

Potential impacts, alleviating factors, and interventions for children of a parent with schizophrenia: A scoping review

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Funding

The research undertaken for this review was supported by funding from the Faculty of Health and Social Sciences, The Hong Kong Polytechnic University [Project ID: P0001213].

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Abstract

Background

As well as having a higher genetic vulnerability to psychiatric problems, children of a parent with schizophrenia suffer a significantly poorer quality of life than those with healthy parents. In mental healthcare settings, the well-being of these children is still overlooked. It is crucial to develop child-centered interventions for them. This scoping review focuses specifically on children of a parent with schizophrenia to identify the likely impacts on their life and development, the factors and strategies that may alleviate negative impacts, and available interventions.

Methods

We applied a systematic approach to search the following databases: PsycINFO, MEDLINE, Embase, Google Scholar, CNKI and CEPS to identify relevant English and Chinese publications focusing on children. Quality assessments of quantitative and qualitative studies were undertaken, using the Downs and Black instrument and the CASP Checklist respectively.

Results

After screening, thirty-three studies were included for review. The existing evidence indicates that children of a parent with schizophrenia experience multiple deficits. Although various factors have been identified that can potentially alleviate their negative experiences, few are well supported with solid empirical evidence that confirm causal effects. The needs of these children are commonly neglected: little professional support has been provided, and the usefulness of the available support has yet to be determined.

Conclusions

Based on the review, we argue that effective means should be implemented so that children of a parent with schizophrenia needing help can be identified and experts can overcome barriers to providing help. The potential modifiable factors that can alleviate the negative impacts of having a parent with schizophrenia on youngsters need to be tested and confirmed. Interventions should be evidence-based, schizophrenia-specific, and child-centered.

Keywords: schizophrenia, parent, children, impact, alleviating factor, intervention

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Highlights

- Children of a parent with schizophrenia experience multiple deficits.
- Potential alleviating factors still need to be tested and confirmed.
- Evidence-based and child-centered interventions still need to be developed.

1. Introduction

Schizophrenia is a severe chronic mental illness. Worldwide, it affects around 20 million people (World Health Organization, 2020) and has a lifetime prevalence of 0.48% (Simeone et al., 2015). Patients with schizophrenia suffer from various cognitive distortions (American Psychological Association, 2020) and have a significantly higher mortality rate than the general population (Brown et al., 2000; Casey et al., 2009). Schizophrenia also imposes heavy burdens on family members and caregivers, who are more likely to experience traumatic events, threats to their emotional and physical well-being, and difficulties in social relationships and financial circumstances (Gater et al., 2014; Shiraishi & Reilly, 2019).

Studies document that, despite a lower fertility rate among males with schizophrenia, females with schizophrenia share a similar procreation rate with the general population (Liu, Everall, Pantelis & Bousman, 2019; McGrath et al., 1999; Seeman, 2010). Having a parent with schizophrenia imposes many challenges. Families where a parent has schizophrenia are more likely to experience socio-economic deprivations because of lower education and employment status (Ranning et al., 2018). Compared to healthy parents, those with schizophrenia have poorer parenting skills, and are less likely to bond with their children from an early age (Seeman, 2010; Yamamoto & Keogh, 2018). A higher proportion of unmet needs are reported for children in these families (Gantriis et al., 2019), who are also more likely to be taken into foster care (Simoila et al., 2019). While having a higher genetic vulnerability to psychiatric problems (Seeman, 2010), children of a parent with schizophrenia also suffer from a significantly poorer quality of life (Ellersgaard et al., 2019).

Nevertheless, in healthcare settings, the well-being of children who have a parent with mental health problems is often overlooked (Fudge & Mason, 2004). Because knowledge and resources are limited and are, therefore, focused directly on the clients, their offspring are usually not considered until they too are diagnosed with mental illness (Stallard et al., 2004). Meanwhile, these children may not actively seek help, even when they experience difficulties (Trondsen, 2011). Only Australia has developed a widely accessible policy and service system for children of a parent with mental illness: most other countries demonstrate little awareness of the problem (Abel et al., 2019). It is crucial to draw attention to the issue and develop child-centered interventions.

Existing reviews on children of a parent with schizophrenia mostly focus on the relationship between mothers with schizophrenia and their children, overlooking the challenges and strengths of the whole family (Davidsen et al., 2015; Seeman, 2010). Some reviews highlight interventions that are individualized for families with maternal schizophrenia and integrated with multiple resources, although none are child-centered (Gearing et al., 2012; Wan et al., 2008). Existing studies also concentrate on the pathology of high-risk children rather than the challenges of living with a parent who has a mental illness (Mordoch & Hall, 2002). Only in the last decade have research trends shifted to include both pathology and the needs of these children.

To present a more comprehensive picture about this group of children and identify gaps in existing research, we undertook a scoping review of studies published between 2009 and 2019 on children of a parent with schizophrenia to address three research questions: 1) What are the possible impacts of having a parent with schizophrenia on these children's life and development? 2) What are the potential factors and strategies that can alleviate the negative impacts? 3) What are the available interventions targeting these children?

