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## **Nursing activities and outcome of care in assessment management and documentation of postoperative pain among children: An observational study**

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### **Abstract**

Pain is one of the most common symptoms experienced by children after surgery. Pain assessment is the most important and critical component of pain management. The present study aims to find out the nursing activities in assessment, management, and documentation of postoperative pain among children and to assess the outcome of assessment, management, and documentation of postoperative pain among children. The sample consisted of 14 staff nurses who had taken care of 50 children with postoperative pain. The tools used were observation checklist to assess the nursing activities and an audit tool to measure the outcome of nursing activities. After getting informed consent from staff nurses the nursing activities were observed during assessment, management and documentation of postoperative pain episodes in children. Investigator assessed the pain score at the time of presentation, heart rate, respiratory rate, SpO<sub>2</sub>, quality and location of pain and pain score after one hour. Concurrent audit of the patient records were done with nursing audit tool. The findings of the study revealed that pain assessment were done in 70% of episodes. None of them used age appropriate pain scales for assessment of pain. Only in 62% of pain episodes interventions were performed and out of that 96.7% were documented. As per concurrent auditing of the 50 records, in the assessment part, it was found that two percent documented the verbal cues and 24% documented intensity of pain. After auditing of 50 records it was found that pain related findings were documented only in 31 records, hence data regarding management, reassessment and documentation was presented based on auditing of 31 records. The results showed that 32.25% documented the reassessment findings and out of the interventions performed 96.7% were documented. The study has great implications in nursing practice and administration.

**Keywords:** nursing activities, assessment, management, documentation, postoperative pain

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### **Introduction**

Pain is defined by the international association for study of pain as an “unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”. Children are special in this regard because, in them it is a very complex phenomenon [1]. A number of factors contribute to effective postoperative pain management including a structured acute pain management team, patient education, regular staff training, use of balanced analgesia, regular pain assessment using specific assessment tools [1]. A study to describe the prevalence of pain, pain assessment and pain management practices at a tertiary paediatric hospital revealed that most infants and children had experienced moderate or severe pain during their hospitalization. Analgesics were frequently used, and non-pharmacological strategies were also reported to be used, but they were rarely documented [2]. A survey conducted to determine the prevalence of postoperative pain and the method of paediatric pain in patients in Thailand among 487 patients, almost a half (44.6%) of them perceived they had pain medication upon request and more than half of them (60%) used non-pharmacological methods for supplementary pain relief [3]. In a survey conducted to assess the knowledge, attitude and clinical practices in nursing, revealed that knowledge deficit and inconsistent responses in many areas related to pain management 62%. Chart audit

revealed that 76% lacked documentation of use of self-rating tool. Majority (90%) of chart had no documentation of use of non-pharmacological interventions to relieve pain [4]. In the past, it was assumed that neonates and young infants were unable to recognize pain as their nervous system was not fully developed; and hence did not suffer. However, with the advancement of scientific knowledge, today even premature babies have the capacity to feel and respond to pain. The present study is an attempt to assess the nursing activities and outcome of care in assessment, management, and documentation of postoperative pain among children [5].

### **Methods**

Quantitative approach was used in the study and non-experimental research design was adopted. Setting of the study was Postoperative wards of Lisie Hospital, Ernakulam, Kerala. The study sample comprised of 14 staff nurses who were taking care of children with postoperative pain in postoperative wards of Lisie Hospital, meeting the inclusion and exclusion criteria. Non-probability Purposive sampling was adopted. Tools Observation checklist to assess the nursing activities and an audit tool to measure the outcome of nursing activities. Demographic data of staff nurses included age, gender, years of experience,

experience in caring children after surgery, qualification and area of working of staff nurses who is taking care of children. Demographic data of children included age of the child, gender and class of study. Clinical data of children included type of surgery, pain medication ordered, and number of postoperative day. Observation checklist to assess the nursing activities and outcome of care in assessment, management and documentation was prepared by the investigator which yielded a reliability score of 0.91. The assessment part included nine items, management part included 10 items and documentation part included four items. Nursing audit tool to measure the outcome of nursing activities during assessment, management and documentation of pain in children was prepared by the investigator which yielded a reliability score of 0.93. The assessment part included nine items, management part included six items, reassessment part included four items and evaluations of documents included nine items. After getting ethical clearance certificate from the institutional ethical committee, data collection started, children who verbalised pain was selected and informed consent obtained from parent and verbal consent obtained from child. Pain assessment was done by the investigator which included pain score at the time of presentation, heart rate, respiratory rate, SpO<sub>2</sub>, quality and location of pain and pain score after one hour. Informed consent was obtained from staff nurses who were taking care of children in postoperative period. The purpose of study was explained to the staff nurses but what was being observed was not revealed. The nursing activities were observed during assessment, management and documentation of postoperative pain episodes in children. Concurrent audit of the patient records were done with nursing audit tool. Approximately one to three hours was taken to complete one observation and the time duration for each observation depended on the intervention performed. Data was analysed using descriptive statistics.

