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Research article

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The Relationship between Pediatric Nurses' Knowledge, Attitude and Practice about Atraumatic Care of Hospitalized Children in Indonesia

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Abstract

The main stressors of the hospitalized children are separation from family, loss of control, pain, and the unfamiliar hospital environment. Atraumatic care is therapeutic care provided through interventions that eliminate or reduce the psychological and physical distress experienced by children and families. This study was to describe the Indonesian nurses' knowledge, attitudes, and practices regarding atraumatic care for hospitalized children and to identify the factors affecting the nurses' practice of atraumatic care. This descriptive correlation study was held in a regional general hospital. Totally, 70 of 44 nurses in paediatric wards and 26 nurses in the PICU completed a 20 multiple-choice question scale of knowledge about atraumatic care and a 30-item scale of attitude towards atraumatic care. The behaviours were observed using a 25-item Nurses' Practice Scale for Atraumatic Care. Compared to their colleagues in other units, the nurses in the PICU (12.65±2.79) had the best knowledge, and the nurses in the pediatric wards had the best attitude (98.19±9.76) and practice (63.09±10.64) toward providing atraumatic care. The Spearman Rank correlation analysis indicated that nurses with better levels of knowledge tended to have better attitudes ($r = 0.317$, $p<0.001$), and those who had better attitudes were more likely to implement atraumatic care ($r = 0.428$, $p=0.03$). Additionally, nurses with higher levels of knowledge are more likely to translate their knowledge into practice ($r = 0.377$, $p<0.001$). Hierarchical linear regression revealed that nurses who were working in the pediatric wards and were female and had better knowledge and attitude had significantly better practice scores in providing atraumatic care than those who were working in the PICU and were male. Trainings regarding the provision of atraumatic care for hospitalized children should be developed for the nurses to improve their knowledge and attitude so they can provide optimal care to minimize the impact of hospitalization on children.

INTRODUCTION

The population of children who are hospitalized is increasing.[1] The percentage of children experiencing signs of illness was 43.6% in 2020, according to the data from Central Statistics Agency in Indonesia, with almost 16% requiring hospitalization, 13% greater than the year before.[2] More than 45% of all children would experience

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disease and illness, including symptoms like cough, fever, diarrhoea, nausea, and vomiting.[3] Hospitalization is a crisis for children whether planned or unexpected incidents.[4] Moreover, changes in daily routines can contribute to fear and anxiety for children during hospitalization.[5] Although science and technology have advanced rapidly in diagnosis and treatment of childhood illness, frequent therapeutic interventions induced for children with illness can result in trauma, pain, anger, anxiety, and fear.6 In Indonesia, it was reported in 2018 that the rate of children who were hospitalized experienced the feeling anxiety was approximately 57%, and it has been increased to 63% in 2019. The figure illustrates that more than 40% of hospitalized children experience stress along the process during their treatment trajectory.[3]

The stress as the result of hospitalization can affect children differently, depending on their age, previous experiences of the hospitalization, acceptance of their situation, coping skills, and level of support from their parents.[7] The stress may, in turn, lead to negative behaviours in children, such as crying, being aggressive, or loss of control in their cooperation and compliance in treatment and procedure necessary for their disease and illness.[8,7] The main stressors that children must confront during hospitalization include separation from family, trauma, pain, and the hospital environment itself which is unfamiliar to children.[10,7,11,1] If these negative experiences cannot be addressed, they can result in the child's psychological health which can impede growth and development.[12]

Atraumatic care is therapeutic care provided through interventions that eliminate or reduce the psychological and physical distress experienced by children and families.7 Moreover, atraumatic care which is a component of pediatric nursing, refers to minimizing the impact of hospitalization.[13] Nurses have primary responsibilities in providing atraumatic care include reducing or preventing the impact of separation from the family, improving parents' ability to care for hospitalized children, preventing potential psychological injuries and pain, and arranging physical environment that is close to the children's personal preference such as toys and comfort measures.[1] One research study stated that applying atraumatic care to children in hospitals could reduce the experience of trauma confronted by children and parents while hospitalization.[14]

