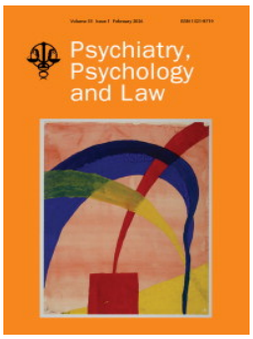

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The association between parental incarceration and children's educational outcomes: a systematic review

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Exposure to parental incarceration has been associated with adverse educational outcomes for children. We aimed to identify the educational outcomes associated with exposure to parental incarceration between conception and 18 years of age and explore the strength of that association. The protocol for this review was registered with PROSPERO (ID: CRD42023483182). On 4 October 2023 we searched six databases and conducted backward citation chaining of a previous systematic review. Our findings were synthesised by way of narrative synthesis. Sixteen studies, comprising 301,220 participants, met the inclusion criteria. Educational outcomes included decreased school readiness, reduced literacy and numeracy skills, lower grade point averages in high school, and a decreased likelihood of high school and college completion. The findings may be limited by our focus on English-language longitudinal study designs. The findings indicate that parental incarceration is associated with children's educational outcomes and underscores the need to gather and utilise research evidence to develop policy platforms to address disadvantage where it is identified.

Keywords: Parental incarceration; paternal incarceration; maternal incarceration; child development; educational attainment; prison; systematic review.

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Available data about the numbers of children who experience the incarceration of a parent is limited and the data that is reported varies considerably. For example, an estimate from 2014 suggested that approximately 2.6 million children in the US had an incarcerated parent (Sykes & Pettit, 2014). More recent estimates suggested that approximately 1.5 million children in the US had an incarcerated parent (Maruschak et al., 2021) and estimates from 2024 suggested that 9.3% of children aged 6–17 years (weighted $n = 4\,400\,000$) experienced parental incarceration (Tolliver et al., 2024). The situation in Australia is equally as bleak, with estimates that 47% of Aboriginal and Torres Strait Islander adults who were incarcerated, and 34% of non-Indigenous people who were incarcerated, had a dependent child (Australian Institute of Health and Welfare, 2023). Similarly, one-quarter of incarcerated people in Australia reported that at least one of their parents or carers had been incarcerated during their childhood (Australian Institute of Health and Welfare, 2023). Estimates from one non-government organisation report 43,000 children have an incarcerated parent;

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however, verification of these numbers is difficult as the Australian Bureau of Statistics does not routinely record them. There is growing evidence to suggest that the stressors associated with incarceration extend beyond the incarcerated individual to other family members, particularly children (Dowell et al., 2018; Turney, 2014). Exposure to parental incarceration has been associated with several adverse outcomes, including poorer social, psychological, and educational development (Brown, 2017; Huebner & Gustafson, 2007; Lotze et al., 2010).

Compared to their peers, the children of incarcerated parents are more likely to grow up in unstable, impoverished environments, face social marginalisation, and develop learning delays and disabilities (Bell et al., 2018; Foster & Hagan, 2015b; Haskins et al., 2018). For most, a cycle of incarceration continues, with more than half (52.6%) of young people in New South Wales juvenile justice centres reporting having had a parent incarcerated during their childhood (Remond et al., 2023). In essence, children who are exposed to parental incarceration experience multiple, sustained, and compounding disadvantages that inform the trajectory of their lives.

Relational experiences and child development

Relational experiences play a crucial role in a child's development, with the parent–child relationship being the most influential (Frosch et al., 2021). When children experience parental incarceration, their potential to develop connectedness and attunement with their parents is often significantly reduced (Kochanska et al., 2019). This can hinder the development of early adaptive behaviours, which may have lifelong consequences (Kochanska et al., 2019). In the absence of relational experiences that would typically occur in the parent–child dyad, providing the next best functional relationship to facilitate healthy development is fundamentally important (Frosch et al., 2021). Children spend more time at school than in any other context, and evidence suggests that the teacher–child relationship can have a profound influence on the development of a child's social-emotional competence (Garner et al., 2014; Roeser et al., 2000). Conversely, school disengagement has been associated with a higher risk of substance use, chronic mental health difficulties, criminal justice involvement, and long-term unemployment (Klassen et al., 2021; Rose et al., 2024). Given the importance of relational experiences for child development, the role of teachers and schools in fostering adaptive development cannot be understated.

The protective nature of education

Research has highlighted several factors that can mitigate the harmful effects of parental incarceration on children's education (Bond et al., 2007; Brewster & Bowen, 2004; Curby et al., 2013; Lösel et al., 2012). Teacher support can enhance educational and developmental outcomes in all children, particularly so for vulnerable or marginalised youth (Brewster & Bowen, 2004; Curby et al., 2013). Lösel et al. (2012) found that children with incarcerated parents who reported having a positive teacher relationship were significantly less likely to experience learning difficulties ($r = -.44$, $p < .05$). Unfortunately, recent research indicates that of all children with incarcerated parents, those who are most likely to receive the highest level of support from teachers are those described as 'well-adjusted' (Kremer et al., 2020, p. 3245). That is, children who exhibit low levels of negative behaviours, such as hyperactivity, aggression, isolation, or drug and alcohol use (Kremer et al., 2020). While the authors of the study reported that 61% of their sample fit a 'well-adjusted' latent profile, over one-third of their sample were significantly less likely to receive adequate teacher support (Kremer et al., 2020, p. 3245). That is, the children who are in the greatest need of intervention may also be the ones who are overlooked.

