

Description of anxiety in preschool children during intravenous medication administration at Subang regional hospital

Ela Arumsari^{1*}, Bayu Nirwana², Annisa Pratiwi Gunawan²

¹Student of study program diploma nursing in Subang State Polytechnic

²Lecture of three program of diploma nursing in Subang State Polytechnic

Article Info

Article History:

Received: 30 May 2026

Revised: 15 June 2026

Accepted: 28 June 2026 Online:
3 August 2026

***Corresponding Author:**

Ela Arumsari

E-mail:

elaarumsari843@gmail.com

Abstract

Background: Preschool children (3-6 years old) are susceptible to anxiety during hospitalization, especially during invasive procedures such as intravenous medication administration.

Objective: To identify the level of anxiety in preschool children during intravenous medication administration at Subang Regional General Hospital.

Method: This descriptive quantitative study used a cross-sectional design with 63 respondents using an incidental sampling technique. The instrument used was the Preschool Anxiety Scale (PAS) Parent Report. Data were analyzed using univariate analysis.

Results: Most children experienced moderate anxiety (50.8%), followed by severe (25.4%), mild (23.8%), and no very severe anxiety (0%).

Conclusion: Preschool children generally experience moderate anxiety during intravenous medication administration, requiring therapeutic communication, parental involvement, and distraction techniques to reduce anxiety.

Keywords

anxiety; hospitalization; intravenous; pediatric nursing; preschool children

1. Introduction

Preschoolers are between the ages of 3 and 6, a time when their ability to understand situations and adapt to new environments is still developing. At this stage, children are unable to fully comprehend the events they experience and have limited coping skills when facing stressful situations. Therefore, preschoolers tend to be more susceptible to fear, worry, and anxiety when faced with unfamiliar (Herayeni et al., 2022).

Hospitalization is a condition that can cause anxiety in children. Hospitalization is the process where a child must undergo treatment and medication in a hospital due to a health problem. During hospitalization, the child is required to adapt to a new environment, interact with healthcare professionals, and undergo various medical procedures never before experienced. This situation can trigger emotional responses such as stress, fear, and anxiety, which can potentially impact the child's treatment and recovery process (Fitria, 2019 dalam Rahmnia et al., 2024).

One of the most common medical procedures performed on children during hospitalization is intravenous medication. This procedure involves administering medication directly into a vein through an IV line, allowing for a more rapid therapeutic effect. Despite its significant benefits in the treatment process, intravenous medication administration is often a source of fear for children due to the use of needles and the potential for pain and discomfort. (Da Ate & Lani, 2025). A study conducted by (Padding et al., 2018) showed that invasive procedures such as venipuncture can cause anxiety, fear, and rejection of the procedure in preschool-aged children due to their limited understanding of the purpose and process of medical procedures.

Data from the Central Statistics Agency (2020) shows that early childhood is part of preschool-age children, reaching 12.19% of the total population of Indonesia and 12.10% in West Java Province. The large proportion of this age group indicates the importance of attention to the physical and psychological health aspects of children, including during hospitalization. Various studies indicate that anxiety remains a common problem experienced by preschool-aged children during hospitalization and during invasive procedures. Research conducted by Muliani (2019) in Hatuwe et al., (2025), Muslih et al. (2024), and Rahmnia et al. (2024) shows that most preschool children experience anxiety to varying degrees during treatment and medical procedures in hospitals.

2. Methods

2.1 Research design

This study used a quantitative approach with a descriptive design. The descriptive design was chosen because it aimed to describe the anxiety levels of preschool children during intravenous medication administration without providing interventions or examining relationships between variables. This approach was used to obtain an objective picture of the respondents' condition at the time of the study.

This study employed a cross-sectional data collection method, meaning that variables were measured only once during each observation period. Therefore, the data obtained reflect the anxiety levels of preschool children during intravenous medication administration during the study period in the pediatric inpatient ward at a regional general hospital in Subang Regency.

