Research Paper

The Correlation Between the Mental Health of Children With Cancer and Their Mothers

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ABSTRACT

Background and Purpose: Childhood cancer can affect the adjustment of children and their parents, especially their mothers. This study aimed to assess the correlation between the general health and illness perception of mothers of children with cancer with the quality of life of their children.

Materials and Methods: This research was a cross-sectional study conducted on 100 children with cancer and their mothers referred to Ayatollah Kashani Hospital in Shahrekord City, Iran, from 2019 to 2021. They were selected by convenience sampling. The study data were collected by the general health questionnaire, brief illness perception questionnaire, questionnaire on the quality of life (QoL) of preschool children (1-6 years old), and questionnaire on the QoL of children (aged 8-12 years). The Pearson correlation test was used for data analysis.

Results: Among the children with cancer, 43 were girls, and 57 were boys. The Mean±SD age of the children was 7.67±3.48 years. The results of the Pearson correlation test showed a significant correlation between the general health of mothers with the QoL of preschool children (r=-0.70, P<0.001) and the QoL of primary school children (r=-0.64, P<0.001) as well as the QoL of primary school children (completed by parents) (r=-0.65, P<0.001). The correlation between illness perception and other variables, such as the quality of life of preschool children (r=0.21, P=0.19) and the QoL of primary school children (r=0.18, P=0.18), were not statistically significant.

Conclusion: Due to a significant correlation between mothers' general health with the QoL of children with cancer, it is recommended that the medical and nursing team benefit from psychological interventions in this field for mothers and children with cancer.

Keywords: Cancer, General health, Illness perception, Quality of life (QoL)

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1. Introduction

Cancer in children is a chronic disease that severely affects children and their families, and its prevalence is increasing [1]. Cancer is the second leading cause of mortality in children under 14 years [2]. Aton et al. predicted that between 2020 and 2050, there will be 13659000 new cases of childhood cancer worldwide [3]. Also, the crude incidence of childhood cancer in Iran (0 to 14 years) is 16.8 per 100000 people [4]. In this country, 4% of children under 5 and 13% of children aged 5 to 15 die of cancer [5]. The death rate is high in some Iranian cities [6]. Conditions caused by cancer and long hospitalization of children in the hospital are among the main causes of stress and anxiety in the family [7]. Cancers are treated by various methods, including chemotherapy, radiation, surgery, or a combination of these methods. Each treatment has different side effects, such as fatigue, anemia, anorexia, diarrhea, and vomiting [8]. Despite these side effects, treatment should be continued until the end to get a better result. In recent studies, the impact of chronic diseases on the mortality rate and, more importantly, on the quality of life (QoL) has also been considered [9].

For this reason, children's QoL is one of the subjects discussed. The children's QoL includes having a sense of general health, carrying out daily activities, communicating with others, adapting to unpleasant cognitive, emotional, and physical experiences, and creating a concept of the experience of illness [10]. Caring for a child with cancer increases the parental care burden [11]. These children are in acute conditions that endure much anxiety. Facing the family with their child's illness leads to the main source of tension and anxiety in the family. In addition, it causes important changes in their normal life routine [12]. Also, coping with these challenges endangers the family's mental health, especially mothers. Cancer causes severe stress in parents and affects their performance. Stress from a child's illness can affect mothers' psychological well-being [1]. According to research by Cheraghi et al. and Morhun et al., having a child with cancer causes poor mental health and demotes the general health of mothers [13, 14]. General health means complete physical, mental, and social health [13]. Therefore, the general health of mothers and their understanding of their child's illness is important for psychological intervention. Also, the perception of illness is one of the main elements in the common sense model of self-regulation of health and disease [15].

Components of illness perception include perceived symptoms (identity), beliefs about the course of the disease, consequences of the disease, the ability of individuals to control the condition, the degree of effectiveness of treatment, understanding the condition, emotional responses, and attitudes about the probable cause from disease [16]. Illness perceptions are associated with the response of individuals as well as adherence to treatment and better performance in treatment conditions [10]. Patients and caregivers change their attitudes and reactions in a way that may affect the consequence of the disease, their conformity with treatment, and their QoL [16]. Based on the research, it is important to examine the mental health and QoL of mothers of children with cancer [1]. Considering the importance of caring for children with cancer in clinical and oncology research and the cooperation of parents with the medical team in the treatment process, people should be informed about cancer [17]. Conducting studies in this field can help implement better the caring role and increase family performance. This study aimed to investigate the correlation between the general health of mothers of children with cancer and the perception of their illness with the child's QoL.

2. Materials and Methods

The present research was a cross-sectional study. The research population included 100 children aged 1 to 12 years with cancer, and their mothers were referred to Ayatollah Kashani Hospital in Shahrkord, Iran, from 2019 to 2021. Moreover, based on the census, all of them were included in the study.

The inclusion criterion included the children with cancer that at least three months had passed since their first chemotherapy. The exclusion criteria included major physical or psychiatric problems, such as mental disorders in the mothers and their children before cancer diagnosis (Due to the age range of children and differences in the needs of early and middle childhood, two quality of life questionnaires were used). The study participants were examined with informed consent. Mothers were first asked to complete the demographic questionnaire information, which included parents' age, education, economic status (poor, average, good), number of children, support system, type of cancer of the child, number of chemotherapy courses, and number of radiotherapy sessions.

