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Ikeu Nurhidayah

Department Pediatric Nursing, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia,
ikeu.nurhidayah@unpad.ac.id

Ratih Kusuma Dewi

Student of Internship Nursing Program, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia,
ratih17002@mail.unpad.ac.id

Nur Oktavia Hidayati

Department of Psychiatric and Mental Health, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia,
nur.oktavia@unpad.ac.id

Sandeep Poddar

Deputy Vice Chancellor (Research & Innovation) Lincoln University College, Selangor Darul Ehsan, Malaysia,
sandeepoddar@lincoln.edu.my

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Psychological Distress among Parents due to Their Children Having Cancer: A Systematic Review

Ikeu Nurhidayah^{1*}, Ratih Kusuma Dewi², Nur Oktavia Hidayati³, Sandeep Poddar⁴

¹Department Pediatric Nursing, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia, ²Student of Internship Nursing Program, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia, ³Department of Psychiatric and Mental Health, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia, ⁴Deputy Vice Chancellor (Research & Innovation) Lincoln University College, Selangor Darul Ehsan, Malaysia

Abstract

As a result of their children's cancer, parents are at risk of experiencing psychological distress. Parental stress will affect their roles in providing emotional support for their children. This systematic review aimed to identify the psychological distress of parents having children with cancer. EBSCO, PubMed, Science Direct, and Research Gate were applied to conduct electronic searches. The terms "parents," "children," "cancer," and "psychological distress" were combined using the Boolean expressions "OR" and "AND." The inclusion criteria were non-experimental studies published in English within the last 10 years (2010-2020). Risk of bias assessment was conducted for each included study using the Joanna Bridge Institute critical appraisal tools to build transparency of findings. A total of 12 articles were included in the study to determine the prevalence of psychological distress among parents and the symptoms and factors that influence it. The high category of parental distress reached 17.6%, while the very high category reached 5.8%. Thus, it needed more concern. Suicidal ideation, insomnia, and poor health were all connected to psychological distress, with the age of children and parents, the number of children, occupation, education level, depressive history, and time of diagnosis all being predictive factors.

Keywords: cancer, children, distress, parents, psychological distress

Introduction

Cancer in children continues to increase. According to statistics collected from 62 countries in 2001-2010, the cancer rate among children aged 0 to 14 years was 140.6 million per year, and 155.8 million children aged 0 to 19 years per year.¹ In the high-income nations, the cure rate for cancer in children approaches 80%, but in low-income, it can be as low as 20%.²

For patients and their families, cancer in children is a difficult phenomenon and potentially devastating.³ As families witness their children being extremely ill and in agony, with repeated hospitalizations and emergency visits, parents find it difficult to cope with this situation. Other concerns include cancer treatment and adverse effects such as baldness and financial difficulties.⁴ As a result, families accept a series of stressors and manage emotional pressure with family members, especially parents, who are the children's primary source of emotional support.⁵⁻⁷ When their children are diagnosed with a life-threatening condition or injury, parents may endure great distress. Despite the fact that many families show psychological resilience when their children are diagnosed with cancer, some children and their parents are more

prone to experience psychological distress.^{5,8}

The National Comprehensive Cancer Network (NCCN) defines psychological distress as an unpleasant, multifaceted emotional experience of psychological, social, and spiritual nature that can impair physical ability.⁹ Depression and anxiety are the two main forms of psychological distress.^{10,11} Sadness, diminished excitement, loneliness, hopelessness, worthlessness, sleeping difficulty, sobbing, and inability to cope, are symptoms of depression. While, anxiety is characterized by being tensed, restlessness, irritability, and fear. Identifying these signs and symptoms is important to determine the individual's level of distress.¹²

Parental pain can occur at the time of caring for children with cancer, particularly children at the advanced stage of this disease.¹³ Many studies recorded in Sloper's study has found that parents of children with cancer experience significant psychological distress at the time of diagnosis and during the early phases of cancer treatment. This anguish can last for a year or more.⁷ Longer treatment, more frequent hospitalizations, relapses, workplaces, and financial issues can be exacerbated by the burden of care during the therapy phase. This effect

