

ORIGINAL ARTICLE

Medicine Science 2025;14(2):369-76

Anxiety level of parents of children admitted to the paediatric intensive care unit

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Available online 30 May 2025 with doi: 10.5455/medscience.2024.12.169

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Abstract

The aim of this study was to identify the anxiety level of parents of children admitted to the paediatric intensive care unit (PICU) and to identify related factors that contribute to increased parental anxiety. This study is a descriptive cross-sectional study. The population of the study consisted of parents of children aged 1-18 years who were hospitalized in the PICU. A total of 256 parents participated in the study. Data were collected between 6 May 2024 and 10 June 2024. Of the parents, 75.80% (n=194) were female, 41.40% (n=106) were between the ages of 26-35, and 82% (n=210) were married. Additionally, 56.2% (n=144) of the parents found the appearance of the intensive care unit frightening. 59% (n=151) of parents reported being affected by the procedures and devices applied to the child. The question regarding the ability of parents to accompany their children was answered "yes" by 48.80% (n=125), by 8.60% (n=22) "no", and by 42.60% (n=109) as "partially". According to Beck's anxiety scores, 33.40% (n=87) of the parents had minimal anxiety, 27.30% (n=71) had severe anxiety, 24.90% (n=65) had moderate anxiety, and 14.40% (n=37) had mild anxiety symptoms. Parents should be supported during their hospital stay, provide information regarding what happening in the PICU, helping to manage their stress, and offering services to manage parents' fears and concerns. Paediatric nurses have a major role in the development of coping behaviours of parents of hospitalized children.

Keywords: Parents, anxiety, stress, child, intensive care unit

Introduction

Parents of children admitted to the Paediatric Intensive Care Unit (PICU) experienced emotional, psychological, physical, financial, and social stressors [1-5]. The child's life-threatening condition makes it difficult for the parents to manage the numerous stressors related to the child's condition and the unexpected hospitalisation in the PICU [5,6]. Parents may experience fear and worry about their child's health condition, as well as uncertainty regarding the potential health outcomes [5].

Hospitalization can be traumatic and stressful for children who may experience psychosocial problems as a result of hospitalization [7]. The child's illness, duration of illness, frequency of hospitalization, and past experiences affect the child's response to the current situation. Hospitalization is a stressful experience for both parents and children. It leads to changes in daily family life as well as in roles and responsibilities within the family. Other changes within the

family include the hospital environment and unfamiliarity with this environment, changes in the family's responsibilities regarding the care of the child, uncertainty about the treatment process and lack of information about care. Hospitalization of children can cause anxiety in the family. Situations such as leaving the family environment, entering a foreign environment where uncertainty is intense, physical injury, painful procedures, surgery, loss of self-control, etc., cause fear in children. Hospitalization of a child has a negative effect on the parents of the child. These negative consequences can cause social problems and some mental health issues.

The impact of a disease on the family can vary depending on factors such as the type of the disease, its long-term effects and limitations of the disease, the significance of the disease for both the child and the family, attitudes towards the illness, and its overall impact. Insufficient information about all the procedures performed or planned can increase the stress levels in both families and children [8]. The research conducted by

CITATION

Butun A, Akinci N. Anxiety level of parents of children admitted to the paediatric intensive care unit. Med Science. 2025;14(2):369-76.



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Yıldız et al. [9] on the effect of the Coronavirus disease 2019 (COVID-19) pandemic on parental anxiety in the PICU context emphasizes the necessity of taking into account external factors that may exacerbate parental level of stress (Yıldız et al., 2022). This implies that, in order to provide comprehensive support to parents during crises, studies on parental anxiety in the PICU should also take into account broader contextual influences.

The anxiety levels of parents of children admitted to PICU are a critical due to the emotional and psychological experienced on parents during such challenging times. There is need of managing level of anxiety of parents while their child is in the PICU. Studying the anxiety levels of parents of PICU patients is essential to understanding the emotional difficulties that parents encounter, identifying risk factors for long-term mental health problems, and creating focused interventions to promote parental wellbeing while their child is in the hospital. Therefore, it is important to understand and address the anxiety levels of parents in the PICU setting. The aim of this study was to identify the anxiety level of parents of children admitted to the paediatric intensive care unit and identify related factors that contribute to increased parents' anxiety.