2. Methods

2.1 Selection criteria

Our search included both qualitative and quantitative peer-reviewed studies exploring the experience of children having a parent with schizophrenia published between 2009 and 2019. The parent with schizophrenia could be either mother or father or both. We defined "children" as being aged eighteen years or younger. Both the experiences they recalled and the experience they reported at the time of the research were included. Some studies explored several mental health problems including schizophrenia, and were included in the review if they drew comparisons between schizophrenia and other mental health problems. Studies involving interventions meant to improve the well-being of children were included, but those focusing on parents with schizophrenia only were excluded. Full articles published in either English or Chinese were considered for inclusion, but literature reviews, articles in the form of poster presentations, and incomplete articles were excluded.

2.2 Search strategy and study selection

We conducted the scoping review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist using the following English electronic databases, PsycINFO, MEDLINE, Embase, and Google Scholar, and Chinese electronic databases, the China National Knowledge Infrastructure (CNKI) and the Chinese Electronic Periodical Services (CEPS) via Airiti Library, between July and December 2019. Each database provides detailed instructions for searching. The terms and Boolean operators that were used for searching are summarized in Table 1. Keywords were grouped according to four categories: mental illnesses ('schizophrenia', 'psychosis', and 'psychotic disorder'); relationship between children and patients ('familial', 'family', 'parental', 'parent', 'maternal', 'mother', 'paternal', and 'father'); target population ('youngster', 'children', 'offspring', and 'adolescents'); and study conclusions ('consequence', 'impact', 'factor', 'intervention', and 'therapy'). According to our selection criteria, the options of 'peer-reviewed', 'full-text', and 'journal articles', and languages of 'English' and 'Chinese' were chosen during the search process.

Table 1. Keywords used during the search process

Mental illnesses	Relationship between children and patients	Target population	Study conclusions
‘schizophrenia’	‘familial’	‘youngster’	‘consequence’
‘psychosis’	‘family’	‘children’	‘impact’
‘psychotic disorders’	‘parental’	‘offspring’	‘factor’
	‘parent’	‘adolescents’	‘intervention’
	‘maternal’		‘therapy’
	‘mother’		
	‘paternal’		
	‘father’		

After removal of duplicate publications, the titles and abstracts of the remaining articles were reviewed by two researchers (X.C. and J.C.) separately. If they disagreed about the inclusion of an article, the final decision was made in discussion with the third reviewer (S.L.). Articles that did not meet our criteria were discarded, and the full texts of included articles progressed to second-level screening. To avoid missing relevant articles, reference lists of previous reviews and related studies were also examined.

2.3 Quality assessment

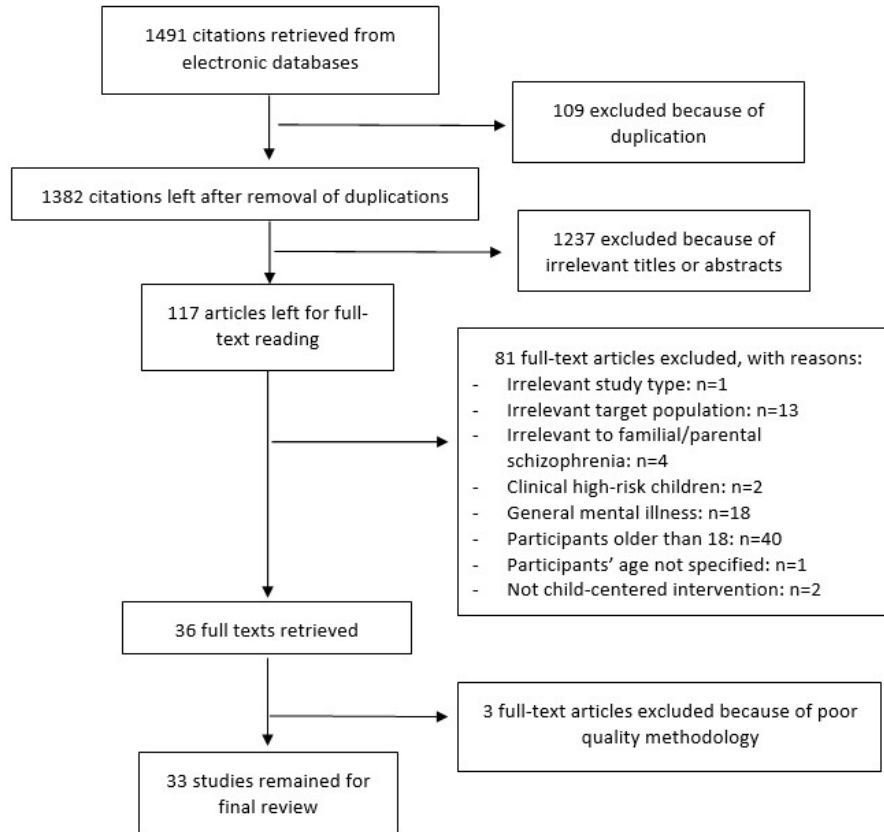
We used the Downs and Black Instrument to appraise the methodological quality of quantitative studies (Downs & Black, 1998). Studies that were assessed to be of adequate quality were included in the review. Studies that were judged to have major problems in any of the four key areas (reporting, external validity, internal validity [bias], and internal validity [confounding]), or rated with a total score of 14 or below, were excluded. We used the Critical Appraisal Skills Programme (CASP) Qualitative Checklist to determine the quality of qualitative studies (Critical Appraisal Skills Programme, 2018). Studies were excluded if they were found to be problematic on any of the critical items (i.e., Are the results of the study valid? What are the results? Will the results help locally?). The studies were first assessed by X.C. and then randomly checked by J.C. Appraisal of the quality of the studies revealed very few discrepancies that were resolved through discussion to reach a consensus.

