A Study to Evaluate the Effectiveness of Pain Management Guidelines in Terms of Knowledge, Attitude and Practices of Nursing Personnel Working in Pediatric Units of a Selected Hospital of Delhi

Uma Shanker Agrawal\textsuperscript{1}, Santosh Mehta\textsuperscript{2}, Daisy Thomas\textsuperscript{3}

Abstract

Introduction: Pain management in pediatric population is a very important and crucial aspect of nursing care. Though there is improved understanding of the physiological and psychological effects of unrelieved pain in children, still so many research evidences show that pediatric nurses are having inadequate knowledge, unfavorable attitude and poor practices regarding assessment and management of pain in children. A study was conducted with the objectives to develop and evaluate the effectiveness of pain management guidelines in terms of knowledge, attitude and practices of nursing personnel working in pediatric units, determine the relationship between knowledge and attitude and knowledge and practice and seek association of knowledge and practices with selected variables.

Methodology: A pre-experimental approach and one group pretest-posttest design was selected. The tools were a structured knowledge questionnaire, attitude scale and an observation checklist. Pain management guidelines were developed based on expert opinion and review of literature. Sixty nursing personnel who met the sampling criteria were selected by purposive sampling. On day 1, pretest of knowledge and attitude were administered and the pain management practices were observed. On the same day, pain management guidelines were given to them with small group discussion. Demonstration of pain assessment and management during painful procedure was given in small groups. On seventh day, posttest of knowledge and attitude was administered. Posttest practices were observed.

Results: Findings of the study revealed that the mean posttest knowledge score was significantly higher than the mean pretest knowledge score with a mean difference of 5.18 ($P<0.05$). The mean posttest attitude score was significantly higher than the mean pretest attitude score with a mean difference of 12.43 ($P<0.05$). The mean posttest practice score was significantly higher than the mean pretest practice score with a mean difference of 3.1 ($P<0.05$). There was a significant positive relationship between knowledge and attitude ($P<0.05$). There was also a significant positive relationship between knowledge and practices ($P<0.05$). The knowledge and practices of nursing personnel regarding pain management

\textsuperscript{1}Nursing Officer, HIC & Nursing In-Service Education, Dr. B.R.A.I.R.C.H, AIIMS, New Delhi.
\textsuperscript{2}Principal, \textsuperscript{3}Senior Tutor, R.A.K. College of Nursing, New Delhi.

Correspondence: Mr. Uma Shanker Agrawal, HIC & Nursing In-Service Education, Dr. B.R.A.I.R.C.H, AIIMS, New Delhi.

E-mail Id: umeshaiims82@gmail.com

Orcid Id: http://orcid.org/0000-0001-8476-2608

How to cite this article: Agrawal US, Mehta S, Thomas D. A Study to Evaluate the Effectiveness of Pain Management Guidelines in Terms of Knowledge, Attitude and Practices of Nursing Personnel Working in Pediatric Units of a Selected Hospital of Delhi. \textit{Int J Nurs Midwif Res} 2017; 4(3): 24-30.

Digital Object Identifier (DOI): https://doi.org/10.24321/2455.9318.201728

ISSN: 2455-9318

© ADR Journals 2017. All Rights Reserved.
were not associated with years of experience, professional qualification and In-service education on pain management.

**Conclusion:** Knowledge deficit, unfavorable attitude and poor practices existed regarding pain management in children. Pain management guidelines were found to be effective in enhancing the knowledge, changing the attitude and improving the practices of nursing personnel.

**Keywords:** Pain management guidelines, Knowledge, Attitude, Practices, Nursing personnel, Pediatric units

**Introduction**

Modern era of child health nursing holds the key philosophy of atraumatic care. The single philosophy itself updated the acceptability and compliance to the pediatric nursing care, irrespective of the settings of child care. Throughout the globe, attempts are being made to perform medical and nursing interventions to the fragile child population without causing hurt to them.¹

Hospitalization is a traumatic experience for the child. The child lands up in a new and alien environment with multiple caregivers and very sick children. To compound the problem, he or she may take painful procedures in addition to the burden of illness. Some children may not complain about the pain due to fear of doctor, drugs or injection. Needle phobia is very common in children. There is often an underlying tension between the hospital caregivers and the parents. Guilt and anger can result, unnecessarily complicating an already difficult situation.

