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THE RELATIONSHIP BETWEEN THE LEVEL OF DEHYDRATION AND ANXIETY IN CHILDREN AGED 6-12 YEARS TREATED WITH DIARRHEA

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ABSTRACT

Introduction
Elementary school-aged children (6-12 years old) often exhibit poor snacking habits, lead into health issues, particularly gastrointestinal problems such as diarrhea. Diarrhea-induced dehydration can necessitate hospitalization. Hospitalization due to diarrhea can trigger changes in a child's health status, eliciting individual responses, including anxiety.

Method(s)
This study investigated the correlation between dehydration levels and anxiety in children aged 6-12 years hospitalized with diarrhea in the pediatric ward of Tabanan Regional General Hospital in 2022. This correlational study employed a quantitative design, utilizing purposive sampling with a sample size of 32 children.

Result(s)
The findings revealed that among the hospitalized children, 17 experienced mild/moderate dehydration, 13 were admitted without dehydration, and 2 presented with severe dehydration. A majority of the children experienced moderate anxiety (19 respondents, 59.4%), followed by mild anxiety (8 respondents, 25.0%), severe anxiety (3 respondents, 9.4%), and only 2 respondents (6.3%) exhibited no anxiety or depression. The study concluded that there is a positive correlation between dehydration levels and anxiety levels, albeit a weak one (r = 0.361).

Conclusion(s)
This suggests that increased dehydration severity is associated with increased anxiety in children. The importance of educating school-aged children about diarrhea prevention and the crucial role of parents in managing childhood anxiety are highlighted.

INTRODUCTION

Uncontrolled dietary habits in children can contribute to health problems, affecting the digestive system, particularly diarrhea. Diarrhea is characterized by altered stool consistency, ranging from loose to watery, and increased bowel movement frequency (three or more times per day). While overall morbidity rates fluctuate, and reported diarrhea-related mortality from healthcare facilities and health workers has decreased, diarrhea remains a significant public health concern. It continues to cause frequent outbreaks, some resulting in substantial morbidity and even mortality (Saleh & Rachim, 2014).

Hospitalization due to diarrhea can lead to changes in a child's health status, eliciting various individual responses, including anxiety. Children's anxiety responses during hospitalization manifest differently depending on their developmental stage. School-aged children tend to exhibit less aggressive responses, such as refusal to eat, difficulty sleeping, or quiet crying during hospitalization (Novayelinda et al., 2017).

METHODS

Synthesizing these findings, anxiety responses in children with diarrhea can manifest in their behavior during treatment, their condition (e.g., dehydration levels), and their response to hospitalization, including non-compliance with healthcare professionals, crying, and social withdrawal. Further investigation is warranted to understand anxiety levels in children aged 6-12 years, particularly those experiencing dehydration due to diarrhea. This current correlational, quantitative study aims to describe the relationship between anxiety levels and dehydration severity in children aged 6-12 years hospitalized for diarrhea at Tabanan Regional Hospital in 2022. Ethical approval for this study (LB.02.03/EA/KEPK/0393/2022) has been granted by the Health Research Ethics Commission of the Denpasar Health Polytechnic.

RESULTS

The sample in this study consisted of 32 respondents aged 6-12 years who were hospitalized with diarrhea in the Pediatric Inpatient Ward of Tabanan Regional Hospital. The characteristics of the sample are presented in the following table:

Table 1. Frequency distribution

Sex	Freq	Percentage
Female	20	62,5%
Male	12	37,5%
Total	32	100%
Age	Freq	Percentage
6-7 years old	8	25%
8-9 years old	16	50%
10-11 years old	3	9,4%
12 years old	5	15,6%
Total	32	100%
Hospitalization duration	Freq	Percentage
1-3 days	25	78,1%
4-6 days	4	12,5%
> 6 days	3	9,4%
Total	32	100%

Table analysis reveals that of the 32 respondents, the majority (20, 62.5%) were female, while 12 (37.5%) were male. The most prevalent age group was 8-9 years (16, 50%). Furthermore, most respondents (25, 78.1%) had a length of stay between 1 and 3 days.

This study investigates the degree of dehydration and the level of anxiety. Observations regarding these variables as shown below.