Material and Methods

Design

This study is a descriptive cross-sectional study.

Settings and Participants

The study settings were (1) a public paediatric hospital and (2) a public training and research hospital. The population of the study consisted of parents of children aged 0-18 years who were hospitalized in the paediatric intensive care units of these two hospitals. Public paediatric hospital has a 93 bed-capacity in PICU. A public training and research hospital has a 30 bed-capacity in PICU. Convenience sampling method was used to recruit participants. The study was completed with 256 parents.

Data Collection

Data were collected between 6 May 2024 and 10 June 2024. Data collection tools were given to parents and were asked to fill them in themselves. The researcher supported the illiterate participants. Filling the survey took approximately 15-20 minutes.

Data Collection Tools

The Child and Parent Identification Form:

This form was developed by the researchers based on current literature and their previous experiences. This form consists of 19 questions including demographic information about the parent and the child (parent's gender, age, marital status, educational status, family structure, place of residence, number of children, age of the child, gender of the child, disease classification, number of hospitalizations, days of intensive care hospitalization, duration of diagnosis of the child, getting enough information etc.).

Beck Anxiety Scale:

This scale was developed by Beck and Steer [10]. The Cronbach's alpha coefficient of the original scale was 0.93 [10]. Turkish validity of Beck Anxiety Scale was conducted by Ulusoy et al. [11]. Within the scope of the Turkish validity and reliability study of the scale, Cronbach's alpha coefficient was found to be 0.93 [11]. Beck Anxiety Scale is a 21-question scale that individuals can answer on their own. The questions are graded from 0 to 3. The minimum score that can be obtained from the scale is 0 and the maximum score is 63. Total score is used in the evaluation of the scale. The higher the score obtained from the scale indicates the higher the level of anxiety [10]. In this study, this scale was used to measure the anxiety levels of parents.

Data Analysis

Number Cruncher Statistical System (NCSS) 2007 (Kaysville, Utah, USA) program was used for statistical analysis. In addition to descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, maximum) when analysing research data. We use normally distributed variables when comparing quantitative data. A parent t-test was used for two-group comparisons. The Mann-Whitney U test was used to compare two groups of variables that were not normally distributed. The one-way ANOVA test was used to compare three or more groups with a normal distribution and the Kruskal-Wallis test was used to compare three or more groups without a normal distribution.

Ethical Considerations

Ethical approval was obtained from a Mardin Artuklu University Non-Invasive Clinical Research Ethics Committee (Date: 16/04/2024, Reference Number: 2024/4-10). In addition, informed consent was obtained from all participants. The study was carried out in accordance with the principles of the Declaration of Helsinki.

Results

The results regarding the descriptive characteristics of the participants are provided in Table 1.

Of parents 75.80% (n=194) were female, 41.40% (n=106) were between the ages of 26-35, and 82% (n=210) were married. 27.70% (n=71) of the parents were primary school graduates, 22.70% (n=58) were secondary school graduates, and 28.10% (n=72) were high school graduates. 56.60% (n=145) of the parents lived in the city and 27% (n=69) lived in the district. 22.70% (n=58) of the parents had 1 child, 29.70% (n=76) had 2 children, 29.30% (n=75) had 3 children, and 18.40% (n=47) had 4 children. Parents' children's age status; 20.70% (n=53) were 0-1 years old, 23% (n=59) were 2-4 years old, 26.20% (n=67) were 5-7 years old, 18% (n=53) were 8-10 years old, 7.40% (n=19) were 11-14 years old, and finally 4.70% (n=12) were 15-18 years old. 49.20% (n=126) of the parents were female and 50.80% (n=130) were male. Parents' classification of their children's diseases; 49.60% (n=127) were respiratory system,

