



A STUDY TO EXAMINE THE KNOWLEDGE AMONG NURSING STUDENTS REGARDING PEDIATRIC MEDICATION ADMINISTRATION IN SELECTED NURSING COLLEGES IN PERINTHALMANNA.

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ABSTRACT This study aims to examine the knowledge gaps among nursing students regarding pediatric medication administration in selected nursing colleges in Perinthalmanna. A structured knowledge questionnaire was utilized to assess the level of understanding among third-year BSc nursing students at Alshifa College of Nursing. The study sought to identify areas requiring improvement and to evaluate the effectiveness of educational interventions. A total of 65 students participated, and findings are expected to inform targeted teaching strategies and improve pediatric medication safety.

BACKGROUND OF THE STUDY Medication administration is a critical component of nursing practice, particularly in pediatrics, where precise dosing and administration methods are essential. Errors in pediatric medication administration can lead to severe adverse outcomes due to children's unique physiological and developmental characteristics. Nursing students, as future healthcare providers, must possess adequate knowledge and skills to ensure safe medication practices. This study investigates the existing knowledge gaps to enhance training methods and ultimately improve patient safety.

NEED AND SIGNIFICANCE Ensuring the safe administration of medications to pediatric patients is vital in healthcare. Despite the emphasis on accurate medication administration in nursing curricula, studies have shown gaps in students' knowledge that may compromise safety. Identifying and addressing these gaps are crucial for improving education and clinical outcomes. This study provides evidence to guide targeted interventions in nursing education.

REVIEW OF THE LITERATURE

1.The Prevalence of Medication Errors Among Nursing Students

A Systematic and Meta-analysis Study by Fazel Dehvan Ali Hassanpour Dehkordi in Assam. The study aimed to determine the prevalence of MEs among nursing students using a systematic and meta-analysis approach. 8 studies

(in 9 groups) in English and Persian from inception to March 2019, were collected. Searched was conducted in SID, MagIran, IranMedex, Google Scholar, Web of Science, PubMed and Scopus. The meta-analysis method and the random effects model were used to analyze the data. In addition, the I^2 statistic was used to examine heterogeneity among studies. The analyses were conducted using Stata, version 11.: Analysis of 8 studies (in 9 groups) with a total sample size of 688 showed that the overall MEs' prevalence among nursing students was 39.68% (95% CI: 22.07-57.29) and the prevalence of lack of reporting MEs was 48.60% (95%CI: 27.33-69.86). There were no relationships between the prevalence of MEs and lack of reporting MEs in nursing students with the sample size and the mean age of students. Considering the relatively high prevalence of MEs and lack of MEs reporting among nursing students and the importance of their effect on the level of patients' safety, measures such as educations, monitoring by clinical trainers, and examining and eliminating the causes of MEs are essential.

STATEMENT OF THE PROBLEM A study to examine the knowledge among nursing students regarding pediatric medication administration in selected nursing colleges in Perinthalmanna.

OBJECTIVES

1. To assess the existing knowledge of third-year BSc nursing students regarding pediatric medication administration.
2. To associate the knowledge of third-year BSc nursing students regarding pediatric medication administration with selected demographic variables

3. HYPOTHESES

H₁- Nursing students have significant knowledge to paediatric medication administration.

H₂-There is a significant association between demographic variables and knowledge levels of nursing students regarding pediatric medication administration.

Research Approach: Quantitative approach

Research Design: Descriptive cross-sectional study

Setting: Alshifa College of Nursing, Perinthalmanna

Sample: Third-year BSc nursing students studying at Alshifa College of Nursing

Sample Size: 65 students

Sampling Technique: Convenient sampling technique

Operational Definitions

Knowledge

Refers to the adequate information or understanding among nursing students about pediatric medication administration, assessed through a structured questionnaire.

Pediatric Medication Administration:

The process of calculating, preparing, and administering medications to children, including considerations for dosage adjustments, safety measures, and side effects unique to the pediatric population.