Once our selection of studies was finalized, the research was synthesized. The various concepts covered in the studies were first identified and coded following the methods of close coding and open coding. The concepts were then re-categorized to identify the themes and the commonalities under each theme (Gibbs, 2007). A second round of coding was conducted to check the coded study concepts and the identified themes and sub-themes to ensure consistency. Finally, the identified themes and sub-themes were organized according to the three specific research questions: the impact of having a parent with schizophrenia on children’s life and development, the factors and strategies that alleviate the negative impacts, and the available interventions targeting these children.

3. Results

The screening process is summarized in Figure 1. Our initial search located 1,491 articles. Of these, 109 duplicate articles were excluded using EndNote X9. A further 1,237 articles were excluded because their titles and abstracts were not relevant, leaving 117 full-text articles for the second-level screening.

Figure 1. PRISMA flow chart of the study selection process



Of the remaining 117 articles, one proved to be irrelevant due to its design; thirteen focused on irrelevant target populations, including seven on the healthy parent within the family and six on children with siblings or relatives having schizophrenia; four focused on children who later developed schizophrenia and two dealt with clinical high-risk (CHR) children but who did not necessarily have a parent with schizophrenia. Of the remaining studies, eighteen focused on children of a parent who was mentally ill, but did not necessarily have schizophrenia; 40 included participants older than 18 years; one did not specify the age of the study sample; and two implemented interventions that were not child-centered. After excluding these 81 articles, a total of 36 full texts were retained for quality assessment.

We further excluded three quantitative studies that scored well below the threshold of poor quality according to the Downs and Black Instrument. The scores of two quantitative studies

fell on the threshold of poor quality. They were both correlational studies that included no inter-group comparisons. Since some items in the Downs and Black Instrument were not applicable to these studies, we concluded that this might not be the best assessment tool for them. We reviewed these two studies again and decided to retain them for the review. Two studies on interventions scored slightly below the threshold of poor quality. As very few studies focus on interventions targeting children of a parent with schizophrenia, we decided to include them. Thus, thirty-three studies were included for final review. Table 2 presents an overview of the selected studies organized according to the research themes we identified.

Table 2. Overview of the selected studies

[TABLE 2 ABOUT HERE]

3.1 Impact of having a parent with schizophrenia on children

Scholars have attempted to investigate a variety of impacts of parental schizophrenia on their children: health and psychology, socio-economic environment and upbringing, social skills and school adaptation, and children's own subjective accounts. However, the constraints in social science research design make it almost impossible to clearly differentiate between environmental and genetic effects (D'Onofrio et al., 2013; Ohlsson & Kendler, 2019; Pingault et al., 2018). Cross-sectional and cohort research designs are overly used, and none of the studies reviewed successfully addressed the causal relationship between having a parent with schizophrenia and the consequences for children.

3.1.1 Health and psychology

Fifteen studies focused on health and psychosocial symptoms (including psychiatric illnesses and physical, neurocognitive, and psychological problems) of children of a parent with schizophrenia who have inherited a higher risk of schizophrenia.

Two studies dealt with the probability that the offspring of a parent with schizophrenia will develop mental health issues. These studies offered four findings. First, the offspring of a parent with a mental illness were more vulnerable than the general population (Ellersgaard et al., 2018; Thorup et al., 2018). Second, when compared to those whose parents had other types of mental illness, children of a parent with schizophrenia had a significantly higher risk of receiving a lifetime psychiatric diagnosis and suffering from the consequent behavioral and emotional problems (Ellersgaard et al., 2018; Thorup et al., 2018). Third, if both parents had schizophrenia, the risk was even higher for offspring (with an incidence rate ratio [IRR] of 4.57) compared to having only one parent suffering from the illness (IRR=2.60 and 2.06 for maternal and paternal schizophrenia, respectively) (Thorup et al., 2018). Fourth, younger children (under five) expressed more sensitivity (higher IRR) than older age groups (6–11 and 12–18), which indicated the importance of early intervention (Thorup et al., 2018).