## Results

### Section 1 a: Demographic characteristics of staff nurses

Data was collected from 14 staff nurses who had taken care of children with postoperative pain. Structured interview schedule was prepared and staff nurses were interviewed to collect demographic data. All the staff nurses were females and between the age group of 21-30yrs. Majority (71.4%) had a working experience of 1-3yrs. 42.9 % had 1-3 years of experience in caring children. 71.4 % of them completed BSc nursing and 28.6 % of them were diploma holders (GNM). majority (57.14%) of the staff nurses were from recovery room, 14.28% were from paediatric ward and 7.14% each from surgery ward, surgery room, orthopaedic ward and Neurosurgery ICU respectively.

### Section 1 b: Demographic and clinical characteristics of children

48% of children were between 11-16yrs, 42 % in 7-10yrs of age, and remaining 10 % of children were between 3-6yrs. Majority 58% of children were male and 42% were females. 38% of children studying in 8<sup>th</sup> -10<sup>th</sup> standard, 36% of children were studying in 1<sup>st</sup>-4<sup>th</sup> standard, and 22% from 5<sup>th</sup> -7<sup>th</sup> standard respectively. Only 4% were studying in kindergarten. All of them had written order for pain medication. Majority (94%) had pain medication Order if required. Majority (96%) of children had pain on the day of

Surgery and four percent of children had pain on second day of surgery. 70% of children underwent general surgery, 14% underwent orthopaedic surgery, 12% underwent ENT surgery and 2% each underwent urologic and neurosurgeries respectively.

### Section 2: Pain assessment by investigator.

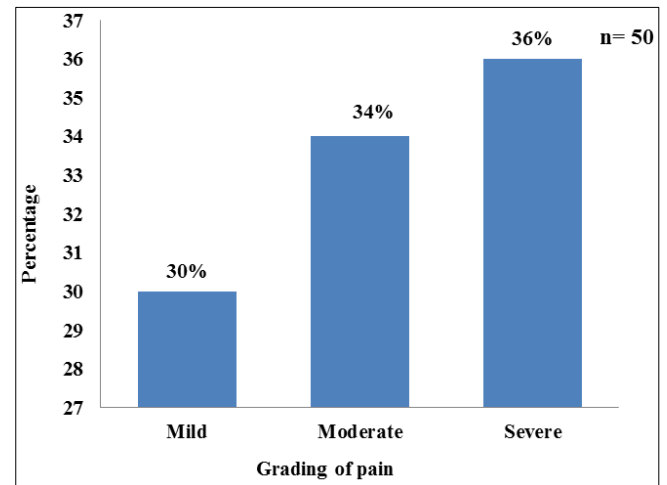


Fig 1: Bar diagram showing grading of pain in children at the time of presentation as assessed by the investigator.

### Section 3 a: Nursing activities during assessment of postoperative pain.

The findings showed that, among the 50 observations only 70 % identified verbal cues of the child, out of which 52 % identified crying and 18 % identified calling out by the children. 64% observed nonverbal cues of the child, out of which 42% observed restlessness, 8% observed leg and arm movements, 4% observed clenched teeth and jaw and 10% observed biting lips. Among the observations 54% assessed intensity of pain by verbal description, none of them used age appropriate pain scale for assessing intensity of pain, 4% assessed location of pain, 6% assessed quality of pain and 22 % observed and documented the heart rate, respiratory rate, and SpO<sub>2</sub>. None of them performed any other activities related to pain assessment.

### Section 3 b: Nursing activities during management of postoperative pain

Major findings showed that in 64% of pain episodes staff nurses checked the medication order by checking the records and four percent asked other staff nurses about previous medication administered. 10% obtained order from the physician. Remaining (90%) patients had written medication order. 62% were given pharmacological management immediately after reporting of pain by the parents/ or other staff or student nurses and in all 62%, staff nurses carried out the medication order, all of them administered in the correct dose and route. In 36% of pain episodes no management was carried out. None of them performed non-pharmacological management (100%). None of them identified other sources of discomfort. None of them performed reassessment of pain. Parent and child education about pain relief was given in 62% of episodes. None of them performed any other activities related to pain management.

