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ASSESSMENT OF ANXIETY LEVELS AMONG PARENTS OF CHILDREN HOSPITALIZED IN THE PEDIATRIC INTENSIVE CARE UNIT

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ABSTRACT

Background: Parental anxiety is a significant psychological concern during a child's admission to the Pediatric Intensive Care Unit (PICU), impacting family well-being and care outcomes. This study aimed to assess anxiety levels among parents of children admitted to the PICU and identify associated factors.

Materials and Methods: A cross-sectional study was conducted over three months at RL Jalappa Hospital's PICU. Parents of children aged 1 month to 18 years were assessed within 48 hours of admission using the Generalized Anxiety Disorder-7 (GAD-7) scale. Sociodemographic and clinical data were collected via a structured proforma. Data analysis employed descriptive statistics, Chi-square tests, and independent t-tests, with significance set at $p<0.05$.

Results: Among 48 participants, moderate anxiety was most prevalent (52.1%), followed by severe anxiety (37.5%), and mild anxiety (10.4%). Educational status (p=0.039), place of residence (p=0.012), and child's age (p=0.013) were significantly associated with parental anxiety levels. Parents with lower education and those residing in urban areas exhibited higher anxiety severity. Parents of infants under one year demonstrated the highest severe anxiety. Other variables, including parental age, socioeconomic status, child's gender, disease classification, number of hospitalizations, and PICU stay duration, showed no significant association.

Conclusion: Targeted support for parents with lower educational attainment and those caring for younger children is essential to mitigate anxiety in the PICU. Enhancing communication and integrating psychological services are recommended to improve family-centered care.

Keywords: Parental anxiety, Pediatric Intensive Care Unit, GAD-7, Psychosocial intervention, Family-centered care.

INTRODUCTION

The admission of a child to the paediatric intensive care unit (PICU) represents a critical and often traumatic event for families, particularly for parents who assume the primary caregiving role. The PICU environment, characterized by its high technology, life-threatening conditions, and unpredictable clinical outcomes, imposes substantial psychological stress on parents.[1] Anxiety, as a common emotional response in this context, can significantly affect parental well-being, decision-making capacity, and the overall family dynamic. Understanding the anxiety levels of parents during their child's PICU admission is essential for developing targeted interventions to support families and improve patient-centred care.

Parental anxiety in the PICU setting arises from multiple interrelated factors.[2] The suddenness of the child's illness or injury, uncertainty about prognosis,

perceived lack of control, and the unfamiliar and intimidating nature of the PICU environment contribute to heightened anxiety. Parents often face complex medical information and must make critical decisions under pressure, which can exacerbate feelings of helplessness and fear. Additionally, the disruption of normal family routines and the emotional burden of witnessing their child's critical condition can intensify psychological distress.

Research indicates that anxiety among parents of critically ill children is prevalent and may persist beyond the immediate PICU stay, potentially leading to long-term psychological sequelae such as post-traumatic stress disorder, depression, and impaired quality of life.[3] Elevated anxiety not only affects parents' mental health but can also influence their ability to engage effectively with healthcare providers, adhere to treatment plans, and provide emotional support to their child.[4] Therefore, assessing anxiety levels systematically is a crucial step in identifying parents at risk and tailoring psychosocial support accordingly.

Several studies have explored the prevalence and determinants of parental anxiety in PICU settings. Factors such as the severity of the child's illness, duration of PICU stay, previous hospitalizations, socio-demographic variables, and the availability of social support have been associated with varying anxiety levels.[5,6] For instance, parents of children with prolonged PICU admissions or complex medical conditions often report higher anxiety compared to those with shorter or less severe hospitalizations. Additionally, parental coping styles, prior mental health history, and cultural background may modulate anxiety responses, underscoring the need for individualized assessment.[7]

The measurement of anxiety in parents of PICU patients typically involves validated psychometric instruments, including the State-Trait Anxiety Inventory (STAI), the Hospital Anxiety and Depression Scale (HADS), Beck Anxiety Inventory (BAI), Generalized Anxiety Disorder 7 (GAD-7). These tools enable quantification of both transient (state) and enduring (trait) anxiety, facilitating the identification of parents requiring psychological intervention. Incorporating routine anxiety screening into PICU care protocols can enhance early detection and timely referral to mental health services.[8]