There is also evidence to suggest that school connectedness functions as a protective factor for children exposed to parental incarceration (Thurman et al., 2018). A substantial body of evidence indicated that a sense of belonging at school is positively associated with school engagement and academic achievement in the general population (Bond et al., 2007). A recent meta-analysis of 90 studies published between 2009 and 2019 found that school connectedness had a statistically significant protective effect on all health domains (Hedges' $g = -0.345$, p-value < 0.001), mental health (Hedges' $g = -0.358$, $p < 0.001$), violence (Hedges' $g = -0.318$, $p < 0.001$), and sexual health (Hedges' $g = -0.145$, $p < 0.001$) (Rose et al., 2024). Children with incarcerated parents report some of the lowest levels of school connectedness (Shlafer et al., 2017). Even after a parent's incarceration has ended, their children continue to report significantly lower levels of school connectedness ($M = 2.74$) than children who have not experienced parental incarceration ($M = 2.93$; Shlafer et al., 2017). Similarly, the odds of school failure are heightened in children exposed to parental incarceration ($aOR = 4.4$, 95% CI [2.2–8.8], $p < .001$; Gifford et al., 2019). The combination of a lack of school connectedness and an increased likelihood of school failure creates a risk profile for children exposed to parental incarceration beyond that of their peers.

A 2012 systematic review by Murray, Farrington, et al. (2012) evaluated the educational outcomes of children exposed to parental incarceration, among other types of outcomes. Since 2010, Australia has experienced a steady increase in its incarceration rate, rising from 135 people per 100,000 to 167 people per 100,000 by 2021 (Fair & Walmsley, 2021). This suggests that more children are now living with parental incarceration than ever before, highlighting the need for updated research. The re-examination of the relationship between parental incarceration and children's educational engagement and outcomes has the potential to enhance our understanding of the challenges children of incarcerated parents face and contribute to the development of evidence-based policy recommendations to address them. Through a systematic review of the peer-reviewed literature, we aimed to:

1. Identify the educational outcomes that are associated with exposure to parental incarceration between conception and age 18.
2. Explore the strength of association between specific educational outcomes and exposure to parental incarceration.

Methods

Search strategy

We conducted this systematic review in accordance with the Preferred Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021) and registered the protocol with PROSPERO (ID: CRD42023483182). We searched peer-reviewed literature using six electronic databases: Cumulative Index to Nursing and Allied Health (CINAHL; EBSCOhost), Criminal Justice Database (ProQuest), Embase (Ovid), Medline (Ovid), PsycINFO (Ovid), and PubMed (National Library of Medicine). We searched each database on 4 October 2023. To account for Murray, Farrington, et al.'s (2012) previous systematic review, we limited our database searches to articles published after 1 January 2012. Table 1 depicts our search strategy for Medline (Ovid).

We did not treat systematic reviews as primary research; however, we reviewed the reference list of those found in our database searches to identify any primary studies that may have been missed. We manually screened the reference lists of potentially eligible studies to identify any missing articles.

Study eligibility and selection

Studies were included if they: (a) involved individuals who were exposed to parental

Table 1. Medline search strategy.

Keyword	Search terms
Parent	Mother* OR matern* OR father* OR patern* OR parent* OR carer*
AND	
Incarceration	**Prisons/** OR **criminals/** OR **prisoners/** OR (correcti* NOT correction NOT correcting) OR inmate* OR (penal* NOT penalties NOT penali?ed) OR sentence* OR remand* OR detain* OR felon* OR prison* OR jail* OR gaol OR incarcerat* OR offend* OR custod* OR imprison* OR convict* OR criminal* OR detention*
AND	
Children	Child* OR son* OR daughter* OR offspring OR adolescen* OR teen*
AND	
Education	**Education/**OR **educationalinstitutions/** OR educati* OR school* OR college* OR grad* OR achiev* OR perform* OR academi* OR engag* OR absen* OR truan*
AND	
Outcomes	Impact* OR outcome* OR consequence* OR influence* OR ramification* OR implication* OR efficac* OR effective*

incarceration (e.g. parent is in prison or jail, either sentenced or on remand) between their conception and age 18, (b) were a peer-reviewed longitudinal study published in English from 2008 onward, and (c) reported on the individual's educational outcomes after the point of exposure to parental incarceration. Studies were excluded if exposure to parental incarceration only occurred after the individual turned 18 years old or involved other forms of incarceration (e.g. immigration detention, prisoners of war, forensic psychiatric services).

We imported all articles captured in our searches into Endnote 20 and removed duplicates (The EndNote Team, 2013). Using Rayyan, the lead author screened all article titles and abstracts against the inclusion criteria to identify potentially eligible studies (Ouzzani et al., 2016). To ensure the inclusion criteria were applied objectively, a second researcher independently screened 10% of article titles and abstracts. There were no discrepancies in inclusion decisions between the two researchers. The lead author reviewed the full text of all potentially eligible articles against the inclusion criteria to assess suitability for the review.

Data extraction

The lead author independently extracted the data from the final sample of included studies using a pre-specified Excel spreadsheet. This included the characteristics of the children in the exposure group, the covariates controlled for between the exposure and comparison groups, and the educational outcomes measured. Exposures during pregnancy were included, given evidence of the transmission of stress experienced due to maternal incarceration between a mother and foetus (Dowell et al., 2019), as well as the demonstrated association between stress during pregnancy and children's educational outcomes (LeWinn et al., 2009; Li et al., 2013). We contacted 11 authors to request additional data; six authors provided this data or reasons why the data could not be provided (e.g. the specific data was not collected during the original study). The data was divided into three domains, defined a priori, based on the reported outcomes: primary education, secondary education, and tertiary education.

Quality assessment

We used the Cambridge Quality Checklists (CQCs) to assess the methodological quality

of the included studies (Murray et al., 2009). This tool evaluates the quality of risk factor research that forms a systematic review (Murray et al., 2009). The checklists include five items to assess the quality of a study's correlates, three study designs to assess the quality of a study's risk factors, and seven study designs to assess the quality of a study's causal risk factors (Murray et al., 2009). Each checklist is summed, with higher scores denoting higher quality (Murray et al., 2009).

