into adulthood (McLeod et al., 2019).

Religious Beliefs

The role of participation in religious activities on inmates' psychological adjustments have been examined. Inmate religiousness and adjustment were reported to be positively related (O'Connor & Pallone, 2002). This relationship was documented to be a by-product of the relationships between depression, self-esteem, self-mastery and adjustment and religiousness. Similarly, the practice of religion was shown to significantly reduce inmates' likelihood to engage in verbal or physical disputes (Kerley et al., 2005). Concerning the association between religion and youth behaviours, it was found that both sense of meaning in religious beliefs and frequency of church service attendance were significantly associated with youth's self-control and reduced propensity to antisocial behaviour (Laird et al., 2011). Children and adolescents regarded adhering to religious beliefs as an effective coping mechanism to relieve distress during difficult times of having a parent in prison (Yau & Chung, 2014).

Discussion

Children and adolescents with incarcerated parents face childhood trauma that may bring abrupt life changes and instability. The traumatic separation from a significant parent may bring an ambiguous loss for children and adolescents whereby their incarcerated parents are physically absent from their development. Children and adolescents may experience a sense of anxiety and insecurity due to disruption of attachments. This review provides a better understanding of the physical and psychosocial impacts of parental incarceration on the well-being and development of children and adolescents, including outcomes that may have been overlooked such as social relationship problems, from countries often ignored in reviews.

Adolescent females were more likely to report mental health disorders following parental incarceration, such as post-traumatic stress disorder, anxiety and depression, while adolescent males had a higher likelihood of behavioral problems and substance use. Overall, children and adolescents with incarcerated parents were associated with an increased likelihood to exhibit violent, aggressive and delinquent behaviors, elevated risk for emotional problems, feeling of being less loved and less support from parents, higher possibility of school under-performance, dependence on substance and suffering of poorer physical health.

Controlling for background covariates of families with incarcerated parents, including years of education and gross income of parents, could indicate whether these variables are strong indicators of pre-existing family hazards. These hazards could result in inaccurate impact estimates of parental incarceration on children and adolescents due to the inability of establishing a causal effect. The data from the Fragile Families and Child Wellbeing Study showed that having a father with an incarceration history was associated with higher levels of externalizing behavior (Geller et al., 2009) and removing abusive fathers may diminish girls' aggression (Wildeman, 2010). Children and adolescents could in fact benefit from removal of an abusive father, thereby ending a destructive relationship within the household in hope for a healthy child development (Jaffe et al., 2003). While it may be reasonable to expect a decline in aggressive behaviors when fathers were incarcerated, boys were associated with increased physical aggression, especially whose fathers were neither incarcerated for a violent offense nor abusive to their partners (Wildeman, 2010). The contradicting results suggested types of criminal offenses or occurrence of domestic violence could influence children and adolescents to take a diverging trajectory towards parental incarceration. As such, future research should explore not just the effects of parental criminality but also style of parenting on and relationship with children and adolescents prior to incarceration to establish the trajectory of impact on such children.

A number of protective factors for the well-being and healthy development of children and adolescents from deleterious effects of parental incarceration have been identified, including positive well-being of the parents, supportive co-parenting, and positive family relationships. These protective factors could mediate, enhance and strengthen the coping efforts of children and adolescents by alleviating their worries, uncertainties and insecurities when adjusting to the disruptive episodes of parental incarceration. Nonetheless, potential pre-incarceration risk factors should be noted, such as poor relationships within the family prior to parental incarceration, living in poverty and residing in high-crime neighbourhoods.

Religion and spirituality may often be regarded as a source of comfort and support to incarcerated individuals and their families through rehabilitation. This may help them cope with painful emotions of guilt, shame and remorse following convictions and sentencing. While attempts by inmates to convert or proselytize were found to be common in the United States (Boddie & Funk, 2012), the broader role that religion could play for incarcerated parents and their families are often overlooked. Although the actual size of the religious population may be difficult to gauge, it remains a major part in a person's development of moral values and attitude towards committing a crime. Many prisons visited by chaplains had a formal system for documenting the

religious affiliation of inmates and their changes in religious affiliation over the course of their incarceration (Boddie & Funk, 2012). In the course of time, access to these data may become available for future studies, allowing for intrinsic and extrinsic religiosity and spirituality to be included in the assessment of impact on incarcerated parents and their children and families.