Two studies investigated the physical repercussions for these offspring and reported an early onset of physical difficulties. Simoila et al. (2018) found that newborns of mothers with

schizophrenia suffered a higher risk of premature birth and poorer health status than those in the general population. Burton et al. (2017) concluded that seven-year-old children with a high familial risk of schizophrenia showed impaired manual dexterity and balance. Still, both studies stated that the causes of these unwanted health outcomes remained unclear (Burton et al., 2017; Simoila et al., 2018). Although not the main focus, Burton et al. (2017) took into consideration social and environmental factors, which did not appear to be very significant, although higher education and better parental personal and social functioning were positively associated with children's motor function.

Five studies evaluated the neurocognitive functioning of high-risk offspring of a parent with schizophrenia. Consistent evidence of impairment was found in retrospective and prospective memory, working memory, declarative memory, processing speed, and executive and spatial functions (Diwadkar et al., 2011; Hemager et al., 2018; Li et al., 2015), although the results were inconsistent regarding other functions. For instance, Diwadkar et al. (2011) found that children of a parent with schizophrenia performed more poorly than the general population in tasks requiring accuracy and sustained attention (partial $\eta^2=0.14$), which seems reasonable since difficulties sustaining attention are usually a sign of schizophrenia. Ozan et al. (2010), however, found that focused attention and divided attention, but not verbal attention or sustained attention, were impaired among the children of a parent with schizophrenia. Such discrepancies may be caused by the different methods used to test sustained attention: Diwadkar et al. (2011) implemented the Conners' Continuous Performance Test while Ozan et al. (2010) employed the Test of Variables of Attention (TOVA). The effect size of schizophrenia on sustained attention yield by Diwadkar et al. (2011) is considered large. However, because Ozan et al. (2010) did not report any effect size, it is difficult to compare the findings of these two studies. With regard to memory, most studies indicated that children of a parent with schizophrenia had poorer memories than those of the general population but the effect sizes were only small to medium (Diwadkar et al., 2011; Hemager et al., 2018; Li et al., 2015; Ozan et al., 2010).

Six articles discussed the potential psychological impact of having a parent with schizophrenia. Compared to the general population, children of a parent with schizophrenia reported poorer psychological well-being, more internalized and externalized problem behaviors, less satisfactory quality of life, and lower self-esteem and resilience (Ellersgaard et al., 2019; Malhotra et al., 2015; Wang et al., 2012; Zhang et al., 2014). Despite this, studies also showed that these children were not always more vulnerable psychologically. For instance, they performed as well as the general population with regards to affective lability (Zwicker et al., 2020). One study specifically focused on the psychological health status of adolescent offspring using the Self-rating Anxiety Scale (SAS) and the Self-rating Depression Scale (SDS); these youngsters scored higher for depression and anxiety when compared to the rest of the study sample (Zhang et al., 2014). Children of a parent with schizophrenia scored higher on neuroticism and psychoticism and lower on extraversion than the general population on the Eysenck Personality Questionnaire (Zhang et al., 2014). Personality characteristics are usually studied along with psychological status, but no study provided an in-depth analysis of their interrelationship.

3.1.2 The family's socio-economic situation and environment

Seven studies investigated socio-economic status and family environment of children of a parent with schizophrenia. One cohort study reported that children of a parent with schizophrenia were more socio-economically deprived than other children, even children of a parent suffering from bipolar disorder, because the former tended to be less well educated and had poorer paying jobs (Ranning et al., 2018). Three cohort studies examined the living arrangements of these children and found that they were more likely to belong to broken families and to be put into foster care (Ranning et al., 2015; Ranning et al., 2016; Simoila et al., 2019). It is easy for families to fall apart if a parent is diagnosed with schizophrenia, and children in households that are headed by a single parent with schizophrenia were at an increased risk of being placed in foster care (Ranning et al., 2015; Ranning et al., 2016). Mothers with schizophrenia were twice as likely to lose custody of their children as fathers with schizophrenia (Ranning et al., 2015). The situation is exacerbated if the parent also abuse drugs. Conversely, if the healthy parent had a good education and employment status, the negative impacts can be mitigated (Ranning et al., 2015; Ranning et al., 2016). Unfortunately, most parents with schizophrenia have little education and poorly paid employment (Ranning et al., 2018). Ranning et al. (2015) and Simoila et al. (2019) identified the critical periods during which a parent with schizophrenia tends to lose custody of their children, and both concluded that very early intervention (i.e., before the child turns one) can make a positive difference.

Three studies explored the upbringing of children having a parent with schizophrenia; but since they used different measures, unsurprisingly, they produced inconsistent results. Gantriis et al. (2019) used a semi-structured interview, the MC-HOME Inventory, in which the interviewer evaluated family environment and relationships. This study indicated that, when compared to the general population, a significantly higher proportion of families with a parent with schizophrenia did not meet the criteria for a healthy upbringing. Malhotra et al. (2015) assessed the familial psycho-social environment using another semi-structured measure, the Parent Interview Schedule (PIS), and found inadequate family relationships and abnormal quality of upbringing. Yin et al. (2013) used the Family Environment Scale-Chinese Version, which evaluates family environments through interviews with children, and found that, compared to the general population, these families were less cohesive and capable of organization, achievement, and expression of emotion, and demonstrated higher levels of control and conflict.

