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REVIEW ARTICLE

Mental/behavioural health and educational outcomes of grandchildren raised by custodial grandparents: A mixed methods systematic review

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Abstract

Grandparents caring for grandchildren has increased globally in the past two decades, but we have a limited understanding of its effects on custodial grandchildren's mental/behavioural health and educational outcomes. This mixed methods systematic review aims to synthesise mental/behavioural health and educational outcomes of custodial grandchildren within custodial grandparent-headed families and with comparison to other types of household structure and further examine factors associated with these outcomes. A systematic review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines was conducted. We searched ERIC, Family Studies Abstracts, PsycINFO, PubMed, Scopus, Social Work Abstract and SocINDEX in March 2021 and screened 14,515 articles, which resulted in the inclusion of 42 studies, including 33 quantitative, seven qualitative and two mixed methods studies. The quality of included studies was assessed. This review covered 10 countries, yet most studies revealed that grandchildren raised by grandparents had adverse mental/behavioural health and educational outcomes compared to their peers raised by biological parents. This review further identified multi-level factors contributing to custodial grandchildren's adverse outcomes. Methodological limitations and implications for future practice and research were discussed.

KEYWORDS

behavioural health, custodial grandchildren, education, grandparents raising grandchildren, mental health, systematic review

1 | INTRODUCTION

Grandparents caring for grandchildren has increased globally in the past two decades (Glaser et al., 2018; Meyer & Kandic, 2017; Small et al., 2019; Zimmer & Treleaven, 2020). Grandparent caregiving ranges from supplementary childcare to co-caregiving while living in a multi-generational household. Another subset of grandparents, or custodial

grandparents, act as the sole caregiver for a child in the absence of a parent. Almost 7.1 million grandparents live with their grandchildren in the United States and 13.4% of these are custodial grandparents (United States Census Bureau, 2020). This reflects an estimated 7% increase in custodial grandparenting since 2009 in the United States (Meyer & Kandic, 2017). There has been a concurrent increase in custodial grandparenting in several economically developing nations since 1990 (Zimmer

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& Treleaven, 2020) including countries in Africa (Small et al., 2019) and Asia (Teerawichitchainan & Low, 2021; Zhang et al., 2016).

Factors contributing to this global increase in custodial grandparenting vary. Custodial grandparents may take on caregiving responsibilities due to child maltreatment, parental incarceration, mental health and substance abuse in some western countries such as the United States (Baker et al., 2008; Hayslip et al., 2019). In contrast, parental migration driven by employment opportunities has contributed to increased custodial grandparenting in some Asian countries such as China and Thailand (Dolbin-MacNab & Yancura, 2018; Ingersoll-Dayton et al., 2018). Furthermore, an increase in AIDS mortality combined with a rise in female employment opportunities has contributed to the rise in custodial grandparents in sub-Saharan Africa (Dolbin-MacNab & Yancura, 2018; Small et al., 2019). This global increase in custodial grandparenting has led to a wealth of literature examining the varied impact taking on this role has on custodial grandparents. Prior research has indicated that custodial grandparenting was associated with grandparents' worse health outcomes (Chen et al., 2015; Whitley & Fuller-Thomson, 2017), low quality of life (Neely-Barnes et al., 2010) and low engagement in daily activities (Manns et al., 2017) compared to other caregivers and non-custodial grandparents.

1.1 | Impact of custodial grandparenting on grandchildren

Despite our in-depth understanding of custodial grandparenting on grandparents, there has been less research regarding the impact of custodial grandparenting on grandchildren. Custodial grandparenting may also affect outcomes for custodial grandchildren. Custodial grandparents often face significant barriers when accessing necessary services (e.g. computer support, legal support, support groups, financial assistance services, mental health services) for their grandchildren in their care (Fernandes et al., 2021; Letiecq et al., 2008; Montoro-Rodríguez et al., 2012; Yancura, 2013), impacting the well-being of grandchildren. For example, studies have indicated that grandparents' legal rights challenges, fear of the child welfare system and unawareness of relevant policies and resources significantly limited their access to financial assistance, mental health services, parenting services, afterschool programmes and other services for grandchildren in care (Fernandes et al., 2021; Letiecq et al., 2008; Montoro-Rodríguez et al., 2012; Van Etten & Gautam, 2012). Lack of access to these services may reduce custodial grandchildren's quality of life, creating the potential for a greater risk of poor outcomes in the future. Specifically, Schmidt (2010) found that grandparents had no access to children's mental health counselling services, resulting in untreated mental health problems among grandchildren. Further, grandparents' limited access to financial assistance would exacerbate financial hardship among grandparent-headed families and might increase grandchildren's behavioural problems (Xu et al., 2021).

In addition, factors (e.g. family household dysfunction) contributing to the rise in custodial grandparenting may create significant

What is known about this topic

- Custodial grandparents raising grandchildren have increased globally.
- Custodial grandparents face challenges in raising their grandchildren.
- Custodial grandchildren raised by custodial grandparents are vulnerable.

What this paper adds

- A better understanding of the impact of custodial grandparenting on grandchildren's mental/behavioural health and educational outcomes from 10 countries.
- An overview of custodial grandchildren's mental/behavioural health and educational outcomes compared to their peers from other household structures/care.
- Multi-level factors associated with mental/behavioural and educational outcomes both within custodial grandparent-headed families and in comparison with other household structure/care.

stress for custodial grandchildren. More specifically, custodial grandchildren may have experienced adverse childhood experiences prior to entering grandparental care which are associated with negative physical and mental health outcomes and academic problems (Chan, Leung, et al., 2019; Chan, Chen, et al., 2019; Smith, Hayslip, & Webster, 2019; Smith, Infurna, et al., 2019). Given the global rise in custodial grandfamilies and the potential impact of this family structure on child well-being, we must build a greater understanding of the needs of this population to inform tailored policies and interventions for custodial grandfamilies. Therefore, it is important to systematically examine the existing literature on the well-being of custodial grandchildren including factors contributing to their well-being.

In addition to examining the well-being of custodial grandchildren within custodial grandparent-headed families only, it would be important to compare custodial grandchildren's well-being to their counterparts in other types of household structure/care. To some extent, custodial grandchildren are comparable to other vulnerable children due to their previous traumatic experiences and the influence of non-parental care (Nadorff et al., 2021). Across the literature, the most common comparison of grandchildren's well-being is between children in custodial grandparent-headed households and parent-headed households, particularly in low-income families. Studies on comparisons between custodial grandparent-headed households and multi-generational households are also common. It is worth noting that few studies have compared the well-being of grandchildren in grandparent-headed families to children in foster care. Despite widely published studies using a comparative perspective, there are few systematic reviews that use a comparative lens to synthesise outcomes of custodial grandchildren compared to their counterparts in other types of household structure/care.

1.2 | Research gaps and aims of the present study

Two significant research gaps have been identified in the literature. First, existing systematic reviews on grandparents raising grandchildren primarily focus on the effects of grandparenting on grandparents themselves (e.g. Hayslip et al., 2019; Kelley et al., 2021; Shorey & Ng, 2020). Second, very few systematic reviews (e.g. Sadruddin et al., 2019) have examined the well-being of custodial grandchildren within custodial grandparent-headed families and in comparison to other types of household structure/care.

Child well-being is a multi-dimensional concept, which includes child physical health and safety, behavioural health and educational achievement (Moore, 2013). Building an understanding of how custodial grandparenting impacts children's well-being is critical for meeting the needs of this growing population. Given that previous systematic reviews have examined the influence of grandparents on child physical health (e.g. Chambers et al., 2017; Sadruddin et al., 2019), we focused on custodial grandchildren's mental/behavioural health and educational outcomes in this review to fill the gap in the literature. More specifically, this systematic review aims to synthesise the existing literature with the following aims: (1) to examine mental/behavioural health and educational outcomes of custodial grandchildren within custodial grandparent-headed families and in comparison to other types of household structure/care (e.g. multi-generational households, parent-headed households, foster care, institutional care) and (2) to identify factors contributing to custodial grandchildren's mental/behavioural health and educational outcomes. These two research aims were examined within custodial grandparent-headed families and in comparison to other types of household structure/care respectively.

2 | METHODS

2.1 | Study design

This review employed an integrated mixed research synthesis approach, which integrated results from quantitative, qualitative and mixed methods studies (Sandelowski et al., 2006). In the integrated design, we did not distinguish any differences between qualitative and quantitative methods but viewed results yielded from different methods as a form of confirmation and triangulation. In other words, we synthesised the findings of each study, regardless of their methodological orientations, to achieve our research aims (Sandelowski et al., 2006).

2.2 | Databases, search terms and search strategy

This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). A comprehensive literature search was conducted

in seven databases, including ERIC, Family Studies Abstracts, PsycINFO, PubMed, Scopus, Social Work Abstract and SocINDEX, in March 2021. Three key search concepts used for literature searches were grandparents, grandchildren's mental/behavioural health and educational outcomes. The following search strings were used in our searches: (grandparent* OR grandfather* OR grandmother* OR grandma OR grandpa OR grandchild*) AND (mental health OR mental illness OR behavior* problem* OR behavior* disorder* OR emotion* OR internalizing OR externalizing OR depress* OR anxiety OR aggress*) OR (Educat* OR school* OR class* OR college* OR teach* OR learn* OR train* OR diploma* OR certificate* OR tutor* OR achiev* OR perform* OR academic OR graduat* OR grade*).