Future Directions for Practice

Not only children but spouses and extended family members of inmates may be victims who suffer from the event of incarceration when the imposed financial and emotional burdens were taken into consideration. Apart from accepting the separation of a close family member, the non-incarcerated parent and extended family members may have to take up the primary caregiver role involuntarily thus disrupting their own life plan. Social support for adjusting to the drastic change to the whole family is needed to help adult caregivers' parenting.

Strengthening family relationships and residing with siblings helped to reduce delinquent behavior in children and adolescents as these relationships and stable caregiving environments empowered them to handle emotions arising from parental absence. Social support from the community such as neighborhood-based networks and family connections was beneficial to the family while children and adolescents' perceived connectedness toward important figures, including parents, could help them better deal with factors related to depressive symptoms. In school, teachers could enhance children's learning ability and encourage them to pursue higher education and achieve life goals. As such, psychosocial interventions could focus on strengthening the protective factors of family relationships and building safe, stable, and nurturing environments to promote the well-being of children and adolescents.

Study Limitations

A major limitation of the review is that a large proportion of the sample children and adolescents was extracted from the overly reliance of Add Health data ($n = 13$) and Fragile Families and Child Wellbeing Study ($n = 7$) conducted in the United States ($n = 47$). The findings may be vastly overrepresented or could not be generalizable to children and adolescents in other jurisdictions. Future research can improve this review by including studies other than the western contexts and expanding the search across nations and cultures to provide contextualized information and comparisons of impact on children and adolescents being involved in various criminal justice systems. Among the few cross-national comparative studies, the understanding and experiences of social stigma and labelling effects could vary greatly

(Murray et al., 2007). It may be possible that fewer studies were available in Asian jurisdictions due to the deep-rooted cultural stigma, shame and discrimination against prisoners and silence on parental incarceration. Additionally, both the Add Health data and Fragile Families and Child Wellbeing Study are over 20 years old and may not reflect the current situation for children, adolescents and families with incarcerated parents, especially because of the rapidly developing technologies in prison settings and the subsequent betterment of communications between inmates and their children and families. For instance, video prison visitation allows inmates and families to observe one's facial expression and spontaneously respond to each other, which may alleviate the separation anxiety of children and adolescents and strengthen their parent–child relationship than a phone call. Future research should also study factors including opportunities and ways for contact and visits in greater depth, especially in more punitive nations such as China, Uganda and Zimbabwe (Bakken, 2011).

Conclusion

Children and adolescents exposed to parental incarceration are at a heightened risk in their development and well-being due to the abrupt and ambiguous loss of significant parental figures and subsequent unstable childcare quality and environment. This review addressed a research gap concerning not only the physical health, behavioral and emotional problems faced by children but also their social relationships, academic performance and transition impact into emerging adulthood in response to parental incarceration. Overall, children and adolescents with incarcerated parents are suffering from emotional and behavioral hardship, with a greater tendency of substance dependence and less perceived love and support from parents. These adversities obstruct the development of adolescents who then in turn enjoy less life success. Given that the deleterious impact exacerbate at a young age, it is important that future research into the effect of parental incarceration examines early interventions for children and their families.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s40894-022-00182-9>.

Acknowledgements The authors would like to thank the Hong Kong Jockey Club Charities Trust for funding the project and the research team at the University for completing this study. We also thank the reviewers for helpful comments on clarifying the presentation of study.

Authors' Contributions ML conceived of the study, participated in its design and coordination of the study and interpretation of the data, performed the analysis and drafted the manuscript; CH conceived of the study, participated in its design and coordination of the study and interpretation of the data, performed the analysis and drafted the

manuscript; ST participated in the design of the study and helped to draft the manuscript; YF participated in the design of the study and helped to draft manuscript; CC participated in the design of the study and helped to draft the manuscript. All authors read and approved the final manuscript.

Funding This study was funded by the Hong Kong Jockey Club Charities Trust (# 2019-0050-003).

Declarations

Conflict of interest The authors report no conflict of interests.

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