Nursing Students:

Individuals, who are studying in third year BSc nursing of Alshifa college of nursing

Inclusion Criteria

1. Nursing students who are currently enrolled in a recognized nursing program.
2. Students who have completed at least one clinical posting in a pediatric ward.
3. Those who are willing to participate in the study and provide informed consent.
4. Students who are available during the data collection period.

Exclusion Criteria

1. Nursing students who have not had exposure to pediatric clinical settings.
2. Students who are on leave or unavailable during the data collection period.
3. Those who are unwilling to participate or do not provide consent.

Tools and Techniques:

Tool 1: Socio-demographic Performa -The demographic Performa includes age, batch of study, education of father, education of mother, and area of residence.

Tool 2: Structured knowledge questionnaire- A structured knowledge questionnaire regarding pediatric medication administration was used to collect data and assess the level of knowledge.

Data Collection Process: The formal approval from Principal, Al Shifa College of Nursing and ethical committee of the institution was obtained. The subjects were explained about the purpose of the study and written consent were obtained with confidentiality assurance. The questionnaire was prepared and distributed in class through google form. The analysis was done based on their responses.

Ethical Consideration: Approval was obtained from the institutional ethics committee. Informed consent was taken from all participants, and anonymity and confidentiality were maintained throughout the study.

RESULTS

The data was tabulated, analysed and interpreted using descriptive statistical method. The data are presented under following heading.

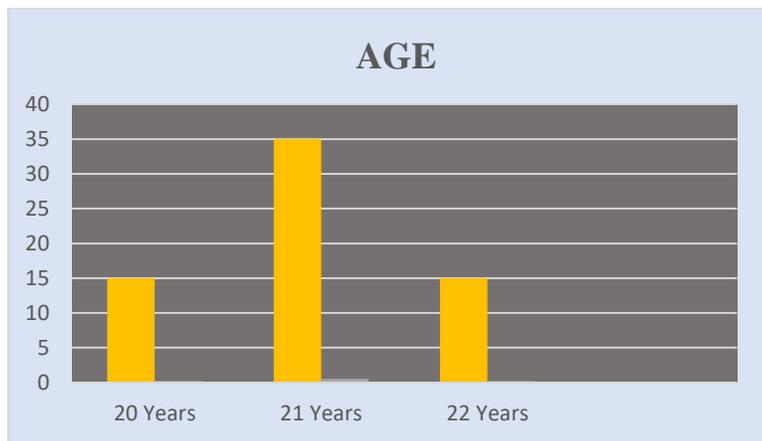
Section A: Description of demographic variables.

Section B: Description of knowledge scores of nursing students.

Section C: Association between demographic variables and knowledge score.

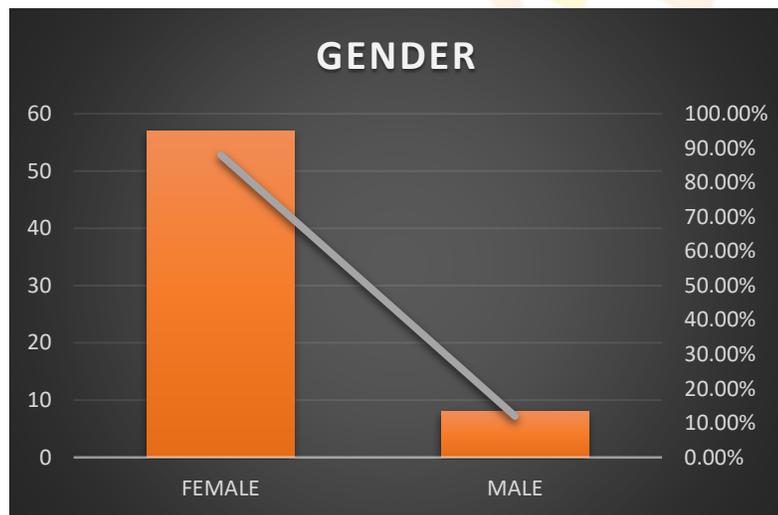
Section I: Description of demographic variables.