Narrative synthesis

Given the substantial heterogeneity in focus and variables measured, we determined that addressing the aims of our study would be most effectively done through narrative synthesis, as it would better inform both policy implications and real-world applications of our findings. Further, research has shown that meta-analyses of observational studies are prone to producing 'plausible, but equally spurious findings' (Egger et al., 1998, p. 141).

Our narrative synthesis was underpinned by the principles outlined in the Synthesis Without Meta-Analysis (SWiM) in Systematic Reviews (Campbell et al., 2020). This reporting guideline provides nine items intended to complement the PRISMA guidelines, specifically when alternative synthesis methods are used instead of meta-analysis of effect sizes.

Results

Search results

Our searches returned 11,509 potentially eligible articles, 4,559 of which were removed as duplicates. In total, 6,950 titles and abstracts were systematically screened using Rayyan, and 6,908 articles were excluded at this stage. An additional two studies were identified by screening a systematic review located by database searches (Murray, Farrington, et al., 2012). Forty-four full-text articles were screened, and 16 articles met the inclusion criteria for this systematic review. Figure 1

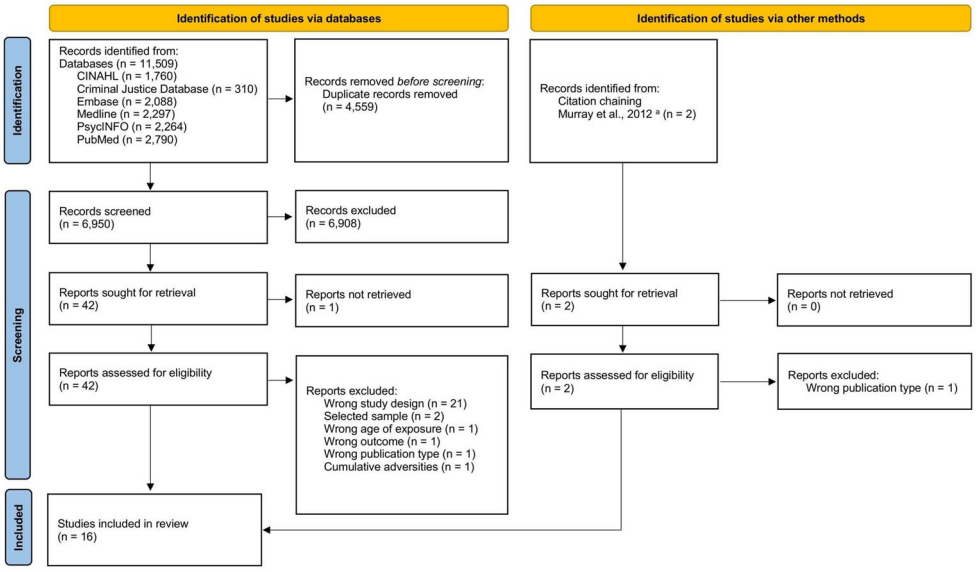

Figure 1. PRISMA Flow chart of search Results.

Note. [a]Murray, K., Farrington, D. P., & Sekol, I. (2012). Children's antisocial behaviour, mental health, drug use, and educational performance after parental incarceration: A systematic review and meta-analysis. *Psychological Bulletin, 138*(2), 175–210. https://doi.org/10.1037/a002640.

provides a PRISMA flowchart for our search results.

Characteristics of included studies

Thirteen of the 16 studies received near-perfect scores for methodological quality according to the CQCs (Murray et al., 2009). Table 2 provides a heatmap summary of the three checklists. The 16 studies included in our study comprise a total of 301,220 participants from Australia, Canada, and the United States, of which 27,083 participants had been exposed to parental incarceration between conception and age 18. This number underestimates the sample size as the number of participants in one study was not provided (Miller & Barnes, 2015). The total sample sizes for individual studies ranged from 180 to 71,447. Of the studies conducted in Australia, 55.9% of participants identified as Aboriginal and/or Torres Strait Islander; 44.1% identified as being from a different cultural background. Based on the remaining North American studies that were able to provide us with ethnicity data, approximately 43.2% of the sample identified as African American, approximately 2.1% identified as Native American, approximately 31.7% identified as Caucasian, approximately 24.7% identified as Hispanic, and approximately 7.3% identified as another ethnicity not listed. Table 3 provides a summary of the articles included in our study. Table 4 provides a summary of the characteristics of children exposed to parental incarceration.

Primary education

School readiness

Two of the 16 studies examined the association between parental incarceration and children's school readiness – the concept of being academically and socially prepared to start formal education (Geller et al., 2009; Testa & Jackson, 2021). Testa and colleague's study found that children aged 3 to 5 who had been exposed to parental incarceration were significantly less likely to possess adequate skills in all four domains of school readiness:

Table 2. *Heatmap summary of the methodological quality of included studies.*

Study	Correlates	Risk factors	Causal risk factors
Bell et al., 2023	5	3	6
Bridgewater & Yates, 2022	3	3	6
Foster & Hagan, 2015a	5	3	6
Fox et al., 2023	5	3	6
Geller et al., 2009	5	3	6
Gifford et al., 2019	5	3	6
Hagan & Foster, 2012	5	3	6
Haskins, 2016	5	3	6
McCauley, 2020	5	3	6
Mears & Siennick, 2016	4	3	6
Miller & Barnes, 2015	5	3	6
Murray et al., 2012b	5	3	6
Nichols & Loper, 2012	5	3	6
Nichols et al., 2016	5	3	6
Testa & Jackson, 2021	3	3	6
Young et al., 2020	5	3	6
Lower Quality	Higher Quality		

Note. Highest possible correlates score = 5; highest possible risk factors score = 3; highest possible causal risk factors score = 7.

Table 3. Characteristics of included studies.