6.60% (n=17) were haematological system, 12.10% (n=31) were cardiological system, 10.50% (n=27) were central nervous system, 8.20% (n=21) were immune system, 12.90% (n=33) were other systems. 31.30% (n=80) of the children of parents were hospitalized 1 time, 46.90% (n=120) 1-5 times, 17.20% (n=44) 6-11 times, 4.70% (n=12) 12 and over. The number of days of hospitalization of parents in the intensive care unit was 36.30% (n=93) for 1-3 days, 33.60% (n=86) for 4-7 days, 16.40% (n=42) for 15-30 days, 5.10% (n=13) for 30 days or more. The diagnosis period of the children of the parents was 77.30% (n=198) 0-1 years, 18.40% (n=47) 2-4 years, 4.30% (n=11) 4 years and above. 59% (n=151) answered yes, 32.40% (n=83) answered no, and 8.60% (n=22) partially answered about the parents' health status. As regards to the parents' finding the appearance of the intensive care unit frightening, 56.20% (n=144) of the parents answered yes, 25.80% (n=66) answered no, and 18% (n=46) partially. The question about the parents' being affected by the procedures and devices applied to the child was answered as yes by 59% (n=151), by 20.30% (n=52) as no, and by 20.70% (n=53) as partially. The question regarding the ability of parents to accompany their children was answered yes by 48.80% (n=125), by 8.60% (n=22) no, and by 42.60% (n=109) as partially.

Table 1. Descriptive characteristics of the participants

Variables		n	%
Gender	Female	194	75.80
	Male	62	24.20
Age	18-25	40	15.60
	26-35	106	41.40
	36-45	75	29.30
	46-55	27	10.50
	56+	8	3.20
Marital status	Married	210	82.00
	Widowed or divorced	46	18.00
Education level	Primary school	71	27.70
	Secondary school	58	22.70
	High school	72	28.10
	Bachelor's degree	41	16.00
	Master's degree	13	5.10
	PhD	1	0.40
Types of family	Nuclear family	164	64.10
	Extended family	72	28.10
	Separated family	20	7.80
Where to live	City	145	56.60
	County	69	27.00
	Village-town	42	16.40
Number of children	1 child	58	22.70
	2 children	76	29.70
	3 children	75	29.30
	4 and more children	47	18.40
Age of the child	0-1	53	20.70
	2-4	59	23.00
	5-7	67	26.20
	8-10	46	18.00
	11-14	19	7.40
	15-18	12	4.70

Table 1. Descriptive characteristics of the participants

Variables		n	%
Gender of the child	Female	126	49.20
	Male	130	50.80
Classification of disease of the child	Respiratory system	127	49.60
	Haematological system	17	6.60
	Cardiological system	31	12.10
	Central nervous system	27	10.50
	Immune system	21	8.20
	Other systems	33	12.90
Number of hospitalizations of the child	1 time	80	31.30
	1-5 times	120	46.90
	6-11 times	44	17.20
	12 and more	12	4.70
Days of hospitalization of the child in the intensive care unit	1-3 days	93	36.30
	4-7 days	86	33.60
	8-15 days	42	16.40
	15-30 days	22	8.60
	30 days and over	13	5.10
Duration of the child's diagnosis	0-1 year	198	77.30
	2-3 year	47	18.40
	4 year and more	11	4.30
Getting adequate information about the child's health status	Yes	151	59.00
	No	83	32.40
	Partly	22	8.60
The appearance of the intensive care unit is frightening	Yes	144	56.20
	No	66	25.80
	Partly	46	18.00
Being affected by the procedures and devices applied to your child	Yes	151	59.00
	No	52	20.30
	Partly	53	20.70
Ability to accompany your child	Yes	125	48.80
	No	22	8.60
	Partly	109	42.60

Examining Beck Anxiety Scores are provided in Table 2.

The mean Beck anxiety scores of the parents were 11.48±6.8 and the median value was 10.5. While the smallest Beck anxiety score was 0 among the patients' relatives, the largest Beck anxiety score was 45. According to Beck's anxiety scores, 33.40% (n=85) of the parents had minimal anxiety, 27.30% (n=70) had severe anxiety, 24.90% (n=64) had moderate anxiety, and 14.40% (n=37) had mild anxiety symptoms (Table 2).

