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Level of anxiety among children with cancer and their parents in Riyadh City

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ABSTRACT

Objective: This study aimed to assess the anxiety levels of children with cancer and their parents following admission to the Military Hospital in Riyadh City.

Methods: This cross-sectional study was conducted using a proforma between May 2019 to July 2019. Data collection involved the utilization of two tools. The first tool was a structured interview questionnaire design for children, while the second tool was intended for the parents of the children. The study sample comprised children and their parents who accompanied the child during hospitalization and chemotherapy. Approximately 74 children, aged 6-14 years old, diagnosed with cancer and admitted to the Riyadh Military Hospital, were enrolled in this study using convenience consecutive sampling.

Results: A total of 148 individuals participated in this study. Seventy-four parents were enrolled, with 68.9% being mothers and 31.1% fathers. Among the parents in the study, 29.7% experienced severe anxiety, 41.9% reported a moderate level of anxiety, and 20.3% had a low level of anxiety. Seventy-four children were included in the study sample, with 48.6% being boys and 51.4% girls. Among the children, 37.8% exhibited high levels of anxiety, 41.9% displayed moderate anxiety, and 20.3% reported low levels of anxiety. Additionally, a relationship was observed between the anxiety levels of parents and the anxiety levels of their children.

Conclusions: This study revealed that both children with cancer and their parents are experiencing moderate to severe levels of anxiety. The psychological well-being of cancer patients and their families is not a topic to be overlooked; rather, it is an important subject that requires attention and consideration.

Key Words: Screening, Anxiety, Childhood cancer, Parents of children with cancer, Anxiety tool for adults and children

1. INTRODUCTION

Cancer is considered a significant event at any age.[1] However, deaths from cancer are more prevalent between ages 3 and 14. There is more diversity in pediatric cancer than in adults, thus explaining the high rate of cancer-related deaths between the ages of 1 and 16 in western countries.[2] According to the World Health Organization, more than 200,000 children are diagnosed with cancer each year across the globe.[3] Prevalence rates for the diagnosis of childhood cancer, based on child reports, suggest that 6.1% of all cancer diagnoses among Saudis are children.[4] Several perspectives and assumptions have been proposed regarding the mechanisms of the relationship between mental and psychological disorders in parents and the physical disease in children, such

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as cancer. Such beliefs relate to the duration of the interval between pregnancies, how parents nurture and educate their children, and family life events.[5]

To this date, childhood anxiety is highly understudied. Nonetheless, the evidence is persuasive, indicating that anxiety may be a common and long-term disease in patients with cancer.[6] Anxiety in cancer patients can result from the situational anxiety that is heavily associated with the disease's diagnosis and the medical treatment, the treatment's medications, such as interferon, steroids, or several other chemotherapeutic drugs.[6]

Mainly, 35% of young children suffer from hospitalization at least once throughout their years. Around 5% of these children have been to the hospital many times.[7] Hospitalization and Illness are considered the first crises that the child's parents usually face. Children are generally sensitive to adverse conditions, which are often caused by illness and hospitalization, especially when they are young due to their limited adaptive mechanisms.

The conditions that influence the child can heavily affect their family members such as father, mother, and siblings. With a family of a child with cancer, anxiety in the parents appears in various ways, such as nutrition, nocturia, and disorders in sleep.[8] Attention should be paid to the symptoms of depression, anxiety, and the child's school performance during and after the child's treatment for cancer, as these can predict long-term outcomes.[9]

Cancer and its medical treatment heavily influence all aspects of the family and usually affect parental functioning throughout, for treatment. The parents of children diagnosed with cancer are exposed to numerous physical and psychosocial challenges, such as the symptoms of depression, aggression, and high levels of anxiety. Consequently, families and the child's ability to cope with and adapt to life with cancer is further compounded by the presence of depression and stress caused by the tumor.[10] Childhood cancer and its treatment can result in changes in appearance, memory loss, mobility deficits, mood swings, and a loss of energy; the emergence of these symptoms can heavily influence the role of the parents as the primary caregivers for their child.[9] Moreover, psychological problems have been found to compromise the cellular immune system in such a way as to promote the reactivation of latent viruses, as measured by levels of virus-specific immunoglobulin-G antibodies. Ideally, such studies indicate that childhood life events may lead to a state of chronic low-grade immune activation and possibly impairment of the immune system.[11]