Figure 3.1: Age distribution of the samples



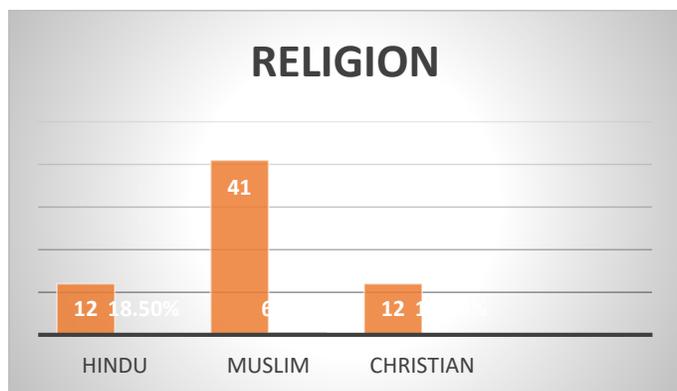
Shows that majority of samples 35 (54%) were in the age of 21 years, 15 (23%) were in the age of 20 years and 15 (23%) belongs to the age of 22 years.

Figure 3.2: Gender distribution of the samples



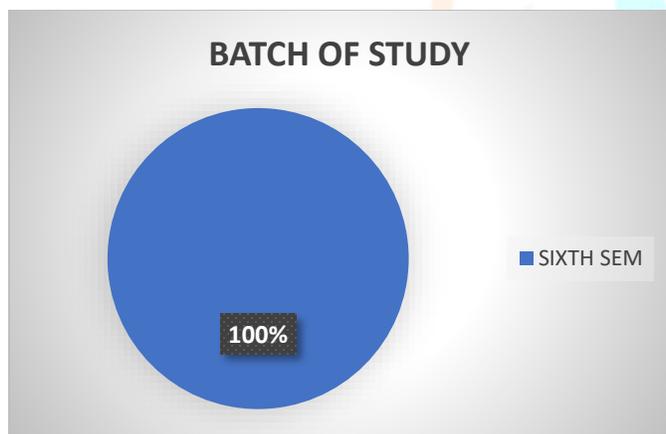
Shows that majority of samples 88 % were female & 12 % were male.

Figure 3.3: Religion wise distribution of the samples



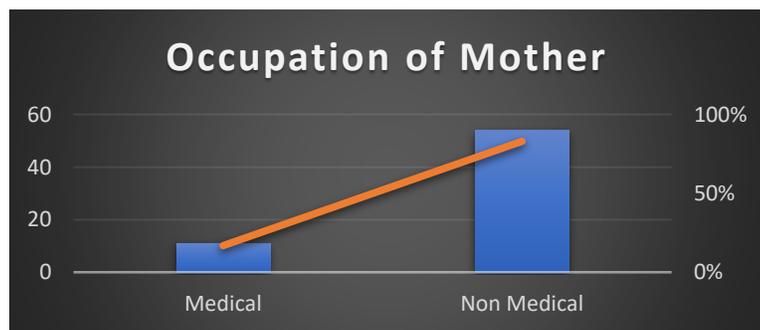
Shows that majority of samples 41 (63%) were Muslim, 12 (18.5%) were Hindu and 12 (18.5%) were Christians

Figure 3.4: Batch wise distribution of the sample



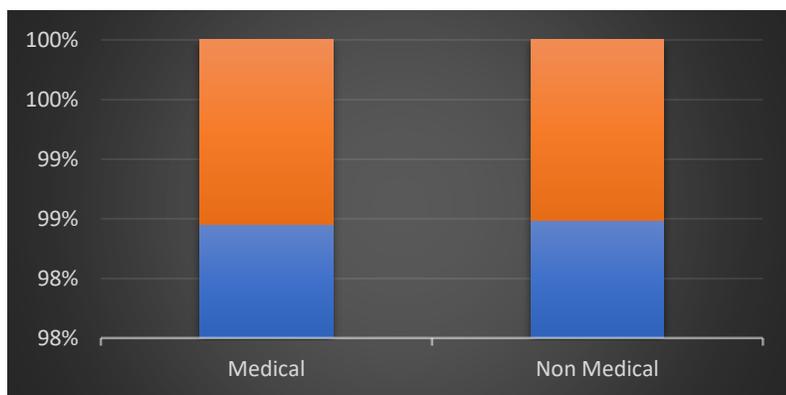
shows that all the samples 65 (100%) were belonging to VI sem BSc nursing