Nursing interventions in decreasing the effect of trauma during hospital admissions include clear explanation of hospital procedures, the disease, and treatment to parents and children by applying appropriate communication methods or tools in helping the child adjust to new and previous experiences.[11] Nurses can also encourage and organize support for the child from the family, provide therapeutic toys during treatment.[18] In addition, multisensory devices may aid communication, for example, dolls, books, and videos and using games as tools to illustrate aspects of hospitalization.[14] Pediatric nurses, in particular, need specific skills and knowledge, for example, a deeper understanding of children's growth and development than other health workers, in order to tailor nursing plans to children and families, helping them adapt to conditions that affect both internal and external growth and development.[19, 20]

The factors influencing nurses' ability to carry out atraumatic care in hospitals are based on a person-focused perceptions, knowledge, beliefs, desires, motivations, intentions, and attitudes for the outcomes of rational behavior in children with acute illness.[11,24] Pediatric nurses must perform care based on a foundation of atraumatic care. The knowledge is required to help children receive the best possible care while in the hospital.[25, 26] Attitude can be seen as a

relatively long-lasting organization of the motivational, perceptual, and cognitive processes that are relatively permanent in how a person deals with aspects of life.[27] Furthermore, nursing practice is an independent action of professional nurses in providing nursing care within a work environment where nurses have authority and responsibility in collaboration with patients and other health workers to restore health and deliver care.[11] Therefore, nurses need to have the knowledge, professional attitudes, and accountable practice with a combination of technical and interpersonal skills to meet the needs of patients, to put it another way, the capacity of nurses to provide atraumatic care depends on their knowledge and attitudes.[15] Implementing atraumatic care can result in a higher level of children's satisfaction in care.[16]

Although an Indonesian study has found that the majority of Indonesian nurses (89%) had a positive attitude and supported the implementation of atraumatic care for sick children who are hospitalized, the knowledge of atraumatic care was insufficient among half of those nurses.[13] Moreover, the nurses in the Mediani's study despite their understanding of atraumatic care in children, they had indicated that they may partially incorporated methods of atraumatic nursing into the care they had provided to children in hospital, such as involving parents in the care of the child in hospital and applying measures for reducing the adverse emotional reactions of the children while hospitalized.[17] There are many areas needed to be addressed in pediatric nursing practice of atraumatic care including the deficiencies in nursing education, training and preparation in relation to atraumatic care for children, as well as a lack of opportunities for continuing professional development and a short of studies examining the nurses' knowledge in this field.[21, 22, 1] In addition, inadequate nursing knowledge, practice and negative attitudes toward atraumatic care for children can contribute to a greater incidence of anxiety and unnecessary trauma for children while hospitalized.[23]

Previous studies in Indonesia have focused on nurses' knowledge and attitudes.[13, 28, 16] however little has been known about the relationship between nurses' knowledge, attitudes, and practice concerning atraumatic care for hospitalized children. As a result, it was crucial to explore the level of knowledge, attitude, and practice of nurses regarding atraumatic care for hospitalized children and the relationship between their knowledge and attitude and their practice.

METHODS

This descriptive correlation study was held in a regional general hospital. Totally 70 (44 in pediatric wards and 26 nurses in the PICU) at work answered a 20 items scale of knowledge toward atraumatic care, was reliable with a Kuder-Richardson 20 (KR-20) of 0.779 and a 30 items scale of attitude toward atraumatic care was reliable with a Cronbach alpha of 0.910. A 25 items Nurses' Practice Scale for Atraumatic Care was used to observe the behaviors, this uses Cohen's Kappa to report interrater reliability with four research assistants, RA_1 0.823, RA_2 0.858, RA_3 0.908, and RA_4 0.881.

The data were collected from June 7 to August 7, 2022. The knowledge and attitude questionnaires were given to the nurse participants after consent was obtained, and they were instructed on how to complete them in a hospital private room. Before conducting the observation, four research assistants who have bachelor's degrees in nursing and are registered nurses were recruited. Every research assistant stays in the same unit until all participants in that unit have been observed. For the training stage, the researcher follows each research assistant in each unit to observe one pediatric nurse. Four research assistants were trained until their inter-rater reliability with the researcher was greater than 85%. The four

pediatric nurses observed in the training session did not participate in the formal study or be observed again. Then, the researchers conducted a formal study. If nurses who answered the scales from the two pediatric wards and PICU units agreed to participate, the observation was contacted and scheduled the time. All data were stored in a locked file cabinet. All the participants received a gift from the researcher for their participation.