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
Bell et al., 2023	Western Australia, Australia	13,398	3,828	7–14	Child's sex Child's Aboriginal and/or Torres Strait Islander status Maternal age at child's birth Parental education level Geographic location of home at birth Area-based socioeconomic index of home at birth	Literacy and numeracy: Band score on NAPLAN
Bridgewater & Yates, 2022	Southern California, USA	180	48	8–10	Child's ethnicity/race Prior levels of child reading achievement Maternal psychopathology Prior levels of maternal supportive caregiving Family socioeconomic status	Literacy and numeracy: Score on Letter- Word Identification subtest of WJ-III
Foster & Hagan, 2015a	USA	4,208	2,926	24–32	Child's sex Child's age Child's race/ethnicity Child-parent closeness Parental education level Parental alcohol misuse Parental cigarette smoker status Two biological parent family Total household income	College completion: Self-reported college completion status at Wave IV
		10,661	1,632	0–12	Child's sex Child's age Child's ethnicity/race Child's birthweight Number of children <18 years old in household	Literacy and numeracy: Score on Letter- Word Identification, Passage Comprehension, and Applied Problem subtests of WJ-R
Fox et al., 2023	USA	8,524	92	25–49	Parental age at child's birth Parental educational level at child's birth	Highest level of education attained:

(*Continued*)

Table 3. (*Continued*).

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
					Parental disability Parental employment status Parental home ownership status Family resides in US South[a] Family structure[b] Total household income Family income-to-need ratio Family welfare recipient status	Self-reported highest years of schooling completed at age 25
Geller et al., 2009	USA	4,898	1,950	3	Parental race/ethnicity Parental age at child's birth Parental educational level Parental impulsivity levels[c] Maternal family mental health history	Literacy and numeracy: Standard score on PPVT-R at age 3
Gifford et al., 2019	North Carolina, USA	1,420	475	19–30	Child maltreat victimisation[d] Child bullying victimisation Parental education level Family structure[b] Family dysfunction[e] Family socioeconomic status	High school completion: Self-reported non- receivership of high school diploma or equivalent degree at time of interview High school GPA: GPA on a 4-point scale, as reported on school transcript
Hagan & Foster, 2012	USA	4,745	285	24–32	Child's sex Child's age Child's race/ethnicity Child's self-reported delinquency History of child residing with father Child-father closeness Paternal college completion Paternal alcoholism Paternal smoking Single-parent family status Total household income	Highest level of education attained: Self-reported highest years of schooling completed at Wave IV College completion: Self-reported college completion status at Wave IV

(*Continued*)

Table 3. (*Continued*).

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
Haskins, 2016	USA	2,207	568	9	Child's sex Child's age Child's race/ethnicity Child's birthweight Child's school year Child's health status Parental education level Parental cognitive ability[f] Parental impulsivity levels[c] Parental anxiety/depression[g] Maternal age at first birth Maternal number of children Maternal parenting stress[h] Mother cohabiting with father Mother married to father Paternal age Paternal employment status Paternal US citizenship status Paternal AOD misuse[g] Paternal domestic violence Paternal multi-partner fertility Paternal family structure at 15 years old [b]Paternal contact with child Grandparent in household Number of children $\leq$ 8 years old in household Household poverty status Household public housing status Neighbourhood safety	Literacy and numeracy: Standard score on PPVT at age 9 Standard score on Passage Comprehension and Applied Problems subtests of WJ-III Standard score on the forward and backward aspects of the Digit Span subtest of WISC-IV

(*Continued*)

Table 3. (*Continued*).

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
McCauley, 2020	USA	11,767	2,083	24–32	Child's sex Child's age Child's race/ethnicity Parental age Parental race/ethnicity Parental education level	Literacy and numeracy: Self-reported B-grade or greater in English or mathematics in most recent semester School behaviour: Self-reported suspension
Mears & Siennick, 2016	USA	6,319	1,865	26–34	Parental marital status[i] Total household income Child's sex Child's age Child's race/ethnicity Child's birthweight Child's immigrant status Childhood sexual abuse Child-parent separation Number of siblings Parent-adolescent closeness Parental economic hardship Parental substance use Maternal age at child's birth Family structure during adolescence[b] English-speaking household Household SES Illegal household drug use Residential mobility Neighbourhood disorder Neighbourhood safety	Self-reported in- school fight Self-reported truancy Highest level of education attained: Self-reported highest years of schooling completed at Wave IV

(*Continued*)

Table 3. (*Continued*).

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
Miller & Barnes, 2015	USA	15,701	-[j]	24–32	Child's sex Child's race/ethnicity Child's health status Child's self-control levels Child educational failure[k] Child polydrug use status Child-parent closeness Maternal employment status Maternal education level Maternal cigarette smoker status	College completion: Self-reported college completion status at Wave IV
Murray et al., 2012b	Pittsburgh, Pennsylvania	208	52	7–18	Child substance use Child depression Child history of theft Child peer delinquency Child supervision quality Child relationship quality with family Child relationship quality with peers Child-parent quality of communication Parental stress Parental history of antisocial behaviour Parental history of substance use Parental history of arrest/conviction	Literacy and numeracy: Evaluation of child's performance in reading, maths, writing, and spelling, as measured by the CBCL (carer's report, teacher's report, youth self-report)
Nichols & Loper, 2012	Canada	3,338	226	15–29	Child's sex Child's age Child's race/ethnicity Child's cognitive ability[l] Maternal education level Household poverty status Home environment quality[m]	Literacy and numeracy: Standard score on the PPVT-R School behaviour: Self-reported drop out and returning to school after one month High school GPA: Average GPA achieved on a 4.0 scale

(*Continued*)

Table 3. (*Continued*).