2.3 | Eligibility criteria and selection process

To achieve our research aims, the following inclusion criteria were applied during the selection process: (1) articles that examined mental/behavioural health or educational outcomes of custodial grandchildren (i.e. those who were raised by grandparents with no biological parents in the household), (2) were observational studies, (3) were empirical studies and (4) were published since 2000 in peer-reviewed journals in English. Non-empirical studies, intervention studies, systematic reviews and conceptual papers were excluded. The search yielded 14,515 articles with 5613 duplicates. A total of 188 studies were included for full-text review. Five reviewers screened abstracts, titles and full-text articles independently, which was facilitated by COVIDENCE (Veritas Health Innovation, n.d.). All discrepancies acknowledged were corrected by the first author. A final set of 42 articles, including 33 quantitative, seven qualitative and two mixed methods, were included for this systematic review (see details in Figure 1).

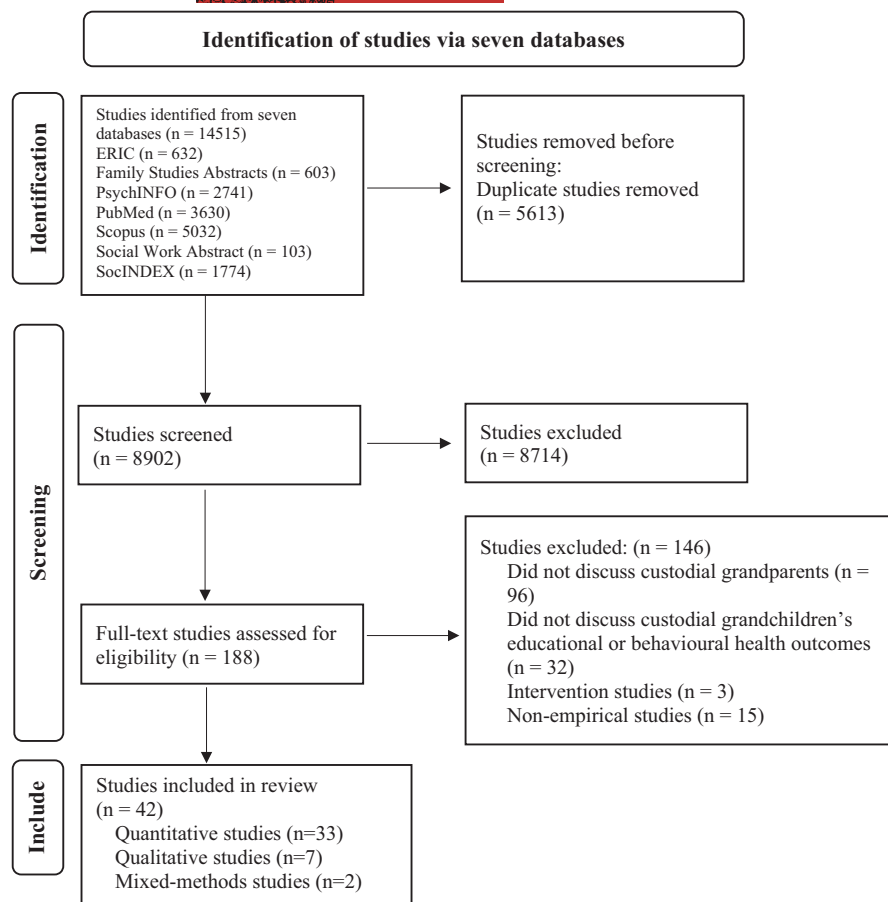
2.4 | Data extraction

Five research team members independently conducted data extraction and the first and second authors double-checked the accuracy of data extraction. Extracted study characteristics included author, country, year, study design, family structure, sample sizes of grandparents and grandchildren and measures and findings of behavioural health and educational outcomes. Findings from quantitative, qualitative and mixed methods studies were extracted for a thematic synthesis.

2.5 | Methodological quality appraisal

The mixed methods appraisal tool (MMAT, version 2018) was used for the quality assessment of included studies (Hong et al., 2018). The MMAT is a recently developed tool that can effectively conduct study quality assessments of qualitative, quantitative and mixed

FIGURE 1 PRISMA chart.



methods studies. Two general screening questions (i.e. are there clear research questions? and do the collected data allow to address the research questions?) were applied to all included studies before further assessing the quality. After assessing the first two criteria, we further assessed five additional but different criteria for quantitative, qualitative and mixed method studies respectively. The five criteria for each type of research are listed at the end of Table 3. Each study was rated in the appropriate category of criteria as either 'yes', 'no' or 'cannot tell'. If it had a yes, we scored it as 20%. Otherwise, it would score as 0%. Scores theoretically ranged from 20%—one criterion met to 100%—all five criteria met. The research team assessed the quality of each study and calculated quality assessment scores on a 100% scale.

3 | RESULTS

3.1 | An overview of included studies

Our review identified 42 studies that examined mental/behavioural health and educational outcomes of custodial grandchildren in 10 countries, including Australia ($N = 1$), China ($N = 1$), Kenya ($N = 1$), Korea ($N = 1$), Indonesia ($N = 1$), Malawi ($N = 1$), Philippines ($N = 1$), Spain ($N = 1$), Thailand ($N = 2$) and the United States ($N = 32$), which reflected a diverse body of literature on grandparents raising grandchildren globally.

3.1.1 | An overview of mental/behavioural health outcomes

Mental/behavioural health outcomes are defined as emotions, behaviours and biology relating to individuals' mental well-being and the ability to function in daily life (Array, n.d.). This could include stress, depression, anxiety, other psychological concerns, addiction, attention deficit hyperactivity disorder (ADHD) or learning disabilities, oppositional defiant disorder (ODD), conduct disorder, mood disorders, defiant behaviour, drug use and criminal activity (Array, n.d.; Mental health.gov, n.d.). Regarding mental/behavioural health outcomes, this review included 38 studies (30 quantitative, six qualitative and two mixed methods) that examined custodial grandchildren's mental/behavioural health outcomes. A total of 20 out of 38 studies examined grandchildren's mental/behavioural health outcomes within custodial grandparent-headed families and 18 studies compared mental/behavioural health outcomes between custodial grandchildren and children in other types of household structure/care (e.g. two married parents, single parent, cohabiting parents, step-parents, multi-generational households, households with caregiving but non-residential grandparents, households without any contact with grandparents, foster care, institutional care). These 38 studies covered a wide range of mental/behavioural health outcomes including internalising, externalising and total behavioural problems, social-emotional skills, delayed developmental outcomes, mental disorders, substance

use, risky sexual behaviours, bullying and delinquent behaviours. Among these mental/behavioural health outcomes, children's internalising and externalising behavioural problems were the most commonly examined outcomes (Table 1).

3.1.2 | An overview of educational outcomes

Regarding educational outcomes, this review included seven studies (one quantitative, five qualitative and one mixed methods) that examined custodial grandchildren's educational outcomes in custodial grandparent-headed households only. An additional eight studies (seven quantitative and one mixed methods) examined custodial grandchildren's educational outcomes in comparison to children raised in other types of household structure/care.

The most commonly examined educational outcomes were the academic performance (e.g. overall grade, ranking, writing, reading, math skills), attitude towards school and school bonding. In addition to these specific grandchildren's educational outcomes, some studies further examined factors associated with custodial grandchildren's educational outcomes or grandparents' concerns on grandchildren's educational outcomes and their desires for better educational performance (Table 2).

3.2 | An in-depth analysis of included studies

Given the difference in samples between custodial grandparent-headed families only and comparative households, we presented our results by household type first. Within the same type of household structure, we first synthesised findings on mental/behavioural health and educational outcomes and further summarised risk and protective factors associated with mental/behavioural health and educational outcomes respectively.

3.2.1 | Mental/behavioural health outcomes in custodial grandparent-headed family only

Results on mental/behavioural problems in custodial grandparent-headed family only

A total of 12 studies examined children's behavioural problems, that are, internalising, externalising or total behavioural problems, measured using the Behaviour Rating Index for Children (Stiffman & Others, 1984), Child Behavioural Checklist (both U.S. and Korean versions; Achenbach & Edelbrock, 1991), Dominic Interactive Assessment (Valla et al., 2000), Eyberg Child Behaviour Inventory (Eyberg, 1999), Global Risk Assessment Device (Gavazzi & Lim, 2003) and Strengths and Difficulties Questionnaire (Goodman, 2001). Of note, one study (Yorgason et al., 2014) did not specify internalising or externalising problems, but the measurement itself captured both internalising and externalising problems.

Given the substantial number of studies that examined grandchildren's internalising and externalising behavioural problems, we summarised multi-level factors associated with children's internalising and externalising problem behaviours in custodial grandparent-headed households.