The data were described using descriptive statistics, such as frequency, percentage, mean, and standard deviation. Non-parametric tests were employed because Shapiro-Wilk tests revealed that the variable distribution deviated significantly ($p<0.05$) from normality. The study employed Mann-Whitney U tests and Kruskal-Wallis tests to evaluate group differences, and Spearman's rank correlation coefficient was utilised to examine the link between study variables. A significance level of $p<0.05$ was applied to the latter test. Three models were used in a hierarchical linear regression to find out what factors influence nurses' practice. Model one included the demographic data, Model 2 added the knowledge of nurses, and Model 3 incorporated the attitude of nurses. All analyses were performed in SPSS v26 (IBM SPSS, Chicago, IL) and p-values < 0.05 were regarded as significant.

Ethics Statement

The present study obtained approval from the research ethics committee of Muhammadiyah University of Semarang (Approval No: 0016/KEPK/VII/2022). After being furnished with comprehensive details about the study, each volunteer signed a written consent form. They received guarantees that their data would remain anonymous and confidential and that declining to participate in the study would not have any negative effects on their professional standing.

RESULTS

Table 1
Descriptive statistics of the nurses' demographic data, knowledge, attitude, and practice in providing atraumatic care to hospitalized

Indicators	n (%)	Mean±SD
Department of work		
Pediatric wards	44 (62.9)	
PICU	26 (37.1)	
Duration of work		4.89±4.15
Age (years)		29.84±4.37
Gender		
Male	11 (15.7)	
Female	59 (84.3)	
Marital Status		
Married	40 (57.1)	
Single	30 (42.9)	
Education		
Diploma	37 (52.9)	
Bachelor	33 (47.1)	
Atraumatic care training		
Yes	0 (0.0)	
No	70 (100.0)	
Nurses knowledge*		12.23±2.10
Nurses Attitude*		95±10.20
Nurses Practice*		60.94±10.58

Note. M (mean), SD (standard deviation), *Scales on Atraumatic Care of Hospitalized Children.

The 70 nurses who participated were mainly from pediatric ward (62.9%), and their duration of work ranged from 1 to 20 years (M= 4.89, SD=4.15) (Table 1). Compared to their colleagues in other units, the nurses in the PICU had the best knowledge and the nurses in the pediatric wards had best attitude and practice toward providing atraumatic care. The 70 of nurses' knowledge work of the atraumatic care of hospitalized children was found statistically associated with age (*r=0.265, p=0.02*) and duration of work *(r=0.330, p<0.001)* had significant positive correlations with nurses' knowledge. However, there was no statistically significant relationship between nurses' knowledge about atraumatic care and their department of work, gender, marital status, and education. The department they worked in pediatric wards was statistically associated their attitude of atraumatic care for hospitalized children *(z=-4.452, p<0.001*), and nurses who married had significant higher *(z=0.805, p=0.02).*

Mann-Whitney Test showed that nurses who were working in the pediatric wards *(z=0.805, p=0.02)*, female *(z=-4.624, p<0.001)*, and married *(z=-2.273, p=0.02)* had significantly higher practice scores in providing atraumatic care than those who were working in the PICU, male, and single. Both age (*r=-0.30, p<0.001*) and duration of work *(r=-0.32, p<0.001)* had significant negative correlations with nurses' practice. The Spearman Rank correlation analysis indicated that nurses with better levels of knowledge tended to have better attitudes, and those who had better attitudes were more likely to implement atraumatic care. Nurses with higher levels of knowledge are more likely to translate their knowledge into practice (Table 2).