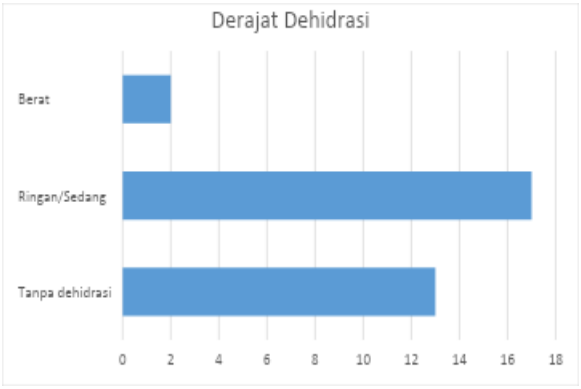

Image 1. Degree of dehydration in children aged 6-12 years old who were hospitalized with diarrhea.

17 children have mild to medium dehydration and 13 children were hospitalized without dehydration, 2 children have severe dehydration.

The degree of anxiety in children aged 6-12 years old with diarrhea presented in image below.

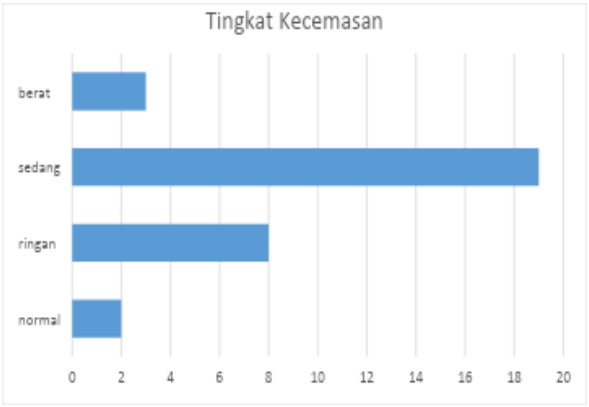

Image 2. Degree of anxiety in children aged 6-12 years old who were hospitalized with diarrhea.

The findings presented above indicate that of the 32 respondents, the majority (19, 59.4%) exhibited moderate levels of anxiety. A smaller proportion (8, 25.0%) presented with mild anxiety, while 3 respondents (9.4%) experienced severe anxiety. Only 2 respondents (6.3%) were categorized as having no anxiety or depression.

Table 2 Correlations Table

		Dehydration	Anxiety
Dehydration	Pearson Correlation	1	.361*
	Sig. (2-tailed)		042
	N	32	32
Anxiety	Pearson Correlation	361*	1
	Sig. (2-tailed)	042	
	N	32	32

*. Correlation is significant at the 0.05 level (2-tailed).

The presented correlation table indicates a weak positive but significant correlation (r= 0.361, p<.05) between dehydration levels and anxiety levels. This suggests that increased dehydration severity is associated with increased anxiety in children.

DISCUSSIONS

Hidayat (2012) classified diarrhea based on the degree of fluid and electrolyte loss from the body. First, Diarrhea without Dehydration. At this stage, the patient does not experience dehydration as the frequency of diarrhea remains within tolerable limits, and there are no signs of dehydration. Second, Diarrhea with Mild Dehydration (3%-5%). At this level, the patient experiences diarrhea three or more times, occasional vomiting, thirst, reduced urination, decreased appetite, and diminished activity. The pulse rate is normal or minimally tachycardic, and physical examination remains within normal limits. Third, Diarrhea with Moderate Dehydration (5%-10%). In this condition, the patient exhibits tachycardia, oliguria or anuria, irritability or lethargy, sunken eyes, and fontanelles, reduced skin turgor, dry mucous membranes of the lips and mouth, decreased tear production, and prolonged capillary refill time (≥ 2 seconds) with cool, pale skin. Lastly, Diarrhea with Severe Dehydration (10%-15%). At this point, the patient has lost a significant amount of fluid from the body, typically presenting with tachycardia and weak pulse, hypotension, and a thready pulse. There is an absence of urine production, deeply sunken eyes and fontanelles, no tear production, inability to drink, onset of apathy, decreased consciousness, and markedly prolonged capillary refill time (≥ 3 seconds) with cool, pale skin.