Atraumatic care has been defined by Wong² as, “the provision of therapeutic care in settings, by personnel, and through the use of interventions that eliminate or minimize the psychological and physical distress experienced by children and their families in the health care.”

American Pain Society³ has recommended that pain should be included as the fifth vital sign. The very idea behind this concept was that pain needs to be monitored and treated promptly in all individuals, regardless of the factor whether they are adults or children. Pain is one of the most hurting universal stimuli for the pediatric population.

Pain management is a very important aspect of nursing care of the pediatric patient. According to the International Association for the Study of Pain (IASP),³ pain relief is a human right, and according to the Joint Commission on Accreditation of Healthcare Organization (JCAHO),⁴ pain management standards require that providers be educated in the assessment and management of pain.

Polkki et al.⁵ reported that far too often, pediatric pain goes undertreated.⁵ Although increased effort has been put into improving pain management over the last decade, up to 81% of hospitalized children report moderate to severe levels of pain. However, nurses administer only 23–43% of analgesics ordered.⁶,⁷

The nurses’ professional knowledge about pain and pain management is often described in terms of an absence or a lack of knowledge, and serves as an explanation for deficient pain management.⁸,⁹

Personal values and beliefs of the healthcare team about the meaning and value of pain greatly affect the use of pain treatments. For example, 55–90% of nurses believe that children over report their pain.¹⁰

Pediatric nurses’ pain management practices continue to fall short, with children still experiencing moderate to severe pain. Children are still enduring unnecessary pain, partly due to misconceptions like the idea that children do not feel as much pain as adults do or that an active or sleeping child cannot be in pain. Assessment and management of pain in children are difficult and present a particular challenge for nurses partly due to children’s different levels of maturity and development.⁹,¹⁰

Walcott et al.¹¹ found that there are six main barriers to treatment of pain in children. The barriers include: 1) the myth that children do not feel pain the way adults do; 2) lack of assessment and reassessment for the presence of pain; 3) misunderstanding of how to conceptualize and quantify a subjective experience; 4) lack of knowledge of pain treatment; 5) the notion that addressing pain in children takes too much time and effort; and 6) fears of adverse effects of analgesic medications, including respiratory depression and addictions.

The researcher during his own professional experience in different pediatric care units has witnessed inadequate pain management for infants and children during painful procedures. It is observed that children and their parents undergo tremendous amount of stress during hospitalization and pediatric care providers also feel some amount of difficulty to perform painful procedures with delicate pediatric clients accompanied with stressed parents. In most of the child care settings, where the researcher has got the opportunity to work, preparation of child and parents for painful procedures was usually limited to a formal verbal explanation to the child and family and many times even no explanation and without much scope of involving them into the care of the child. Most of the times, hardly any measures were taken to reform the procedure to an atraumatic experience to the child.
and family as well. Furthermore, the researcher found a rich literature regarding inadequate knowledge, negative attitude and improper practices of nursing and medical professional regarding pain management in children but only few studies were taken up to address this issue with planned educational intervention. In fact, the researcher did not come across any study in Indian setting addressing this issue. These were the professional stimulation for the researcher to take up a study to develop and evaluate the effectiveness of pain management guidelines in terms of knowledge, attitude and practices of nursing personnel working in pediatric units.

**Materials and Methods**

An experimental research approach and one group pretest and posttest design was adopted for the study. Independent variable in the study was pain management guidelines and dependent variables were knowledge, attitude and practices of nursing personnel regarding pain management. The study was conducted in the pediatric units of a selected hospital of Delhi. Sixty nursing personnel working in pediatric units and involved in direct nursing care of children were selected by purposive sampling.