**Section 3 c: Nursing activities during documentation of postoperative pain.**

Major findings showed that 25.8% of pain episode was documented, 25.8 % documented the assessment finding. Out of the interventions performed, 96.7% were documented. 6.45% was documented before performing the intervention, 58.05%

documented immediately after the intervention, 16.2% documented within half an hour and 16.2% documented later within a minimum of two hours and maximum of four hours. 87% of interventions were documented by the same person who performed the intervention and 12.9% were documented by other staff nurses who did not perform the intervention.

**Section 4: Comparison of grading of pain, as assessed by the investigator at the time of presentation and after one hour.**

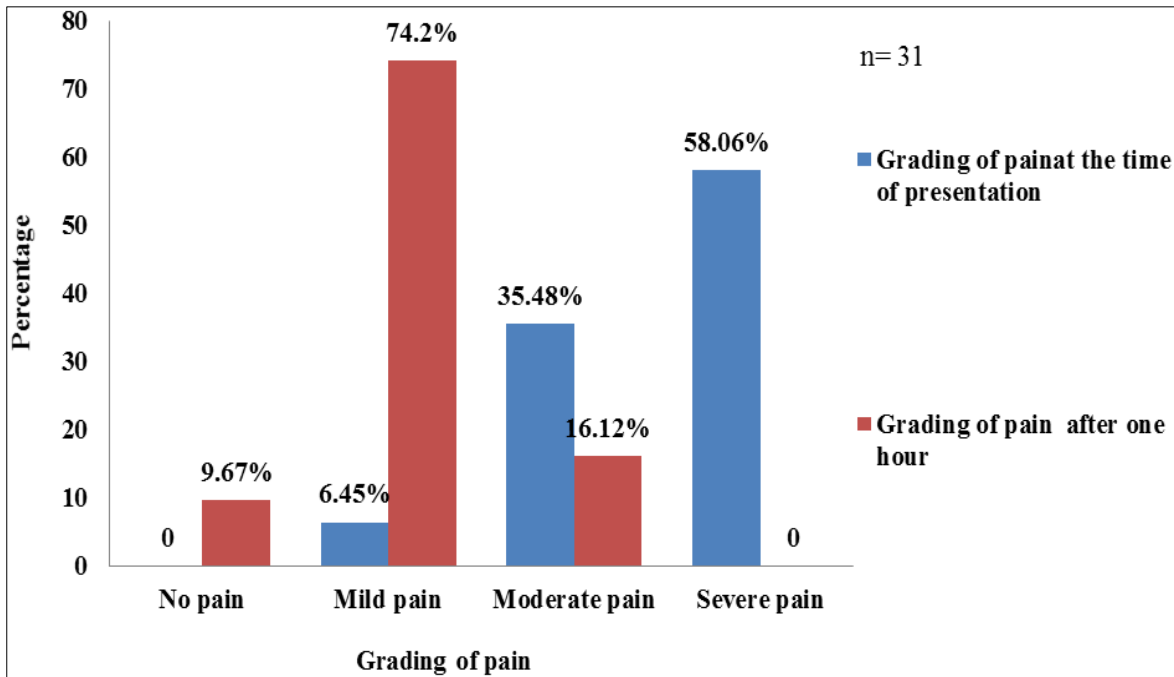


Fig 2: Bar diagram showing comparison of grading of pain in children who received the intervention as assessed by the investigator.