Correspondence*: Ikeu Nurhidayah, Department of Pediatric Nursing, Faculty of Nursing, Universitas Padjadjaran, Raya Bandung Sumedang Street KM 21, Jatinangor, Bandung, Indonesia 45363, Email: ikeu.nurhidayah@unpad.ac.id, Phone: +62 812 1469 051

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can increase the burden on families. They can come across various stressors; as a result, they pose as risk factors for significant parental distress during their child's therapy.⁷

In the setting of pediatric cancer, parental distress is a crucial component to assess since it affects the child's quality of life as well as other psychosocial outcomes.¹⁴ Significant parental distress can have far-reaching consequences, impacting both the sick child and the rest of the family.⁸ Parental distress also affects parents' ability to manage their careers and care for their children.⁸ Also, parents with emotional problems face serious difficulties adjusting to their child's cancer. Parents' health is negatively affected by anxiety and depression and their manifestations.⁶ Identification of the level of parental distress is needed to prevent, reduce, or provide treatment according to its severity.¹⁵

The parents faced an uphill battle and felt an unstable situation after the disclosure. Even after the child's treatment is completed, parents experience the challenge of transitioning back to life before diagnosis and needing psychological support.¹⁶ The number of studies on psychological distress, particularly depression and anxiety in parents of children with cancer as a special group, is still limited; most of them are primary studies.¹⁶ The previous literature review on the factors and consequences of parental distress related to childhood cancer was conducted in 2015; however, the review did not specifically identify depression and anxiety but stress in general.⁵ Furthermore, there have been many changes in the evidence related to prognosis, the survival rate in cancer children, and other factors that may affect the burden on parents in this decade. Treatment effectiveness and efficiency have improved over the last decade, which may positively impact parental distress. Although it is unclear to what extent this will have an impact. As a result, a review is required to capture the most recent updates on parental distress, particularly on anxiety and depression issues. The general aim of this review was to identify parents' psychological distress due to having cancer children, while the specific purpose of this review was to determine the prevalence, symptoms, impact, and factors influencing psychological distress.

Method

The systematic review provided a comprehensive overview and significance of the issues discussed by identifying and summarizing existing study.¹⁷ This approach was used to identify the prevalence of psychological distress associated with having a child with cancer and to examine its symptoms, effects, and influencing factors. Templier and Pare's steps are adapted for the review stage.¹⁷ The primary objective of the review was to answer the research question: how is parents' psychological

distress related to having a child with cancer based on prevalence, symptoms, impact, and related factors?

The electronic search strategy was carried out by the first two authors. An extensive search was conducted using index terms and keywords across four databases: EBSCO, PubMed, Science Direct, and Research Gate. An initial search on PubMed combined the main concepts from the research aims: ('child' OR 'children') AND ('parent') AND ('cancer' OR 'neoplasm') AND ('psychological distress' OR 'emotional distress'). Each database's keyword truncation was done individually. The search was conducted for three months, between March to June 2021. The initial search for articles published in English with no year limit to obtain a thorough study.

The articles that met the study's inclusion criteria were written in English and reported the prevalence of psychological distress among parents. The studies with a non-experimental quantitative design were chosen. Only literature published between 2010 and 2020 was considered. Articles that did not have a full text, an experimental quantitative research design, or a qualitative study were eliminated. Importing articles and deleting duplicates were done with the reference manager. The title and abstracts were then independently reviewed by the first two authors. The complete texts of the shortlisted articles were then checked against the inclusion and exclusion criteria. Joanna Bridge Institute (JBI) appraisal tools for cross-sectional and cohort studies were used in the quality appraisal. Any discrepancies in judgment are settled through discussion until an agreement is reached. The data extraction included the author, year of publication, country, study design, sample size, instrument, prevalence of psychological distress, symptoms, impact, and factors influencing psychological distress. The prevalence of psychological distress among parents of cancer children was expressed as a percentage. Sugiyono's criteria are then used to categorize the prevalence of psychological problems, with 0–20% being very low, 21–40% low, 41–60% moderate, 61–80% high, and 81–100% very high.¹⁸

Results

The search and screening process for studies is shown in Figure 1. Four databases provided 357,235 articles from the year 2010 to 2020. After excluding duplicates and applying inclusion and exclusion criteria, 184 articles remained. After full-text examination, 12 articles remained for quality appraisal, receiving a quality score above seven. Overall, the study quality was acceptable.