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
Nichols et al., 2016	USA	71,447	9,063	24–32	Child's sex Child's minority status Parental education level Household receipt of public assistance School size Urbanicity of school School public/private status Presence of parent-teacher organisation Availability of mental health services	School behaviour: Self-reported number of days child skipped school during 1995 1996 school year High school GPA Average GPA achieved on a 4.0 scale Highest level of education attained: Self-reported highest years of schooling completed at Wave IV
Testa & Jackson, 2021	USA	15,402	622	3–5	Child's sex Child's age Child's race/ethnicity Child's first-born status Child's schooling status Parental education status Parental marital status Parental immigrant status Parental primary caregiver status Maternal age at child's birth Household poverty status English-speaking household	School readiness:[n] Early learning skills Self-regulation Social-emotional development Physical health and motor development

(*Continued*)

Table 3. (*Continued*).

Study	Location	*N*	*n*	Age range (years)	Covariates	Educational outcomes measured
Young et al., 2020	USA	11,670	1,368	24–32	Child's sex Child's age Child's race/ethnicity Child's birthweight Child's cognitive ability Child born in USA Number of siblings Parental education level Maternal age at child's birth English-speaking household	High school completion: Self-reported receivership of high school diploma or GED at Wave IV College completion: Self-reported attendance of college or trade school for $\geq$1 year at Wave IV

Note. *n* = prenatal exposures + postnatal exposures; NAPLAN = National Assessment Program Literacy and Numeracy; WJ-III = Woodcock Johnson III Tests of Achievement; WJ-R = Woodcock-Johnson Psycho-Educational Battery-Revised; PPVT-R = Peabody Picture Vocabulary Test-Revised; GPA = grade point average; WISC-IV = Wechsler Intelligence Scale for Children IV; CBCL = Child Behavior Checklist; GED = General Education Development.

[a]Includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Washington, D.C., and West Virginia.

[b]Includes single parent family; divorce; and/or presence of stepparent.

[c]As measured by the Dickman Impulsivity Inventory (DII; Dickman, 1990).

[d]Includes physical abuse; sexual abuse; and/or parental neglect.

[e]Includes inadequate parental supervision; presence of domestic violence; high levels of parental conflict; maternal depression; marital relationship characterised by apathy, indifference, or high conflict; and/or high conflict between parent and child.

[f]As measured by the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981).

[g]As measured by the World Health Organization Composite International Diagnostic Interview-Short-Form (CIDI-SF; Kessler et al., 1998).

[h]As measured by the Parenting Stress Index-Third Edition (PSI-3; Abidin, 1995).

[i]Includes single; married; or previously married (divorced, widowed, or separated).

[j]Authors were unable to provide n upon request.

[k]Includes history of suspension, expulsion, or repeating a grade.

[l]As measured by the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981).

[m]As measured by the Home Observation Measurement of the Environment-Short Form (HOME-SF; Bradley & Caldwell, 1979).

[n]As rated by primary caregiver using the Healthy and Ready to Learn measure (Ghandour et al., 2019).

Table 4. Characteristics of children exposed to parental incarceration.

	Sex (%)				Type of exposure[b] (%)	
Study	Male	Female	Cultural Background[a]	(%)	Maternal	Paternal
Bell et al., 2023	48.9	51.1			100.0	0.0
			Non-Aboriginal and/or Torres Strait Islander	44.1		
			Aboriginal and/or Torres Strait Islander	55.9		
			African American	25.0		
Bridgewater & Yates, 2022	60.4	39.6			14.3	85.7
			Caucasian	10.4		
			Hispanic			
			Asian			
			Other			
			African American	65.7		
Fox et al., 2023	49.2	50.8				
			Caucasian			
			Hispanic			
			African American			
Geller et al., 2009					14.3	85.7
			Caucasian			
			Hispanic			
			Other			
Gifford et al., 2019	52.4	47.6			7.9	92.1
			African American	38.9		
			Caucasian	22.1		
			Native American	39.1		
			African American			
Hagan & Foster, 2012	55.1	44.9	Caucasian			
			Hispanic		0.0	100.0[d]
			Asian			
			Other			
			African American	53.0	0.0	100.0[d]
Haskins, 2016	45.0	55.0			0.0	100.0[d]
			Caucasian	10.0		
			Hispanic	38.0		
McCauley, 2020	52.2	47.8			22.6	87.6
			White	38.2		
			Non-white	61.3		
			African American	31.0		

(*Continued*)

Table 4. (*Continued*).

	Sex (%)				Type of exposure[b] (%)	
Study	Male	Female	Cultural Background[a]	(%)	Maternal	Paternal
Mears & Siennick, 2016	56.0	44.0				
			Caucasian	46.0		
			Hispanic	17.0		
			Other non- White	6.0		
Miller & Barnes, 2015					0.0	100.0[d]
			African American	56.0		
Murray et al., 2012b	0.0	100.0[e]			25.0	75.0
			Caucasian	41.0		
			Asian or mixed race	3.0		
Nichols & Loper, 2012	57.0	43.0				
			African American	30.2		
			Caucasian	57.3		
			Hispanic	12.5		
Nichols et al., 2016	48.3	51.7				
			African American	14.1		
Testa & Jackson, 2021	49.3	50.7	African American			
			Caucasian	53.5		
			Hispanic	15.2		
			Other	17.2		
			African American	30.4		
Young et al., 2020	56.2	43.8	Caucasian	48.9		
			Hispanic	17.0		
			Other	3.7		

Note. – indicates that the data was not collected during the original study, or the author was unable to provide this data upon request.
[a]The percentage breakdowns of participants' cultural backgrounds are weighted.
[b]Where percentages $\neq$ 100, it is likely due to participants being exposed to both paternal and maternal incarceration.
[c]This study only examined the incidence of maternal incarceration.
[d]This study only examined the incidence of paternal incarceration.
[e] This study only examined the impact of parental incarceration on male offspring.

early learning skills, self-regulation, social-emotional development, and physical health and motor development ($t = -8.73$, $p < .01$). These children were more than three times more likely than their unexposed peers to never attain adequate skills in all four domains (adjusted relative risk ratio ($aRRR$) = 3.82, $p < .01$). Specifically, compared to children

without exposure to parental incarceration, those who were exposed were more likely to face significant difficulties with peer interactions ($aRRR = 4.51$, $p < .01$), and nearly four times more likely to struggle following instructions ($aRRR = 3.71$, $p < .05$). In contrast, Geller et al.'s (2009) findings suggest paternal incarceration was associated with a slight but significant increase in the risk of aggressive behaviour, though this was only observed in young boys ($M = 12.2$ vs. $M = 11.0$, $p < .10$; Geller et al., 2009).