The Goldberg and Hiller General Health Questionnaire (GHQ) has 28 questions. It measures four dimensions (physical symptoms, anxiety, depression, sleep problems, and social functioning). The questions were scored on a 4-point Likert-type scale from 0 to 3 [18]. The validity of this questionnaire was obtained using three methods of test-retest, split-half, and the Cronbach alpha (0.70, 0.93, and 0.90, respectively) [19]. Nazifi et al. confirmed the validity of the questionnaire and stated that the Cronbach alpha coefficient was 0.76 [20].

The Brief Illness Perception Questionnaire (Brief IPQ) is a tool for assessing the type and extent of a person's perception. It has 9 items that evaluate 5 areas (illness identity, timeline, consequences, personal control, and treatment control) and two items that assess anxiety and depression. Also, one item measures a person's perception of the disease. Each question gets a score between 0-10. High scores indicate a high level of understanding of the disease. Question 9 is an open-ended question that asks about the cause of the disease. It asks volunteers to identify three reasons. The Cronbach alpha for this questionnaire was 0.80, and the test-retest correlation coefficient at 6-week intervals for different questions was reported to be 0.43 to 0.75 [10]. Bazazian also reported the Cronbach alpha of this questionnaire as 0.53, which indicates its good internal consistency [21]. Like Soleimani et al. [22], in our study, this questionnaire was used to assess parents' understanding of their child's illness.

TNO-AZL Preschool children Quality of Life (TAPQOL) questionnaire is a tool for measuring the general quality of life of preschool children of 1-6 years old [23]. This questionnaire has 43 items, and each question is awarded a response of "never", "sometimes", or "often". It includes 12 areas: gastrointestinal function, skin, lungs, sleep, appetite, motor function, mood, anxiety, behavior, social function, and peer communication. Total scores range from 0 to 100. High scores indicate a better quality of life. The TAPQOL measures the child's performance over three months period and takes 5 to 10 minutes to be completed [24]. The correlation between responses was 0.78, and the Cronbach alpha coefficient ranged from 0.60 to 0.74. In Iran, Rahimi et al. reported the Cronbach alpha coefficient of the questionnaire between 0.70 and 0.90 [25].

Children's quality of life questionnaire (PedsQL) measures the QoL of school-aged children (8-12 years old) [23, 26]. It consists of 23 items that measure children's QoL in 4 subscales: physical, emotional, social, and school performance. The items are scored on a 5-point Likert scale, and the higher scores show, the higher the QoL (range: 0-100). This questionnaire has two forms: the self-assessment form for school-age children and the reporting form used by parents for the same children. PedsQL reliability and internal consistency in general and subscales range from 0.70 to 0.92. Also, the reliability coefficient of the test-retest was 0.88 [27]. In Iran, Mohammadian et al. reported its Cronbach alpha coefficient between 0.65 and 0.77 [26].

The results were reported as number (%) or Mean± SD. To assess the correlation between mothers' general health, their perception of the disease, and children's quality of life, the Pearson correlation test was used in SPSS software v. 23.0, and P less than 0.05 were considered statistically significant.

3. Results

Out of 100 children with cancer, 43 were girls, and 57 were boys. Also, 60% of them had leukemia and 40% other cancers, including neuroblastoma, lymphoma, rhabdomyosarcoma, brain tumors, bone tumors, and Wilms' tumor. About 97% of children lived with both parents, and 3% of children with one parent. Regarding economic status, 38% of families were in poor status, and 62% were in moderate economic status (Table 1).

The Mean±SD ages of children, fathers, and mothers were 7.67±3.48, 40.33±6.93, and 35.58±6.23 years. The Mean±SD dimension was 4.42±1.04, and the duration of illness was 23.51±20.73 months.

The Mean±SD scores of IPQ, GHQ, TAPQOL, and PedsQL were 68.34±6.73, 31.75±11.22, 97.78±20.29, and 76.07±15.28. The average QoL questionnaire completed by parents was 75.34±16.53.

The Pearson correlation test showed a negative correlation between IPQ and GHQ of mothers, but the observed correlation was not statistically significant (r=-0.14, P=0.17). Also, the correlation between IPQ and other variables such as TAPQOL (r=0.21, P=0.19), PedsQL (r=0.18, P=0.18), and quality of life of primary school children completed by parents (r=0.20, P=0.11) were no statistically significant. On the other hand, significant correlations were found between the GHQ of mothers with the TAPQOL (r=-0.70, P<0.001), the PedsQL children (r=-0.64, P<0.001) as well as the quality of life of primary school children completed by parents (r=-0.65 and P<0.001). In short, the higher the degree of illness perception in mothers, the lower the GHQ scores (Table 2).

