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Prevalence and Determinants of Anxiety Among Hospitalized Children in Nowshera

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ABSTRACT

Hospital admission is a stressful experience for children. It leads to high anxiety levels. **Objectives:** To investigate the prevalence of anxiety among hospitalized children and the causes contributing to its severity. **Methods:** 118 children fulfilling inclusion criteria were selected by convenient sampling to carry out a cross-sectional observational study in Qazi Complex, Nowshera from December 2023 to May 2024. The children were aged between 9-15 years. Data were collected using the State-Trait Anxiety Inventory for Children, a validated self-reported questionnaire. Anxiety levels were classified into mild, moderate, and severe anxiety depending upon scoring. **Results:** The results showed that prior hospitalizations, experiencing painful processes, and lengthy hospital stays considerably increased the probability of severe anxiety. Children experiencing painful procedures had an odds ratio of 6.27 ($p<0.001$) and those with a history of previous hospitalization were 4.56 times more expected to experience severe anxiety ($p<0.001$). The key factor was extended hospital stays, with an OR of 9.09 ($p<0.001$). Gender and age, however, did not significantly affect anxiety levels. **Conclusions:** The results emphasize the prerequisite for targeted interventions, such as decreasing hospital stays, reducing painful procedures, and providing emotional support. Understanding these features is vital for emerging attitudes to lessen anxiety in hospitalized children, thus refining their overall treatment results and well-being.

INTRODUCTION

Hospital admission is often an upsetting experience for children, as it represents an unexperienced and possibly frightening situation that interrupts their normal practices [1]. The mental disturbance of hospitalized children has also been reported by their attending nurses [2]. Anxiety is a common emotional response in children going through medical management, and prevalence of anxiety issues in hospitalized children has been progressively acknowledged in recent years especially during the pandemics [3, 4]. The World Health Organization (WHO) reports that psychological issues in children and adolescents, mainly anxiety, are on the upsurge worldwide [4]. Hospitalization may exacerbate these disorders, as kids are parted from their family members, faced with indefinite outcomes and exposed to invasive medical processes [5]. Several Studies suggest that children are mainly susceptible to developing anxiety during hospital visits because of their intellectual skill to understand the seriousness of their disease however inadequate handling skills [6, 7]. Several research have confirmed anxiety as a considerable problem among hospitalized children. For example, a study establishes mild to severe depression and anxiety (approximately 68% and 63%, respectively) in hospitalized children [8]. Another study proves that children going through surgery stated higher levels of preoperative anxiety, which not only affect their psychological state but also increased complaints of postoperative pain and enhanced recovery time. A latest study stressed the role of parent anxiety in provoking children's anxiety levels, with children whose parents showed high stress showing more severe symptoms [9, 10]. Furthermore, children with prolonged sickness or those needing recurrent hospital admissions are at greater risk of developing anxiety conditions due to recurrent experience

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to the hospital atmosphere [11]. The incidence of anxiety in hospitalized children is worrisome not only because of its direct psychological and emotional impact but also because it can hinder medical care. Anxiety can be a source of poor compliance with medical advice, prolonged hospital stays, and confrontation to treatment, additionally confounding recovery [12]. Understanding the prevalence of anxiety in hospitalized pediatric patients is significant for healthcare workers to develop directed interventions which report both the emotional and physical needs of these patients. Further research into the specific factors contributing to anxiety and the most operational ways to decrease it is essential for improving pediatric care and outcomes.

This study aims to investigate the prevalence of anxiety among hospitalized children and the associated determinants.

METHODS

A cross-sectional study was conducted in Qazi Complex, Nowshera. 118 children fulfilling the inclusion criteria were selected for study from December 2023 to May 2024. An approval was granted by the Ethical Committee of Nowshera College of Nursing and Health Sciences (Ref No. 065/NCIV/2023). A written and verbal consent was taken from guardians/parents of patients. Patients fulfilling inclusion criteria were included in this research. Sample size was calculated by open EPI software with margin of error 0.05 and Confidence Interval (CI) 95%. Convenience Sampling technique was used for data collection. Children between age 9 to 15 years and admitted to hospital for surgical or medical management were included in the study after taking consent from guardians. Mentally retarded children, unwilling to participate, and pediatric patients with intellectual disabilities were excluded from the study. In order to gather the information for study, a questionnaire The State-Trait Anxiety Scales Inventory for Children (STAIC) was administered for assessing trait and state anxiety, which include all variables to extract definite information. The reliability of STAIC has been proved by previous studies that indicate its internal consistency (Cronbach's alpha) in the range of 0.89 to 0.92 [13]. The anxiety levels were scored and labeled mild, moderate and severe. This questionnaire was used in the assessment of prevalence of anxiety in pediatric patients and the data were entered and analyzed using IBM-SPSS version 23.0.