Diarrhea with dehydration sometimes requires inpatient or hospitalization treatment. Hospitalization itself can cause anxiety in

patients. A literature review was conducted by Aliyah & Rusmariana (2021) on the level of anxiety in preschool children undergoing hospitalization. The results showed that preschool children who undergo hospitalization experience moderate levels of anxiety the most, with 45 children (32.6%), followed by mild anxiety with 38 children (27.5%), severe anxiety with 33 children (23.9%), and panic with 22 children (16.0%).

Anxiety is a normal reaction to stressful situations in life. Anxiety can occur alone or in combination with other symptoms of various emotional disorders (Jendra & Sugiyo, 2020). Nevid Jeffrey Spencer A, & Greene Beverly in Annisa & Ifdil (2016) classified the symptoms of anxiety into three types: (1) Physical symptoms of anxiety, such as restlessness, trembling limbs, excessive sweating, difficulty breathing, rapid heartbeat, weakness, chills, and irritability. (2) Behavioral symptoms of anxiety, such as avoidance behavior, shock, attachment, and dependency. (3) Cognitive symptoms of anxiety, such as worrying about something, feeling disturbed by fear of something that will happen in the future, believing that something frightening will happen soon, fear of inability to cope with problems, mixed or confused thoughts, and difficulty concentrating.

Anxiety has different levels. Gail W. Stuart in Annisa & Ifdil (2016) mentioned several levels of anxiety, including First, Mild Anxiety which is related to daily life stress, this level of anxiety makes individuals more alert and focused. Mild anxiety can even stimulate learning and creativity. Second, Moderate Anxiety: Helps individuals focus on important things. However, their focus becomes narrower and selective. Third, Severe Anxiety greatly narrows an individual's focus, making them focus only on small details and difficulty shifting to other things. And last. Panic Level: Characterized by intense fear and a sense of losing control. Panic-stricken individuals cannot think clearly and cannot take effective action. Panic is also characterized by disorganized personality, improvement in motoric activity, difficulty in communicating, lack of perception, and rational thinking.

To measure anxiety, researchers use a questionnaire developed by Zigmond and Snaith, the Hospital Anxiety and Depression Scale (HADS). HADS consists of 14 questions that measure levels of anxiety and depression in hospitalized patients. Where anxiety scored as below:

≤ 7 = Not anxiety or depression
8-10 = Mild cases
11-15 = Moderate cases
16-21 = Severe cases

Hospitalization elicits individualized reactions when a child resides in a hospital for planned or emergency treatment such as therapy or treatment until discharge (Lisdahayati, 2018). These reactions are significantly influenced by developmental stage, prior experiences with illness, available support systems, and coping mechanisms.

Puspita (2013) outlines the manifestations of separation anxiety in children, categorized into three phases: (1) Phase of Protest, characterized by crying, screaming, searching for parents, rejecting strangers, and physical resistance to parental departure which may continue until the children physically fatigue; (2) Phase of Despair, marked by withdrawal, sadness, depression, disinterest in surroundings, and refusal to eat, drink, or do any activity; and (3) Phase of Denial, where the child began to accept separation, engages with the environment, and superficially interacts with others, often occurring after prolonged parental absence.

Hospitalization, whether planned or emergent, necessitates a child's stay in a hospital for treatment and care. Anxiety is a common consequence of children hospitalization. Children's anxiety responses vary, including fatigue from persistent crying, refusal to interact with nurses, persistent requests to go home, refusal to eat that impeded recovery, diminished motivation to recover, and lack of cooperation with treatment (Sari & Batubara, 2017).

Sari & Batubara (2017) study on anxiety in hospitalized children aged 3-6 years in the Anggrek ward of Ambarawa Regional Hospital. Their findings, based on a sample of 60 children, revealed that 41 children (68.3%) experienced mild anxiety, while 19 (31.7%) experienced

moderate anxiety. Moderate anxiety was most prevalent in 3-year-old girls hospitalized for two days. The authors emphasize the need for holistic nursing care, including anxiety management, to enhance the effectiveness of hospitalization and improve children's health quality.