Table 1 provides information about the characteristics of the included studies. Studies were conducted in Iran, the United States, Australia, India, the Netherlands, Jordan, Sweden, Lebanon, Singapore, and Indonesia. By region, there were two studies from Southeast Asia, two

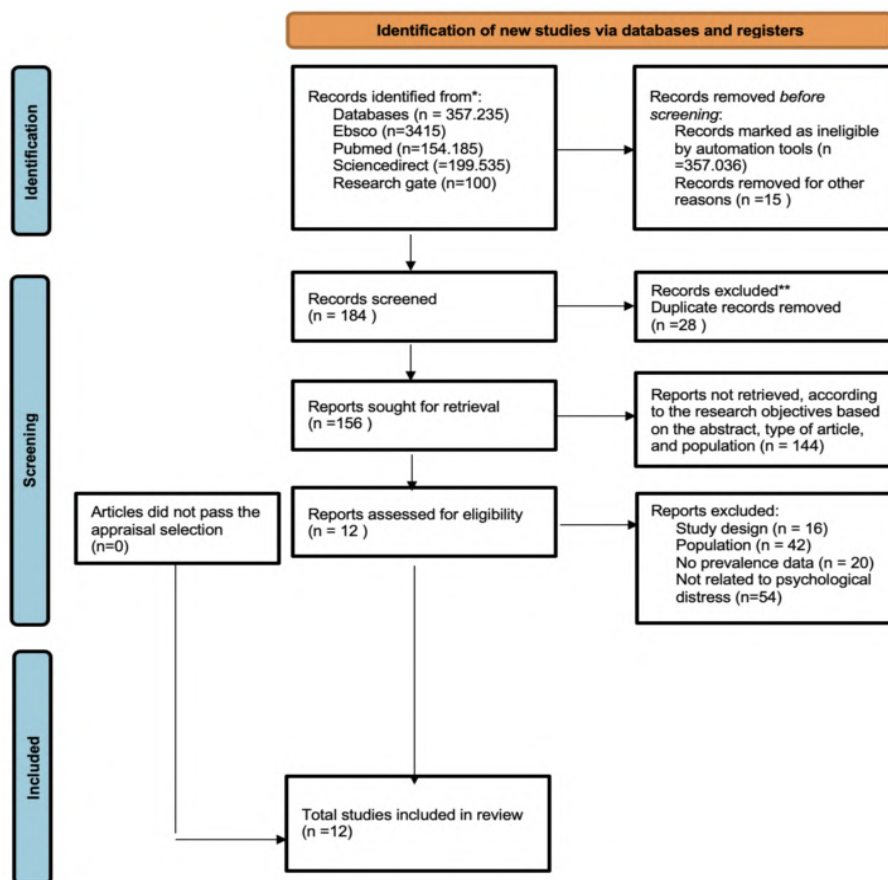


Figure 1. Article Selection Flow

from Europe, one from Australia, two from America, three from the Middle East, and one from South Asia. The instruments used to measure psychological distress varies, including the Depression Anxiety Stress Scale, the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), the Hospital Anxiety and Depression Scale, The Hamilton A and B scales, as well as the Distress Thermometer for Parents (DT-P), the Kessler Psychological Distress Scale, the General Health Questionnaire (GHQ), and the Kessler Psychological Distress Scale.

Prevalence values were analyzed using grading criteria adapted from Sugiyono,¹⁸ with very low, low, moderately high, high, and very high outcome categories. The results of classifying the prevalence of psychological distress according to Sugiyono's criteria in each included study are shown in Table 2.