Across studies, we first identified that child-level factors are associated with children's internalising and externalising behaviours such as child gender (i.e. being a boy; Bernedo et al., 2008; Yorgason et al., 2014), race (i.e. being white; Yorgason et al., 2014), age (i.e. being older; Bernedo et al., 2008), prior traumatic experiences (e.g. parental loss; Kelch-Oliver, 2011), child low self-esteem (Park & Lee, 2016), child low social support (Park & Lee, 2016), child self-rated low life satisfaction (Park & Lee, 2016) and child's desire to be with parents rather than grandparents (Kelch-Oliver, 2011). At the grandparents' level, grandparents' mental health was a widely identified risk factor that influenced grandchildren's internalising and externalising behavioural problems. Grandparents' mental health included their past mental health status (Goodman, 2012), current psychological distress (Kelley et al., 2011; Smith et al., 2008; Smith & Hancock, 2010; Smith, Hayslip Jr, et al., 2018; Smith, Hayslip, et al., 2018) and current depression symptoms (Smithgall et al., 2009). Relatedly, Daly and Glenwick (2000) pointed out that grandparents who proactively sought mental health services for grandchildren were more likely to report their grandchildren's more internalising and externalising problems. The second commonly identified risk factor was grandparents' ineffective or dysfunctional parenting practices (Smith et al., 2008, 2015; Smith, Hayslip, et al., 2018; Smith, Hayslip Jr, et al., 2018). However, the closeness between grandparents and grandchildren was found to be a protective factor for children's problem behaviours. That is, having poor family relationships was associated with more behavioural problems, whereas grandparents' more responsivity to grandchildren was associated with fewer children's problem behaviours (Poehlmann et al., 2008).

In addition, grandparents' health, education and household income (Smith et al., 2008; Smith & Hancock, 2010), marital distress (Smith & Hancock, 2010), social support (Kelley et al., 2011; Smith et al., 2008), coping resources (Smith et al., 2015) and family dysfunction (Smith et al., 2008; Yorgason et al., 2014) were associated with children's problem behaviours. De Guzman et al.'s (2018) qualitative study suggested that grandparents were role models for their grandchildren's behaviours through positive modelling behaviour, mentoring, socialising and providing emotional support. At the home environment level, fewer family resources and living in less supportive home environments resulted in children having more problem behaviours (Kelley et al., 2011).

Of note, findings across studies suggest slight differences in the mechanisms that lead to children's internalising compared to externalising problems. There were not enough studies included, however, to distinguish between factors associated with internalising and externalising problems respectively. Also, two studies (i.e. Bernedo et al., 2008; Kelley et al., 2011) measured total behavioural problems, which was a combination of internalising and externalising

TABLE 1 Mental/behavioural health and educational outcomes of grandchildren in custodial grandparent-headed family only

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
<i>Quantitative</i> Bernedo et al. (2008), Spain, Cross-sectional	Grandparents (N = 54) Grandchildren (N = 68)	The Child Behaviour Checklist (CBCL/11-18)	The majority of both boys and girls were within the normal range on scales of internalising, externalising and total behavioural problems. Descriptive results indicated that boys had more externalising behavioural problems than girls, and older grandchildren had more somatic problems, internalising and total behavioural problems than younger grandchildren.	N/A	N/A
Blackburn (2000), United States, Cross-sectional	Grandparents (N = 121) Grandchildren (N = N/A)	Not provided	Grandparents reported that 52% of their grandchildren had special needs. About 31.4% had ADHD; 15% had severe learning disabilities; 11% had emotional disorders and 10% were exposed to drugs.	N/A	N/A
Daly and Glenwick (2000), United States, Cross-sectional	Grandmothers (N = 35) Grandchildren (N = 35)	The Eyberg Child Behaviour Inventory	The grandmothers who sought psychological services for grandchildren reported significantly more negative perceptions of their grandchildren's behaviour than those grandmothers who never sought psychological services.	N/A	N/A
Goodman (2012), United States, Longitudinal	Grandparents (N = 50) Grandchildren (N = 50)	Behaviour Rating Index for Children	Grandmother–grandchild closeness at T2 was significantly associated with improvement in the grandchild's behaviour from T1 to T2. Change in the grandmother–grandchild relationship, grandmother's mental health at Time 1, and change in grandmother's mental health over the 9 years were significantly associated with a change in the grandchild's behaviour over 9 years.	N/A	N/A
Kelley et al. (2011), United States, Cross-sectional	Grandmothers (N = 230) Grandchildren (N = 230)	Child behaviour checklist (CBCL)-parent report form: Internalising, externalising and total behavioural problems.	Almost one-third of children had clinically elevated behaviour problems. Higher levels of grandmother caregivers' psychological distress, fewer family resources, less social support and less supportive home environments were associated with significantly higher scores on both internalising and externalising behavioural problems.	N/A	N/A

TABLE 1 (Continued)

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Park and Lee (2016), United States, Cross-sectional	Grandparents (N = N/A) Grandchildren (N = 381)	Internalising and externalising problematic behaviours; Korean youth self-report scale from Korean-child behaviour checklist (K-CBCL)	Self-esteem and social support were both negatively and significantly associated with externalising problems. Social support was a significant mediator in the relationships of self-esteem (negative) and life satisfaction (positive) with externalising problems respectively. The associations were not significant for internalising problems.	Class rank: School records	28.3% of them were in the top 10 in their classes, 47.9% were in the top 11–25, and 23.8% were ranked 26–45.
Poehlmann et al. (2008), United States, Cross-sectional	Grandfamilies (N = 79)	Child Behaviour Checklist	Grandparent responsibility in the home was significantly associated with lower scores on externalising behaviour problems. Having poor family relationships was positively associated with more externalising behaviours.	N/A	N/A
Smith et al. (2008), United States, Cross-sectional	Grandmothers (N = 733) Grandchildren (N = 733)	Children's adjustment: Strengths and difficulty questionnaire	Social support was significantly negatively associated with children's internalising problems via dysfunctional parenting and psychological distress; family dysfunction was negatively associated with children's externalising problems via dysfunctional parenting. Grandmother's health was significantly associated with grandchildren's internalising problems via their psychological distress; grandmother's education was significantly associated with grandchildren's internalising problems through both psychological distress and dysfunctional parenting; household income was significantly associated with grandchildren's internalising and externalising problems via dysfunctional parenting.	N/A	N/A
Smith and Hancock (2010), USA, Cross-sectional	Grandmother-grandfather dyads (N = 193) Grandchildren (N = 193)	Children's adjustment: strengths and difficulty questionnaire	The effects of grandmothers' and grandfathers' psychological and marital distress on grandchildren's adjustment difficulties were mediated by dysfunctional parenting; the effects of family-related contextual factors (e.g. income, health, education) on children's adjustment was mediated by grandparents' psychological and marital distress.	N/A	N/A

(Continues)

TABLE 1 (Continued)

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Smith et al. (2015), United States, Cross-sectional	Grandmothers (N = 733) Grandchildren (N = 733)	Children's adjustment: Strengths and difficulty questionnaire	Ineffective parenting had direct effects on grandchildren's internalising and externalising problems, whereas custodial grandmothers' coping resources had indirect effects on grandchildren's externalising and internalising problems through ineffective parenting.	N/A	N/A
Smith, Hayslip Jr, et al. (2018); Smith, Hayslip, et al. (2018), United States, Cross-sectional	Grandparents (N = 336) Grandchildren (N = 343)	The Dominic Interactive, a pictorialised computerised self-report of common mental health disorders, was used to measure internalising and externalising symptoms	Grandchildren's self-reported internalising and externalising difficulties were unrelated to grandmothers' distress and parenting practices. Grandmothers' reports of grandchildren's internalising and externalising problems were significantly related to their own distress and parenting practices (i.e., harsh parenting, ineffective parenting).	N/A	N/A

TABLE 1 (Continued)

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Yang and Liu (2020), China, Cross-sectional	Grandparent (N = N/A) Grandchildren (N = 1360)	Birleson Depression Self-Rating Scale	'Rejection' grandparenting style had a significant positive association with childhood depression. 'Emotional Warmth' grandparenting style had a significant negative association with childhood depression. 'Overprotection' grandparenting style did not have a significant association with childhood depression. Mediation analysis found that the 'rejecting' grandparenting style had a significant direct effect on childhood depression (positive). The indirect effect of rejecting grandparenting style through food insecurity was also significant (positive) indicating that food insecurity partially mediated the association between rejection and depression. Emotional warmth grandparenting style had a direct effect on depression (negative) and an indirect effect on depression (negative) indicating a partial mediation by food insecurity.	N/A	N/A
Yorgason et al. (2014), United States, Cross-sectional	Grandparents (N = N/A) Grandchildren (N = 166)	Global Risk Assessment Device (Gavazzi, Slade, et al., Gavazzi & Lim, 2003); Mental Health Domain, including both internalising and externalising problems, symptoms of attention deficit hyperactivity disorder.	White male grandchildren had significantly higher mental health system scores than African American male counterparts. There were no significant differences between females and different racial or gender identities. African American grandchildren were significantly less likely to report a mental health symptom. Males were significantly more likely to report an additional mental health symptom than females. For each additional disrupted family process, the odds of an additional mental health symptom being reported significantly increased. Disrupted family processes did not interact significantly with gender or race.	N/A	N/A

(Continues)

TABLE 1 (Continued)

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Qualitative Brown et al. (2000), United States, Cross-sectional	Grandmothers (N = 35) Grandchildren (N = N/A)	N/A	Grandparents expressed concerns about the child's sexual behaviour and drug use. Grandmothers need skills and community resources to help them educate their grandchildren about health and social issues such as adolescent pregnancy, STDs, HIV and general health concerns.	N/A	N/A
Cross and Day (2008), United States, Cross-sectional	Grandmothers (N = 8) Grandchildren (N = 8)	N/A	The majority of grandchildren (7 out of 8) had a psychological, behavioural and/or learning disability issue.	N/A	Four of the students were enrolled in 'General Education', three were enrolled in 'Special Education' and one dropped out of 'Special Education' before enrolling in 'Alternative Education'. When the researchers compared the ages of the adolescents to others in their grade level, seven of the eight adolescents were markedly older than their classmates. Academic achievement: among the eight children enrolled in public schools, 62.5% (n = 5) were academically below average; 25% (n = 2) were on academic average; 12.5% (n = 1) were academically above average achievement. Attitude towards school: 75% of (n = 6) children reported that they enjoyed their school due to extracurricular activities. Two children shared that they like socialising with others but were not interested in class. Two children reported that they do not like school as they do not have friends and are being teased for being Indian.