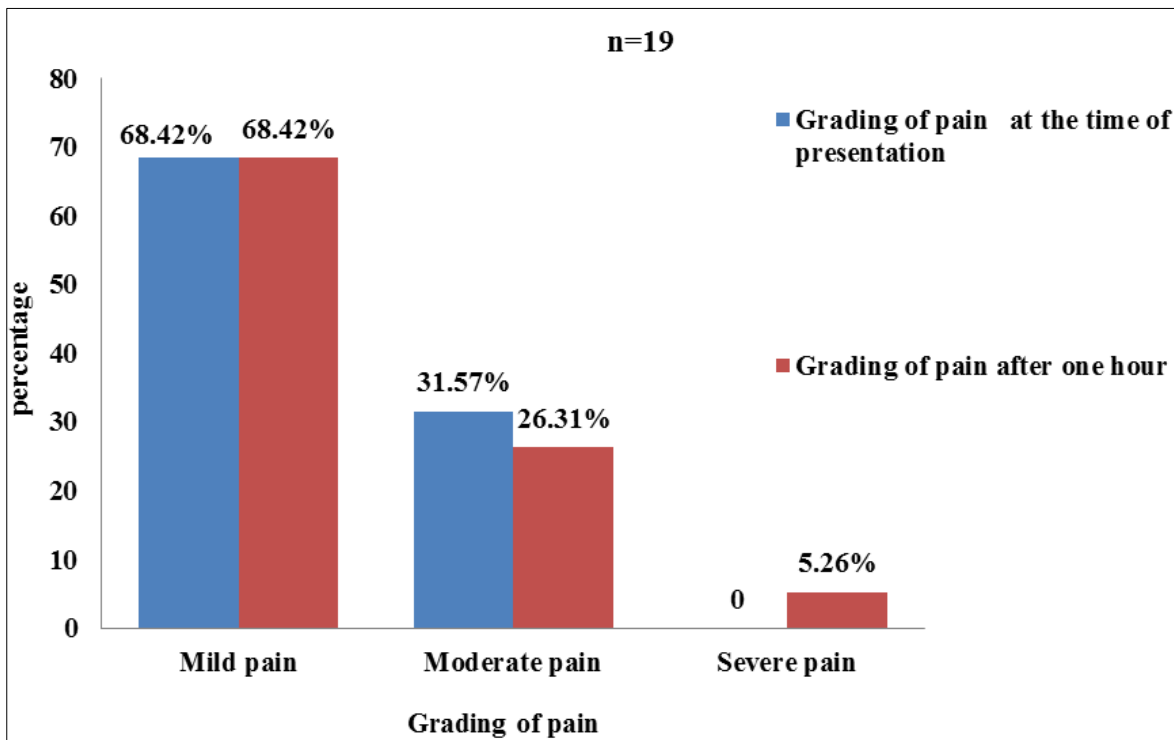


Fig 3: Bar diagram showing comparison of grading of pain at the time of presentation and after one hour in children who did not receive intervention as assessed by the investigator.

### **Section 5: Audit of records on assessment, management and documentation of pain episode**

As per the concurrent audit of all 50 records, two percent of them documented verbal cues of pain and none of them documented non-verbal cues of pain. Eight percent of them documented pain score and 16% documented pain by description. None of them documented quality of pain, location of pain and aggravating and alleviating factors. Only 22% documented heart rate, respiratory rate, and SpO<sub>2</sub> correctly.

After auditing of 50 records it was found that pain related findings were documented only in 31 records, hence data regarding management, reassessment and documentation was presented based on auditing of 31 records.

Regarding the management of post-operative pain, as per the records it is documented that 38.7 % interventions were performed within 20-30mts of pain presentation, 96.7% of interventions were carried out based on severity of pain. All 96.7% of documented interventions were written in correct dose and route. As per the records there is no evidence of using non pharmacological measures in pain episodes, elimination of other sources of discomfort and parent/ child education regarding pain relief.

Reassessment findings were recorded in 32.2% of documents. As per the records pain relief was achieved in 32.2% pain episodes. Parent and child satisfaction of pain management was also not recorded.

38.7% of them documented date and time of pain episode. 32.25% documented pain assessment by describing the pain event; outcome of intervention performed was documented in terms of reduction in pain score. From the records it was not evident, the reason for not administering pain medication. Only 96.7% documented intervention performed and out of that all of them signed with identification clearly.

### **Discussion**

The major results of the present study are discussed under the following headings.

#### **Nursing activities during assessment of postoperative pain among children.**

The investigator observed the nursing activities performed by staff nurses among 50 episodes of postoperative pain in children. In all the 50 episodes children manifested verbal and non- verbal cues. Among the 50 episodes, pain was identified and assessed by staff nurses in 70%, while 30% were missed out. This finding is supported by a study conducted in Calabar<sup>[6]</sup>, which reported that 84% of staff nurses assessed pain before managing it while 16% did not. In the present study none of them used age appropriate pain scale for accurate assessment of pain assessment. In a study conducted in Calabar<sup>[6]</sup>, reported that none of the nurses used any graphic or numeric pain rating scale for assessing intensity of pain. In the present study assessment of location of pain and quality of pain were done only in few episodes. The above findings were entirely different in a study conducted in Calabar<sup>[6]</sup>, where 100% of staff nurses assessed location of pain, duration and pattern of pain. In the present study 22% observed heart rate, respiratory rate and SpO<sub>2</sub>. The staff nurses may underestimate pain in younger children