Table 2. Beck anxiety scores of parents of children

Beck Anxiety Score	n	%
Minimal (0-7)	85	33.40
Light (8-15)	70	27.30
Intermediate (16-25)	64	24.90
Severe (26-63)	37	14.40
Total	256	100

Evaluations and comparison of the Parent Beck Anxiety Scale Score was provided in Table 3. There was no statistically significant difference between the descriptive characteristics of the parents and the Beck anxiety score ($p>0.05$, $p=387$) (Table 3).

Table 3. Evaluation of parental Beck Anxiety Scale Scores based on descriptive characteristic

		Parent Beck Anxiety Score			P value
		n	Q1-Q3 (Quarterly)	Median	
Gender	Female	194	0-7	3	.387
	Male	62	0-10.5	4	
Age	18-25	40	0-6.5	3	.189
	26-35	106	0-1-11	3	
	36-45	75	0-8	4	
	46-55	27	0-7.5	3	
	56 and more	8	0-1-9	3	
Marital status	Married	210	1-7	4	.137
	Widowed or divorced	46	0-10.5	3	
Education level	Primary school	71	0-8.5	3	.036
	Secondary school	58	0-1-15	4	
	High school	72	0-13	5	
	Bachelor's degree	41	0-7.5	3	
	Master's degree	13	0-7	4	
	PhD	1	0-7		
Types of family	Nuclear family	164	0-11	4	.525
	Extended family	72	0.10.5	3	
	Separated family	20	0-15	4	
Where to live	City	145	0-12	3	.258
	County	69	0-7	5	
	Village-town	42	0-7	5	
Number of children	1 Child	58	0-12.5	3	.478
	2 Children	76	0-15.5	5	
	3 Children	75	0-8	5	
	4 Children	47	0-9	4	
Age of the child	0-1	53	0-27	3	.562
	2-4	59	0-31	3	
	5-7	67	0-28	5	
	8-10	46	0-10	4	
	11-14	19	0-11.5	3	
	15-18	12	0-7	4	
Gender of the child	Female	126	1-7	3	.746
	Male	130	0-9	4	

Table 3. Evaluation of parental Beck Anxiety Scale Scores based on descriptive characteristic

		Parent Beck Anxiety Score			P value
		n	Q1-Q3 (Quarterly)	Median	
Classification of diseases of the child	Respiratory system	127	0-8	3	.654
	Haematological system	17	0-10.5	4	
	Cardiological system	31	0-9.5	3	
	Central nervous system	27	0-7	4	
	Immune system	21	0-9	5	
	Other systems	33	0-8	3	
Number of hospitalizations of the child	1 time	80	0-10	3	.585
	1-5 times	120	0-8	5	
	6-11 times	44	0-10.5	5	
	12 times and more	12	0-9	4	
Days of hospitalization of the child in the intensive care unit	1-3 days	93	0-11.5	3	.124
	4-7 days	86	0-24	3	
	8-15 days	42	0-15	3	
	15-30 days	22	0-15	4	
	30 days and over	13	0-10.5	5	
Duration of the child's diagnosis	0-1 year	198	0-11.5	3	.220
	2-3 year	47	0-7	3	
	4 year and more	11	0-7	4	
Getting adequate information about the child's health status	Yes	151	0-8	3	.196
	No	83	0-10	4	
	Partly	22	0-7	4	
Intensive care environment is scary	Yes	144	0-9	3	.896
	No	66	1-13	5	
	Partly	46	0-7	4	
Affected by devices	Yes	151	0-10.5	3	.251
	No	52	0-11	3	
	Partly	53	0-12	5	
Ability to accompany your child	Yes	125	0-14	3	.780
	No	22	0-7	5	
	Partly	109	0-9	3	