TABLE 1 (Continued)

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
De Guzman et al. (2018), Philippines, Cross-sectional	Grandparents (N = 4) Grandchildren (N = 4)	N/A	Children who were exposed to caregivers who used socially appropriate values as a propeller of their codes of conduct were positively influenced to adhere to this code of behaviour as they grew into adulthood and beyond. Grandparents provided tangible assistance in their grandchildren's development through the strength of positive behaviour modelling, mentoring, socialising and providing emotional support.	N/A	N/A
Ingersoll-Dayton et al. (2020), Thailand, Cross-sectional	Grandparents (N = 48) Grandchildren (N = N/A)	N/A	Thai grandparents were worried about their grandchildren engaging in risky behaviours including drug use due to negative peer influences.	N/A	The ability of grandparents to assist their children in school and plan for their future educational attainment is impacted by their financial concerns.
Kelch-Oliver (2011), United States, Cross-sectional	Grandparents (N = 6) Grandchildren (N = 14)	N/A	Most grandchildren expressed behaviour problems reflecting their lack of adjustment to parental loss or desire to be with their parents rather than their grandparents. Of the nine grandchildren who have been suspended, four were suspended due to a negative interaction with a peer (e.g. a physical confrontation).	N/A	Grandparents were concerned about the academic performance of their grandchildren and how their grandchildren's behaviour would affect their academic performance.
Lee and Blitz (2020), Malawi, Cross-sectional	Grandparents (N = 29) Grandchildren (N = N/A)	N/A	N/A	N/A	Most of the grandparents disclosed their desire to be more involved with their grandchildren's education. At the same time, grandparents also indicated that they did not have continuous communication with the children's schools, both the Malawi Children's Mission (MCM) Academy and other local schools.

(Continues)

TABLE 1 (Continued)

Authors, country, study design	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Peterson et al. (2019), United States, Cross-sectional	N/A; It was conducted among school personnel	N/A	Children raised by grandparents had limited opportunities for the development of age-appropriate social skills; students may act arrogant or disrespectful to grandparents, peers and authority figures. Children raised by grandparents may struggle with complex psychosocial, emotional and mental health problems.	N/A	Grandparents' difficulties in assisting with students' homework, different educational expectations, lack of knowledge and understanding of curriculum, older ways of learning, lower educational background, lack of communications with teachers, insufficient financial resources, low quality of parenting and grandchildren's emotional and mental health problems contributed to grandchildren's low academic achievement, such as poor attendance, lack of motivation and difficulty keeping up with school work.
<i>Mixed methods</i> Smithgall et al. (2009), United States, Cross-sectional	Grandmother (N = 39) Grandchildren (N = 91)	Child Behaviour Checklist (CBCL): The pre-school form is used among children aged 2–5; the school-age form is used among children aged 6–18.	40% of grandmothers were caring for a grandchild with a learning or developmental disability. Aligning with grandparents' reports, providers who worked with children raised by grandparents indicated that many of these children had aggressive behaviours. The bivariate analysis indicated that severe depression symptoms among grandmothers were significantly correlated with more internalising behaviour among grandchildren.	N/A	The most common presenting problems for children was the poor academic performance (80%).

TABLE 2 Mental/behavioural health and educational outcomes of custodial grandchildren in comparison with children in other household/care

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
<i>Quantitative</i> Ani et al. (2020), Indonesia, Cross-sectional	Parent-headed family	Grandparents (N = 20) Grandchildren (N = 20)	Personal-social development scale	Significant differences were identified in stimulation and grandchildren's personal social development between grandparent- and parent-headed families. Children raised by grandparents were less socially and personally developed than children raised by parents. The correlations between grandparent stimulation and parental stimulation and personal-social development of school-aged grandchildren were not significant respectively.	N/A	N/A
Bramlett and Blumberg (2007), United States, Cross-sectional	Parent-headed family including step, single mother, biological parents	Grandparents: (N = N/A) Grandchildren (N = N/A)	Child mental health indicators: attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), difficulty with emotions, concentration, behaviour or getting along with others, behavioural/conduct problems, depression/anxiety, emotional/developmental/behavioural problems.	Children in grandparent-headed families had the poorest mental health status than other groups of children. Children in grandparent-headed families differed significantly from children living with two biological parents in mental health indicators. Children in grandparent-headed families were more than twice as likely to have ADD or ADHD or moderate or severe difficulty with emotions, concentration, behaviour or getting along with others; about four times as likely to have behavioural/conduct problems, depression/anxiety or emotional/developmental/behavioural problems than children living in other types of families.	N/A	N/A

(Continues)

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Campbell et al. (2006), United States, Cross sectional	Parent-headed family	Grandparents (N = 29) Grandchildren (N = 29)	The North Carolina assessment of the juvenile risk of future offending The North Carolina assessment of juvenile need	Youth in grandparent-headed families were significantly more likely to have risk factors associated with reoffending such as caregivers who were unable or unwilling to provide supervision, a prior serious adjudication, a first delinquent offence before they were 12 years old and a history of associating with delinquent peers. Youth in grandparent-headed families were also more likely to have prior assaults, undisciplined or delinquent referrals, however, they had a lower risk for substance use. Youth in grandparent-headed families were more likely to be associated with having delinquent peers, to be living independently or in a residential or group home, to have mental health problems and to have a history of abuse or neglect.	School behaviour/adjustment and general academic functioning	More children in grandparent-headed families academically functioned below-grade level (33.3%) than parent-headed families (21.6%), but the difference was not statistically significant. Youth in grandparent-headed homes were more likely to have school problems (88.9% and 86.1%) than children in parent-headed families.

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Conway and Li (2012), United States, Cross-sectional	Parent-headed family (two parents—married, two parents—cohabiting, single father, stepmother-cohabiting, step mother-married, single mother, step father-cohabiting, married) and all other non-parental care	Grandparents (N = 1049) Grandchildren (N = N/A)	Behavioural/emotional indices: two separate indices for behavioural problems depending on the child's age (ages 6–11 and 12–17).	Compared to children living with two married parents, children living with grandparents had more behavioural problems at both ages 6–11 and 12–17. Living in a grandparent-headed household was significantly associated with increased risks of having more behavioural problems when other variables were controlled.	School engagement index	Compared to children living with two married parents, children living with grandparents were statistically significantly less engaged in school at both ages 6–11 and 12–17. Living in a grandparent-headed household was significantly associated with increased risks of having less engagement in school when other variables were controlled.
Edwards (2006), United States, Cross-sectional	Parent-headed family	Grandparents (N = N/A) Grandchildren (N = 54)	Children's behavioural problems: Child Behaviour Checklist (CBCL)/Teacher Report Form	Teachers perceived grandchildren exhibited significantly more internalising and externalising problems than did children raised by parents. Teachers perceived significantly more children raised by grandparents demonstrating overall psychopathology than children raised by parents. Teachers did not refer these grandchildren to discipline interventions or to the schools' administration and guidance departments at a more significant rate compared to children raised by parents.	N/A	N/A

(Continues)

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Edwards (2009), United States, Cross-sectional	Parent-headed family	Grandparents (N = N/A) Grandchildren (N = 54)	Children's behavioural problems: Child Behaviour Checklist/Teacher Report Form	Children raised by grandparents experienced significantly more somatic complaints, anxiety/depression, social, attention and aggressive behaviour problems than children raised by their parents. Significantly more children raised by grandparents had borderline clinical or clinically significant scores on the social problems and aggressive behaviour scales than children raised by parents.	N/A	N/A
Edwards (2016), United States, Cross-sectional	Parent-headed family and other arrangements (both mother and father, mother only, father only, mother and stepfather, father and stepmother, foster parents)	Grandparents (N = N/A) Grandchildren (N = 83)	Bully perpetration: The frequency of being bullied at school in the past couple of months. Bully victimisation: The frequency of taking part in bullying other students at school in the past couple of months using a 5-point Likert scale	Children raised by grandparents engaged in significantly higher rates of bullying perpetration than children who live in other household arrangements. Children raised by grandparents did not have significantly higher rates of bullying victimisation than children who live in other household arrangements.	N/A	N/A
Edwards (2018), United States, Cross-sectional	Parent-headed (both parents, single parent) and foster parents	Grandparent (N = 127) Grandchildren (N = N/A)	N/A	N/A	Self-reported school performance compared with classmates A question about children's feelings about school at present.	Compared with children living with both parents, there was a significant difference in how children raised by grandparents' school performance was viewed by their teachers. Children raised by grandparents were viewed more negatively, whereas there was no difference in children raised by foster parents.