2.2 Setting and samples

This study used a quantitative approach with a descriptive design to describe children's anxiety levels during intravenous drug administration. The study was conducted in March 2026 for two weeks in the pediatric inpatient ward of a regional general hospital in Subang Regency, West Java, Indonesia

The study population was all 742 children of gestational age who were treated in the pediatric inpatient ward during January–December 2025. The study sample was selected using a non-probability sampling technique with an incidental sampling method, namely respondents who were encountered by chance during the study period and met the established criteria. Respondent

recruitment was carried out by identifying children undergoing treatment in the pediatric inpatient ward and meeting the study criteria. Parents who met the criteria were given an explanation of the study's purpose and procedures and then asked to provide written informed consent before participating.

The inclusion criteria for this study included: (1) children treated in the pediatric inpatient ward, (2) aged 3–6 years (preschool age), (3) accompanied by a father or mother during treatment, and (4) receiving intravenous drug therapy. The exclusion criteria were: (1) children with decreased consciousness and (2) children who experienced vascular injuries. The sample size was determined based on the number of respondents who met the inclusion and exclusion criteria during the data collection period.

2.3 Measurement and data collection;

Research data was collected using the Preschool Anxiety Scale (PAS) Parent Report instrument developed by Spence (2001) to measure anxiety levels in preschool-aged children. This instrument was adapted from previous research and tested for validity and reliability by Suprpto (2021). The test results showed a validity value of 0.514 and a Cronbach's alpha value of 0.928, indicating excellent reliability.

The Preschool Anxiety Scale (PAS) Parent Report consists of 28 items covering five dimensions of anxiety: general anxiety, social anxiety, obsessive-compulsive disorder, fear of physical injury, and separation anxiety. The instrument uses a 4-point Likert scale, with higher scores indicating higher levels of anxiety. Scores were interpreted based on the following categories: mild anxiety (<28), moderate anxiety (28–56), severe anxiety (57–84), and very severe anxiety (≥85).

Data collection was conducted directly by the researcher without the use of a research assistant. After parents expressed their willingness to participate and signed informed consent, researchers administered the PAS questionnaire to parents while their children were receiving intravenous medication. The questionnaire took approximately 10–15 minutes to complete. Researchers assisted with the process and provided explanations for any questions the respondents did not understand.

2.4 Data analysis

The collected data was first edited, coded, scored, entered, tabulated, and cleaned to ensure completeness and accuracy. Initial data processing was performed using Microsoft Excel 2021, then imported into the Statistical Package for the Social Sciences (SPSS) version 27 for further analysis.

2.5 Ethical considerations.

This study obtained ethical approval from the Health Research Ethics Committee under No. 014/KEPK/III/2026 prior to implementation. Written informed consent was obtained from parents or guardians after receiving an explanation of the study's purpose, benefits, and procedures, as well as the right to refuse or discontinue participation at any time without affecting the services received.

The researchers guaranteed the confidentiality and anonymity of respondents by using a code for each data item and by not including their identities in the research report. All data obtained was used solely for research purposes and was stored securely in accordance with ethical research principles, including respect for respondents, benefit, non-harm, and fairness.

3. Results

This study aims to describe the anxiety levels of preschool children during intravenous medication administration. Data were collected in May 2026 from 63 respondents using the Preschool Anxiety Scale (PAS) questionnaire. Respondent characteristics included age, gender, type of medication administered, and previous hospitalization experience.

Univariate analysis was conducted to describe the characteristics of respondents and the anxiety levels of preschool children during intravenous medication administration. The data were presented in the form of frequency distribution tables and percentages. The interpretation of percentage values was based on the classification proposed by Arikunto (2010). Based on respondent characteristics, nearly half were under 3 years old (47.6%), most were female (61.9%), and most were receiving irritant medication (65.1%). Furthermore, nearly all respondents had previous experience of hospitalization (87.3%).

The distribution of preschool children's anxiety levels during intravenous drug administration is presented in Table 1.2. The results showed that the majority of respondents experienced moderate anxiety (50.8%), followed by severe anxiety (25.4%) and mild anxiety (23.8%). No respondents experienced very severe anxiety (0%). These findings indicate that moderate anxiety is the most common condition experienced by preschool children during intravenous drug administration.

4. Discussion

This study aimed to describe the anxiety levels of preschool children during intravenous drug administration. The results showed that most children experienced moderate anxiety. This finding indicates that intravenous drug administration remains a procedure that can elicit negative emotional responses in preschool children during hospitalization. Anxiety is generally manifested through crying, restlessness, fear, resistance, or seeking closeness with parents during the procedure.