The tools developed for data collection were a knowledge questionnaire, attitude scale and an observation checklist. The knowledge questionnaire was developed to assess the knowledge of nursing personnel regarding pain management. It consists of two sections. In section I, there were five questions to collect demographic data. In section two, there were thirty questions for assessing the knowledge of nursing personnel regarding pain management. Attitude scale was developed to assess the attitude of nursing personnel. It consists of 20 statements in which there were 10 positive and 10 negative statements. Each statement was to be responded on a five-point scale. An Observation checklist was developed to observe and assess the practices of nursing personnel regarding pain management in children undergoing painful procedure. It consists of 15 steps based on task analysis.

Pain management guidelines were developed based on expert opinion and review of literature.

Tools and pain management guidelines were given for content validity to nine experts including four doctors and five experts from pediatric nursing. Reliability of knowledge questionnaire was established using KR-20 formula and reliability coefficient was found to be 0.795. Reliability of attitude scale was established using Cronbach’s Alpha formula and reliability coefficient was found to be 0.83. Reliability of observation checklist was established using inter-observer reliability and reliability coefficient was found to be 0.99.

To check the clarity, feasibility and practicability the tools and pain management guidelines were administered to 15 nursing personnel.

A pilot study was conducted to check the feasibility of the study in the month of October 2013 in a tertiary care hospital in New Delhi. Final study was conducted at a pediatric hospital in Delhi. Data were collected from 16th December 2013 to 4th of January 2014, as per planned data schedule. The collected data were analyzed and interpreted in terms of objectives and hypotheses of the study. Both descriptive and inferential statistics were used for data analysis. The probability level of 0.05 was set for acceptance and rejection of the null hypotheses.
**Results**

Table 1. Frequency and Percentage Distribution of Nursing Personnel Working in Pediatric Units by Their Age, Sex, Professional Qualification, Years of Experience and In-service Education on Pain Management

| S. No. | Sample Characteristics       | Frequency | Percentage |
|-------|------------------------------|-----------|------------|
| 1     | Age (in years)               |           |            |
|       | <25 years                    | 1         | 1.7        |
|       | 25–34                        | 49        | 81.7       |
|       | 35–44                        | 6         | 10         |
|       | 45 and above                 | 4         | 6.7        |
| 2     | Sex                          |           |            |
|       | Male                         | 20        | 33.3       |
|       | Female                       | 40        | 66.7       |
| 3     | Professional qualification   |           |            |
|       | GNM                          | 56        | 93.3       |
|       | B.Sc. Nursing                | 3         | 5.0        |
|       | M.Sc. Nursing                | 1         | 1.7        |
|       | Others                       | 0         | 0          |
| 4     | Professional experience in years |   |            |
|       | <4                           | 12        | 20         |
|       | 4–6                          | 21        | 35         |
|       | 7–9                          | 14        | 23.3       |
|       | 10 years or more             | 13        | 21.7       |
| 5     | In-service education on pain management | | |
|       | Yes                          | 15        | 25         |
|       | No                           | 45        | 75         |

Data from Table 1 shows that majority (81.7%) of nursing personnel were in the age group of 25–34 years. Majority of nursing personnel (66.7%) were female. About 93.3% of nursing personnel were qualified in General Nursing and Midwifery, only 5% of the nursing personnel were qualified in B.Sc. Nursing (Basic/Post-Basic) and 1.7% of nursing personnel were M.Sc. Nursing. Around 20% of nursing personnel were having experience of less than 4 years, 35% of nursing personnel were having experience of 4–6 years, 23.3% of nursing personnel were having experience of 7–9 years and rest 21.7% of nursing personnel were having experience of 10 years or more in pediatric units. Only 25% of total nursing personnel had received in-service education on pain management in children, though regular in-service education programs were going on in the hospital.

Table 2. Mean, Mean Difference, Standard Deviation of Differences, Standard Error of Mean Difference and ‘t’ value of Pretest and Posttest Knowledge Scores of Nursing Personnel Working in Pediatric Units regarding Pain Management in Children

|                | Mean | Mean Difference | SD  | SE   | ‘t’ Value |
|----------------|------|-----------------|-----|------|-----------|
| Knowledge      |      |                 |     |      |           |
| Pretest        | 15.33| 5.18            | 3.03| 0.3916| 13.235*   |
| Posttest       | 20.52|                 |     |      |           |

*df (59); ‘t’ Value=2.00; Significant at 0.05 level of significance

Data from Table 2 shows that the mean posttest knowledge score of (20.52) was significantly higher than the pretest knowledge score (15.33) with a mean difference of 5.18 (p<0.05). Thus it is evident that pain management guidelines were effective in enhancing the knowledge of nursing personnel.