Research on detecting anxiety among children with cancer and their parents in the Kingdom of Saudi Arabia (KSA) is limited. This study aims to screen children with cancer and their parents for anxiety, thus providing an opportunity for early detection and treatment. Such early intervention is regarded as very important for preventing future complications and long-term consequences. Moreover, children diagnosed with cancer can experience anxiety vicariously through their parents; their subjective experience of anxiety is based on their developmental level. Therefore, screening parents of children with cancer, as well as the children themselves, for anxiety is an essential initial step in the process of developing early intervention methods aimed at decreasing such anxiety.

However, another study reported that all children living with leukemia experienced the highest anxiety related to the procedure one month after diagnosis and decreased over time.[12] All studies indicated that children with cancer experience a rate of anxiety that is twice as common as that in the general population. Discovered that one month following diagnosis, the prevalence of anxiety in children with leukemia is 25.2%, more significant than the 15% of children in the general population who experience anxiety.[13] This is concerning because anxiety is often associated with a decrease in quality of life. Anxious individuals may be in a constant state of worry and even feel the physical burden of these emotions. Therefore, it is not surprising that children with chronic illnesses tend to report having a notably lower quality of life than those who are healthy. Also, the findings of those studies showed that parents of those children with cancer had high levels of psychological distress.[13–15]

Furthermore, several studies conducted in Palestine, Egypt, Europe, Bangladesh, and Iran have indicated that children undergoing cancer treatment and their parents are exposed to various traumatic experiences, such as the child's serious illness and pain, frequent hospitalizations and emergency visits, as well as the side effects of cancer treatment, including alopecia, and the financial burden of treatment. A new meta-analysis found that the increased levels of anxiety are heavily related to the poor prognosis, regardless of the type of diagnosis of the treatment.[16–20]

Parents of children with cancer often experience high levels of anxiety and depression. Effective interventions are necessary to improve the mental health of these parents. Psychological counseling, mental health screenings, and programs for coping with the challenges brought on by the child's illness are some examples of these interventions.[20] This study aim is to screen children with cancer and their parents for anxiety levels after being admitted to the Military Hospital in Riyadh City.

2. METHODOLOGY

The study adopted a quantitative cross-sectional descriptive exploratory research approach. It was conducted at the Prince Sultan Military Medical City, formerly known as the Riyadh Military Hospital, in Riyadh, the capital of the KSA. The sample inclusion criteria included children with cancer who had been previously admitted to the Riyadh Military Hospital and were aged 6–14 years, both male and female, as well as their parents. Additionally, children diagnosed with cancer only were also included.

The study sample comprised children and their parents who accompanied the child during hospitalization and chemotherapy. Questionnaires were personally distributed to the children and their parents after explaining the study's objectives. This explanation also addressed any potential issues that could have affected their participation, after which the researcher obtained written consent. Data collection took place in both the inpatient rooms and outpatient units. Approximately 74 children aged 6–14 years old, diagnosed with cancer and admitted to the Riyadh Military Hospital, were enrolled in this study. Additionally, the study included the children's parents. Convenience and consecutive sampling methods were applied. In total, including both child and parent participants, the sample consisted of 148 individuals.

2.1 Study Instrument

Data were collected using two tools. The first tool was a structured interviewing questionnaire designed for children. The child tool comprised four parts: The first part contained items pertaining to selected socio-demographic variables of the children with cancer, including age, gender, birth order, education level, and educational status. The second part consisted of six questions related to the child's social status in the hospital to document the assistance and support received by the child. The third part comprised nine questions designed to capture the child's medical profile and the health assistance and support received (from the child's medical files). The last part utilized the Revised Children's Manifest Anxiety Scale, which consists of a 28-item self-report inventory used to measure anxiety in children for clinical purposes, such as diagnosis and treatment evaluation.