RESULTS

The odds ratio (OR) of mean age group (12-15 years) is 1.43, indicating that children aged 12-15 are 43% more likely to experience severe anxiety compared to those aged 9-11 years, but this relationship is not statistically significant (p=0.351). In terms of counts, 16 out of 62 (25.8%) of the 12-15 age group experience severe anxiety, compared to 11 out of 56 (19.6%) of the 9-11 age group. Regarding gender, male have an OR of 1.19, suggesting they are 19% more likely to experience severe anxiety than female, though this is also not statistically significant (p=0.566). In numbers, 16 out of 66 (24.2%) male experience severe anxiety, compared to 11 out of 52 (21.2%) female. Another determinant, previous hospitalization, shows an OR of 4.56, meaning patients with a history of hospitalization are 4.56 times more likely to experience severe anxiety. This finding was highly significant (p<0.001). Here, 16 out of 38 (42.1%) patients with previous hospitalizations had severe anxiety, compared to 11 out of 80 (13.8%) without prior hospitalizations. Similarly, undergoing a painful procedure increases the odds by 6.27 times (p<0.001), with 18 out of 40 (45%) patients who underwent a painful procedure experiencing severe anxiety, compared to 9 out of 78 (11.5%) who did not. Finally, a hospital stay of more than 7 days shows the highest OR of 9.09, meaning these patients are 9.09 times more likely to suffer from severe anxiety (p<0.001). In terms of percentage, 19 out of 38 (50%) patients who stayed longer than 7 days experienced severe anxiety, compared to only 8 out of 80 (10%) with shorter stays. Overall, previous hospitalization, painful procedures, and extended hospital stays significantly increase the risk of severe anxiety, while age and gender show less influence (Table 1).

Table 1: Factors Influencing Anxiety among Hospitalized Patients

Characteristics	Anxiety level				Total (n=118)	p-value	OR (Severe vs Not Severe)
	Minimal or No (n=35)	Mild (n=27)	Moderate (n=29)	Severe (n=27)			
Age in Years (12-15 years)	17 (14)	11 (9)	18 (15)	16(14)	62 (53)	0.351	1.43
Gender of Patient (Male)	20 (17)	12 (10)	18(15)	16(14)	66(56)	0.566	1.19
Previous History of Hospitalization (Yes)	3(6)	5(4)	14(12)	16(14)	38(32)	<0.001	4.56
Undergone Painful Procedure During Hospital Stays (Yes)	3(3)	8(7)	11(9)	18(15)	40(34)	<0.001	6.27
Current Length of Stay at Hospital (>7 days)	1(1)	3(3)	15(13)	19(16)	38(32)	<0.001	9.09

Patients with a history of hospitalization (M=45.55, p<0.001) and those undergoing painful procedures (Mean=44.03, p<0.001) showed significantly higher anxiety levels compared to those without (Mean= 25.96 and Mean=26.24, respectively). Longer

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hospital stays (>7 days) also correlated with increased anxiety (Mean=47.79, p<0.001) versus shorter stays (Mean=24.90). In contrast, age (9-11 years: Mean=29.75, p=0.098; 12-15 years: Mean=34.55) and gender (male: Mean=32.64, p=0.778; female: Mean=31.81) did not significantly impact anxiety levels. Overall, the results highlight the substantial impact of hospitalization history, painful procedures, and prolonged stays on anxiety, with significant p-values (<0.001) indicating robust findings (Table 2).