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Lee et al. (2017), Korea, Longitudinal	Institutional care	Grandparents (N = N/A) Grandchildren (N = 133)	N/A	N/A	School bonding: six 5-point Likert scale items Misbehaviour in school: three 5-point Likert scale items	Children in grandparent-headed families had significantly lower scores in school misbehaviour and higher scores in school bonding than those in institutional care. The children in grandparent-headed families had significantly higher scores in school bonding than those in institutional care. The association between grandparent care and children's misbehaviour in school, compared with institutional care, was significantly stronger for boys than girls and the association between grandparent care and bonding to school was significantly stronger for those with a biological father present than those without.

(Continues)

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Nanthamongkolchai et al. (2009), Thailand, Cross-sectional	Parent-headed family	Grandparents (N = 160) Grandchildren (N = 320)	Delayed development: non-verbal intelligence (TONI-3) was used to assess child intellectual development with 90 as a cut-off point. IQ < 90 is delayed development.	Children cared for by a grandparent had a 2.0 times higher likelihood to have delayed development compared with those who were raised by a parent. Family insufficient income and inappropriate child-rearing practices were associated with higher odds of having delayed child development among grandchildren.	N/A	N/A
Oburu (2005), Kenya, Cross-sectional	Parent-headed family (a biological mother)	Grandmothers (N = 164) Grandchildren (N = N/A)	Child adjustment: strengths and difficulty questionnaire	The effect of caregiver type (grandmother vs. mother) on child adjustment was not significant. Caregiver age (positive) and parenting stress (negative) were significantly correlated with child adjustment.	N/A	N/A
Pilkaukas and Dumifon (2016), United States, Cross-sectional	Non-residential mothers, residential mothers, non-residential fathers, fathers of children who live with their mothers	Grandparents (N = 84) Grandchildren (N = 79)	ADD/ADHD: Yes or no Caregiver report: Child Behaviour Checklist (CBCL); Child self-report: self-description questionnaire (Marsh, 1990) Teacher report: social skills rating system (Elliott & Gresham, 1993)	Children living with their grandparents had a significantly higher incidence of ADD/ADHD and had more externalising behaviour problems (per caregiver report) than children living in other families.	Cognitive ability: Peabody Picture Vocabulary Test, Woodcock-Johnson: Passage Comprehension Test 9 and Applied Problems Test 10, Weschler Intelligence Scale for Children. Teacher reports of children's academic performance in social studies, language literacy and math. Teacher Rating Scale on approaches to learning.	Children living with their grandparents had significantly lower scores on the Applied Problems section of the Woodcock-Johnson Passage Comprehension Test 9 and Applied Problems Test 10, Weschler Intelligence Scale for Children. Teacher reports of children's academic performance in social studies, language literacy and math. Teacher Rating Scale on approaches to learning.

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Pittman (2007), United States, Longitudinal	Multi-generational households, non-residential grandparents (caregiving and not caregiving)	Grandparent (T1: N = 64; T2: N = 50) Grandchildren (N = 50)	Child Behaviour Checklist (CBCL)	Only caregivers reported that youth living with custodial grandmothers reported significantly more internalising behaviours over time than youth without grandparents living in the household. Caregivers and adolescents both reported that youth with custodial grandmothers had significantly more externalising behaviours than youth without grandparents living in the household.	N/A	N/A

Pittman and Boswell (2007), United States, Longitudinal	Multi-generational households, non-residential grandparents (caregiving and not caregiving)	Grandparents (T1: N = 27; T2: N = 20) Grandchildren (N = N/A)	Child Behaviour Checklist (CBCL) and Behaviours of self-regulation were measured by observations	Children who transitioned into custodial grandparent care displayed significantly decreasing levels of internalising behaviours over time compared to other children. Children who had transitioned into custodial grandparent care had significantly better improvement in behavioural self-regulation than almost all other children except those who had stable non-caregiving grandmothers.	Woodcock-Johnson: Letter-Word Identification and Applied Problems	Children living with grandparents at both time points lagged significantly in the development of their reading skills over time compared to children in other families. Children who transitioned into a custodial grandfamily during the study period lagged significantly in reading skills compared to children in other families.
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(Continues)

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Rapoport et al. (2020), United States, Cross-sectional	Parent-headed family	Grandparents (N = 2407) Grandchildren (N = 2407)	ADHD diagnosis: Yes or no Composite measures of child inattention and restlessness. Composite measure of child temperament.	Preschool-aged (aged 3–5) and school-aged (aged 6–17) children in grandparent-headed households were significantly more likely to have ADHD. Household structure was not associated with scores on inattention/restlessness among preschool children without ADHD. Preschool-aged children did not differ in temperament by household structure. School-aged children had significantly poorer temperaments compared to peers raised by parents.	N/A	N/A
Robbins et al. (2006), United States, Cross-sectional	Parent-headed households	Grandparents (N = 12) Grandchildren (N = 12)	Diagnostic Interview Schedule for Children-Predictive Scales (DISC-P) was used to measure externalising problems (e.g. ADHD, oppositional defiant, conduct disorder) Adolescent drug abuse diagnosis, delinquency scale (Delinquency Scale from the National Youth Survey), conduct disorder and socialised aggression (Conduct Disorder and Socialised Aggression scales)	No significant differences were found in substance use frequency between household types. Adolescents living in grandparent-headed households had a significantly higher reported proportion of marijuana abuse (33.3%) than adolescents in parent-headed households (7.4%). The frequency of caregiver-reported oppositional defiant disorder was significantly lower in grandparent-headed households (8.1%) than in parent-headed households (91.9%). No significant differences in adolescent reports on total delinquency scores. There was a non-significant multivariate effect for caregiver reports on conduct disorder and socialised aggression. Grandparents reported significantly lower levels of socialised aggression than parents.	N/A	N/A

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Shovali et al. (2020), United States, Cross-sectional	Foster care and other caregivers	Grandparents (N = 593) Grandchildren (N = 593)	N/A	N/A	Academic performance assessed by caregivers and performance in math and reading/writing rated by caregivers	Youth who lived with foster parents or non-kin and non-foster caregivers had significantly lower odds of having good to excellent academic performance in math and reading/writing compared to youth who lived with a grandparent.
Smith and Palmieri (2007), United States, Cross-sectional	Parent-headed family	Grandchildren (N = 733) Grandparents (N = 733)	Child adjustment: Strengths and difficulty questionnaire	Grandchildren raised by grandparents scored significantly lower in strengths and difficulty questionnaire subscales than children from the National Health Interview Survey (NHIS) sample, regardless of sampling methods or child's gender.	N/A	N/A
Smith, Hayslip, and Webster (2019); Smith, Infurna, et al. (2019), United States, Cross-sectional	No birth parent, one parent and birth parent-headed family	Grandparents (Sample 1, N = 509; Sample 2, N = 323) Grandchildren (Sample 1, N = 509; Sample 2, N = 323)	Child adjustment: Strengths and difficulty questionnaire	Among custodial grandchildren, white children had statistically more emotional problems and total behavioural difficulties than non-white children. Male children had significantly more internalising and externalising problems and total difficulties than female children. Custodial grandchildren had significantly higher difficulty and lower prosocial scores than all three National Health Interview Survey samples.	N/A	N/A

(Continues)

TABLE 2 (Continued)

Author, country, study design	Comparison group	Sample sizes of custodial grandparents and grandchildren	Mental/behavioural health outcome measures	Main finding related to grandchildren's mental/behavioural health outcomes	Educational outcome measures	Main finding related to grandchildren's educational outcomes
Ziol-Guest and Dunifon (2014), United States, Cross-sectional	Stepparents, single fathers and non-kin foster care parents	Grandmothers (N = 1105) Grandchildren (N = N/A)	Mental health: caregivers were asked to indicate how often in the past month the child had been nervous, felt calm or peaceful, felt downhearted/blue, been a happy person or felt so down that nothing could cheer them up.	Youth living with custodial grandparents were significantly more likely to have poorer mental health than youth living with biological married parents. Youth living with a custodial grandparent had the third highest rates of mental health problems, whereas children living with a single mother or living with a mother and cohabiting partner were first and second respectively. Youth living with custodial grandparents had significantly poorer mental health than youth living in non-kinship foster care.	N/A	N/A
<i>Mixed methods</i> Dunne & Kettler, (Dunne & Kettler, 2008), Australia, Cross-sectional	Non-caregiving grandparents	Grandparents (N = 52) Grandchildren (N = 52)	Child adjustment: strengths and difficulty questionnaire	Quantitative: The type of care arrangement was not significantly related to levels of strengths and difficulties in grandchildren. Qualitative: Some grandchildren were described by their grandparents as having social and behavioural problems. Some grandparents dealt with the social, emotional, behavioural and educational problems of their grandchildren. These problems were due to maltreatment and other trauma and personal identity. The quality of early family environments, grandchildren's regular access to safe and stable home environments, and little or no extent duration of abuse and neglect were all associated with better outcomes for grandchildren in this study.	N/A	Qualitative: Some grandchildren were described by their grandparents as having learning difficulties combined with social and behavioural problems. They were delayed academically compared with their peers and there were insufficient resources in the school to help them.