Interventions aimed at reducing parental anxiety in the PICU encompass informational, emotional, and practical support strategies. Clear, consistent communication from healthcare providers about the child's condition and treatment plan helps alleviate uncertainty and fosters trust. Family-centered care approaches that involve parents in decision-making and provide opportunities for presence and participation in care activities have demonstrated benefits in reducing anxiety. Psychological support services, including counseling, stress management techniques, and peer support groups, are integral components of comprehensive care frameworks.[9]

MATERIALS AND METHODS

The study was designed as a cross-sectional study conducted over a period of three months. The study population included parents of children aged between 1 month and 18 years who were hospitalized in the Pediatric Intensive Care Unit (PICU) of RL Jalappa Hospital. Participants were selected based on inclusion criteria which comprised parents who were available, willing to participate, and able to understand and respond to the data collection tools, with assistance provided to illiterate participants. Exclusion criteria included cases where both parents were unavailable during the study period, parents unable to complete the questionnaire even with assistance, and parents of critically unstable children undergoing active resuscitation at the time of data collection.

Data collection involved a pre-structured proforma capturing sociodemographic variables related to both the parent and the child, such as parental gender, age, marital status, educational status, family structure, residence, number of children, child's age and gender, disease classification, hospitalization history, duration of PICU stay, diagnosis duration, and adequacy of information received. Anxiety levels among parents were assessed within 48 hours of the child's admission using the Generalized Anxiety Disorder-7 (GAD-7) scale, a validated self-administered instrument measuring the severity of generalized anxiety symptoms over the preceding two weeks. The GAD-7 consisted of seven items scored on a four-point Likert scale ranging from 0 (not at all) to 3 (nearly every day), with total scores ranging from 0 to 21. Anxiety severity was categorized as minimal (0–4), mild (5–9), moderate (10–14), and severe (15–21).

Data were entered into Microsoft Excel and analyzed using SPSS version 26.0 software. Categorical data were presented as frequencies and proportions, while continuous data were expressed as means and standard deviations. Statistical significance was tested using the Chi-square test for categorical variables and the independent t-test for continuous variables. A p-value of less than 0.05 was considered statistically significant. Ethical clearance was obtained from the Institutional Ethics Committee, and written informed consent was secured from all participants prior to data collection.

RESULTS

The age distribution of participants shows that the majority were young to middle-aged adults. Most parents belonged to the 18–25 years age group (33.3%), followed closely by those aged 31–35 years (31.3%). Smaller proportions were seen in the 36–40 years (16.7%) and 26–30 years (14.6%) categories, while only 4.2% were above 40 years of age. Regarding educational status, a considerable proportion of participants had lower levels of formal

education. Primary school education was reported by 39.6% of participants, and 37.5% had completed secondary school. Only a minority had higher education, with 8.3% each having completed high school and master's degree, 4.2% holding a bachelor's degree, and 2.1% possessing a PhD.

In terms of residence, the majority of participants were from rural areas (64.6%), while 35.4% resided in urban areas, indicating a predominantly rural study population. Socioeconomic status (SES) distribution revealed that most participants belonged to Class III (45.8%), followed by Class II (27.1%). Classes I and IV each constituted 12.5% of the sample, while only 2.1% belonged to Class V, suggesting a predominance of middle socioeconomic strata.

The age distribution of the children admitted to the PICU showed that the largest group was infants less than 1 year old (31.3%), followed by children aged 1–4 years (27.1%). Children aged 5–10 years and those older than 10 years each accounted for 20.8% of the cases. With respect to gender, male children constituted a higher proportion (66.7%) compared to female children (33.3%).

Classification of diseases indicated that respiratory system illnesses were the most common (35.4%), followed by other system disorders (20.8%). Gastrointestinal and central nervous system conditions each accounted for 16.7%, while hematological disorders were the least common (10.4%). The number of hospitalizations showed that most children had been hospitalized either once (35.4%) or twice (37.5%), while fewer had three (16.7%) or more admissions, indicating that repeated hospitalizations were less frequent.

Finally, the duration of PICU stay varied, with the majority of children staying for 3 days (35.4%), followed by 2 days (18.8%) and 4 days (14.6%). Shorter stays of 1 day (8.3%) and longer stays of 5–7 days or more were less common, with very few cases extending up to 11 days (4.2%) [Table 1].