Discussion

Parental Beck Anxiety Scale scores ranged from 0 to 14 quarterly, with a median of 4. This study found that the anxiety of the parents was moderate. However, the anxiety levels of parents of children admitted to the PICU were high in other studies [12]. In the study

in which Karaman and Acaroğlu [13] evaluated the relationship between the anxiety levels of adolescents who underwent surgical intervention and their parents' anxiety levels and the factors that increase their anxiety, the parental state anxiety score was found to be 10 ± 9.17 . In the study of Karaman and Acaroğlu [13], it was found that parents had moderate anxiety. In the study

conducted by Keleş et al. [14] to evaluate parents' concerns about the postoperative period in paediatric outpatient surgery, adolescents and parents' information status was examined, and it was determined that 56.3% of adolescents aged 10-13 years, 59.60% of adolescents aged 14 years and over, and 68% of mothers/fathers were informed. Such moderate level of anxiety may be attributed to the emotional and psychological stress experienced by parents when their children are hospitalized in PICU settings. Factors such as uncertainty about the child's prognosis, the high-stress environment of the PICU, and concerns about the child's medical condition could contribute to elevated anxiety levels. However, the moderate rather than high level of anxiety observed could be influenced by the availability of support systems, coping mechanisms employed by parents, or prior experiences with hospitalization.

This study found that the anxiety of informed parents was lower than that of uninformed parents. This study revealed that parents who receive timely and relevant information about their child's health and care experience lower levels of anxiety compared to those who are less informed. In line with this result, existing literature highlight the necessity of effective communication between healthcare providers and parents, noting that continuous assessment of parental needs and the provision of information in a supportive manner can significantly reduce anxiety levels among parents of critically ill children [15]. Another study found that providing adequate information about hospital environments helps children and their parents adapt better, thereby reducing anxiety levels [16]. In contrast, receiving conflicting advice and information from healthcare staff could lead parents to be confused and stressed [2]. This study suggested that parents should be informed and supported appropriately regarding their child's health conditions as well as regarding the hospital environment.

The parent's gender, age, marital status, education level, family structure, place of residence, number of children, age of the child, gender of the child, classification of the disease, number of hospitalizations, days of intensive care hospitalization, duration of diagnosis of the child, getting sufficient information, intensive care environment is frightening, being affected by devices, being able to accompany the child did not show a significant difference in the Parent's Beck Anxiety Score (Table 3). In line with these results, Erdim et al. [17] found that mothers' anxiety does not differ significantly according to the gender of their children. In the study conducted by Arslan [18] to examine the effect of the satisfaction of the care in the emergency department of the parents who visited to the paediatric emergency department on their anxiety levels, there was no significant difference in the descriptive characteristics when the mean scores of the state anxiety scale were examined according to the gender of the parents' children, the marital status of the parents, the education level, the profession and income levels of the parents. One of the possible explanations

for this is that parents were worried and suffered when their children hospitalized, regardless of the gender of the child.

Strengths and Limitations

One of the strengths of this study is to collect data from large number of participants. However, surveys were filled based on self-reported by parents, and this could be a limitation of the study.

Conclusion

Conclusion and Recommendations

Parents should be supported during their hospital stay, provide information regarding what happening in the PICU, helping them to manage their stress, and offering services to manage parents' fears, and concerns. Paediatric nurses have a major role in the development of coping behaviours of parents of hospitalized children. Effective communication between healthcare staff and parents could reduce stress levels in the family and ensure participation in treatment. Healthcare staff should regularly inform parents and children about the progress of treatment. Parents and children should inquire from healthcare staff about all the procedures that have been and will be done. However, this information is often forgotten or given less importance. Future studies could be conducted on qualitative methodologies regarding anxiety level of parents in order to gain in-dept understanding this complex issue and therefore develop targeted interventions regarding reduce anxiety level of parents.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

Ethical approval was obtained from Mardin Artuklu University Non-Invasive Clinical Research Ethics Committee (Date: 16/04/2024, Reference Number: 2024/4-10). In addition, informed consent was obtained from all participants. The study was carried out in accordance with the principles of the Declaration of Helsinki.

Acknowledgement

The authors would like to acknowledge the parents who participated in this study and the hospital managerial teams for their help with participant recruitment.

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