TABLE 3 Results of methodological appraisal of included studies

Author (year)	General criteria		Criteria for qualitative/quantitative/mixed methods studies					%	Score	
	1	2	1	2	3	4	5			
Custodial grandparent-headed family only										
<i>Quantitative studies</i>										
Bernedo et al. (2008)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Blackburn (2000)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	80.0%	****
Daly and Glenwick (2000)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Goodman (2012)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Kelley et al. (2011)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Park and Lee (2016)	Yes	Yes	No	Yes	Yes	No	Yes	Yes	60.0%	***
Poehlmann et al. (2008)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Smith et al. (2008)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Smith and Hancock (2010)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Smith et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Smith, Hayslip Jr, et al. (2018); Smith, Hayslip, et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Yang and Liu (2020)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Yorgason et al. (2014)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
<i>Qualitative studies</i>										
Brown et al. (2000)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Cross and Day (2008)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
De Guzman et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Peterson et al. (2019)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	80.0%	****
Ingersoll-Dayton et al. (2020)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	80.0%	****
Kelch-Oliver (2011)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Lee and Blitz (2020)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
<i>Mixed methods studies</i>										
Smithgall et al. (2009)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
In comparison with children in other household structure/care										
<i>Quantitative studies</i>										
Ani et al. (2020)	Yes	Yes	No	No	Yes	No	Yes	Yes	40.0%	**
Bramlett and Blumberg (2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Campbell et al. (2006)	Yes	Yes	No	Yes	Yes	No	Yes	Yes	60.0%	***
Conway and Li (2012)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Edwards (2006)	Yes	Yes	No	Yes	Yes	No	Yes	Yes	60.0%	***
Edwards (2009)	Yes	Yes	No	Yes	Yes	No	Yes	Yes	60.0%	***
Edwards (2016)	Yes	Yes	Yes	No	Yes	No	Yes	Yes	60.0%	***
Edwards (2018)	Yes	Yes	Yes	No	Yes	No	Yes	Yes	60.0%	***
Lee et al. (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****
Nanthamongkolchai et al. (2009)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Oburu (2005)	Yes	Yes	No	Yes	Yes	No	Yes	Yes	60.0%	***
Pilkuskas and Dunifon (2016)	Yes	Yes	No	Yes	Yes	No	Yes	Yes	60.0%	***
Pittman and Boswell (2007)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Pittman (2007)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	80.0%	****
Rapoport et al. (2020)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.0%	*****

(Continues)

TABLE 3 (Continued)

Author (year)	General criteria		Criteria for qualitative/quantitative/mixed methods studies					%	Score
	1	2	1	2	3	4	5		
Robbins et al. (2006)	Yes	Yes	No	Yes	Yes	No	Yes	60.0%	***
Shovali et al. (2020)	Yes	Yes	No	Yes	Yes	Yes	Yes	80.0%	****
Smith and Palmieri (2007)	Yes	Yes	No	Yes	Yes	No	Yes	60.0%	***
Smith et al. (2019)	Yes	Yes	No	Yes	Yes	No	Yes	60.0%	***
Ziol-Guest and Dunifon (2014)	Yes	Yes	Yes	No	Yes	Yes	Yes	80.0%	****
<i>Mixed methods studies</i>									
Dunne and Kettler (2008)	Yes	Yes	No	Yes	Yes	Yes	Yes	80.0%	****

Notes: Two general criteria were applied first: (1) are there clear research questions? and (2) do the collected data allow to address the research questions? If the answers were yes, we continued assessing the quality of the studies. The following criteria for qualitative studies included: (1) Is the qualitative approach appropriate to answer the research question? (2) Are the qualitative data collection methods adequate to address the research question? (3) Are the findings adequately derived from the data? (4) Is the interpretation of results sufficiently substantiated by data? and (5) Is there coherence between qualitative data sources, collection, analysis and interpretation? Criteria for quantitative non-randomised studies included (1) Are the participants representative of the target population? (2) Are measurements appropriate regarding both the outcome and the intervention (or exposure)? (3) Are there complete outcome data? (4) Are the confounders accounted for in the design and analysis? and (5) During the study period, is the intervention administered (or exposure occurred) as intended? Criteria for mixed method studies included (1) Is there an adequate rationale for using a mixed methods design to address the research question? (2) Are the different components of the study effectively integrated to answer the research question? (3) Are the outputs of the integration of qualitative and quantitative components adequately interpreted? (4) Are divergences and inconsistencies between quantitative and qualitative results adequately addressed? and (5) Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

problems, but the number of studies was too few to list as a separate category. In addition, it is worth noting that Smith, Hayslip Jr, et al. (2018); Smith, Hayslip, et al. (2018) found that when self-reported, grandchildren's internalising and externalising problems were not related to grandmothers' distress and parenting practices but were related when grandmothers' rated their grandchildren's problems. This suggests discrepancies in reporting children's behavioural problems between grandparents and grandchildren.

Grandchildren's social-emotional skills were also an important aspect of their behavioural health outcomes. We only identified one study that focused on grandchildren's social-emotional skills. Peterson et al. (2019) found that grandchildren had limited opportunities for the development of age-appropriate social skills, which led to their arrogant or disrespectful attitudes to grandparents, peers and authority figures.

Results on mental/behavioural health disorders in custodial grandparent-headed family only

In addition to grandchildren's behavioural concerns (e.g. internalising and externalising problems), a few studies have examined grandchildren's mental/behavioural health disorders. Mental/behavioural health disorders included 'a pattern of disruptive and serious behaviors in children that lasted for at least six months and caused problems in school, at home and in social situations' (Mental health.gov, n.d.). Mental/behavioural disorders may include depression, anxiety, ADHD, ODD, conduct disorder, defiant behaviour, drug use and criminal activity (Array, n.d.; Mental health.gov, n.d.). Blackburn (2000) described grandchildren's behavioural disorders with 31.4% having ADHD, 15% severe learning disabilities, 11% emotional disorders (e.g. depression) and 10% exposed to drugs.

Similarly, Smithgall et al. (2009) found that 40% of grandmothers cared for a grandchild with learning or developmental disabilities in the United States. A qualitative study conducted by Brown et al. (2000) in the United States identified that grandparents had concerns about their grandchildren's (aged between 11 and 15 years) sexual and drug use behaviours. Similarly, grandparents in Thailand had the same concern about their grandchildren's drug use behaviours due to negative peer influence (Ingersoll-Dayton et al., 2020). Due to the descriptive nature of these studies, factors predicting these behavioural disorders were not able to be summarised.

In addition to these studies examining overall rates of behavioural disorders, one study specifically examined grandchildren's depression disorder (Yang & Liu, 2020). Yang and Liu (2020) study based in China used Birlson Depression scale (Birlson et al., 1987) and found that certain types of grandparenting styles (e.g. rejection grandparenting style, emotional warmth grandparenting style) were associated with grandchildren's depression via the mediating role of food insecurity. More specifically, rejection grandparenting style was a risk factor for grandchildren's depression, whereas emotional warmth grandparenting style was a protective factor.

3.2.2 | Mental/behavioural health outcomes in custodial grandparent-headed family versus other types of household structure/care

A total of 18 studies examined custodial grandchildren's mental/behavioural health outcomes by comparing them to other types of household structure/care. The majority of studies ($N = 12$) compared grandparent-headed families with parent-headed families,

whereas the rest of the studies compared it to multi-generational households, households without contact with grandparents, foster care and institutional care. Two out of 18 studies used longitudinal designs, whereas the rest 16 studies were cross-sectional designs. Most studies aimed to compare differences/disparities in children's outcomes by the type of household/care, instead of examining factors contributing to differences/disparities.

The majority of included studies suggested that children raised by grandparents had more behavioural problems (i.e. internalising or externalising problems, ADHD, delayed development, reoffending behaviours, bullying behaviours, marijuana use) than their peers raised by biological parents or other types of household structure/care (Ani et al., 2020; Bramlett & Blumberg, 2007; Campbell et al., 2006; Conway & Li, 2012; Edwards, 2006, 2009, 2016; Nanthamongkolchai et al., 2009; Pilkauskas & Dunifon, 2016; Pittman & Boswell, 2007; Rapoport et al., 2020; Robbins et al., 2006; Smith & Palmieri, 2007; Smith, Hayslip, & Webster, 2019; Smith, Infurna, et al., 2019; Zioguest & Dunifon, 2014). However, Oburu (2005) in Kenya and Dunne and Kettler (2008) in Australia did not find significant differences in children's adjustment (i.e. internalising and externalising problems) between grandparent-headed households and parent-headed households. Rapoport et al. (2020) in the United States also suggested that there were no significant differences in children's inattention/restlessness by household type. Likewise, there were no statistically significant differences in terms of bully victimisation, substance use frequency, total delinquency score, conduct disorder or socialised aggression (Edwards, 2016; Robbins et al., 2006). Differently, Campbell et al. (2006) found that grandchildren had a higher risk of delinquent/reoffending behaviours but a lower risk of substance use behaviours than their peers in parent-headed families. Robbins et al. (2006) found that children raised by grandparents had lower rates of caregiver-reported ODD than their peers raised by biological parents, but there was no further exploration of factors contributing to this advanced outcome.