Figure 3.5: Distribution of samples based on occupation of mother



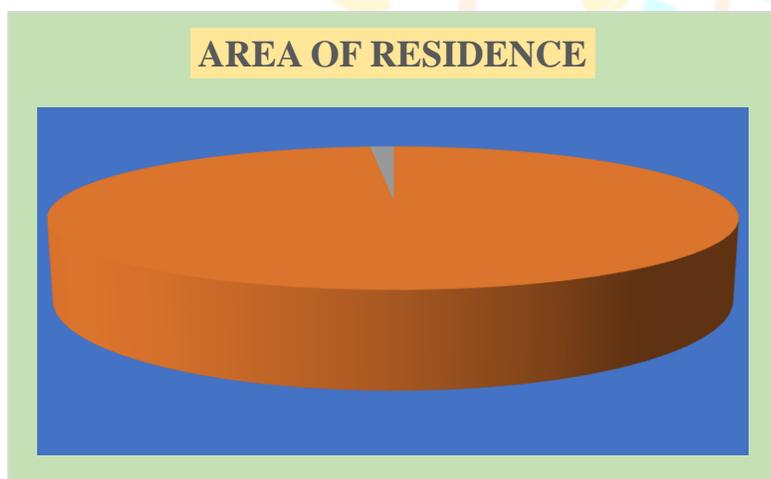
Majority of sample's mother 54 (83%) belong to non medical profession ,11 (17%) were working in medical profession.

Figure 3.6: Distribution of samples based on occupation of father



Distribution of samples based on occupation of father shows majority were 83% from non medical profession and were 17% from non medical profesion

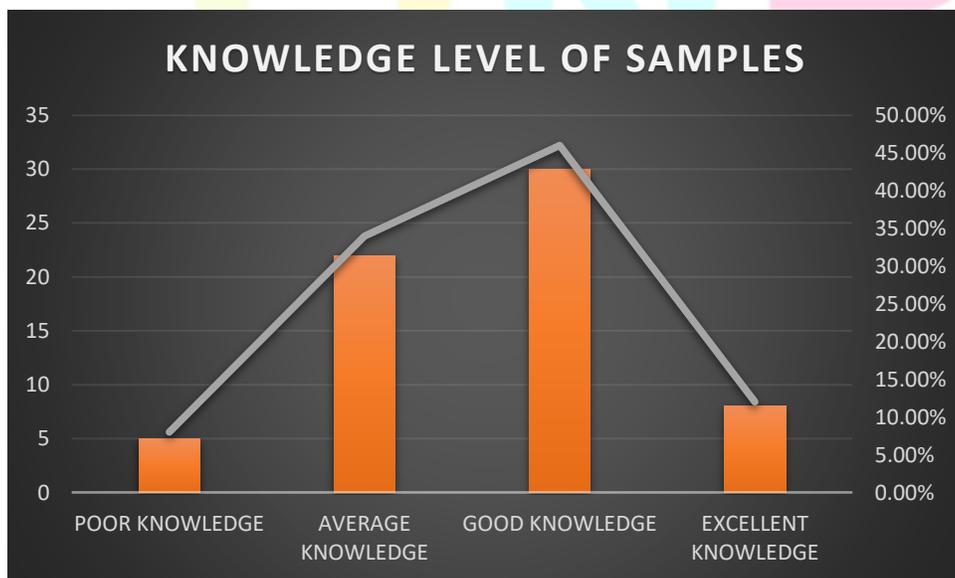
Figure 3.7: Distribution of samples based on area of residence.



Shows that majority of samples 40 (57%) belong to urban area, 20 (29%) belong to semi urban area and only 5 (7%) were from rural area.

Section II: Description of knowledge scores of nursing students

Figure 3.8 Frequency and percentage of knowledge score



Shows the distribution of sample based on the pretest knowledge score on pediatric medication administration. 5 students (8%) had poor knowledge, 22 (34.0%) had average knowledge, 30 (46%) had good knowledge and 8 of the students have (12%) had excellent knowledge.