The study's findings revealed 17 prevalence values of distress, which include anxiety and depression. The largest prevalence was in the moderately high value group, with six studies (35.2%), while the lowest was in

the very high category, with one study (5.8%). Details about the prevalence, criteria, symptoms, impact, and factors that influence parental psychological distress are provided in Table 3. Out of the 12 included, one study discussed the signs and symptoms of psychological problems. The study found that parents with psychological distress, such as anxiety and depression, had respiratory symptoms, gastrointestinal symptoms such as indigestion, and symptoms of cardiovascular palpitations and headaches.¹⁹ In general, the prevalence of anxiety was higher than the prevalence of depression. The average prevalence of anxiety ranged from 17.1% to 63%. However, the prevalence of depression reached 85.14% in India, but this percentage represented the total of all categories of depression. In developed countries, the rate of depression reached 12.2% in Australia, while in Sweden, it reached 14%. In Indonesia alone, the percentage of depression reached 25%, but it was lower than the prevalence of depression in Iran, reaching 32.4%.^{2,6-10}

Based on Table 3, two studies discuss the impact of

Table 1. Characteristic of Studies

| Author | Year | Objective | Country | Study Design | Instrument | Sample Size |
|-----------------------------------|------|---|------------|---------------------------|---|---|
| Rahmani, et al., ⁶ | 2018 | Study of anxiety and depression among Iranian parents of cancer children. | Iran | Cross-sectional | The Hospital Anxiety and Depression Scale (HADS) | 148 parents with child cancer. |
| Collins, et al., ²⁰ | 2019 | Assess the impact of unifocal and multifocal retinoblastoma on depression, anxiety, and stress in parents of these patients. | USA | Cross-sectional | The BDI II, Beck Anxiety Inventory (BAI), The Parental Stress Index | 38 parents of children with retinoblastoma. |
| Vernon, et al., ²¹ | 2017 | Knowing the prevalence of PTSS/PTSD, depression, and anxiety in mothers and fathers of children with cancer, and the relationship between parental demography, disease-related characteristics, and parental distress symptoms. | Australia | Cross-sectional | The Depression Anxiety, Stress Scales short form | 66 parents, 41 mothers, and 25 fathers. |
| Srivastava, et al., ¹⁹ | 2020 | Determine the level of anxiety and depression in cancer children undergoing chemotherapy and clinical and sociodemographic factors. | India | Cross-sectional | Hamilton A and Hamilton B Questionnaire | 101 parents |
| Schepers, et al., ¹⁵ | 2018 | Assess maternal and paternal distress and level of family psychosocial risk after diagnosis of childhood cancer. | Netherland | Cross-sectional | The Distress Thermometer for Parents (DT-P) | 192 parents, 119 mothers, and 98 fathers. |
| Al Qadire, et al., ²² | 2018 | Assess anxiety, depression, and their predictors among parents of children with cancer. | Jordan | Cross-sectional | The Hospital Anxiety and Depression Scale (HADS) | 222 parents |
| Wikman, et al., ²⁵ | 2018 | Determine the prevalence and determinants of anxiety and depression in cancer-affected and bereaved parents five years after treatment stopped, or the child died, as well as the comorbidity of anxiety, depression, and PTSS. | Sweden | Longitudinal study | Beck Anxiety Inventory and Beck Depression Inventory | 132 (68 mothers, 64 fathers). |
| Lakkis, et al., ²⁴ | 2016 | Determine the prevalence of psychological distress among parents of Lebanese children with cancer as well as the causes of stress and coping strategies. | Lebanon | Cross-sectional | The General Health Questionnaire (GHQ-12) | 114 (29 fathers, 85 mothers) |
| McCarthy, et al., ¹⁰ | 2016 | Determine the prevalence of psychological distress in adolescent and young adult cancer patients and their parents and its determinants. | Australia | Cross-sectional | The Kessler Psychological Distress Scale (K10) | 204 parents |
| Rosenberg, et al., ²⁵ | 2014 | Determine the prevalence and factors that lead to psychosocial distress in parents of children with advanced cancer. | USA | Cohort Study | The Kessler-6 Psychological Distress Scale | 104 parents |
| Isabel Tan, et al., ²⁶ | 2021 | Determine the level of distress and associated factors among Singaporean parents of children with cancer. | Singapore | Descriptive correlational | The Distress Thermometer for Parents (DT-P) tool | 81 parents |
| Aziza, et al., ²⁷ | 2019 | Determine the demands and factors that lead to parents' psychological distress when caring for children with cancer in Indonesia. | Indonesia | Cross-sectional | The Hospital Anxiety Depression Scale | 100 parents |

Notes: PTSS = Post-traumatic Stress Syndrome , PTSD = Posttraumatic Stress Disorder

distress on parents. Some of the impacts identified included suicidal tendencies, insomnia symptoms such as difficulty falling asleep, waking at night, early morning awakening, and difficulty going back to sleep, as well as the effect on patients and their families' health status. Two major factors affect the level of psychological dis-

tress, and parents' psychological distress was influenced by parent and child factors. Parental factors included age, employment status, education level, record of depression, number of children, parental perception of the child's recovery, and the presence or absence of chronic diseases suffered by parents. At the same time, the child factors

included age and time since diagnosis.