Table 3. Mean, Mean Difference, Standard Deviation of Differences, Standard Error of Mean Difference and ‘t’ value of Pretest and Posttest Attitude Scores of Nursing Personnel Working in Pediatric Units regarding Pain Management in Children

| Attitude Scores | Mean | Mean Difference | SD  | SE   | ‘t’ Value |
|-----------------|------|-----------------|-----|------|-----------|
| Pretest         | 58.9 | 12.43           | 7.99| 1.032| 12.047*   |
| Posttest        | 71.33|                 |     |      |           |

*df (59); ‘t’ Value=2.00; Significant at 0.05 level of significance
Data from Table 3 shows that the mean posttest attitude score of (71.33) was significantly higher than the mean pretest attitude score (58.9) with a mean difference of 12.43 (p<0.05). Thus it is evident that pain management guidelines were effective in changing the attitude of nursing personnel.

### Table 4. Mean, Mean Difference, Standard Deviation of Differences, Standard Error of Mean Difference and ‘t’ Value of Pretest and Posttest Practice Scores of Nursing Personnel Working in Pediatric Units regarding Pain Management in Children

| Practice Scores | Mean | Mean Difference | SD | SE | ‘t’ Value |
|----------------|------|-----------------|----|----|-----------|
| Pretest        | 4.016| 3.1             | 1.48| 0.19| 16.214 *  |
| Posttest       | 7.116|                 |     |     |           |

*df (59); ‘t’ Value=2.00 significant at 0.05 level of significance

Data from Table 4 shows that the mean posttest practice score of (7.116) was significantly higher than the mean pretest practice score (4.016) with a mean difference of 3.1 (p<0.05). Thus it is evident that pain management guidelines were effective in improving the practices of nursing personnel.

### Table 5. Coefficient of Correlation between Posttest Knowledge and Attitude Scores of Nursing Personnel Working in Pediatric Units regarding Pain Management in Children

| Posttest | Mean | SD | ‘r’ |
|----------|------|----|-----|
| Knowledge| 20.52| 3.14| 0.506 * |
| Attitude | 71.33| 7.46|     |

*df(58)=0.252; Significant at 0.05 level of significance

There was a significant positive relationship between knowledge and attitude of nursing personnel regarding pain management in children after administration of pain management guidelines as evident by ‘r’ value of 0.506 (p<0.05). The findings show that the attitude of nursing personnel who were administered the pain management guidelines was dependent on the knowledge of nursing personnel.

### Table 6. Coefficient of Correlation between Posttest Knowledge and Practice Scores of Nursing Personnel Working in Pediatric Units regarding Pain Management in Children

| Posttest | Mean | SD | ‘r’ |
|----------|------|----|-----|
| Knowledge| 20.52| 3.14| 0.556 * |
| Practice | 7.11 | 1.69|     |

*df(58)=0.252; Significant at 0.05 level of significance

There was a significant positive relationship between knowledge and practice of nursing personnel regarding pain management in children after administration of pain management guidelines as evident by ‘r’ value of 0.556 (p<0.05). The findings show that the practices of nursing personnel who were administered the pain management guidelines was dependent on the knowledge of nursing personnel.