Interestingly, Gantriis et al. (2019) found that, although a higher proportion of families with a parent having schizophrenia were not able to provide adequate home environments for their children compared to the general population, 79% still met the study's standards. The study highlighted the importance of identifying those families that cannot provide appropriate family environments and adequate care for children.

3.1.3 Social skills and school environments

Christiani et al. (2019) found that children of a parent with schizophrenia displayed a lack of

social skills, linguistic abilities, social responsiveness, and adaptive social functioning. The effect sizes for linguistic abilities were small (language receptive ability: Cohen's $d=-0.27$, language pragmatic: Cohen's $d=0.051$), while the effect sizes for social responsiveness and adaptive social functioning were moderate (Cohen's $d=-0.54$ and Cohen's $d=-0.47$). These children also suffered from very poor school experiences and were more likely to be the victims of bullying or violence according to two other studies. Ellersgaard et al. (2019) used the Social Acceptance Scale and Li et al. (2015) used the Juvenile Victimization Questionnaire-Child Self-Report Version (JVQ). Li et al. (2015) also reported a significant interactive effect between schizophrenia and victimization (partial $\eta^2=0.03$, $p=.014$).

3.1.4 Children's own subjective accounts

Six qualitative studies reported the subjective feelings of children having a parent with schizophrenia. Two of these interviewed children who were living with a parent with schizophrenia when data were collected (Chan & Chau, 2010; Kahl & Jungbauer, 2014), and four studies conducted semi-structured interviews with adult offspring who described their childhood experiences and were able to gauge their long-term influence (Blakeman et al., 2019; Duncan & Browning, 2009; Kadish, 2015; Nieto-Rucian & Furness, 2019). Several major themes were stressed in these studies:

- Heavy caregiving burden and responsibility: Participants reported that they were heavily burdened because they had to take care of their parent from an early age, both emotionally and financially (Blakeman et al., 2019; Nieto-Rucian & Furness, 2019). Some children reported that they felt obligated to protect their parent from being hurt by outsiders (Chan & Chau, 2010). The source of most of these children's unhappiness came from their parent's paranoid and intrusive behaviors during schizophrenic episodes and their foster placements (Duncan & Browning, 2009).
- Lack of care and support: The neglect of parents, peers, and professionals was cited (Blakeman et al., 2019). Feelings of neglect and loneliness lasted until adulthood (Blakeman et al., 2019). Their mistrust made it difficult to form close relationships and seek social support from others (Nieto-Rucian & Furness, 2019), leading to a sense of helplessness (Chan & Chau, 2010).
- Stigma and discrimination: Participants realized that their family was different from others', which caused embarrassment, low self-esteem, and a sense of shame (Blakeman et al., 2019; Chan & Chau, 2010). These feelings could last until adulthood (Blakeman et al., 2019). Some girls with mothers who had schizophrenia blamed themselves for their mother's illness (Kadish, 2015). Stigma and discrimination left deep scars on these youngsters (Chan & Chau, 2010). Stress and demotivation also came from low academic achievements (Kahl & Jungbauer, 2014). Participants tended to hide their experiences and feelings from others because they felt humiliated, and this behavior persisted in adulthood (Blakeman et al., 2019). Some youngsters reported being betrayed by their friends after they opened up to them, so they learned to keep their circumstances a secret (Chan & Chau, 2010).
- Difficulty in forming close relationships: Children felt confused about their relationship with their parent (Kadish, 2015). When they were young, they could form friendships but

had difficulties keeping friends close (Blakeman et al., 2019; Duncan & Browning, 2009; Nieto-Rucian & Furness, 2019). Similarly, many formed friendships and had lasting marriages in adulthood, although they still found it difficult to achieve intimacy (Duncan & Browning, 2009).

- Development of identity: Some participants reported that they became more independent, caring, and resilient after the painful experiences of their upbringing (Blakeman et al., 2019; Chan & Chau, 2010; Kadish, 2015). Others struggled to make sense of their history and found it difficult to recognize or create an identity (Blakeman et al., 2019; Nieto-Rucian & Furness, 2019). Girls with a mother who had schizophrenia reported doubts about their identity as a woman. Female participants were more likely to report they had difficulty gaining a sense of self (Kadish, 2015; Nieto-Rucian & Furness, 2019).

3.2 Strategies and potential alleviating factors

The studies identified a number of factors that may help alleviate the potential negative impacts on children of having a parent with schizophrenia. These can be divided into three categories: the family's psycho-social environment; coping styles, resilience, and social support; and religion and cultural beliefs. Although these factors have the potential to alleviate the negative impacts, most studies simply investigated the correlational relationships. Only one study tried to address the causal influence using methods exploiting genetic data and. Research based on quasi-experimental designs or statistical innovations is urgently needed to test the causal nature of these potential 'alleviating factors' (D'Onofrio et al., 2013; Pingault et al., 2018).