Table 2
Association between the 70 nurses' demographic characteristics and their knowledge, attitude, and practice of atraumatic care for hospitalized children

Characteristics	Nurses' knowledge M±SD	z/r	*p*	Nurses' attitude M±SD	z/r	*p*	Nurses' practice M±SD	z/r	*p*
Department of work [a]		-1.583	0.11		-4.452	<0.001		0.805	0.02
Pediatrict Wards	11.98±2.56			98.19±9.79			63.09±10.64		
PICU	12.65±0.79			89.61±8.62			62.46±10.24		
Age (years) [b]	29.05±4.11	0.265	0.02	31.19±4.52	-0.165	0.17	32.38±5.24	-0.300	<0.001
Gender [a]		-0.183	0.85		-1.434	0.15		-4.624	<0.001
Male	11.91±2.11			89.81±8.58			55.64±11.50		
Female	12.29±2.11			95.97±10.25			61.93±10.20		
Marital Status [a]		-1.100	0.26		-2.150	0.03		-2.273	0.023
Married	12.61±2.47			94.49±9.50			61.67±11.08		
Single	12.41±2.20			97.30±9.90			59.97±9.97		
Education [a]		-0.910	0.35		-0.411	0.67		-0.677	0.502
Diploma	12.80±2.16			95.86±9.21			61.67±10.53		
Bachelor	12.15±2.67			94.63±10.49			60.12±10.75		
Duration of work [b]	3.73±3.84	0.330	<0.001	6.85±3.97	-0.133	0.27	7.98±4.88	-0.328	<0.001
Nurses' Knowledge [b]					0.317	<0.001		0.377	<0.001
Nurses' Practice [b]					0.428	0.03			

Noted. [a] Mann Whitney Test, [b] Rank Spearman Correlation

Hierarchical linear regression revealed that nurses who were working in the pediatric wards and female, had better knowledge and attitude had significantly better practice scores in providing atraumatic care than those who were working in the PICU and male. The pediatric wards and female had better knowledge and attitude had significantly better practice scores in providing atraumatic care.

In model one, the nurses who were working in pediatric wards *(B=6.020, SE=3.114, p=0.008)* and female *(B=10.859, SE=3.687, p=0.004)* had significantly higher nurses' practices scores in providing atraumatic care than those who were working in the PICU and male, with 14.9% variance explained. After nurses' knowledge was included in model two, the nurses who were working in pediatric wards *(B=5.413, SE=2.978, p=0.034)* and female *(B=10.367, SE=3.520, p=0.005)* remained significant. Also, the higher the nurses' knowledge (*B=1.534, SE=0.567, p=0.009*), the greater the nurses' practice in providing atraumatic care, and the explained variance was 9.5% for nurses' knowledge alone. After nurses' attitude included in model 3, the nurses who were working in pediatric wards *(B=7.826, SE=3.254, p=0.019)* and female *(B=9.814, SE=3.481, p=0.006)*, had better

knowledge *(B=1.068, SE=0.622, p=0.010)* and attitude *(B=0.237 SE=0.139, p=0.029)* in providing atraumatic care were significantly related to better nurses' practice. In addition, the explained variance for nurses' attitude alone was 1.1% (Table 3).

Table 3
Hierarchical regression analysis of factors affecting the nurses' practice of atraumatic care for hospitalized children (n=70)

Characteristics	Model 1				Model 1				Model 1					
	B	*SE*	*T*	*P*	*B*	*SE*	*T*	*p*	*B*	*SE*	*T*	*p*	R^2	*VIF*
Department of work [a]													0.149	1.088
Pediatrict Wards	6.020	3.114	-1.071	0.008	5.413	2.978	-1.423	0.034	7.826	3.254	-1.666	0.019		
PICU														
Age (years) [b]	-0.352	0.504	-0.699	0.487	-0.357	0.480	-0.742	0.461	-0.254	0.477	-0.532	0.597		
Gender [a]														
Female	10.859	3.687	2.946	0.004	10.367	3.520	-0.123	0.005	9.814	3.481	2.819	0.006		
Male														
Marital Status [a]														
Married	-0.149	2.800	-0.053	0.958	-0.327	2.671	2.946	0.903	-0.372	2.630	-0.141	0.888		
Single														
Education [a]														
Diploma	-3.557	2.720	-1.308	0.196	-3.002	2.601	-1.162	0.250	-3.369	2.570	-1.311	0.195		
Bachelor														
Duration of work [b]	-3.557	2.720	-1.308	0.288	-0.786	0.552	1.818	0.160	-0.915	0.549	2.405	0.101		
Nurses' Knowledge [b]					1.534	0.567	2.703	0.009	1.068	0.622	1.718	0.010	0.244	1.314
Nurses' Practice [b]									0.237	0.139	1.710	0.029	0.255	1.560