The second tool was intended for the parents of the child. The parent's tool consisted of three parts: The first part contained questions regarding the socio-demographic variables of the parents of a child with cancer, including the age of the father and mother, their levels of education, social status, number of children, family size, income, regional area, and the jobs of the father and mother. The second part comprised twenty-one questions regarding psychosocial and community support to document the assistance and support received. The last part utilized a tool called the State-Trait Anxiety Inventory for Adults.

2.2 Statistical analysis of the data

The data were input into the computer and analyzed using the IBM SPSS software package, version 20.0 (Armonk, NY: IBM Corp). The description of qualitative data was performed using numbers and percentages. Quantitative data were defined using the range (minimum and maximum), mean, and standard deviation. The p-value was utilized to assess the significance of the obtained results at the 5% level. For categorical variables, a Chi-square test was applied to compare between different groups. Fisher's Exact or Monte Carlo correction was applied to correct the chi-square test when more than 20% of the cells had an expected count of less than five. Student t-test used for normally distributed quantitative variables to compare the two studied groups. *F*-test (ANOVA) was used for normally distributed quantitative variables to compare between more than two groups. The Paired *t*-test was also applied to compare between two periods.

3. RESULTS

In the study, 148 individuals participated, with a total of 74 children involved. The children were distributed across different age groups as follows: 20.3% aged 6–7 years, 32.4% aged 8–9 years, 29.7% aged 10–11 years, 14.9% aged 12–13 years, and 2.7% aged 14 years. In terms of gender, 48.6% were boys, and 51.4% were girls. Approximately 67.6% of the child participants attended primary school, 13.5% were in intermediate school, 17.6% were not enrolled in any school, and 1.4% were at the secondary school level, as detailed in Table 1. The majority of participants (75.7%) reported that there were no recreational activities available in the hospital, while 10.8% indicated that such activities were available, and 13.5% stated that the hospital provided typical activities. Regarding social interactions, 66.2% of the children reported having had no social interactions in the hospital, while 33.8% reported having had social interactions with others. Among those who reported no social interactions, 55.1% cited a lack of interest in socializing, 36.7% expressed reluctance due to concerns about self-image, and 51.0% cited an inability to interact due to low immunity and the need to avoid infection.

Seventy-four parents were enrolled in the study, with 68.9% being mothers and 31.1% being fathers. The social status of the parents is presented in Table 2. Regarding the educational level of the sampled parents, 33.8% held a bachelor's degree, 27% had completed secondary school, 13.5% had an intermediate school education, and the lowest percentage (4.1%) indicated that they were illiterate. An ad-

ditional 4.1% indicated having an advanced degree beyond the bachelor's level. Furthermore, 10.8% stated they could read and write at least, while 6.8% acknowledged having completed primary school. A high percentage of the families (62.2%) had more than three children, while approximately a quarter (27.0%) had three children, 9.5% had two children, and 1.4% had one child. As for the monthly family income (in Saudi Riyals), nearly half of the families (48.6%) earned 9,000–14,000 SAR, approximately one-quarter of the families earned 3,000–8,000 SAR, and 17.6% earned 15,000–19,000 SAR. A small percentage of the families earned less than 3,000 SAR or more than 20,000 SAR per month, 5.4% and 1.4% respectively.

The anxiety levels among children are presented in Table 2. The anxiety levels were calculated, and the results show that 37.8% experienced a high level of anxiety, 41.9% experienced a moderate level of anxiety, and 20.3% experienced a low level of anxiety. In terms of parental anxiety levels, 29.7% of the parents in the study reported severe anxiety, 41.9% reported a moderate level of anxiety, and 20.3% reported a low level of anxiety.