The levels of anxiety found can be explained by the developmental characteristics of preschool-aged children, who still have limited ability to understand the purpose and benefits of medical procedures. At this age, children tend to view invasive procedures as threatening experiences because they cause pain and discomfort. Furthermore, the unfamiliar hospital environment, interactions with unfamiliar healthcare professionals, and previous hospitalization experiences can influence children's perceptions of the procedures they receive. These conditions make children more susceptible to exhibiting anxiety responses when faced with intravenous medication administration.

The results of this study align with those of Dede (2022), who reported that most preschool children undergoing intravenous therapy experienced moderate anxiety. The study explained that intravenous procedures are often perceived as painful, triggering fear and rejection in children. These findings are also supported by Rahmania et al. (2024), who stated that preschool children are more susceptible to anxiety due to their still-developing cognitive and emotional abilities. Therefore, the results of this study reinforce previous findings that invasive procedures during hospitalization are a contributing factor to anxiety in children.

The characteristics of the respondents in this study indicate that most children were 3 years old, female, received irritant medications, and had undergone previous treatment. Younger age is known to be associated with limited adaptability to the hospital environment and medical procedures. Furthermore, the use of irritant medications can increase pain and discomfort during intravenous administration, potentially reinforcing the child's perception of threat. Previous hospitalization experience also does not always reduce anxiety, as unpleasant experiences can create negative memories of future medical procedures.

The findings of this study have important implications for pediatric nursing practice. Nurses need to minimize children's anxiety through therapeutic communication, providing developmentally appropriate information, involving parents during procedures, and using distraction techniques.

These interventions are expected to help children feel safer and more comfortable, allowing for more effective intravenous drug administration and reducing the psychological impact of hospitalization.

5. Implication and limitations

The results of this study indicate that most preschool children experience moderate anxiety during intravenous drug administration. These findings have implications for pediatric nursing practice, highlighting the importance of therapeutic communication, parental involvement during procedures, and the use of distraction techniques to help reduce children's anxiety. Furthermore, these findings can serve as a basis for nurses and hospitals in developing more child-friendly services to enhance comfort during invasive procedures.

This study has several limitations. It focused solely on describing preschool children's anxiety levels during intravenous medication administration, thus failing to analyze the relationship between anxiety levels and factors that may influence them, such as age, gender, previous hospitalization experience, and the type of medication administered. Furthermore, the study used a descriptive design, meaning the results only describe the respondents' condition at the time of data collection and cannot explain cause-and-effect relationships. Therefore, further research is recommended to use an analytical design to identify factors associated with children's anxiety during intravenous medication administration procedures.

6. Conclusion

This study successfully achieved its objective, which was to describe the anxiety levels of preschool children during intravenous drug administration. The results showed that most preschool-aged children experienced moderate anxiety (50.8%). These findings indicate that intravenous drug administration remains a procedure that has the potential to elicit anxiety responses in children, characterized by various anxiety domains, including general anxiety, social anxiety, obsessive-compulsive disorder, fear of physical injury, and separation anxiety. These results add to the evidence regarding the importance of paying attention to children's psychological aspects during invasive procedures in hospitals, particularly in the preschool age group.

The study findings have implications for pediatric nursing practice, including the need for therapeutic communication and parental involvement during procedures to help reduce anxiety during intravenous drug administration. Future research is recommended to use an analytical design to identify factors associated with children's anxiety levels and evaluate the effectiveness of various nursing interventions in reducing anxiety in preschool children undergoing invasive procedures.

Acknowledgments

The author would like to thank the Subang State Polytechnic for providing academic support during the process of compiling this final assignment, to the Director of Subang Regional General Hospital and all staff of the Hemodialysis Room of Subang Regional General Hospital who have provided permission and assistance during the implementation of the research, to the supervisor I and supervisor II who have provided direction, guidance, and valuable input, to all lecturers of the Nursing Study Program of Subang State Polytechnic for the knowledge that has been provided, as well as to all respondents and parties who have provided support, assistance, and cooperation so that this research can be carried out and completed well.