Despite a substantial body of literature comparing mental/behavioural health outcomes by household type, a few studies further examined factors associated with differences in children's behavioural health outcomes. For example, Oburu (2005) identified that caregivers' older age and more parenting stress were significantly associated with increased children's behavioural problems. Rapoport et al. (2020) suggested child age may be a factor influencing child ADHD and temperament. Nanthamongkolcha et al. (2009) identified risk factors associated with delayed child development, including insufficient family income and inappropriate child-rearing practice. Smith, Hayslip, and Webster (2019); found that the grandchild's race (being white) and sex (being male) were associated with more behavioural problems. Dunne and Kettler (2008) suggested that child abuse and neglect history and self-identify as a grandchild raised by grandparents further contributed to children's behavioural problems. There were findings, however, that certain factors played protective roles in children's social and emotional difficulties. These included the quality of early family environments, grandchildren's regular access to safe and stable home environments and little or

no extent duration of abuse and neglect. Campbell et al. (2006) indicated risk factors associated with reoffending, such as caregivers' no/low supervision capacity, prior delinquent behaviours, negative influences from peers, mental health problems and child maltreatment history or out-of-home care history.

3.2.3 | Educational outcomes in custodial grandparent-headed family only

All studies conducted in the U.S. regarding custodial grandparent-headed families indicated that grandchildren raised by grandparents had a relatively lower academic performance (Cross & Day, 2008; Smithgall et al., 2009), and some grandchildren needed special education (Cross & Day, 2008). Differently, a study conducted in Korea did not find that grandchildren had a poor academic performance, even with 28.3% of these grandchildren ranked in the top 10 in their classes (Park & Lee, 2016). Cross and Day (2008) suggested that most of these grandchildren had positive attitudes towards school because they had opportunities to socialise with others, but that these grandchildren were not as interested in attending classes and/or class content.

Moreover, a few studies consistently suggested that grandparents had a low level of involvement in school, which further affected grandchildren's educational outcomes (Ingersoll-Dayton et al., 2020; Lee & Blitz, 2020; Peterson et al., 2019). We further identified other factors at the grandparents' level associated with grandchildren's educational outcomes, including grandparents' low education levels, health issues, lack of understanding of the curriculum, low capabilities, the poor relationship between grandparents and child, insufficient support they received, different educational expectations, older ways of learning, a lack of communications with teachers, insufficient financial resources, low quality of parenting and financial concerns (Ingersoll-Dayton et al., 2020; Lee & Blitz, 2020; Peterson et al., 2019). At the child level, two studies indicated negative effects of children's behavioural problems on their educational outcomes (Kelch-Oliver, 2011; Peterson et al., 2019).

3.2.4 | Educational outcomes in custodial grandparent-headed family versus other types of household structure/care

Educational outcomes of grandchildren raised in custodial grandparent-headed families in comparison to other types of household structure/care were further examined. The household structure/care was very diverse, including two parent-headed families, single parent-headed families, non-kin foster care, institutional care, multi-generational households, families with no contact with grandparents and non-caregiving grandparents.

Compared to parent-headed families, studies indicated that custodial grandchildren's academic grades were lower; however, whether the difference was statistically significant was mixed

across studies (Campbell et al., 2006; Edwards, 2018; Pilkauskas & Dunifon, 2016). Campbell et al. (2006) did not find a significant difference, while Edwards (2018) and Pilkauskas and Dunifon (2016) identified significant differences. Only a few studies examined factors associated with custodial grandchildren's worse academic outcomes than children raised in parent-headed families. For example, a potential reason was that grandparents were less likely to engage in school compared to parents (Conway & Li, 2012). In addition, Dunne and Kettler (2008) pointed out that there were insufficient resources in school to support custodial grandchildren, lack of communication between grandparents and schools and low quality of after-school programmes, to help these grandchildren's academic success.

Compared to children who lived in multi-generational households or households without contact with grandparents, children raised by grandparents also had lower reading skills (Pittman & Boswell, 2007). Differently, compared to children in institutional care, grandchildren raised by grandparents had better school behaviours and more school bonding, and this was more pronounced for boys than girls (Lee et al., 2017). In addition, Lee et al. (2017) further pointed out that father involvement was a protective factor for grandchildren's school bonding. Similarly, compared to children raised by foster parents, Shovali et al. (2020) found that children raised by grandparents had better math, reading and writing skills than children who lived with foster parents and who lived with non-kin and non-foster caregivers. In conclusion, children cared for by grandparents fared better academically compared to those who are in institutional care, foster parents and non-kin and non-foster caregivers. However, factors contributing to these advanced outcomes were not examined in these studies.

3.3 | Results of methodological quality appraisal

Overall, all 42 studies met most of the criteria defined by the MMAT (Hong et al., 2018). The average scores for quantitative ($N = 33$), qualitative ($N = 7$) and mixed methods ($N = 2$) studies were 77.0% (range 40.0%–100.0%), 94.3% (range 80.0%–100.0%) and 80.0% (range 80.0%–80.0%) respectively. For quantitative research, some studies did not meet the following criteria such as not having a representation of the target population and not controlling for potential confounders. For qualitative research, only two studies (i.e. Ingersoll-Dayton et al., 2020; Peterson et al., 2019) did not meet all criteria. Ingersoll-Dayton et al.'s (2020) results were not sufficiently substantiated by data, whereas Peterson et al.'s (2019) study was limited by inadequate data to answer research questions. For mixed methods research, a justification for using a mixed methods design to address research questions was unclear in two studies (i.e. Dunne & Kettler, 2008; Smithgall et al., 2009). Details of the quality appraisal of included studies are presented in Table 3. Results of methodological quality appraisal reminded us that interpreting the findings of these studies required consideration of their methodological limitations.

4 | DISCUSSION

This systematic review examines mental/behavioural and educational outcomes of custodial grandchildren raised by grandparents in custodial grandparent-headed households and in comparison with other types of household structure/care. It fills a significant gap in previous systematic reviews that mostly synthesised custodial grandparents' outcomes within custodial grandparent-headed families only. Furthermore, this integrative review summarises findings from quantitative, qualitative and mixed methods studies and reported grandchildren's mental/behavioural and educational outcomes. Results from quantitative, qualitative and mixed methods studies are mostly consistent with each other, but there are some discrepancies depending on the methodology and study location. This review provides a comprehensive overview of custodial grandchildren's mental/behavioural and educational outcomes and identifies factors contributing to these outcomes, which will provide some important implications for future interventions (Xu et al., 2022). Moreover, this review identifies some gaps in research and further points out future research directions.

4.1 | Summary of results

Across studies, custodial grandchildren are more vulnerable in their mental/behavioural and educational outcomes compared to parent-headed families regardless of the family's socio-economic status, but a few studies suggested that custodial grandchildren fare better or the same in some indicators than their peers in institutional care and foster care. This is aligned with previous studies that suggest children in kinship care (most are taken care of by grandparents) are more likely to have better outcomes than their counterparts in non-kin foster care and institutional care (Lee et al., 2011; Xu & Bright, 2018).

The studies included in this review examined a wide range of mental/behavioural health outcomes, although many studies only examined children's internalising and externalising problems. However, other mental/behavioural health issues (e.g. delayed development, ADHD, substance abuse, bully, delinquency) may co-occur with children's internalising and externalising problems. Regarding factors associated with children's mental/behavioural health, child and grandparent level factors are the most significant predictors, which suggests the importance of intervening in grandparents and grandchildren as a dyadic to improve their overall well-being. It further points out the importance of healthy family processes in promoting grandchildren's mental/behavioural health outcomes.

Through our comprehensive review, only a handful of studies have examined custodial grandchildren's educational outcomes, and most studies concluded that grandchildren's academic performance was worse than children raised by parents. Among the scant literature, a few studies have examined factors associated with their poor educational performance. However, these few studies provide important insight on factors affecting custodial

grandchildren in school. Custodial grandchildren's academic performance may be related to challenges facing grandparents themselves (e.g. poverty, low education, declining physical and mental health condition, parenting stress, lack of school engagement and communication, lack of understanding of new educational expectations and curriculum) and grandchildren's mental/behavioural problems. Furthermore, it is important to note the bidirectional effects between grandchildren's academic performance and grandparents' challenges in raising their grandchildren. Among these challenges, the most significant challenges are grandparents' low engagement and lack of communication with schools, indicating a less supportive school system for students raised by grandparents. A further examination of the role of multiple systems (e.g. school, social services) in supporting grandchildren is much needed.