The relationship between children's overall levels of anxiety and their sociodemographic data is presented in Table 4. The relationship between children's overall levels of anxiety and their social status within the hospital showed no statistically significant relationship between the child's anxiety and the availability of recreational play within the hospital ($F = 0.914$; p-value = .406). As for the availability of social interactions with others within the hospital, the test value ($t = 2.454$; p-value = .017) indicates a statistically significant relationship between this factor and the child's anxiety level. Children who reported having no social interactions with others within the hospital stated that this was due to a variety of reasons, including a lack of interest in social relationships, poor self-image, low immunity, and the need to avoid infection, among other reasons. As for the support provided to the children, the test value for the factor "support is provided through" ($F = 1.475$; $p = .210$) indicates no statistically significant relationship between this factor and the child's anxiety level. Additionally, for children reported for care is provided, the test value for the factor care providers" ($F = 1.482$; $p = .234$) indicates that there is no statistically significant relationship between the child's anxiety and the factor care providers. The test value for the relationship between the factor "The childhood friend is still kept in touch" and the child's anxiety ($F = 7.006$; p-value = .002) indicates that there is a statistically significant relationship between the factor and children's level of anxiety.

Table 1. Sociodemographic characteristics of children and social status within the hospital

Variables	Percentage	N (74)
Age		
6–7 years old	20.3	15
8–9 years old	32.4	24
10–11 years old	29.7	22
12–13 years old	14.9	11
14 years old	2.7	2
Gender		
Male	48.6	36
Female	51.4	38
Educational Level		
Primary school	67.7	50
Intermediate school	13.5	10
Secondary school	1.4	1
No formal education	17.6	13
Educational Status		
Continuous in school	35.1	26
Stopped because of illness	51.4	38
Continues while in hospital	13.5	10
Does the hospital provide any recreational play?		
Yes	10.8	8
No	75.7	56
Usual	13.5	10
Do you have any social interaction with others within the hospital?		
Yes	33.8	25
No	66.2	49
If your answer is no, please explain your reasons (n = 49)		
Lack of interest in social relationships.	55.1	27
Self-image	36.7	18
Low immunity and avoid infection.	51.0	25
Others	12.0	6
Support is provided by		
Mother	33.8	25
Father	6.8	5
Both father and mother	35.1	26
Brother and sister	1.4	1
All the previous	16.2	12
No support provided	4.1	3
Other (like friends, relatives)	1.4	1
Care providers		
Mother	74.3	55
Father	20.3	15
One of the relatives	5.4	4
The childhood friend who are kept in touch		
Yes	54.1	40
No	43.2	32
Non	2.7	2

Table 2. Distribution of sociodemographic data and social support for parents (n = 74)

Variables	N	%	Variables	N	%
Filled by			**Doctors, nurses, social workers, and psychologists have been available to tell you about your child's diagnosis**		
Mother	51	68.9	Yes	27	36.5
Father	23	31.1	No	47	63.5
Educational level			**All information about your child's diagnosis was enough**		
Illiterate	3	4.1	Yes	50	67.6
Read and write	8	10.8	No	24	32.4
Completion of primary school	5	6.8	**What is the source of information about your child's illness?**		
Completion of intermediate school	10	13.5	Medical Team	62	83.8
Secondary school graduate	20	27.0	Social media	0	0.0
Bachelor's degree	25	33.8	Google	7	9.5
Another advanced degree beyond the bachelor's one	3	4.1	Friends and relatives	3	4.1
Social status			Other		
Married	68	91.9	**In your opinion, does the treatment affect the child's future?**		
Separated	1	1.4	Yes	31	41.9
Divorced	2	2.7	No	12	16.2
Widow	3	4.1	I don't know	31	41.9
Number of children			**Moral Support is provided through**		
One child	1	1.4	You can choose more than one of the following	50	67.6
Two children	7	9.5	Relative	24	32.4
Three children	20	27.0	Wife and housebound	16	21.6
More than three	46	62.2	Parents of anther cancer child	3	4.1
Family size			All the previous	9	12.2
Small (parents and less than five children)	26	35.1	No support provided	4	5.4
Large (parents and more than five children)	32	43.2	Child's disease effects on		
Parents, children, and relative (grandmother, grandfather, uncle, or aunt)	16	21.6	**You can choose more than one of the following**		
			Financial issues	35	47.3
Family income			Psychological issue	54	73.0
Less than 3,000 SAR	4	5.4	Social relationships with others	30	40.5
From 3,000 to 8,000 SAR	20	27.0	Non	8	10.8
From 9,000 to 14,000 SAR	36	48.6	**The strategy which you use to overcome stress**		
From 15,000 to 20,000 SAR	13	17.6	Reading Quran and praying	71	95.9
20,000 SAR or more	1	1.4	Practicing sports	5	6.8
Are there language barriers between you and other employees			Sitting with friends	25	33.8
Yes	22	29.7	I do not use any of the previous strategies	1	1.4
No	52	70.3	Other	1	1.4