Literacy and numeracy

Four of the 16 studies examined the association between parental incarceration and children's literacy and numeracy skills in primary school (Bell et al., 2023; Bridgewater & Yates, 2022; Haskins, 2016; Nichols & Loper, 2012). A 2023 Australian study noted that children who had been exposed to maternal incarceration – even in utero – were more likely to have numeracy skills that were below the national average compared to children who had not experienced maternal incarceration (year 3 adjusted odds ratio (aOR) = 1.41, $p < .05$; Bell et al., 2023). This was seen across years 3, 5, and 7.

The same effect was seen in children's reading skills (year 3 $aOR = 1.59$, $p < .05$; Bell et al., 2023). In fact, this effect appeared to grow alongside the children, with the likelihood of children who had been exposed to maternal incarceration having below average reading skills increasing with each school year (year 5 $aOR = 1.84$, $p < .001$). American children's reading achievement was also associated with having an incarcerated father (Bridgewater & Yates, 2022). Paternal incarceration was associated with lower levels of reading achievement at age 6 ($r = -.162$, $p < .05$) and age 10 ($r = -.183$, $p < .05$) when compared to their peers who had not had their father imprisoned (Bridgewater & Yates, 2022).

In addition to their reading ability, children's verbal ability was also negatively associated with parental incarceration (Nichols & Loper, 2012). Nichols and Loper (2012) found that children aged between 3 and 15 who had experienced parental incarceration scored significantly lower on a test of verbal ability compared to children without such exposure ($t = 4.06$, $p < .001$). When looking specifically at fathers in prison, Haskins (2016) observed that when using the same measure of verbal ability as Nichols and Loper (2012), the vocabulary of boys aged 1 to 9 was negatively and non-significantly associated with their father's incarceration (mean difference = −0.024, $p > .05$).

Secondary education

School behaviour

Two of the 16 studies examined the association between parental incarceration and children's behaviour in secondary school (McCauley, 2020; Nichols et al., 2016). McCauley (2020) found that children who experienced parental incarceration before starting secondary school were significantly more likely to face negative non-academic outcomes during high school compared to those who had never experienced parental incarceration. Specifically, children whose fathers had been incarcerated were more likely to be suspended ($b = 0.076$, $p < .001$), be expelled ($b = 0.019$, $p < .001$), physically fight peers at school ($b = 0.139$, $p < .001$), and truant ($b = 0.077$, $p < .001$). For children whose mothers were imprisoned, they too were significantly more likely to be suspended ($b = 0.073$, $p < .01$), physically fight their peers ($b = 0.162$, $p < .001$), and truant school ($b = 0.114$, $p < .01$). Truancy was also identified by Nichols and colleagues (2015) as a significantly more common occurrence in children exposed to parental incarceration ($b = 0.45$, $z = 4.06$, $p \leq .01$).

Literacy and numeracy

Three of the 16 studies examined the association between parental incarceration and children's literacy and numeracy skills in high

school (Bell et al., 2023; McCauley, 2020; Murray, Loeber, et al., 2012). As was seen in primary school-aged children, Bell and colleagues found that the reading and numeracy skills of children in secondary school declined following exposure to maternal incarceration (Bell et al., 2023). By year 7, children whose mothers had been incarcerated were almost twice as likely to have below average reading skills compared to their unexposed peers (*aOR* = 1.86, $p < .001$). The same was true for numeracy skills, and the gap between exposed and unexposed children's numeracy skills continued to widen into year 9 (year 7 *aOR* = 1.70, $p < .002$; year 9 aOR = 1.82, $p < .001$).

These findings are consistent with those of McCauley (2020), who found that children exposed to maternal incarceration were 10% less likely to achieve a B grade or higher in mathematics compared to children without this experience ($p < .01$). For children whose fathers had been incarcerated, there was a 10% lower chance of achieving a B grade or above in English, and they were 6% less likely to do so in mathematics ($p < .001$; McCauley, 2020). In contrast, Murray, Loeber, et al. (2012) observed no significant differences in academic performance in reading, mathematics, writing, and spelling before and after exposure to parental incarceration. This finding, however, may be influenced by its reliance on self-report data.

High school grade point average (GPA)

Two of the 16 studies examined the association between parental incarceration and children's average GPA in high school (Hagan & Foster, 2012; Nichols et al., 2016). Nichols and colleagues (2016) used GPA as an estimate for cumulative academic achievement in children and found a significant negative association with exposure to parental incarceration ($b = -0.35$, $z = -4.31$, $p \leq .001$). This negative association persisted, even after introducing compensatory measures, such as increasing school connectedness or engaging in counselling services ($b = -0.31$, $z = -3.72$, $p \leq .001$). Using hierarchical multilevel models, Nichols et al. (2016) demonstrated that the negative relationship between parental incarceration and cumulative academic achievement can largely be explained by pre-existing adversities associated with both parental incarceration and lower academic performance, such as minority status ($b = -0.16$, $z = -2.50$, $p \leq .01$).