Section III: Association between demographic variables and level of knowledge.

Chi-square value shows association between demographic variables and level of knowledge.

Shows that, the chi square value of age ($\chi^2=9.249$, table value 9.488), gender ($\chi^2=9.249$, table value 9.488), class of study ($\chi^2=0$, table value 7.851), occupation of mother ($\chi^2=17.065$, table value 18.307), occupation of father ($\chi^2=1.039$, table value 5.991), area of residence ($\chi^2=3.549$, table value 9.488) were less than its table value which reveals that there was no associations of knowledge score with these selected demographic variables.

Interpretation

The study aimed to assess the knowledge of paediatric medication administration among students and explore its association with selected demographic variables. The findings are interpreted as follows:

1. Knowledge Scores:

- **Poor Knowledge (14.2%):** A minority of students demonstrated poor knowledge, indicating the need for targeted interventions to improve their understanding of paediatric medication administration.
- **Average Knowledge (36.0%):** A substantial portion of students had an average knowledge level, suggesting a foundational understanding but room for improvement.
- **Good Knowledge (47%):** Almost half of the students exhibited good knowledge, indicating an encouraging level of competency among the majority.
- **Excellent Knowledge (3%):** Only a small percentage of students achieved an excellent knowledge level, highlighting the potential for further enhancement among this group.

2. Chi-Square Analysis of Demographic Variables:

The chi-square analysis assessed whether there was a statistically significant association between knowledge scores and demographic variables. The following results were observed:

- **Age ($\chi^2 = 9.249$, Table Value = 9.488):** The chi-square value is less than the table value, indicating no significant association between age and knowledge scores.
- **Gender ($\chi^2 = 9.249$, Table Value = 9.488):** Similarly, the chi-square value for gender is less than the table value, showing no significant association with knowledge scores.
- **Class of Study ($\chi^2 = 0$, Table Value = 7.851):** With a chi-square value of zero, there is clearly no association between the class of study and knowledge scores.
- **Occupation of Mother ($\chi^2 = 17.065$, Table Value = 18.307):** The chi-square value is slightly below the table value, suggesting no statistically significant relationship between the mother's occupation and the student's knowledge.
- **Occupation of Father ($\chi^2 = 1.039$, Table Value = 5.991):** A low chi-square value indicates no significant association between the father's occupation and knowledge scores.
- **Area of Residence ($\chi^2 = 3.549$, Table Value = 9.488):** The chi-square value is less than the table value, revealing no significant association between the area of residence and knowledge scores.

Implications for Nursing Education

Curriculum Enhancement:

The study highlights the need to integrate comprehensive paediatric medication administration topics into the nursing curriculum, including practical simulations.

Clinical Training:

Emphasis on real-world paediatric medication scenarios during clinical rotations to bridge the gap between theoretical knowledge and practical application.

Skill Development:

Focus on dosage calculations, age-specific pharmacology, and safety protocols through workshops, case studies, and interactive sessions.

Limitations

Geographic Scope:

The study is limited to nursing colleges in Perinthalmanna, which may restrict generalizability to other regions.

Sample Size:

A small sample size may not adequately represent the diverse knowledge levels across nursing students.

Recommendations

Curriculum Revision:

Include paediatric pharmacology and medication administration as a standalone module in nursing programs.

Structured Training:

Organize regular workshops and simulation exercises focused on paediatric medication errors, safety protocols, and age-specific care. Conduct longitudinal studies to evaluate the effectiveness of educational interventions in reducing knowledge gaps over time.

Summary

This study assessed knowledge gaps among nursing students regarding pediatric medication administration and evaluated the impact of educational interventions. Findings are expected to highlight key areas for improvement in nursing curricula and contribute to enhanced clinical competency.

Conclusion

The study underscores the need for targeted teaching strategies to address knowledge gaps in pediatric medication administration among nursing students. By improving educational methods, nursing programs can ensure better preparedness and safer practices in pediatric care.