Discussion

The Prevalence and Symptom of Psychological Distress

The results of the prevalence analysis based on the level criteria showed that the prevalence of distress in parents with children with cancer was mostly in the moderately high category. Rahmani,⁶ and Aziza,²⁷ give a high level of anxiety and low depression. Despite a tendency for higher anxiety levels in mothers, gender differences in parents had no significant effect on the level of parental distress.^{6,21} Parents of children with cancer who have siblings have higher rates of depression and anxiety than the general Australian population. They have higher

rates of depression than parents of children with cancer who do not have siblings. This supports the family systems theory, which states that families with more difficulties experience cumulative stress, which leads to increased anxiety and despair.²¹ Positive coping mecha-

Table 2. Percentage of Psychological Distress due to Having Children with Cancer

| Prevalence Category | Frequency | Percentage |
|---------------------|-----------|------------|
| Very low | 2 | 11.7% |
| Low | 5 | 29.4% |
| Moderate | 6 | 35.2% |
| High | 3 | 17.6% |
| Very high | 1 | 5.8% |

Table 3a. Distress Prevalence, Criteria, Symptoms, Impact, and Factors Affecting Distress

| Author | Distress Prevalence | Prevalence Category | Symptom of Distress | Distress Impact | Factor Affecting Distress |
|---|---|---|--|---|--|
| Rahmani, <i>et al.</i> , ⁶ | Anxiety and depression were reported by 41.2% and 32.4% of parents with child cancer children, respectively. | Anxiety: moderately high Depression: low | N/A | N/A | Working fathers' depression levels varied significantly depending on their occupation. |
| Collins, <i>et al.</i> , ²⁰ | Parents suffered from depression in 26.7% and anxiety in 35.8% of cases. | Anxiety: low Depression: low | N/A | N/A | High anxiety is influenced by educational attainment and a history of depression. |
| Vernon, <i>et al.</i> , ²¹ | In 26.7% of cases, parents were depressed, and 35.8% were anxious. | Anxiety: very low Depression: low | N/A | N/A | The number of children and the length of time since diagnosis are risk factors for depression. |
| Srivastava, <i>et al.</i> , ¹⁹ | 85.14% of parents experienced depression, and | Anxiety: moderately high Depression: very high 56.4% experienced anxiety. | 32.7% of parents experience indigestion and cardiovascular symptoms such as palpitations, migraines, and respiratory symptoms. | 61.4% of parents had suicidal thoughts, and 86.1% had insomnia, which included difficulty falling asleep, awakening at night, waking up early, and falling back asleep. | Education level has a significant relationship with anxiety level. |
| Schepers, <i>et al.</i> , ¹⁵ | Compared to parents of healthy children, parents of cancer children are more distressed. Fathers are in anguish at 59.2%, while mothers are in distress at 63%. | Distress in father: moderately high Distress in mother: high | N/A | N/A | N/A |
| Al Qadire, <i>et al.</i> , ²² | 79.7% of parents suffered moderate to severe depression, while 26.6% suffered from anxiety. | Anxiety: low Depression: high | N/A | N/A | Parents of younger children had higher anxiety levels. Furthermore, parents with work difficulties and at least one chronic ailment scored higher than the depression score. |
| Wikman, <i>et al.</i> , ²³ | Anxiety and despair affect up to 20% of parents of cancer patients children. | Anxiety: very low | N/A | N/A | N/A |