3.2.1 The family's psycho-social environment

The abnormal psycho-social environment of families with a parent with schizophrenia, which was manifest in familial communication, quality of upbringing, and levels of societal stress, was found to be associated with children's behavioral problems (Malhotra et al., 2015) and personalities (Yin et al., 2013). According to Li et al. (2015), children's retrospective ($r=0.34$, $p=.001$) and prospective memories ($r=0.30$, $p=0.003$) were correlated with their experience of victimization, and the authors claim that the impairment would be more severe if they experienced poly-victimization (partial $\eta^2=0.033$, $p=0.009$).

Three population-based cohort studies discovered poorer school performance and higher incidence of dropping out among children of a parent with schizophrenia (Jundong et al., 2012; Lin et al., 2016; Ranning et al., 2018). However, it is difficult to disentangle whether the cause of worse academic performance was genetic or environmental. Jundong et al. (2012) partially teased out the environmental effect by comparing the academic performance between paternal half-siblings and maternal half-siblings. The rationale is that in Sweden, after divorce or parental separation, most children continue to live with their mother. Hence, even though the genetic impact was similar, maternal half-siblings shared more common environments than paternal half-siblings. The authors found no significant differences between the two groups, indicating little environmental influence. Jundong et al. (2012) further estimated the genetic effect of schizophrenia by comparing the association between parental schizophrenia and

academic performance among half-cousins, full-cousins, and half-siblings. They found that the more the genetic relatedness, the less the effect size of the correlation between parental schizophrenia and academic performance indicating genetic influence on academic performance (half cousins: $\beta=-0.23$, $p=0.01$, full-cousins: $\beta=-0.23$, $p<0.0001$, half-siblings: $\beta=0.04$, $p=0.31$) (Jundong et al., 2012). Interestingly, compared to children in the general population, children of a parent with a severe mental illness had lower odds of performing well academically if they were put in foster care (Ranning et al., 2018). However, this study was based on a non-experimental design and only measured confounders were adjusted. Ranning et al. (2016) found that substance abuse was the highest risk factor for the breakup of a family with a parent having schizophrenia, whereas good education and employment often saved these families from falling apart. These findings offer some clues for improving the psycho-social environment in these families.

Since both positive and negative symptoms of schizophrenia were correlated with abnormal family psycho-social environments (Malhotra et al., 2015), helping to adjust the home environments of these children is potentially beneficial. Interventions to help parents mitigate the symptoms of schizophrenia, stop domestic violence, desist from substance abuse, improve levels of education, and maintain decent employment, are likely to alleviate the negative experiences of children having a parent with schizophrenia, although they might not necessarily help to improve children's academic performance.

3.2.2 Coping styles, resilience, and social support

Effective coping styles were associated with better outcomes among children of a parent with schizophrenia. Some of these children were unable to cope with stressors properly because they had not established robust defense mechanisms or coping strategies. Youngsters with better coping methods displayed higher resilience, which was linked to better quality of life (Wang et al., 2012). Though only one qualitative study was available for this review, support from other family members was reported by respondents as essential for success in coping with difficulties (Kadish, 2015). More research on coping, resilience, and social support is needed so that interventions focusing on developing appropriate coping strategies may be developed accordingly.

3.2.3 Religion and cultural beliefs

Some scholars argue that there are connections between certain religious and cultural beliefs and the impacts of having a parent with schizophrenia on youngsters, but such theoretical hypotheses suffer from a lack of empirical support. For instance, in the Chinese culture, the idea of 'losing face' can be a source of stigma that puts additional pressure on children (Chan & Chau, 2010). Similarly, belief in filial obligation can cause mixed feelings of love, guilt, and anger among young caregivers (Chan & Chau, 2010). However, whether changing such religious and cultural beliefs can help relieve the stress of children having a parent with schizophrenia is not certain and requires further empirical investigation.

3.3 Interventions for children of a parent with schizophrenia

Very few interventions have been specifically designed and tested for children of a parent with schizophrenia. Our search produced one article focusing on the Child-oriented Family Nursing Intervention (Hung et al., 2009), two studies testing the effects of family therapy (W. Zhang et al., 2017; Zhang & Cai, 2019), and one study evaluating the effects of group psychological counseling (Liu et al., 2019).

The interview-based Child-oriented Family Nursing Intervention was developed by Hung et al. (2009). They describe three stages of intervention: the construction stage, the problem-oriented stage, and the hope bridge stage. During the construction stage, the interviewers form close relationships with clients, offer a comfortable environment, and introduce certain topics. In the problem-oriented stage, the interviewers try to identify the potential problems by showing empathy and encouraging clients to self-disclose. The interviewers then offer possible coping strategies such as role modeling and support like offering professional knowledge. In the hope bridge stage, the interviewers summarize the material covered during the interviews, express appreciation, and offer a plan for the future. The article, however, did not elaborate on the uniqueness of the intervention by making any comparisons with other available methods for individual family members or the whole family. An outcome measurement, the Family Health Nursing Assessment, is mentioned in the methods section although results on the measurement were not reported.