Table 3. Anxiety Level among children and parents

Variables	No.	%
Anxiety level among children (n =74)		
Low	15	20.3
Moderate	31	41.9
High	28	37.8
Anxiety level in parents (n = 74)		
< 60 Mild Anxiety	52	70.3
≥ 60 Sever Anxiety	22	29.7

The relationship between parents' anxiety levels, sociodemographic data, and social support is presented in Table 5. The results showed no association between the existence of language barriers among the parents and hospital employees and the parents' overall anxiety level (χ^2 = 1.873; p = .171). Additionally, there was an association between the availability of doctors, nurses, social workers, and psychologists to discuss the child's diagnosis with the parents and the parents' overall anxiety levels (χ^2 = 7.054; p = .008). Regarding the adequacy of the information provided to parents about their child's diagnosis, the results showed that there is an association between this factor and parents' overall anxiety (χ^2 = 4.409; p = .036). Furthermore, no association was found between the sources of information about the child's illness and the parents' overall anxiety (χ^2 = 1.490; p = .865). Moreover, the analysis results revealed an association between the parent's opinion regarding whether the treatment affects their child's future and their overall level of parental anxiety (χ^2 = 6.922; p = .031). Regarding the factor "child's disease affects," this factor was divided into different sub-factors, and the analysis indicated the following associations between these sub-factors and overall parental anxiety. For the sub-factor "financial issues," the study results showed

no association between this sub-factor and general parental anxiety (χ^2 = 0.660; p = .417). As for the sub-factor "psychological issues," the analysis demonstrated an association between this sub-factor and parents' overall anxiety (χ^2 = 8.023; p = .005). As for the sub-factor social relationships with others, the results of the analysis showed that there was an association between this sub-factor and parents' overall anxiety (χ^2 = 6.928; p = .008). Regarding the sub-factor "social relationships with others," the analysis results showed an association between this sub-factor and parents' overall anxiety (χ^2 = 6.928; p = .008). As for the sub-factor "none," the analysis results showed no association between this sub-factor and parents' overall anxiety (χ^2 = 3.795; p = .096).

In Table 6, a statistically significant relationship was found between the anxiety levels of children with cancer and those of their parents. The analysis yielded a t-value of 2.302 and a corresponding p-value of .024, indicating that the relationship is statistically significant at the 0.05 significance level. These results suggest a meaningful association between the anxiety levels of the children and those of their parents, underscoring the potential impact of parental anxiety on the well-being of pediatric cancer patients.

The research aimed to investigate the levels of anxiety among Saudi children with cancer and their parents, with the goal of helping pediatric nurses provide care for both anxious children and their parents, and establishing a relationship of trust. In doing so, the nurse must use effective communication skills to facilitate the understanding of the suffering experienced by both the child and their parents.[21]

The findings of this study indicate high levels of anxiety among children with cancer and their parents.