Table 1: Descriptive characteristics of the study population

Variable	Categories	Frequency	Percentage
Age of the participant	18 - 25 years	16	33.3
	26 - 30 years	7	14.6
	31 - 35 years	15	31.3
	36 - 40 years	8	16.7
	>40 years	2	4.2
Participants education	Primary school	19	39.6
	Secondary school	18	37.5
	High School	4	8.3
	Bachelors degree	2	4.2
	Masters degree	4	8.3
	PhD	1	2.1
Place of residence	Rural	31	64.6
	Urban	17	35.4
SES	Class I	6	12.5
	Class II	13	27.1
	Class III	22	45.8
	Class IV	6	12.5
	Class V	1	2.1
Age of child	<1 year	15	31.3
	1 - 4 years	13	27.1
	5 - 10 years	10	20.8
	>10 years	10	20.8
Gender of the child	Males	32	66.7
	Females	16	33.3
Classification of the disease of the child	Respiratory system	17	35.4
	Gastrointestinal system	8	16.7
	Haematological system	5	10.4
	Central Nervous system	8	16.7
	Other systems	10	20.8
Total number of hospitalizations	1.00	17	35.4
	2.00	18	37.5
	3.00	8	16.7
	4.00	2	4.2
	5.00	3	6.3
Days of intensive care hospitalization	1	4	8.3
	2	9	18.8
	3	17	35.4
	4	7	14.6
	5	5	10.4
	6	3	6.3
	7	1	2.1
	11	2	4.2

The findings indicate that the majority of parents experienced moderate anxiety, accounting for 52.1% of the participants. A substantial proportion also reported severe anxiety (37.5%), highlighting a high

burden of psychological distress in this population. In contrast, only a small proportion of parents (10.4%) had mild anxiety. None of the study participants had minimal anxiety

Table 2: Generalized Anxiety Disorder-7 scores of the parents

Generalized Anxiety Disorder-7 score	Frequency	Percent
Mild anxiety (5 – 9)	5	10.4
Moderate anxiety (10 – 14)	25	52.1
Severe anxiety (15 – 21)	18	37.5
Total	48	100.0

Across all age groups, moderate anxiety was the most common, while mild anxiety was relatively rare. Younger participants (18–35 years) showed a higher proportion of severe anxiety, whereas older participants, particularly those above 40 years, predominantly had moderate anxiety. Despite these variations, there was no statistically significant association between age and anxiety levels (p = 0.326).

Educational status of participants showed a statistically significant association with anxiety levels (p = 0.039). Among those with primary education, the majority had moderate (57.9%) and severe anxiety (42.1%), with no cases of mild anxiety. Participants with secondary education demonstrated a distribution across all categories, though moderate (50.0%) and severe (38.9%) anxiety predominated. Notably, participants with higher education showed variable patterns—those with a bachelor's degree reported only moderate anxiety (100%), while those with a master's degree were equally distributed between mild and moderate anxiety (50.0% each). The single PhD participant reported only mild anxiety (100%). Overall, higher education appeared to be associated with relatively lower severity of anxiety.

Place of residence was also significantly associated with anxiety levels (p = 0.012). Among rural participants, the majority had moderate anxiety (61.3%), followed by severe (22.6%) and mild anxiety (16.1%). In contrast, urban participants had no cases of mild anxiety, with anxiety distributed between moderate (35.3%) and severe (34.7%) categories, suggesting relatively higher severity among urban residents.

Socioeconomic status (SES) did not show a statistically significant association with anxiety levels (p = 0.163). However, trends indicated that Class III participants predominantly experienced moderate (54.5%) and severe anxiety (40.9%). Severe anxiety was highest in Class IV (66.7%) and Class V (100%), although the numbers in these groups were small.

Age of the child demonstrated a statistically significant association with parental anxiety (p = 0.013). Parents of children aged <1 year had the highest proportion of severe anxiety (66.7%). In contrast, parents of children aged 1–4 years predominantly experienced moderate anxiety (69.2%). For children aged 5–10 years and >10 years, anxiety levels were more evenly distributed, though moderate anxiety remained the most common.

Gender of the child was not significantly associated with anxiety levels (p = 0.469). However, parents of male children had a slightly higher proportion of severe anxiety (43.8%) compared to those with female children (25.0%).

Classification of the child's illness did not show a statistically significant association (p = 0.378). Nevertheless, severe anxiety was most common among parents of children with respiratory illnesses (52.9%), while moderate anxiety predominated in gastrointestinal (62.5%), hematological (60.0%), and central nervous system conditions (75.0%).

Total number of hospitalizations was not significantly associated with anxiety levels (p = 0.272). Parents of children with a single hospitalization had higher severe anxiety (58.8%), whereas those with multiple hospitalizations (2–3 admissions) more commonly reported moderate anxiety.