Table 3b. Distress Prevalence, Criteria, Symptoms, Impact, and Factors Affecting Distress

| Author | Distress Prevalence | Prevalence Category | Symptom of Distress | Distress Impact | Factor Affecting Distress |
|-----------------------------------|---|---|---------------------|--|---|
| Lakkis, et al., ²⁴ | Psychological distress affects up to 56% parents. | Psychological distress: moderately high | N/A | N/A | N/A |
| McCarthy, et al., ¹⁰ | Anxiety and depression affect up to 28% of parents. | Anxiety: low Depression: low | N/A | N/A | N/A |
| Rosenberg, et al., ²⁵ | More than 50% of parents experience high psychological distress. | Psychological distress: Moderately high | N/A | Parents' distress impacts the health of their children and their families. | Distress is linked to the parents' age and their sense of their ability to recover. According to studies, young parents experience a lot of stress. |
| Isabel Tan, et al., ²⁶ | 67.9% of parents who have children with cancer reported being distressed. | Distress: high | N/A | N/A | N/A |
| Aziza, et al., ²⁷ | Anxiety affects 49% of parents, while depression affects 25%. | Anxiety: moderately high Depression: low | N/A | N/A | N/A |

nisms may help prevent depression, according to studies describing low rates of depression. Relationships with friends, family, and religion have all been cited as helpful coping mechanisms.²¹

Chemotherapy undertaken by children also has a high level of impact, resulting in high levels of depression and anxiety among parents, with 85.14% and 56.4%, respectively. Loss of appetite and mood swings in children is the most distressing side effects of chemotherapy for parents, and parents' stress levels are increased because of these adverse effects.¹⁹ Although this contradicts the study by Sloper,⁷ the level of distress of parents whose children have completed treatment is not significantly reduced compared to those whose children are still receiving treatment. By six months of following diagnosis, fathers and mothers' psychological distress was quite significant. This could be a time when clinical indications of illness are more likely to appear. In the first year after the child's diagnosis, parents frequently experience extreme distress, according to Norberg and Boman.²⁹ Parenting children with progressing illness has been shown to have a significant impact on mental health, with distress rates ranging from very low to very high. This highlights the necessity of continuing to pay attention to the psychosocial needs of parents of children with cancer.^{6,21}

Gastrointestinal problems such as dyspepsia and indigestion, palpitation, headaches, and respiratory problems are all symptoms of psychological distress. Gastrointestinal problems are thought to result from brain-gut axis interactions involving many factors, including psychological disorders.^{30,31} In a group of 32 functional dyspeptic patients, Sari and Murni,³² found that digestive

problems are a sign of distress, with 37.5% of the patients reporting anxiety and 12.5% reporting depression. According to Alijaniha, et al.,³³ 80% of people who suffer from anxiety feel symptoms of palpitations; while, depressed clients were 23.6%. Another symptom that is closely related to anxiety and depression is respiratory issues. The nature and underlying mechanisms of the relationship between mental health and respiratory symptoms are still unknown.³⁴

Impact of Distress on Parents of Children with Cancer

Suicidal thought was described by 61.4% of parents, while 86.1% of parents reported insomnia.¹³ Suicidal inclinations is a word to describe someone who may be suicidal, has suicidal ideation, or has attempted suicide. Suicidal tendencies have a positive correlation with depression. Depression can affect individuals' performance in their daily lives and increase the emergence of suicidal thoughts.³⁵ Insomnia is sometimes used as a term to describe the presence of evidence of a sleep disorder such as long sleep latency, frequent awakenings during the night, prolonged periods of wakefulness during periods of sleep, or even frequent temporary awakenings are considered evidence of insomnia.³⁶ Parenting and psychological distress are the strongest predictors of sleep disorders in parents.³⁷ Adults with high levels of psychological distress are more likely to have poor health, lose productivity at work, and die as a result. Psychological distress can affect a person's capacity for work, family life, and welfare activities. It is the most prevalent symptom of the emotional difficulties that characterize human psychological responses to environmental changes.³⁸

Factors Affecting the Distress of Parents of Cancer Patients

Many factors influence psychological distress, including parents' and child factors. Parents' factors that contribute to distress are age, education level, occupation, depressive records, recovery perception, and chronic illness suffered by parents. While, age, number of children, and time since diagnosis are child factors that are connected to parental distress. Parental occupation is associated with a rise in depression scores because work is connected to the availability of financial support. Anxiety and depression symptoms are made worse by a lack of financial support.²² The reason is that families with children with cancer must pay a lot of additional costs.^{39,40}