In the context of the socio-demographic characteristics of children with cancer, the current study revealed that 32% of the sample were aged 8–9 years old. Females outnumbered males, and 36% of the children with cancer were first-born children. These findings, despite gender differences, align with those of other studies conducted in the USA.[22] Consistent with the findings in that study, this research found that the educational status of the child is statistically related to their overall anxiety levels. However, a similar study conducted in Turkey produced different results,[23] where most of the children were in primary school, similar to a study in Iran.[20]

In relation to schooling, it was found that 51% of children stopped formal education during their illness. The downside to this is that it is crucial for the child with cancer to receive support from their peers and classmates. Friends can act as a source of protection against the stress of cancer and can help the child adjust more quickly to their new limitations.[24] Moreover, concerning children's friendships, the study found a statistically significant relationship between maintaining contact with a childhood friend and children's anxiety. For those children who reported staying in touch with their friends, the results indicate a statistically significant relationship between their choice of communication methods and the child's anxiety.

Regarding social status within the hospital, the majority of children in this study (76%) mentioned that they did not receive interactions provided by the hospital. This finding is inconsistent with the results of other studies.[26] However, most research reports suggest that play is a crucial component of a child's normal development, that hospitalization should not impede a child's growth, and that dedicated areas must be set aside for recreational and educational activities. Additionally, it is a crucial form of communication for young children, especially those whose play skills may be compromised by their physical or mental health issues.[27]

The findings of this study indicate that most of the parents and caregivers of the children were mothers, representing approximately 69% of the sample. Similar results were found in a study conducted in Iraq.[28] Furthermore, the majority of the children in this study (66%) had no social interactions with other people in the hospital or their friends. It is natural for young children to be egocentric, focusing on activities related to themselves and continuing to have concerns about cancer.

In relation to the socio-demographic characteristics of parents of children with cancer, the study found that 62% of families had more than three children, and there was a strong correlation between parents' anxiety levels and the impact of their child's cancer on the parents' ability to care for their other children. These results are consistent with findings from other studies conducted in Egypt and the USA.[13,27] The authors of these studies mentioned that this factor could contribute to increased stress among mothers, who struggle to balance caring for their other children with their responsibility to care for their sick child. Additionally, the parent acting as the primary caregiver may have to remain with the hospitalized child for long periods, potentially necessitating their absence from their hometown for months at a time.

On the other hand, the current study reported that a child's disease's effect on financial, psychological, and social relationships with other outside family members and inside family members significantly correlates with their anxiety level, a similar result found in another research.[29]

Table 4. Relationship between children's overall anxiety levels, sociodemographic information, and social status within the hospital (n = 74)

Variables	Overall Child's Anxiety		Test of sig	p
	Min–Max	Mean ± *SD*		
Age			F = 1.771	.145
6–7 years old	3.57–85.71	53.81 ± 25.56		
8–9 years old	10.71–92.86	54.0 ± 23.01		
10–11 years old	25.0–92.86	63.10 ± 20.40		
12–13 years old	10.71–75.0	46.43 ± 21.67		
14 years old	14.29–42.86	28.57 ± 20.20		
Gender			t = 0.322	.749
Male	3.57–92.86	55.60 ± 23.58		
Female	10.71–92.86	53.86 ± 22.87		
Educational level			F = 4.507*	.014*
Primary school	10.71–92.86	56.43 ± 22.31		
Intermediate school	10.71–75.0	36.43 ± 20.54		
Secondary school	42.86#			
No formal education	3.57–85.71	63.19 ± 22.65		
Educational status			F = 5.230*	F = 5.230*
Continuous in school	14.29–82.14	43.82 ± 19.58		
Stopped because of illness	3.57–92.86	61.75 ± 21.67		
Continues while in hospital	10.71–92.86	56.43 ± 27.81		
Does the hospital provide any recreational play?			F = 0.914	.406
Yes	32.14–89.29	52.23 ± 18.0		
No	3.57–92.86	56.52 ± 24.36		
Usual	10.71–60.71	45.63 ± 17.48		
Do you have any social interaction with others within the hospital?			t = 2.454*	.017*
Yes	3.57–89.29	45.54 ± 21.17		
No	10.71–92.86	59.14 ± 22.85		
If your answer is no, please explain your reasons (n = 49)			F = 4.209*	.008*
Lack of interest in social relationships	14.29–89.29	62.66 ± 23.16		
Self-image	35.71–92.86	72.02 ± 15.31		
Low immunity	14.29–92.86	53.57 ± 21.92		
Others	10.71–82.14	42.86 ± 21.42		
Support is provided by			F = 1.475	.210
Mother	3.57–82.14	49.40 ± 20.03		
Father	25.0–85.71	55.95 ± 24.81		
Both father and mother	14.29–92.86	62.50 ± 22.18		
Brother and sister	89.29#			
All the previous	10.71–85.71	44.05 ± 24.71		
No support was provided	21.43–82.14	53.57 ± 30.51		
Other (like friends, relatives)	42.86–82.14	62.50 ± 27.78		
Care providers			F = 1.482	.234
Mother	3.57–92.86	52.05 ± 23.09		
Father	25.0–89.29	60.71 ± 22.09		
One of the relatives	42.86–92.86	66.96 ± 24.29		
The childhood friend who are kept in touch			F = 7.006*	.002*
Yes	10.71–89.29	46.16 ± 21.17		
No	3.57–92.86	64.62 ± 22.0		
Non	67.86–67.86	67.86 ± 0.0		