Similarly, Hagan and Foster (2012) found that specific individual-level characteristics were negatively associated with high school GPA, including having single parents ($b = -0.10$, $p < .05$) and self-reported delinquency ($b = -0.03$, $p < .001$). However, even after controlling for these factors, children of incarcerated fathers still had significantly lower GPAs compared to those whose fathers had not been incarcerated ($b = -0.18$, $p < .05$).

High school completion

Three of the 16 studies examined the association between parental incarceration and children's likelihood of finishing high school (Gifford et al., 2019; Nichols & Loper, 2012; Young et al., 2020). Gifford and colleagues' 2019 study found that children exposed to parental incarceration were more than four times less likely to complete their high school education compared to their unexposed peers, even after controlling for sex, race/ethnicity, psychiatric disorders, and childhood adversities (odds ratio (*OR*) = 4.4, $p < .001$). This is consistent with what was observed by Young et al. (2020), who reported that children exposed to parental incarceration were significantly less likely to graduate from high school than those who had not been exposed ($b = -0.70$, $p < .001$). In contrast, Nichols and Loper (2012) found that the odds of failing to graduate high school were 20% lower for children with incarcerated parents compared to children without incarcerated parents, though this finding was not significant (*OR* = 0.80).

Tertiary education

College completion

Three of the 16 studies examined the association between parental incarceration and children's likelihood of college completion (Foster & Hagan, 2015a; Miller & Barnes, 2015; Young et al., 2020). Young et al. (2020) found that children exposed to parental incarceration before the age of 6 were significantly less likely to complete at least one year of college compared to their unexposed peers ($b = -0.51$, $p < .001$). The effect of parental incarceration on college completion was even more substantial if it occurred between ages 6 and 17 ($b = -0.62$, $p < .001$). When it came to graduating from college, children whose parents had been incarcerated were more than half as likely to graduate than those who did not have a parent imprisoned ($OR = .524$, $p < .01$; Miller & Barnes, 2015). Notably, the relationship between parental incarceration and college completion differed in strength depending on the parent imprisoned (Foster & Hagan, 2015a). Children whose fathers were incarcerated were significantly less likely to graduate from college than those whose fathers had not been incarcerated ($b = -0.62$, $p < .01$), with an even more substantia negative effect for children whose mothers were incarcerated ($b = -1.69$, $p < .05$; Foster & Hagan, 2015a).

Highest level of education attained

Four of the 16 studies examined the association between parental incarceration and children's highest level of education attained (Fox et al., 2023; Hagan & Foster, 2012; Mears & Siennick, 2016; Nichols et al., 2016). All four studies found a significant negative association between exposure to parental incarceration and lifelong educational outcomes, with the association varying based on the child's age of exposure. For example, exposure in utero was linked to a significant reduction of 2.9 years of schooling by age 25 compared to those not exposed ($b = -2.90$, $p < .001$; Fox et al., 2023). Nichols et al. (2016) found that children exposed between birth and age 12 attained significantly lower levels of education than those without such exposure ($b = -0.62$, $p \leq .001$). When only the child's father was incarcerated during this period, the negative association remained significant but was less pronounced ($b = -0.27$, $p < .001$; Hagan & Foster, 2012). Overall, regardless of the timing of exposure or which parent was incarcerated, children who experienced parental incarceration at any point between birth and age 18 were 33% less likely to achieve any of the post-high school education levels compared to those whose parents were never incarcerated (Mears & Siennick, 2016).

Discussion

This study aimed to explore the relationship between parental incarceration and children's educational outcomes. We found that parental incarceration experienced at any point between conception and age 18 can be associated with negative child primary, secondary, and tertiary educational outcomes. Firstly, we found that children exposed to parental incarceration are significantly less likely to be academically and socially prepared to start formal primary education, especially young boys with incarcerated fathers. It appears that this is sustained into high school, as we also found that children exposed to parental incarceration were significantly more likely to physically fight peers at school, leading to suspensions and expulsion. These findings are consistent with primary research studies, which have demonstrated a relationship between paternal incarceration and increased behavioural problems in young boys (Haskins, 2014; Wildeman, 2010). Malone et al. (2004) concluded that paternal absence in other life experiences, such as parental divorce, manifests as increased externalising behaviours in young boys. This same response to paternal absence in the context of incarceration may explain the observed relationship. Additionally, it may be that young girls exposed to parental incarceration

internalise their experiences, much like they do with other stressors, which could account for the lack of a similarly significant relationship in their case (Basten et al., 2016). Overall, these findings underscore the need for early intervention and support for children exposed to parental incarceration, particularly for young boys with incarcerated fathers.

Secondly, we found that exposure to parental incarceration, even in utero, is associated with significantly reduced literacy and numeracy skills in both primary and high school-aged children. It appears that this effect sets the course for lifelong disparities, as we also found that children of incarcerated parents were significantly more likely to struggle academically in high school and were less likely to graduate from high school or pursue a college education. Previous work has consistently documented the relationship between adverse childhood experiences (ACEs) and educational disadvantage (Crouch et al., 2019; Stewart-Tufescu et al., 2022). It would be wrong to assume that the relationship between parental incarceration and reduced academic outcomes means that children of incarcerated parents lack intellectual capacity. Instead, much like other ACEs, exposure to parental incarceration likely leads to social-emotional challenges, with the resulting stress and trauma hindering cognitive development and skill acquisition (Bücker et al., 2012; Hawkins et al., 2021). Further, the incarceration of a primary caregiver may also lead to high residential mobility and frequent school changes, which can result in interrupted and inconsistent education (Herbers et al., 2012). These findings suggest the need for comprehensive interventions designed to address the academic, social, and emotional challenges faced by children with incarcerated parents in order to limit any association between them and limitations in educational outcomes.