Note. B = unstandardized coefficient, SE = standard error of unstandardized coefficients

DISCUSSION

The study results regarding both questionnaires show that most work in pediatric wards, the average ages 22 to 46, and the majority are female and married (68.4%, n=80). The Human Resources for Health Country Profiles of Indonesia report that 56.5% of Indonesian nurses are between 22 and 40 years old, with 70.1% female.21 The majority of pediatric nurses (84.8%) are early adults between 22 and 39. Most nurses in this study held a diploma (70%), and their work experience ranged from 1 to 20 years. Furthermore, practically every participant (100%) in this study had received no training in atraumatic treatment. 60% of nurses had a diploma, 42% had worked in a hospital for over 10 years, and 58% had worked in the pediatric department for fewer than five years. However, 100% of this study's participants had no atraumatic care training.[13]

The average nurse's knowledge score was 12.55 (SD= 2.383), ranging from 5 to 17, and the mean of nurses' attitudes was 95.38 (SD= 9.8), ranging from 70 to 118. In addition, the range scores of nurses who practice providing atraumatic care ranged from 41 to 74. Most nurses (90.9%) have insufficient knowledge about atraumatic care, some have a negative attitude (9.1%), and many aren't applying it well (37.3%). 2022.30 Another study indicated that 50% of Dr. Slamet General Hospital Garut nurses were unprepared to provide atraumatic care to hospitalized children.[13]

This study found that PICU nurses were significantly more knowledgeable than pediatric wards nurses in nurses in providing atraumatic care. Trauma-informed treatment, including pain

management and distress reduction, was familiar to PICU nurses.[31,32] In a fast-paced work environment, they may have frequent opportunities to gain and improve the skills necessary to reduce patients' tension.[33,34] They may need to provide atraumatic care and emergent procedures to comfort pediatric patients and their parents. In Nurses' PICU, more research is needed to observe their clinical practice in delivering atraumatic treatment.

Nurses working in pediatric wards had a better attitude toward providing atraumatic care than nurses in the PICU. Nurses in pediatric wards had more positive attitudes than clinicians at either PICUs or NICUs regarding pediatric pain management.[27] Nurses working in pediatric care settings may have a greater focus on and awareness of pediatric patients' unique needs and sensitivities.[35] This specialized environment and exposure to pediatric patients likely contribute to developing more positive attitudes in atraumatic care.

In this study, education and atraumatic care training did not affect knowledge and attitudes. 57% of nurses lacked atraumatic care training, indicating insufficient knowledge and that the high patient-to-nurse ratio interferes with its implementation.[36] According to Indonesian nursing research, nurses' unfamiliarity with atraumatic care is due to education and a lack of training or seminars.[13, 16, 36]

Hierarchical linear regression analysis showed that nurses' knowledge and attitude toward atraumatic care in hospitalized children were predictors of their practice. As nurses learn more about atraumatic care, their attitudes and practice improve.[37, 38, 36] Hospitalized children had more anxiety and trauma due to nurses' poor understanding, practice, and negative attitudes.[39] To provide atraumatic care for hospitalized children, nurses must understand child development, age-appropriate communication, and pain and anxiety management.[17, 30]

Pediatric ward nurses scored higher in atraumatic care than PICU nurses, although work time did not affect their practice. 84.3% of nurses were female and provided more atraumatic care. Pediatric nurses with more experience and training in workshops and professional courses manage pain better.[40] 78.3% of nurses did not attend any continuing education, and the mean score was 45.3%. To deliver high-quality treatment, pediatric nurses must be highly educated and experienced in clinical practice.[41] Females being more likely to comprehend the nursing care intervention.[42] Gender is a complicated social construct, and most nurses are women. It does not determine a person's abilities or competencies.

CONCLUSION

A significant correlation between the department of work in the PICU and nurses' knowledge of providing atraumatic care. There was a significant correlation between nurses' attitudes toward the pediatric ward and marital status in providing atraumatic care. These findings suggest that the greater the nurse's knowledge and attitude toward providing atraumatic care to hospitalized children, the better the practice of providing atraumatic care. The main findings demonstrated that nurses who worked in pediatric wards and females had considerably superior practice scores in providing atraumatic care than nurses who worked in the PICU and were male.

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CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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