Note. *F*: *F* for ANOVA test; *t*: Student *t*-test; *p*-value for the relation between overall child's anxiety and Information on psychosocial and socio-demographic data;
*: Statistically significant at $p \leqslant .05$; #: Excluded from the relation due to small number of case (n = 1)

Table 5. Relation between parent's anxiety level, sociodemographic data, and social support for parents (n = 74)

Variables	Overall Parents Anxiety				χ^2	p
	< 60 mid anxiety (n = 52)		≥ 60 sever anxiety (n = 22)			
	No	%	No	%		
Filled by						
Mother	37	71.2	14	63.6	0.408	^{MC}p = 0.523
Father	15	28.8	8	36.4		
Educational level						
Illiterate	3	5.8	0	0.0		
Read and write	4	7.7	4	18.2		
Completion of primary school	5	9.6	0	0.0	6.331	^{MC}p = 0.354
Completion of intermediate school	6	11.5	4	18.2		
Secondary school graduate	16	30.8	4	18.2		
Bachelor's degree	16	30.8	9	40.9		
Another advanced degree beyond the bachelor's one	2	3.8	1	4.5		
Social status						
Married	48	92.3	20	90.9	1.481	^{MC}p = 0.846
Separated	1	1.9	0	0.0		
Divorced	1	1.9	1	4.5		
Widow	2	3.8	1	4.5		
Number of children						
One child	1	1.9	0	0.0		
Two children	6	11.5	1	4.5	3.476	^{MC}p = 0.316
Three children	11	21.2	9	40.9		
More than three	34	65.4	12	54.5		
Family income						
Less than 3,000 SAR	3	5.8	1	4.5		
From 3,000 to 8,000 SAR	17	32.7	3	13.6	3.875	^{MC}p = 0.425
From 9,000 to 14,000 SAR	23	44.2	13	59.1		
From 15,000 to 20,000 SAR	8	15.4	5	22.7		
20,000 SAR or more	1	1.9	0	0.0		
Are there language barriers between you and other employees						
Yes	13	25.0	9	40.9	1.873	0.171
No	39	75.0	13	59.1		
Doctors, nurses, social workers, and psychologists have been available to tell you about your child's diagnosis						
Yes	24	46.2	3	13.6	7.054*	0.008*
No	28	53.8	19	86.4		
All information about your child's diagnosis was enough						
Yes	39	75.0	11	50.0	4.409*	0.036*
No	13	25.0	11	50.0		
What is the source of information about your child's illness?						
Medical Team	44	84.6	18	81.8		
Social media	0	0.0	0	0.0	1.490	^{MC}p =0.865
Google	4	7.7	3	13.6		
Friends and relatives	2	3.8	1	4.5		
Other	2	3.8	0	0.0		
In your opinion, does the treatment affect the child's future?						
Yes	17	32.7	14	63.6	6.922*	0.031*
No	11	21.2	1	4.5		
I don't know	24	46.2	7	31.8		
Child's disease effects on#						
Financial issues	23	44.2	12	54.5	11	21.2
Psychological issue	33	63.5	21	95.5	18	34.6
Social relationships with others	16	30.8	14	63.6	9	17.3
Non	8	15.4	0	0.0	5	9.6
The strategy which you use to overcome stress#						
Reading Quran and praying	49	94.2	22	100.0	1.323	FEp = 0.550
practicing sports	5	9.6	0	0.0	2.269	FEp = 0.313
Sitting with friends	17	32.7	8	36.4	0.093	0.760
I do not use any of the previous strategies	1	1.9	0	0.0	0.429	FEp = 1.000
Other	1	1.9	0	0.0	0.429	FEp = 1.000