The effects of family therapy were tested in two studies that focused on children of a parent with schizophrenia. In Zhang et al. (2017), one group of children entered a course of family therapy and the other group did not. The children who underwent family therapy showed better outcomes in family functioning, psychological status, and self-rated health than those who received no intervention. Zhang and Cai (2019) also separated the children participating in their study into two groups. The experimental group received four months of family therapy, including both group and individual psychological guidance. The control group received regular follow-up phone calls only. After the intervention, improvements in children's mental health and in parenting styles were reported for the experimental group.

Finally, Liu et al. (2019) conducted research on the effects of group psychological counseling using randomized control trials in which participants' resilience showed significant improvement.

In addition to the few relevant evaluation studies, two qualitative studies dealt with how children felt about the interventions they experienced and the kinds of interventions they desired. Kahl and Jungbauer (2014) interviewed 37 children of a parent with schizophrenia and examined their experiences of family therapy, family care, visits to psychologists, and child protective services. Overall, they found that professional support was rarely available. The most cited sources of support were counseling centers and after-school programs. Moreover, not all children wanted to become more knowledgeable about mental illnesses because they believed that such knowledge would make them feel worse, rather than better, about their

situation. Family therapy did not yield favorable outcomes: 23 children in the study had attended family therapy sessions, and less than half (43.5%) found them useful. Five older children described professional help ‘ineffective and negative.’ They generally felt it would be helpful if they could have someone to accompany them through difficult situations. Chan and Chau (2010) discussed ways to support these youngsters by meeting their demands and perceived needs and recommended support groups and psycho-education workshops. They argued that mutual support groups can offer a secure environment in which participants can receive empathetic feedback, while psycho-education workshops can provide guidance on how to handle schizophrenic episodes, cope with feelings, etc. (Chan & Chau, 2010). Still, empirical evidence is needed to demonstrate the efficacy of these suggested approaches.

4. Conclusion and Discussion

This scoping review summarizes the potential consequences of having a parent with schizophrenia for children, the factors that may alleviate the negative impacts, and the available interventions targeting this particular population. We found that children of a parent with schizophrenia experienced various disadvantages: they had a higher risk of psychiatric diagnoses, physical problems, neurocognitive issues, and psychological distress. They were more likely to live in broken families with low socio-economic status, and, as a result of the problems with family environment, were more likely to be placed in foster care. Lack of social skills and poor social functioning were reported, as well as difficulties in school environment. The youngsters considered that they rarely received adequate care or support from either their social circle or professionals. Discrimination and stigma made it harder for them to form close relationships with others. Because of the chaos in their daily lives, many of them struggled to make sense of their identity.

The existing research indicates that three potential factors might help alleviate the disadvantages associated with having a parent with schizophrenia. First, the abnormal psychosocial environment of these families was associated with a greater incidence of behavioral problems, problems with retrospective and prospective memory, and challenging personality traits. When these children moved to foster care, their academic performance declined. To improve the psychosocial environment of these families, interventions could be introduced to help control symptoms of schizophrenia, reduce domestic violence, eliminate substance abuse, improve educational levels, and maintain employment. Second, higher resilience was found among youngsters who had more social support and better coping styles, so interventions should be tailored to encourage these assets. The third factor, the influence of religion and cultural beliefs was cited in existing research, although empirical evidence is lacking; this requires more attention and investigation in future studies.

Our review suggests that very few interventions have been specifically designed or tested for children of a parent with schizophrenia. Only the Child-oriented Family Nursing Intervention was developed specifically for these children, although the authors did not provide any indication that their method was exceptionally effective nor elaborated the reasons why their approaches were different from other methods, either for parents or the whole family. Family

therapy, which was the subject of two studies, improved the quality of life in these households in various ways. Group psychological counseling was evaluated and led to significant improvements in participants' resilience. Despite the promising results of these interventions, the children themselves did not always consider them useful. Support was difficult to access, and many programs did not precisely meet the children's needs. Although some researchers suggested potential approaches based on their research conclusions, the validity and effects of the suggested plans have not yet been tested.

Recent studies have repeatedly drawn attention to the lack of professional interventions and support that cater to the needs of children of a parent with schizophrenia (Chan & Chau, 2010; Gearing et al., 2012; Kahl & Jungbauer, 2014). Three circumstances have made it challenging to develop appropriate and effective interventions based on existing academic research. First, due to the limitations of social science research design, existing cohort studies were unable to distinguish genetic from environmental impacts. Most of these studies concluded that both genetic and environmental factors are influential, but it is difficult to distinguish between them (Burton et al., 2017). Second, some potential alleviating factors, such as social support and cultural beliefs, have not been supported with empirical proof, so further research is required (Chan & Chau, 2010). Finally, the validity of interventions such as family-focused therapy and support groups still needs to be tested with more rigid experimental designs such as random controlled trials.