### Table 7. Chi Square Value Showing Association between Posttest Knowledge Scores of Nursing Personnel Working in Pediatric Units regarding Pain Management in Children with Selected Factors

| S. No. | Selected Variables | Knowledge Scores | Chi Square | Table Value | df |
|--------|--------------------|------------------|------------|-------------|----|
| 1      | Professional Qualification | GNM | 28 | 28 | 1.33 N.S. | 5.991 2 |
|        |                     | B.Sc. Nursing | 1 | 2 |  | |
|        |                     | M.Sc. Nursing | 1 | 0 |  | |
|        |                     | Others | 0 | 0 |  | |
| 2      | Professional Experience in years | <4 | 6 | 6 | 0.125 N.S. | 7.815 3 |
|        |                     | 4 to 6 | 11 | 10 |  | |
|        |                     | 7 to 9 | 7 | 7 |  | |
|        |                     | 10 years or more | 6 | 7 |  | |
| 3      | In-service education on pain management | Yes | 8 | 7 | 0.89 N.S. | 3.841 1 |
|        |                     | No | 22 | 23 |  | |

N.S. – not significant at 0.05 level of significance
The findings show that the knowledge of nursing personnel regarding pain management who were administered the pain management guidelines was not associated with years of experience, professional qualification and in-service education on pain management. The practices of nursing personnel regarding pain management who were administered the pain management guidelines were not associated with years of experience, professional qualification and in-service education.

Discussion

The purpose of the present study was to evaluate the effectiveness of pain management guidelines in terms of knowledge, attitude and practices of nursing personnel working in pediatric units. The findings of the study suggested that knowledge attitude and practices of nursing personnel towards managing pain in children improved after administration of pain management guidelines.

Studies conducted by Salantera and Lauri, Twycross, and Twycross and Powls have revealed that the nurses’ professional knowledge about pain and pain management is often described in terms of an absence or a lack of knowledge, and serves as an explanation for deficient pain management. Similarly, in this study 93% of nursing personnel were found to be have inadequate knowledge scores in pretest.

A long-lasting problem in pediatric pain management has been the difficulty of objectively assessing pain. Assessment in infants before they can speak is particularly challenging and may have been responsible for perpetuating the myth that infants experience less pain than adults, lack of assessment and reassessment for the presence of pain, misunderstanding of how to conceptualize and quantify a subjective experience; lack of knowledge of pain treatment, the notion that addressing pain in children takes too much time and effort; and fears of adverse effects of analgesic medications, including respiratory depression and addiction. As a result, pediatric pain therapy has developed slowly compared with its adult counterpart. Several studies have shown that health professionals consistently underestimate the amount of pain experienced by young children. This was also evident in the findings of this study as 50% of staff showed unfavorable attitude scores on pretest.

Rieman and Gordon found that nurses’ knowledge and attitudes can affect their ability to adequately provide pediatric pain management.

Current evidence on the impact of educational interventions focused on these deficits is equivocal; although McNamara et al. has observed benefits, other studies conducted by Rieman and Gordon have found that the essential knowledge remains poor, which may perpetuate poor practices. The development of a strong knowledge based in undergraduate nurse education is important in helping students to progress, but needs to be implemented in clinical practice.

Such deficits may need to be revisited throughout the undergraduate nursing curriculum. Structured, focused pain management educational programmes can be of benefit, and may influence future pain management practices, as revealed from a study conducted by Twycross.

The researcher did not come across any study to evaluate effectiveness of pain management guidelines. But findings of studies with other educational interventions were found to be consistent with the present study.

Evidence from this study suggested that knowledge, attitude and practices of nursing personnel were significantly improved after administration of pain management guidelines. These findings are consistent with Owens et al., who found that a bespoke pain management education program has the potential to develop a positive student attitude to children’s pain management. However, knowledge of the physiology and pharmacology of pain needs to be revisited throughout the undergraduate curriculum, as students struggle with these concepts.

Findings of the present study are also consistent with the study conducted by Lawes et al. which revealed that participants have increased level of knowledge regarding pain management in children undergoing painful procedures after administration of an education program.

In the later part of the study, the researcher tried to determine relationship between knowledge and attitude; and knowledge and practices. Findings of the study suggested that there was a significant positive relationship between knowledge and attitude and there was also a significant positive relationship between knowledge and practices. These findings are consistent with the findings of a study conducted by Rieman and Gordon.

The broad discussion of the findings is limited by the unavailability of vast number of similar studies conducted on effectiveness of educational intervention on knowledge, attitude and practices of nursing personnel. Future developments can include greater use of web-based materials and discussion forums.