Note. χ^2: Chi-square test; FE: Fisher Exact; p: p-value for the relation between overall parents' anxiety level and support inside and outside the hospital; *: Statistically significant at $p \leq .05$

Table 6. Relationship between parents' anxiety levels and their children's anxiety levels (n = 74)

% Score	Parents' Anxiety	Child's Anxiety	t	p
Mean ± *SD*	46.23 ± 21.57	54.73 ± 23.09	2.302*	0.024*

Note. t: Paired t-test; p: p-value for comparing the studied groups; *: Statistically significant at $p \leq .05$

The researcher found a statistically significant relationship between parental anxiety levels and children's anxiety levels, similar to another study.[20] These findings suggest that parental anxiety may be a risk factor for the development of multiple types of child psychopathology and child maladjustment to cancer. A useful screening tool may be an assessment of the child's exposure to stressful life events, which might help to identify different approaches to the prevention of child maladjustment to cancer. To facilitate child adaptation following a cancer diagnosis, continued research on the influence of parental distress and prior adversities experienced by the child is warranted.

Global data indicates that pediatric oncology teams providing care for children with cancer should offer more comprehensive psychosocial programs. These services must be delivered in an age-appropriate, developmentally appropriate, and time-sensitive manner. A wealth of psychosocial interventions exists for children with cancer, including cognitive-behavioral therapy, social-recreational activities, and psychoeducational interventions. Many interventions incorporate family-based methods, which have been associated with beneficial outcomes for children. Understanding the efficacy of various interventions is an ongoing area of research.[30,31]

To improve the mental health of parents of children with cancer, effective interventions are necessary. Psychological counseling, mental health screenings, and programs for coping with the challenges brought on by the child's illness are some examples of these interventions.[20]

Ethical statement

Ethical approval was obtained from the Institutional Review Board in Prince Sultan Military Medical city, Riyadh, Saudi Arabia before any study started. The written form given to participants explains the study and give them the option to participate in the research all steps to maintain confidentiality.

Implication of the study

Pediatric nurses are healthcare professionals who work collaboratively across disciplines and have a multidimensional focus when caring for patients with cancer and their parents. Pediatric nurses must provide care for parents and children, ensuring they have access to adequate information and the tools necessary to handle their family's health and that of their children.

4. Conclusion

The results of this study revealed that both children with cancer and their parents are experiencing a moderate to severe level of anxiety. There is a strong correlation between anxiety and how doctors report the diagnosis, as well as the role of social life outside the hospital, given that most of them suffer from other types of cancer relapse. Additionally, a strong relationship exists between the child's condition and their level of anxiety. Therefore, interventions aimed at improving the psychological health of parents with children who have cancer are necessary. These interventions may include mental health screening, psychological counseling, and training programs to cope with the challenges caused by the child's disease. Nursing interventions are necessary throughout all phases of the disease to attempt to enhance the immune response, thereby improving resistance to the disease. Psychosocial interventions that consider the child's demographic and clinical context are critical. The psychological health of cancer patients and their families is not a topic to be overlooked but rather an important subject that requires focus and consideration.

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Authors contributions

All authors contributed to this manuscript accordingly. All authors have read and approved. the final manuscript and agreed to the published version of the manuscript.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

DATA SHARING STATEMENT

No additional data are available.

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