Lastly, we found that experiencing parental incarceration can have a negative effect on the highest level of education a child is likely to achieve in their lifetime. This suggests that the incarceration of a parent constitutes a turning point in a child's life, one that can adversely shape their trajectory during the transition into adulthood and beyond. Research shows that the educational attainment of children exposed to parental incarceration plays a mediating role in their future occupational and socioeconomic outcomes (Foster & Hagan, 2007). When the primary drivers for criminality and resultant incarceration are poverty and social exclusion, the incarceration of a parent could be seen to exacerbate these factors and extend a cycle of disadvantage and incarceration we see today (Foster & Hagan, 2007; Western & Pettit, 2010). These findings highlight the need for policies that target the broader social consequences of mass incarceration, especially concerning the education of children with incarcerated parents, in order to address any disadvantage that results for them.

Limitations

Our review had some limitations. First, by restricting our inclusion criteria to longitudinal study designs, we excluded 21 cross-sectional studies. Some of these studies may have had sufficiently large sample sizes to offer valuable insights, which we did not consider during the design phase of our systematic review. Second, since both researchers are proficient only in English, our systematic review may reflect a language bias. All 16 included studies come from high-income, English-speaking countries. It may be that studies from middle-to-low-income countries have been inadvertently omitted by limiting our searches to English-language publications.

Our review was also subject to the limitations of the primary studies on which it is based. A notable gap in our findings was the lack of studies that examined the association between maternal incarceration and children's educational findings. Whilst males comprise approximately 93% of the global prison population, there has been a stark increase in the number of incarcerated females over the past

20 years (Fair & Walmsley, 2021; Me et al., 2021). Since 2000, the proportion of incarcerated females has grown by more than 60%; however, research on maternal incarceration is yet to reflect this (Fair & Walmsley, 2021). While longitudinal studies are often not published until long after an increase like this is seen, it is disappointing to have only located one study that looked specifically at this issue, given the importance of the mother–child relationship for attachment. Future research should seek to rectify this by conducting more large-scale, longitudinal studies on the association between maternal incarceration and children to better understand whether and how these outcomes differ from those of paternal incarceration.

Importantly, the review is potentially limited in that it is primarily concerned with examining the association between variables presented in the included studies. Given the nature of some of the studies reviewed, and the methods by which their findings were reported, we were unable to examine causal relationships between variables. Further, while we were able to account for the degree to which variables covaried, or the extent to which they were associated with each other, we could not report in terms of the impact, effect, or influence that one variable may or may not have had on another. Examining causal relationships between variables was beyond the scope of the analysis undertaken.

Finally, our methods included the presentation and analysis of risk ratios. We were able to do this because the reviewed studies provided information about study participants, and the covariates taken into account in the study analyses, and the heterogeneity or homogeneity of the studies. Where studies were heterogeneous, the identification and use of covariates in study analyses allowed us to have greater confidence in the study results. Covariates included in the reviewed studies are presented in Table 3 and their inclusion in studies characterised by heterogeneity largely overcome limitations in the design of those studies and their inclusion with more homogeneous studies included in the review.

Policy implications

Our findings demonstrate the significant negative association between parental incarceration and children's educational outcomes. Yet, in Australia, there are no government-led processes for identifying these children, and designing tailored policies to fill this void is critical if we are to improve outcomes. Currently, every adult who enters a prison in Australia completes an entrant's survey or interview that is unique to each jurisdiction (Australian Institute of Health and Welfare, 2023). Data collected includes health concerns, integration and exit planning needs, and family background (Australian Institute of Health and Welfare, 2023). Every adult who enters prison in Australia is asked whether they have any children under 18 years old, where these children reside, and how to contact them, and yet, the only time this information is utilised is when there is a belief that a child is at significant risk of harm (New South Wales Parliament, 2022) This data offers a straightforward opportunity to quantify precisely how many children are exposed to parental incarceration, as well as who they are, and where to find them. Justice departments around Australia must consider using this information to notify appropriate services of the child's exposure, so that preventative wrap-around supports can be put in place from the start (New South Wales Parliament, 2022).

If school engagement and teacher–child relationships can buffer against the adverse effects of parental incarceration, it is appropriate this is actively pursued as a policy platform. Further, if data on the association between parental incarceration and child outcomes is already being collected, then using this information to alert education departments about those in need of increased educational support would be a sensible policy to adopt. Evidence presented above suggests that

increased vulnerability to a range of psychosocial risks results for children of incarcerated parents (Rose et al., 2024), and the absence of genuine, supportive relationships with adults has been identified as one potential contributing factor to this (Frosch et al., 2021). With appropriate training and support, educational settings have the potential to facilitate the development of genuine supportive relationships. Teachers are in a unique position to identify children who need support. With effective channels of communication between justice departments and education departments, and with appropriate training in the relational engagement of, and psychosocial support for, identified children, teachers have the potential to respond in relational as well as educational terms. Research evidence has consistently demonstrated this potential with respect to a broad range of outcomes, and in particular with respect to outcomes such as emotional wellbeing (Curby et al., 2013; Pössel et al., 2013).

Conclusion

This systematic review has highlighted the sustained adverse effects that parental incarceration can have on children's educational outcomes. Children of incarcerated parents are less likely to be ready to start primary school, less likely to finish high school, and less likely to pursue tertiary education. The findings indicate that parental incarceration is associated with children's educational outcomes and underscores the need to gather and utilise research evidence to develop policy platforms to address disadvantage where it is identified. This offers a clear step for Australian state governments to take to identify and respond to children for whom parental incarceration represents disadvantage.

Ethical standards

Declaration of conflicts of interest

Niamh Taggart has declared no conflicts of interest.

John McAloon has declared no conflicts of interest.

Ethical approval

This article does not contain any studies with human participants or animals performed by any of the authors. The protocol was registered with PROSPERO (ID: CRD42023 483182).

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