Duration of intensive care stay also did not show a statistically significant association (p = 0.842). Among those with ≤5 days of stay, moderate anxiety (52.4%) was most common, followed by severe (35.7%). For stays >5 days, anxiety was evenly distributed between moderate and severe categories (50.0% each), with no cases of mild anxiety.

Overall, the analysis indicates that educational status, place of residence, and age of the child were significantly associated with parental anxiety levels, while other variables did not show statistically significant associations. Moderate anxiety was the most prevalent category across most subgroups, with severe anxiety particularly prominent among parents of younger children and those with lower educational attainment [Table 3].

Table 3: Evaluation of GAD 7 Scores based on descriptive characteristic

Variable	Categories	GAD - 7			P value
		Mild anxiety	Moderate anxiety	Severe anxiety	
Age of the study participant	18 - 25 years	0 (0.0)	9 (56.3)	7 (43.8)	0.326
	26 - 30 years	0 (0.0)	4 (57.1)	3 (42.9)	
	31 - 35 years	2 (13.3)	7 (46.7)	6 (40.0)	
	36 - 40 years	3 (37.5)	3 (37.5)	2 (25.0.)	
	>40 years	0 (0.0)	2 (100.0)	0 (0.0)	

Participants education	Primary school	0	11 (57.9)	8 (42.1)	0.039*
	Secondary school	2 (11.1)	9 (50.0)	9 (38.9)	
	High School	0	1 (25.0)	3 (75.0)	
	Bachelors degree	0	2 (100.0)	0	
	Masters degree	2 (50.0)	2 (50.0)	0	
	PhD	1 (100.0)	0	0	
Place of residence	Rural	5 (16.1)	19 (61.3)	7 (22.6)	0.012*
	Urban	0	6 (35.3)	11 (34.7)	
SES	Class I	2 (33.3)	4 (66.7)	0	0.163
	Class II	2 (15.4)	7 (53.8)	4 (30.8)	
	Class III	1 (4.5)	12 (54.5)	9 (40.9)	
	Class IV	0	2 (33.3)	4 (66.7)	
	Class V	0	0	1 (100.0)	
Age of child	<1 year	0	5 (33.3)	10 (66.7)	0.013*
	1 - 4 years	0	9 (69.2)	4 (30.8)	
	5 - 10 years	3 (30.0)	4 (40.0)	3 (30.0)	
	>10 years	2 (20.0)	7 (70.0)	1 (10.0)	
Gender of the child	Males	3 (9.4)	15 (46.9)	14 (43.8)	0.469
	Females	2 (12.5)	10 (62.5)	4 (25.0)	
Classification of the disease of the child	Respiratory system	1 (5.9)	7 (41.2)	9 (52.9)	0.378
	Gastrointestinal system	0	5 (62.5)	3 (37.5)	
	Haematological system	0	3 (60.0)	2 (40.0)	
	Central Nervous system	1 (12.5)	6 (75.0)	1 (12.5)	
	Other systems	3 (30.0)	4 (40.0)	3 (30.0)	
Total number of hospitalizations	1.00	1 (5.9)	6 (35.3)	10 (58.8)	0.272
	2.00	3 (16.7)	10 (55.6)	5 (27.8)	
	3.00	0	6 (75.0)	2 (25.0)	
	4.00	0	2 (100.0)	0 (0.0)	
	5.00	1 (33.3)	1 (33.3)	1 (33.3)	
Days of intensive care hospitalization	<=5 days	5 (11.9)	22 (52.4)	15 (35.7)	0.842
	>5 days	0	3 (50.0)	3 (50.0)	

DISCUSSION

The current study found a high prevalence of moderate (52.1%) and severe (37.5%) anxiety among parents using GAD-7 scores, with no minimal anxiety cases. Butun et al. reported a broader range with 33.4% minimal anxiety, 27.3% severe, 24.9% moderate, and 14.4% mild anxiety using Beck Anxiety Inventory, indicating somewhat lower overall anxiety severity.[10] Majority of the studies show that the anxiety levels of parents of children admitted to the PICU were high.[11]

In the study conducted by Andsoy et al., the average score on the fathers' state anxiety scale was 56.57±13.11, while the average score on the trait anxiety scale was 50.99±10.36, indicating moderate anxiety levels. A statistically significant difference was found between state and trait anxiety scores ($p<0.05$). However, a significant relationship was identified between fathers' state and trait anxiety scores and the gender of their children ($p<0.05$). No significant difference was found between fathers' perceptions of the adequacy of prior information and their trait anxiety scale scores ($p>0.05$).[12]

The current study's participants were predominantly young to middle-aged adults, with the majority in the 18–25 years (33.3%) and 31–35 years (31.3%) groups. Butun et al. reported a slightly older parental demographic, with 41.4% between 26–35 years and a broader age distribution including older parents (up to 56+ years).10 Andsoy et al reported no significant difference was observed between the fathers' ages and their anxiety scores ($p>0.05$).[12]

These studies shows that younger parents tended to exhibit higher anxiety levels, although the current study found no statistically significant association between parental age and anxiety ($p=0.326$).