Table 1. Background information of the study samples

Variables	Subgroups	No. (%)
Gender	Girl	43(43)
	Boy	57(57)
Type of cancer	Leukemia	60(60)
	Other	40(40)
Life situation	With parents	97(97)
	Father or mother	3(30)
Father's education	Less than high school	49(49)
	High school	35(16)
	University	48(48)
Mother's education	Less than high school	48(48)
	High school	48(38)
	University	14(14)
The economic situation	Low	38(38)
	Middle	62(62)
	High	0(0)
Residence	Shahrekord City	30(30)
	Other	70(70)

4. Discussion

The present research studied the relationship between the general health of mothers of children with cancer and their illness perception with the QoL of children with cancer. According to the Pearson correlation results, there was a negative but insignificant correlation between the illness perception and the general health of mothers. Also, there was no significant correlation between the illness perception and the QoL of both groups of children with cancer. However, there is a significant correlation between the

Table 2. Correlation between illness perception and general health of mothers and quality of life of children

Variables	Illness Perception Questionnaire	General Health Questionnaire	QoL of Preschool Children	QoL of Primary School Children	QoL of Children by Parents
Illness perception questionnaire	1	-0.14 (P=0.17)	0.21 (P=0.19)	0.18 (P=0.18)	0.20 (P=0.11)
General health questionnaire		1	-0.70 (P<0.001)	-0.64 (P<0.001)	-0.65 (P<0.001)
Quality of life of preschool children			1	---	---
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Quality of life of primary school children				1	0.87 (P<0.001)

general health of mothers and the QoL of both groups of children. According to the obtained results, there is no connection between mothers' general health and illness perception with children's QoL. This finding may be due to the small sample size, or parents may perceive their child's illness overly, and we have studied illness perception in terms of the mother's perspective. Therefore, a mother is the first and the most important caregiver of a child that reports the patient's condition as worse than whatever it is due to her stress and anxiety. Since there are few studies about this area, we can refer to studies of Siafaka et al., who showed that mothers experience higher levels of anxiety and mental depression [10]. Flenhofer et al. research found differences between parents and their children for the IPQ subscale consequences, and parents rated the impact of the illness as more severe than their child. Also, parents showed more illness coherence than their children. Hence, the increased parental understanding and ability to make sense of the children's illness may lead to a more realistic estimation of its effects and consequences [28]. Although no study has been done about the correlation between a mother's perception of illness and life quality in cancerous children, some studies measure patients' illness perception and life quality [29]. For example, Soleimani et al., in their study entitled the correlation between illness perception and coping strategies in mothers with children with type 1 diabetes, showed that illness perception significantly correlates with the variables studied [22].

Kalantari et al. concluded that illness perceptions negatively correlate with patients' QoL [30]. According to our findings, we can refer to the research by Fischer et al. and Herzog et al., who showed that parents had a negative view of their children's illnesses [31, 32]. There was also a significant correlation between mothers' general health and children's QoL. Both variables influence each other. It can be said that the higher mental health of the mother leads to a better QoL. On the other hand, the poor state of mental health of the mother also affects the mental health of the children. The physical condition of the child can cause discomfort to the mother. Also, frequent visits to the hospital and physical treatment of children affect the mental and physical health of the mother. Based on the present research, we can refer to Rahimi et al. They concluded that paying attention to parents' general health and QoL improves parental care as much as possible. In addition to preventing a decrease in children's QoL, parents who reported their child's QoL as low were also under more stresses [33]. The children's illness in the family leads to acute mental and physical conditions for the parents [34]. Also, in line with our findings, Yac-Kupei et al. concluded that the mental and physical dimensions of the mother had an impact on the dimensions of the children's QoL (physical, emotional, social, and academic) [35]. A study by Cheraghi et al. considered the correlation between general health and QoL of parents with QoL of cancerous children. This study showed that some dimensions of QoL and parents' general health, including fatigue, pain, and anxiety, demote the QoL of children [13]. Therefore, parents with better mental health had better QoL, too [35]. According to the results of this research, dealing with cancer and aggressive treatments affects a child's body, mind, and social connections. Also, mothers, who are the closest person to the child and bear the heavy burden of care, and their general health is endangered, and in their opinion, their child is in an unfavorable physical and mental condition.

Study limitations

The main limitation of this study was the limited sample size and heterogeneous types of cancers in the study population. Further studies with larger sample sizes and specific types of cancer are recommended.

5. Conclusion

In children with cancer, besides the children's periods of mental stress due to long-term hospitalization and other problems, their mothers also experience periods of anxiety and depression. They do not have good general health, and their understanding of the disease increases. Therefore, to support them and alleviate their mental state, the psychological and support team should intervene to provide better conditions by using their knowledge.

Ethical Considerations

Compliance with ethical guidelines

This work was approved by the Ethics Committee of Shahrekord University of Medical Sciences (Code: IR.SKUMS.1398.088). It was done with the consent of the research participants.

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Authors' contributions

Writing–original draft: Elham Bagheri Vanani, Parvin Safavi; Conceptualization and supervision: Kiavesh Fekri, Hadi Raisi Shahraki, Parvin Safavi. Data collection: Kiavesh Fekri, Elham Bagheri Vanani; Data analysis: Hadi Raisi Shahraki; Writing-review & editing: all authors.

Conflict of interest

The authors declared no conflict of interest.

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