4.2 | Methodological review

Regarding the methods of quantitative studies that examined mental/behavioural health outcomes, most studies employed cross-sectional study designs and multivariate analyses (e.g. ANOVA, regression, structural equational modelling). However, a few studies only conducted descriptive analyses of child mental/behavioural health outcomes, which limited our ability to further interpret associations underlying these variables. For studies using a comparative perspective, most studies only conducted comparative analyses (e.g. *t* test; chi-square, ANOVA, ANCOVA, MANOVA) to compare differences/disparities in mental/behavioural health outcomes between custodial grandparent-headed families and other types of household structure/care. Although revealing differences/disparities is important, identifying factors underlying differences/disparities is more important because this will ultimately help reduce disparities. For qualitative and mixed methods studies, the primary focus of most studies was to understand the experiences of grandparents raising grandchildren. Thus, many studies only briefly mentioned grandparents' concerns about their grandchildren's mental/behavioural outcomes; a more in-depth understanding of these issues facing grandchildren is needed.

Studies on educational outcomes were less rigorous in study designs and data analyses compared to studies that examined behavioural health outcomes. Most quantitative studies were descriptive, and only a few studies examined factors associated with custodial grandchildren's low academic performance. For qualitative studies, a significant limitation was the lack of in-depth information, despite these studies providing some insights on factors contributing to grandparents' children low educational performance. In addition, more solid measurement work is needed to develop a comprehensive measure to capture child educational outcomes. Educational outcomes should go beyond academic performance and include other dimensions (e.g. attitude towards school, school satisfaction).

4.3 | Implications for improving grandchildren's mental/behavioural health and educational outcomes

To improve grandchildren's mental/behavioural health outcomes, our results suggest that it is important to develop a multi-system intervention model. The intervention should not only target grandchildren but also grandparents and their surroundings. Most current evidence-based interventions for grandparents raising grandchildren primarily target grandparents (Chan, Chen, et al., 2019; Chan, Leung, et al., 2019), while a few interventions have been developed to improve grandchildren's mental/behavioural health outcomes (e.g. Smith, Hayslip, et al., 2018; Smith, Hayslip Jr, et al., 2018). Given the significant effects of mental/behavioural health in childhood on individual long-term outcomes, it is critical to promote protective factors and eliminate risk factors associated with grandchildren's healthy development. As our review reveals, healthy child development is an interactive result of grandparents' and grandchildren's function along with their social environments. We suggest that future interventions should include three components: Strengthening grandparents' caregiving capacity, fostering grandchildren's positive development and advocating for structural changes. To strengthen grandparents' caregiving capacity, our review particularly suggests the importance of ensuring grandparents' effective parenting practices, mental well-being and supportive family relationships. Given grandchildren's mental/behavioural problems are partially caused by a prior traumatic history, it is necessary to incorporate the trauma-informed practice into interventions with this population. To advocate for structural changes, it would be necessary to work collaboratively with schools and local departments and agencies serving grandparents raising grandchildren and build a system to support these grandchildren's healthy development.

To improve grandchildren's educational outcomes, our results suggest that schools need to find ways to collaborate with grandparents to best meet the needs of these students. School personnel should be willing to work closely with grandparents, be open to listening and partnering with grandparents, who are the experts on their grandchildren, to learn what works best for their grandchildren. Also, it is important to further improve grandparents' involvement in school as prior research has revealed that caregivers' involvement (i.e. values towards achievement, interest in schoolwork, participation in school functions) is critical in promoting children's academic success (Fan & Chen, 2001; Jeynes, 2007). Similarly, caregivers' aspirations and expectations for children's educational achievement have the strongest relationship with students' academic achievement (Fan & Chen, 2001). This suggests that schools should encourage grandparents to set appropriate expectations for their grandchildren's academic performance.

In consideration of the barriers facing custodial grandparents trying to engage with schools, it is important to facilitate opportunities for grandparents to participate in school activities (e.g. school open house; Peterson, 2017). In addition, schools should provide opportunities for grandparents to meet and form support networks where they can benefit from others' social

capital. This may help custodial grandparents have a better understanding of the current educational system and curriculum and improve their knowledge of how to navigate the school environment. Prior research has demonstrated that family, school and community partnerships and student academic achievement are closely linked. For example, when schools, families and community groups work together to support learning, children tend to do better in school, stay in school longer and enjoy school more (Henderson et al., 2007). Thus, we suggest that schools need to work with community agencies to support the academic success of grandchildren. Community agencies provide a support system enabling families to better support their children by providing much-needed resources (e.g. early learning intervention services, translation services, health screenings). Finally, it would be important for schools to connect custodial grandchildren with free/low-cost but high-quality after-school programmes (e.g. Boy and Girl Scouts, tutoring services, camps).

4.4 | Strengths and limitations

This study has multiple strengths. Our review is the first and largest synthesis of the spectrum of mental/behavioural health and educational outcomes of custodial grandchildren raised by grandparents both within custodial grandparent-headed families and in comparison with children in other types of household/care. In addition, we included quantitative, qualitative and mixed methods studies in our review. Findings from various study methods validate and triangulate our conclusions. Finally, our review covered evidence of grandparents raising grandchildren in 10 countries, which provided an overview of grandparents raising grandchildren in different countries. This international view of outcomes for custodial grandchildren is crucial given a global increase in custodial grandparenting.

However, we should consider the limitations of our review when interpreting findings. We limited our search to peer-reviewed journal articles published in English since 2000, which may have excluded some studies published in other languages, earlier than 2000, and in non-peer-reviewed journals. Also, due to limiting our search to articles published in English, most studies were conducted in English-speaking countries (e.g. the United States). These studies may represent a different phenomenon of grandparents raising grandchildren than that of other countries. Another limitation is that we included several articles published by the same group of authors or used the same nationally representative data sets, which may introduce bias in results due to the similar sampling frames, sampling strategies and interpretations of findings. We also need to mention the potential biases in the review process, particularly conflicts between reviewers were resolved by the first author only. Last, our study used a qualitative synthesis approach to summarise our findings but did not conduct a meta-analysis due to a mixed methods review design with a heterogeneous nature of these included studies. This approach may limit the generalisability of our research findings.

4.5 | Future research directions

Based on critiques of included studies and findings, this systemic review points out some future research directions regarding custodial grandchildren's mental/behavioural health and educational outcomes. First, future research is greatly needed to identify unique risk and protective factors, buffers/moderators and mechanisms/mediators that contribute to grandchildren's wide array of mental/behavioural health and educational outcomes. Particularly, researchers should focus on identifying levers that could reduce mental/behavioural and educational disparities between children raised by grandparents and their peers. Once researchers have a clear understanding of levers, they can take action to reduce disparities. In addition, racial/ethnic minorities or families with lower socio-economic status (SES) are overrepresented in custodial grandparents in many countries; however, much less research has paid attention to racial/ethnic or SES disparities among custodial grandparent-headed families. Future research should pay more attention to these disparities within custodial grandfamilies. Moreover, most of the studies included in this review were cross-sectional; more longitudinal studies should be conducted to examine the long-term effects that raising children in grandparent-headed families has on children. For qualitative and mixed methods studies, more rigorous and in-depth studies with a special focus on grandchildren's mental/behavioural and educational outcomes should be conducted. Moreover, children's educational performance has long-term effects on other aspects of their well-being; thus, we call for more researchers to pay attention to the educational outcomes of grandchildren raised by grandparents. Likewise, child well-being is a multi-dimensional concept and researchers should examine child well-being from a holistic perspective. Last, for studies that compared differences in mental/behavioural and educational outcomes between children in custodial grandparent-headed families and counterparts in other types of household structure/care, it would be important to apply advanced statistical methods, such as propensity score matching, to address differences in other characteristics.

5 | CONCLUSION

This review has provided new insight into mental/behavioural health and educational outcomes of custodial grandchildren by synthesising research evidence in 10 countries. Our findings reveal that grandchildren raised by custodial grandparents have worse mental/behavioural problems and educational outcomes compared to those who are raised by parents but may fare better than or the same as those who stay in institutional care and foster care. Of note, our conclusion was built upon a limited number of included studies with an overrepresentation of United States-based and cross-sectional studies. Thus, our results should be interpreted with caution. The results of this review also identified factors predicting custodial grandchildren's mental/behavioural health and educational outcomes and further highlighted the need

to develop and examine interventions that aim to improve grandchildren's mental/behavioural health and educational outcomes across the world.

AUTHORS' CONTRIBUTION

Yanfeng Xu: Conceptualisation, Methodology, Data curation, Formal analysis, Investigation, Writing—Original draft preparation, Writing—Reviewing and Editing, Funding acquisition; Yao Wang: Data curation, Formal analysis, Investigation, Writing—Original draft preparation, Writing—Reviewing and Editing; Lauren Pryce McCarthy: Data curation, Formal analysis, Investigation, Writing—Original draft preparation, Writing—Reviewing and Editing; Theresa Harrison: Data curation, Formal analysis, Investigation, Writing—Original draft preparation, Writing—Reviewing and Editing, Funding acquisition; Hanna Doherty: Data curation, Formal analysis, Investigation.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analysed in this study.

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