Table 2: Mean Anxiety Scores by Demographic and Clinical Factors

Characteristics	N	Mean ± SD	p-value
Age in Years			
9-11 Years	56	29.75 ± 13.14	0.098
12-15 Years	62	34.55 ± 17.53	
Gender of Patient			
Male	66	32.64 ± 15.43	0.778
Female	52	31.81 ± 16.22	
Previous History of Hospitalization			
Yes	38	45.55 ± 14.02	<0.001
No	80	25.96 ± 12.20	
Undergone Painful Procedure During Hospital Stay			
Yes	40	44.03 ± 14.30	<0.001
No	78	26.24 ± 12.78	
Current Length of Stay at Hospital			
Up-to 7 days	80	24.90 ± 11.55	<0.001
> 7days	38	47.79 ± 11.49	

DISCUSSION

The results of this study demonstrate that numerous factors significantly contribute to the prevalence of anxiety among hospitalized children. Age and gender were not significant predictors of severe anxiety, whereas undergoing painful procedures, previous hospitalizations, and prolonged hospital stays were found to be critical contributors to heightened anxiety levels. These findings support and expand upon recent literature in the field. This study found no significant association between age and anxiety severity, with children aged 12-15 years only to some extent more likely to experience severe anxiety than those aged 9-11 years (OR=1.43, p=0.351). Likewise, gender was not a significant predictor (OR=1.19, p=0.566). This is steady with a previous study which also found no significant differences in anxiety levels based on gender [14, 15]. However, some literature proposes that younger children are more susceptible to anxiety due to less developed coping mechanisms [16]. The slight elevation of anxiety among older children in present study could be attributed to increased awareness of medical procedures and outcomes, but the differences were not statistically significant.The results of current study show that children with a history of hospitalization are over four times more likely to experience severe anxiety compared to those without previous hospitalizations (OR =4.56, p<0.001). This result is in line with the work which reported that repeated hospital admissions increase anxiety levels due to anticipation of discomfort and pain [17]. The consequence of repeated experiences to the hospital atmosphere was also highlighted in the study by Zheng *et al* that stressed the psychological problem of prolonged illness and recurrent hospital stays on pediatric patients [18]. A major finding in the present study was the solid association between increased anxiety and going through painful procedures (OR=6.27, p<0.001).This result is consistent with a previous study which identified preoperative anxiety as a main distress among children going through surgery [19]. Painful procedures have been demonstrated to trigger pre-emptive anxiety, where children panic about forthcoming pain depending on past experiences.Current pain management methods can considerably drop anxiety levels and upsurge patient recovery [16].This study underlines the need for childcare teams to reduce painful interventions when and wherever possible and arrange emotional support during required procedures. Children who stayed in the hospital for a period of more than seven days were nine times more likely to experience severe anxiety than those with shorter stay at hospital (OR=9.09, p<0.001).This strong connotation emulates findings that extended hospitalizations contribute to feelings of helplessness and separation, which aggravate anxiety indicators [20].The current study supports the significance of decreasing hospital stay periods when medically possible and integrating interventions to decrease anxiety during prolonged admissions.It is suggested that long hospital stays, and painful procedures are the most important backers to anxiety.It emphasizes the need for targeted interventions.Recent appraisals have revealed effective involvements like parental involvement, cognitive-behavioral techniques, and play therapy in decreasing anxiety. The role of child friendly atmosphere and pain lessening approaches in anxiety management has also been highlighted [16].These approaches are well supported by the findings of this study, that suggest that addressing these high-risk factors could considerably improve anxiety levels. However, some of the limitations are inculcated in the study. The study results were students of Qazi Complex, Nowshera, and therefore may not be generalized to other schools that are in different zones with different socio-economic and cultural backgrounds. Also, using only the children's self-rated anxiety scores may be problematic because the children could produce biased scores by either inflating or underestimating their symptoms. However, the study has several strengths compared to previous works in the field of pediatric

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anxiety: First, chronic markers for severe anxiety were examined (e.g., bedtime, length of the hospital stay, presence of painful procedures) and were supported by significant statistical data. Most importantly, in contrast to numerous systematic reviews, this work establishes the size of these predictors, providing information for specific prevention strategies. Extending research to other geographical locations and different clinical communities would increase the applicability of the results and improve the understanding of the nature of anxiety in children admitted to hospitals.

CONCLUSIONS

In conclusion, this research offers valuable consideration into the causes contributing to anxiety among hospitalized children. Although gender and age seem to have slight influence, painful procedures, prolonged hospital stays, and previous hospitalizations considerably escalate the risk of severe anxiety. These outcomes are consistent with recent literature, and they suggest the need for directed interventional strategies aimed at decreasing hospital related stressors. Strategies such as minimizing painful interventions, decreasing hospital stays, and providing psychological support can play a important role in improving the mental health and overall results of pediatric patients.

Authors Contribution

Conceptualization: RA
Methodology: RA, BT, IS
Formal analysis: RA, QUAA, NA
Writing review and editing: RA, QUAA, NA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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