Conclusion

On the basis of above findings of the present study, following conclusions can be drawn:

- Knowledge deficit, unfavorable attitude and poor practices existed regarding pain management in children among nursing personnel working in pediatric units.
• Pain management guidelines were found to be effective in enhancing the knowledge, improving the attitude and improving the practices of nursing personnel

• Knowledge and practice were significantly related to each other

• Knowledge and attitude were significantly related to each other

• The improvement in knowledge and practice were independent of years of experience, professional education and in-service education on pain management

Acknowledgment

We extend our sincere thanks to all nursing personnel who enthusiastically showed interest and participated in the study. We appreciate their patience and cooperation evidenced in the study. Without their cooperation, it would have been impossible for us to complete the study. We also extend our heartfelt thanks to the entire Master of Nursing Faculty, Rajkumari Amrit Kaur College of Nursing, for their timely suggestions, constructive criticism and encouragement at every phase of the study. We are extremely thankful to all the experts who spent their valuable time for validating the tools and guidelines and offering excellent suggestions. We express our sincere thanks to one and all, who helped directly or indirectly in the successful completion of the study.

Conflict of interest: None

References

1. Hockenberry JM. Wong’s Essentials of Pediatric Nursing. (7th ed.). Missouri: Mosby Publications 2008.
2. American Academy of Pediatrics (AAP) & American Pain Society (APS). The assessment and management of acute pain in infants, children, and adolescents. Pediatrics 2001; 108(3): 793-97.
3. International Association for the Study of Pain (IASP), Special Interest Group on Pain in Childhood. Children’s pain matters! Priority on Pain in Infants, Children, and Adolescents. 2005.
4. Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Standards for pain assessment and treatment: Comprehensive Accreditation Manual for Ambulatory Care, Behavioral Care, Health Care Networks, Home Care, Hospitals, and Long Term Care. 1999.
5. Polkki T, Laukkanen H, Vehvilainen-Julkunen K, Pietilä. Factors influencing nurses’ use of non-pharmacological pain alleviation methods in pediatric patients. Scandinavian Journal of Caring Sciences 2003; 17(4): 373-83.
6. Jacob E, Puntillo KA. A survey of nursing practice in the assessment and management of pain in children. Pediatric Nursing 1999; 25: 278-86.
7. Vincent CVH, Denyes MJ. Relieving children’s pain: nurses’ abilities and analgesic administration practices. Journal of Pediatric Nursing 2004; 19(1): 40-50.
8. Salantera S, Lauri S. Nursing students’ knowledge of and views about children in pain. Nurse Education Today 2000; 20(7): 537-47.
9. Twycross A. Managing pain in children: Where to from here? Journal of Clinical Nursing 2010; 19(15-16): 2090-99.
10. Manworren R, C B, and Hayes J. S. Pediatric nurses’ knowledge and attitudes survey regarding pain. Pediatric Nursing 2000; 26(6): 610.
11. Walco G, Cassidy R, Schechter N. Pain, hurt, and harm. The ethics of pain control in infants and children. New England Journal of Medicine 1994; 331(8): 541-44.
12. Twycross A, Powls L. How do children’s nurses make clinical decisions? Two preliminary studies. Journal of Clinical Nursing 2006; 15(10): 1324-35.
13. Rieman M, Gordon M. Pain Management competency evidenced by a survey of pediatric nurses’ knowledge and attitudes. Pediatric Nursing 2007; 33(4): 307-12.
14. McNamara MC et al. Effect of education on knowledge, skills and attitudes around pain. British Journal of Nursing 2012; 21(16): 958-64.
15. Twycross A. What is the impact of theoretical knowledge on children’s nurses’ postoperative pain management practices? An exploratory study. Nurse Education Today 2007; 27(7): 697-707.
16. Owens Denise et al. Evaluating students’ knowledge of child pain and its management after attending a bespoke course. Nursing Children and Young People 2014; 26(2): 34-40.
17. Lawes C, Sawyer L, Amos S et al. Impact of an education programme for staff working with children undergoing painful procedures. Paediatric Nursing 2008; 20(2): 33-37.

Date of Submission: 2017-08-04
Date of Acceptance: 2017-10-06