In addition to the lack of solid academic research, three practical barriers have also been identified faced by experts in applied settings to offering help to these children (Stallard et al., 2004). First, client-focused interventions have become customary in practice, so experts, with their limited resources, are not available for the children of a parent with schizophrenia and might be reluctant to distress their patients with a discussion of the influence of their illness and behavior on their children. Second, parents usually focus on their own problems and pay insufficient attention to the burdens their children are shouldering. Most parents (76.6%) who have schizophrenia do not admit they have serious difficulties handling the daily responsibilities associated with dependent children, although over 80% have mild to severe functional impairments (Campbell et al., 2012). They are also very defensive about their children and are ashamed to acknowledge the pain they have caused. Finally, the children themselves sometimes refuse to participate in the intervention either to self-protect or because they do not consider the interventions useful (Kahl & Jungbauer, 2014; Stallard et al., 2004). In addition to these concrete obstacles, there is also the fact that many aspects of these children's lives cannot be radically modified, as the factors possibly affecting the outcomes of children depend on the parents and are hard to alter (Abel et al., 2019).

Despite the existing challenges in research and practice, it is imperative that we develop child-centered interventions for this group. We need comprehensive and flexible methods that bring various forms of support together, including childcare resources, environmental support, child welfare systems, and family involvement. In this scoping review, we have identified potential alleviating factors that could be encouraged, such as coping skills, social support, and cultural beliefs. Nonetheless, further research is urgently needed to assess their actual effects to develop

proper interventions accordingly.

Our literature search revealed a multitude of studies that compared the impact of schizophrenia with that of other SMIs (bipolar disorder, depression, anxiety disorder, obsessive-compulsive disorder, delusional disorder, and other psychoses), which reported that parental schizophrenia leads the other SMIs in its negative effects on children (Diwadkar et al., 2011; Lin et al., 2016; Ranning et al., 2018; Ranning et al., 2015; Ranning et al., 2016; Simoila et al., 2019; Simoila et al., 2018; Thorup et al., 2018; Zwicker et al., 2020). It is worth noting that, because of the genetic liabilities shared by schizophrenia and bipolar disorder, recent studies have often considered them together (Burton et al., 2017). A series of articles based on a project in Denmark, ‘the VIA-7’, investigated the impact of these two mental illnesses on a cohort of seven-year-old children, and found that, on a variety of measures, parental bipolar disorder has less impact on children than parental schizophrenia (Burton et al., 2017; Burton et al., 2018; Christiani et al., 2019; Ellersgaard et al., 2019; Ellersgaard et al., 2018; Gantriis et al., 2019; Hemager et al., 2018). It is therefore essential to develop interventions specifically targeting patients with schizophrenia and their family members.

Nonetheless, ideas could still be borrowed from research on people in similar circumstance. The present review did not include studies focusing on children of a parent with general severe mental illnesses (SMIs), although some of these studies offer practical intervention plans that could be applicable to children of a parent with schizophrenia. For instance, the ‘World Psychiatric Association (WPA) guidance on the protection and promotion of mental health in children of persons with severe mental disorders’ proposes all-round approaches to help children of a parent with SMI, including clinical therapies for adult patients, pre-birth planning for mothers, special services at the early stages of childhood, child protection plans for both children and families, and mental health services targeting children and adolescents (Brockington et al., 2011). Sherman and Hooker (2018) maintain that experts should listen and assess the situation of all members of the family without making any judgements, and children and other family members should be empowered by learning about SMI and coping methods through lectures, handouts, or open discussions (Sherman & Hooker, 2018). Adults usually do not pass the knowledge they acquire about mental illnesses to children, although letting children participate in the learning process is believed to alleviate their fear, lead to better resilience, and cause fewer problems (Cooklin, 2010; Pihkala et al., 2011; Sherman & Hooker, 2018). Sherman and Hooker (2018) also emphasize the importance of hope and social support, and suggest that experts keep reminding children that treatments and supports are available and that they should not hesitate to seek help from people around them. Systematic assessments, however, still need to be carried out to test the validity of these interventions in both clinical and community settings. Among the various approaches, family-focused intervention has a greater potential to lead to better outcomes than traditional nursing practice (Foster et al., 2012), but scant research has been conducted to assess its effectiveness. Pihkala et al. (2011) tested the effect of Beardslee’s Family Intervention (FI) on fourteen children with a parent with severe mental illness. FI interviewers conducted sessions with parents and children separately, followed by family meetings allowing parents and children to discuss openly the issues raised in the individual sessions (Pihkala et al., 2011). They found that children were relieved to have

more knowledge and opportunity to openly discuss issues with their parents (Pihkala et al., 2011).

As we conclude, one caution should be noted in developing future research and interventions. Although several studies suggested the necessity of early interventions targeting children of a parent with schizophrenia (Ellersgaard et al., 2018; Jundong et al., 2012; Ranning et al., 2015; Simoila et al., 2019; Thorup et al., 2018), recent research in the field has identified the fadeout effect (Bailey et al., 2017), which casts doubt on early interventions. Some studies have found that early interventions were not much more effective than later interventions (Gardner et al., 2019; Rea & Burton, 2020). Thus, in addition to developing and testing effective interventions, efforts should also be made to identify what factors (e.g., key feature of interventions, characteristics of younger participants, family and social environments, etc.) can help sustain the benefits (Bailey et al., 2017).

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