Author contribution

The author is responsible for the entire research process, starting from the preparation of the research concept, data collection, data analysis, interpretation of results, preparation of the manuscript, to approval of the final manuscript for publication.

Conflict of interest

The author declares that there is no conflict of interest in the research or preparation of this manuscript.

References

- Arikunto. (2010). *Research procedures: a practical approach*. Jakarta: Rineka Cipta.
- Da Ate, Y. F., & Lani, M. F. N. (2025). Implementation of standard operating procedures (SOP) for administering intravenous drugs through infusion tubes in the Dahlia Blut room, Dr. T.C. Hillers Maumere Regional General Hospital. *Duta Medika Nursing Journal*, 5(1), 23–32. <https://doi.org/https://doi.org/10.47701/dutamedika.v5i1.4776>
- Dede, F. L., & Rani, R. (2022). The effect of classical music therapy on anxiety levels in preschool-aged children during intravenous therapy. *Journal of Education and Counseling*, 4(4), 314–319. <https://journal.universitaspahlawan.ac.id/index.php/jpdk/article/view/5224>
- Hatuwe, E., Hitiyaut, M., & Tunny, R. (2025). Description of preschool children's anxiety levels based on the frequency of hospitalization in the pediatric ward of Prof. Dr. J.A. Latumeten Ambon Kindergarten II Hospital. *Journal of General Health and Pharmaceutical Sciences Research*, 3(1), 213–221. <https://doi.org/https://doi.org/10.57213/jrikuf.v3i1.601>
- Herayeni, D. F., Immawati, & Nurhayati, S. (2022). Application of coloring therapy to reduce anxiety in preschool children (3-6 years old) who were hospitalized at the General Ahmad Yani Metro Regional Hospital. *Journal of Young Scholars*, 2(1). [Jurnal.akperdharmawacana.ac.id/index.php/JWC/article/view/292](https://jurnal.akperdharmawacana.ac.id/index.php/JWC/article/view/292)
- Maylasari, I., Agustina, R., Sari, N. R., & Rosmala, F. W. (2020). *Early childhood profile*. Jakarta: Central Statistics Agency
- Muslih, D. B., & Utami, R. D. P. (2025). *The description of the level of anxiety in preschool-age children during intra-tube injections in the Arimbi Ward of the Astrini Hospital Wonogiri*. Faculty of Health Sciences, Kusuma Husada University, Purwakarta
- Rahmnia, D. R., Apriliyani, Ita, & Kurniawan, W. E. (2024). Overview of anxiety levels due to hospitalization in children with invasive procedures. *Journal of Professional Nursing Research*, 6(2), 625–634. <https://doi.org/https://doi.org/10.37287/jppp.v6i2.2146>
- Padding, A. M., Rutjes, N. W., Hashimoto, S., Vos, A., Staphorst, M. S., van Aalderen, W. M. C., & van der Schee, M. P. (2018). Young children experience little emotional burden during invasive procedures in asthma research. *European Journal of Pediatrics*, 178(2), 207–211. <https://doi.org/https://doi.org/10.1007/s00431-018-3265-0>
- Suprpto, R. A. (2021). *The effectiveness of puzzle and coloring therapy on anxiety in preschool children during the treatment process in the Bougenville inpatient room of Dr. Soeroto Ngawi Regional General Hospital*. Bhakti Husada Mulia Madiun Health College.

Table

Tabel 1 Percentage Interpretation Categories According to Arikunto (2010)

Percentage	Interpretation
100 %	All
76-99%	Almost All
51-75%	Most of the
50%	Half of it
26-49%	Almost half of it
1-25%	Fraction
0%	None

Table 2 Frequency Distribution of Age

Age	Frequency (f)	Percentage
3 Years	30	47,6%
4 Years	14	22,2%
5 Years	12	19,0%
6 Years	7	11,1%
Total	63	100.0%

Table 3 Frequency Distribution of the Preschool Anxiety Scale (PAS)

<i>Preschool Anxiety Scale (PAS)</i>	Frequency (f)	Percentage
mild	15	23.8%
moderate	32	50.8%
severe	16	25.4%
Very severe	0	0%
Total	63	100.0%