Educational attainment showed significant associations with anxiety in both studies but with differing patterns. The current study found a statistically significant relationship ($p=0.039$), indicating higher anxiety severity among parents with lower education (primary and secondary levels) and relatively lower anxiety among those with higher education (bachelor's, master's, PhD). Butun et al. also reported education level but did not find a statistically significant difference in Beck Anxiety scores by education ($p=0.036$), suggesting a more nuanced or less direct relationship in their sample.[10] Östberg et al. found that the level of education attained in early adulthood was strongly linked to later experiences of anxiety and depression, although the social patterns differed between these symptoms. Individuals with lower educational attainment reported higher instances of both anxiety and depression occurring together, as well as depression alone. Conversely, those with higher educational levels reported anxiety alone more frequently.[13]

The current study identified a significant association between place of residence and anxiety levels ($p=0.012$), with rural parents predominantly experiencing moderate anxiety and urban parents showing higher rates of severe anxiety. Butun et al. reported a majority of parents living in urban areas (56.6%) but did not find place of residence to significantly affect Beck Anxiety scores ($p=0.258$).10 This discrepancy may reflect

contextual or cultural differences between study populations.

Most of the previous studies highlight the child's age as an important factor influencing parental anxiety. The current study found a significant association (p=0.013), with parents of infants (<1 year) experiencing the highest severe anxiety (66.7%). Butun et al. reported a broad distribution of child ages, with 20.7% under 1 year and others spanning up to 15–18 years, but did not find a significant difference in Beck Anxiety scores by child's age (p=0.562).[10] The current study's more granular analysis suggests younger child age intensifies parental anxiety, aligning with clinical expectations.

The current study did not find any significant association between the child's gender and parental anxiety. Similar findings were observed by Butun et al. Both studies observed a slightly higher severe anxiety proportion among parents of male children, but this was not statistically meaningful, indicating child gender is a less influential factor.

The current study reported no significant association between disease classification and anxiety (p=0.378), though severe anxiety was most common in respiratory illnesses. Butun et al. similarly found no significant differences in Beck Anxiety scores by disease type (p=0.654), with respiratory system diseases being the most frequent.[10] Both studies suggest illness type alone does not predict anxiety severity but respiratory conditions may elevate parental distress.

The current study did not find a significant link between the number of hospitalizations and anxiety (p=0.272), noting higher severe anxiety with single hospitalizations. Butun et al. also reported no significant association (p=0.124).[10] This suggests repeated hospitalizations do not necessarily exacerbate parental anxiety, potentially due to adaptation or coping mechanisms.

No significant association was found between length of PICU stay and anxiety in either study (current study p=0.842; Butun et al. p=0.196).[10] Both studies indicate that anxiety is not directly correlated with hospitalization duration, reinforcing the complexity of parental psychological responses.

Butun et al. emphasized the importance of parental information and support, finding lower anxiety among informed parents and highlighting the role of effective communication in anxiety reduction.[10] The current study also noted education and residence as significant factors but did not explicitly analyze information provision. Both studies underscore the need for healthcare providers to enhance communication and psychosocial support.

CONCLUSION

The study demonstrates a high prevalence of moderate and severe anxiety among parents of children admitted to the PICU, with educational status, place of residence, and the child's age significantly influencing anxiety levels. Parents with lower educational attainment and those residing in urban areas exhibited higher anxiety severity, while parents of infants under one year experienced the most severe anxiety. Other factors such as parental age, socioeconomic status, child's gender, disease classification, number of hospitalizations, and duration of PICU stay did not show statistically significant associations with anxiety levels. These findings underscore the critical need for targeted psychosocial interventions, particularly focused on parents with lower education and those caring for younger children, to alleviate anxiety and improve family-centered care in the PICU setting. Enhancing communication, providing consistent information, and integrating psychological support services are essential strategies to address parental anxiety and promote better engagement with healthcare providers.

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