Parents with a record of depression had higher anxiety levels, according to Collins, *et al.*, study.²⁰ Parents attaining a secondary school education or lower worried more than those with tertiary education or higher, by 29.2% and 10.9%, respectively. This may be due to the difficulty of understanding the disease by less formally-educated parents.¹⁹ Furthermore, according to Collins, *et al.*,²⁰ anxiety levels were related to parents reporting developmental delays in their children. Parents' perceptions of their child's delay and the small possibility of their child recovering have a significant impact on this, according to Rosenberg, *et al.*,¹³ Parents believing that their child is benefiting from cancer-directed therapy today are less upset. In contrast, those who believe their child is suffering are more upset. Additionally, parents thinking that their child is depressed or anxious have higher distress scores and are more likely to suffer from a severe psychological distress.¹³ Furthermore, Rosenberg, *et al.*,¹³ discovered those younger parents are more distressed than older parents. This could suggest a lack of maturity, and financial and social resources cause distress.

Strength and Limitations

The limitations of this review study are that the primary study was only quantitative non-experimental, and limited English articles. In the analysis process, the prevalence of anxiety and depression in the father, mother, or both parents has not been separated, because not all primary studies provide complete data on parental psychological distress (father, mother, father and mother). The country of origin of the preliminary study is still limited. It cannot represent developing or developed countries because each region has not been represented, hence the analysis cannot be based on country. However, the strength of this study is that it focused on two main symptoms of psychological distress, including anxiety and depression. Furthermore, this study suggests the need for further analysis to determine the average preva-

lence of anxiety and depression through meta-analytical studies, respectively.

The relatively-high rate of distress among parents of cancer patients indicates that parents may be more susceptible to psychological problems, highlighting the significance of recognizing and treating anxiety and depression for parents.^{21,22} As a result, health care providers must pay close attention to the basic needs of parents of children with cancer, as well as coordinate and collaborate to provide comprehensive and holistic care. To provide high-quality care and improve treatment results for children with cancer and their families, it is essential to support parents as they cope with the heavy burden of caring for a child with cancer. Parents should receive psychosocial support during the initial stages of treatment to prevent psychological distress, and their mental health needs must be continuously assessed. To provide emotional and psychosocial support for children and their families while not just focusing on physical requirements, doctors, nurses, psychologists, public health professionals, and social workers must work collaboratively across disciplines. Additionally, parents must also be supported by health professionals who listen to their worries, touch and physically be present with them, and share their perspectives on their issues.^{26,27}

Conclusion

Parents who have children with cancer are at risk of psychological distress. Psychological distress negatively impacted the patients and the health of their families. Parents are at risk of having suicidal tendencies, experiencing insomnia symptoms such as difficulty falling asleep, waking at night, waking up early in the morning, and difficulty going back to sleep, affecting the health of patients and their families. Several factors influence psychological distress, including parents and children-related factors. Health practitioners must prioritize early detection and provide efficient intervention to support parents experiencing psychological distress. Increasing information, creating peer-support groups, and promoting mental health, especially among at-risk groups like families of cancer patients, are ways to increase promotive and preventive efforts at the community level, which are more crucial.

Abbreviations

NCCN: The National Comprehensive Cancer Network; JBI: Joanna Bridge Institute; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; DT-P: The Distress Thermometer for Parents; GHQ-12: The General Health Questionnaire; HADS: Hospital Anxiety and Depression Scale; K10: The Kessler Psychological Distress Scale (K10); NCCN: National Comprehensive Cancer Network. PTSS: Post-traumatic Stress Disorder; PTSD: Post-traumatic Stress Disorder; USA: the United States of America.

Ethics Approval and Consent to Participate

This review article involved no subjects; hence, no ethical approval was required or attached.

Competing Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

Availability of Data and Materials

Data included in this article are openly available and may be accessed by accessing the links in the reference section.

Authors' Contribution

IN contributed to the collection of studies, assessing the qualities of included studies in this article using the JBI Critical Appraisal tools and drafted the article. RKD contributed to the studies collection, selected the articles, and drafted and revised the article. NOH assessed the qualities of included studies using JBI tools for cross-sectional studies and critically reviewed the draft of this article. SP critically reviewed and revised the draft of this article.

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