#### **Nursing activities during management of postoperative pain.**

Among 50 episodes of postoperative pain, interventions were performed only in 62%, while 38% did not receive any type of pain management. The findings of the present study are supported by a study conducted in Nigeria<sup>[7]</sup>, in which majority of staff nurses used pharmacological means of pain management. In the present study none of them used non-pharmacological methods of pain management whereas, in a study conducted in Thailand<sup>[3]</sup>, which showed that 60% nurses used non-pharmacological methods of pain management. It is difficult to say that whether staff nurses lack knowledge regarding use of non-pharmacological methods of pain management in case of mild pain and in combination with pharmacological management in case of moderate to severe pain or they are reluctant to practice those methods or they underrate pain in younger children.

#### **Description of nursing activities during documentation of postoperative pain.**

In the current study assessment findings regarding pain were documented only in few episodes (10%). A study conducted in Sweden<sup>[9]</sup>, supported the findings of present study, which reported that pain assessment was documented only in 10% of documents. In the present study none of them documented the quality and location of pain. These findings contradict with a study conducted in Sweden<sup>[9]</sup>, which reported that location of pain was documented in 50% of records and pain character was documented in 12% of records. Assessment and reassessment findings were documented by staff nurses for completion of work during their shift.

#### **Comparison of severity of pain episodes at the time of presentation and after one hour.**

Pain was managed in 31 of the pain episodes. Those who received intervention showed pain relief after one hour. Few (9.67%) children achieved complete pain relief. Appropriate and timely intervention can be the reason for pain relief in majority of children. In a study conducted to improve the postoperative analgesia in children<sup>[8]</sup>, which showed that analgesia received in 95-98% of episodes and severe pain reduced to 11-17%.

#### **Nursing implications**

The findings of the current study have several implications in nursing practice, nursing administration and nursing research.

#### **Nursing practice**

- Nurses should receive adequate training in caring children after surgery which includes a comprehensive assessment of pain. Since pain is a multi -dimensional aspect the recognition of early symptoms to control and manage pain is necessary
- Regular supervision should be done for continuous practice of pain assessment, especially regarding use of age appropriate pain scales.
- The nurses need to be empowered for communicating the goal of pain management to the parent/ child. Nurses should be alert in checking whether pain orders are written by surgeons in order to manage pain episodes promptly.
- Nurses need to be honest in documenting what they assessed

and performed.

### Nursing Administration

- Periodic revision of pain assessment policies, conduct audit in order to confirm the appropriate use of pain assessment scales and proper documentation of management of pain episode for the continuity of care.
- The nursing activities performed by the nurses should be directly observed by the immediate supervisors either randomly or periodically.
- Administrators can ensure pain medication orders are written by the surgeons promptly so that the nurses can carry out the interventions timely.

### Nursing research

- Nurses should be encouraged to conduct researches regarding effectiveness of various pain management methods. More research is needed to identify strength and weakness of various pain assessment tools.
- Nurses should be encouraged to use newly developed tools like clinically aligned pain assessment tools (CAPA) along with numerical pain rating scale in order to get a better descriptive information regarding pain to implement the appropriate pain management strategies.

### Nursing Education

Student nurses need to be trained in assessment of pain in children, use of pharmacological and non-pharmacological methods in pain management and documentation during their Child Health Nursing theory classes and clinical postings.

### Limitations

- This study was conducted in a single setting, so the results may not be same in another setting hence the study cannot be generalised.
- Multiple observations were performed in a single staff nurse.

### Conclusion

Children experience mild to severe pain in first 24 hours after surgery. Pain is manifested by verbal, non-verbal cues and changes in physiology. Nurses usually do not perform a comprehensive and timely pain assessment. Interventions are not carried out based on severity of pain. Adequate pain relief is not achieved in children. Lack of communication between the staff nurses resulted in poor continuity of care. Early effective treatment is safer and more efficacious than delayed treatment and results in improved patient comfort and possibly less total analgesic administered. Staff nurses need to be accountable and skilful in accurate assessment, management and documentation of postoperative pain in children. Fresh graduate nurses need to be given induction programme in taking care of children which may help in improving the quality of care.

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