Novayelinda et al. (2017) compared anxiety responses between toddlers and school-aged children during hospitalization. Their research, conducted in the pediatric ward of Arifin Achmad Regional Hospital in Pekanbaru, involved 40 children aged 18 months to 6 years (20 toddlers and 20 preschoolers). The study found no significant difference in anxiety responses between the two age groups across all behavioral aspects

Epidemiologically, the transmission of environmentally-based diseases remains high among school-aged children, particularly infectious diseases like diarrhea. Several factors contribute to the persistent high incidence of diarrhea, including inadequate water storage, improper waste disposal, lack of household water treatment, insufficient water supply, inadequate boiling of water during cooking, poor sanitation, contaminated food, inadequate handwashing practices, young age, and limited maternal knowledge regarding diarrhea (Ibrahim et al., 2021).

This study concludes that a majority of children aged 6-12 years who experience diarrhea exhibit moderate levels of anxiety. This is likely attributed to the severity of the illness, the unfamiliar and potentially intimidating hospital environment, and interactions with doctors and nurses. School-aged children possess vivid imaginations, and without adequate support, the experience of hospitalization can be distressing. They may harbor anxieties about medical procedures, such as injections. The hospital setting differs significantly from the familiar comfort of home. Furthermore, the degree of dehydration reflects the severity of the diarrhea, and the illness itself restricts children's typical activities with peers and family.

These findings align with research conducted by Mathius et al. (2019), which identified school-aged children as the most susceptible to anxiety associated with diarrhea. According to Jean Piaget's cognitive development theory, children aged 7-12 years are in the concrete operational stage, characterized by the development of logical thinking and object classification. Consequently, children in this age group can recognize anxiety-inducing stimuli.

Anxiety is a universal response to unpleasant situations. Children's responses to new environments may vary, and anxiety can arise from encountering unfamiliar and potentially frightening situations, such as a hospital setting with numerous individuals experiencing illness or distress. A child's response to medical procedures can manifest as anxiety, leading to resistance, crying, screaming, and even requests to go home despite their illness (Pragholapati et al., 2019).

Family support, including motivation and anxiety reduction strategies during treatment, is crucial for meeting a child's physical and emotional needs during hospitalization. Strong family support can mitigate separation anxiety and enhance the child's comfort during treatment.

Anxiety is a response influenced by negative self-perception. The feelings of anxiety pose a threat to the individual, potentially leading to excessive panic. Children in unfamiliar hospital environments may experience fear of strangers, and their aversion to the hospital setting can be exacerbated by noise, the distress of other children, uncomfortable temperatures, inadequate play facilities, and unappetizing hospital food (Aliyah & Rusmariana, 2021).

Children's anxiety responses during hospitalization vary according to their developmental stage. School-aged children and adolescents often express anxiety and worry verbally, demonstrating a greater capacity to articulate their feelings compared to younger children. Consequently, younger children tend to exhibit more aggressive responses, both physically and verbally.

Hospitalization impacts both children and parents. For children, it can affect development, and the experience of illness and hospitalization can lead to a sense of lost control. Children may

experience a loss of autonomy, resulting in negative reactions to their dependence on others.

CONCLUSIONS

Of the 32 child participants, 13 presented without dehydration, 17 experienced mild/moderate dehydration, and 2 presented with severe dehydration. The majority of participants exhibited moderate levels of anxiety (19 participants, 59.4%), followed by mild anxiety (8 participants, 25.0%). Severe anxiety was observed in 3 participants (9.4%), while only 2 participants (6.3%) were categorized as not experiencing anxiety.

School-aged children are in a crucial developmental period for learning. Healthcare providers can leverage this receptiveness to educate children about diarrhea, including preventative measures, hygiene practices, and appropriate management strategies. This empowers children to protect themselves from diarrhea and dehydration, thereby reducing the need for hospitalization. Promoting healthy growth and development can also mitigate potential anxiety disorders.

This study aims to provide insights into the relationship between dehydration levels and anxiety in children aged 6-12 years who are hospitalized with diarrhea. These findings can serve as a benchmark for enhancing the quality of mental health services for children. Furthermore, this research can inform and educate the public, particularly parents, about anxiety levels in children of this age group experiencing diarrhea. Parental involvement, including providing support and motivation during hospitalization, is essential for managing childhood anxiety.

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