

RATINGS OF PAIN FROM POSTOPERATIVE CHILDREN AND THEIR NURSES

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Concern has been expressed by many health professionals regarding the short- and long-term effects of unrelieved acute pain experienced by children following surgical procedures. Stoddard (1982) suggested that failure to cope with acute or chronic pain may shape a child's ego development, self-esteem and personal relationships. Some researchers have suggested that the reason for the occurrence of unrelieved postoperative pain in children may be that nurses are not able to assess the pain that children experience accurately. Nurses may be relying on assumptions and intuitions as the basis for their pain assessments (Beyer & Byers, 1985). It seemed possible that disparity between nurses' assessments of the intensity of pain experienced by children and the children's reports of their own pain intensity may account for unnecessary pain in the postoperative period. This study was designed to determine if such disparity existed, and in addition, what factors are taken into consideration in the nursing assessment and management of children's pain.

Literature Review

Recent research studies support the premise that children do experience unnecessary pain in the postoperative period (Lukens, 1982; Mather & Mackie, 1983). It has been reported that children have been given fewer analgesic medications when compared to adults who have undergone similar surgical procedures (Beyer, DeGood, Ashley & Russell, 1983; Eland & Anderson, 1977). One study that examined the relationship between children's reported pain and nurses' assessment of that pain showed no significant correlation between nurses' and children's reports of pain (Lukens, 1982). Over half of the nurses (53.8%) assessed the children as having less pain than the children themselves indicated, when using a pain rating instrument based on colour. Luken's (1982) study supported the idea that

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unrelieved pain may exist as a result of incomplete or inaccurate assessment by nurses. Another study, however, concluded that nurses' assessments of children's pain were in fact based on valid criteria (Calamaras & Sullivan, 1980). Valid criteria in Luken's study were considered to be: physiological signs and symptoms, verbal reports of pain and non-verbal pain behaviours such as: crying, grimacing and guarding the painful site. It was therefore not clearly resolved whether nurses' assessments of pain in children were accurate.

The inconsistent results found in the literature, as well as pertinent clinical observations made by the investigator where the accuracy of nurses' assessments of pain in children were in question, led to the development of the research questions for the study.

Research questions

The following questions were considered in the study:

1. What are postoperative children's ratings of their pain at three different intervals?
2. What are the nurses' ratings of the pain experienced by postoperative children at three different intervals concurrent with the children's ratings?
3. What is the relationship between postoperative children's ratings of their pain and nurses' ratings of postoperative children's pain?
4. What are the factors on which nurses base their assessment of the pain experienced by children postoperatively?
5. What factors do nurses consider when deciding to give p.r.n. analgesic medications for pain.

Methods and Procedure

Data were obtained using two instruments, a 100 mm visual analogue pain rating scale (see Figure 1) and a nurses' questionnaire. The visual analogue has been proven to be a valid and reliable instrument for the measurement of pain in children (Abu-Saad & Holzemer, 1981; Beales, 1982; Huskisson, 1983; Vair, 1981). A convenience sample of 50 children aged 6-16 years were asked to place a mark on the horizontal line of the visual analogue to denote the intensity of their pain, at three different intervals (0800 a.m., 1200 noon and 1600 p.m.), on the day following their surgery. The children had undergone either orthopaedic, urologic or general surgery in an active treatment hospital setting. The nurses (n=33) who were assigned to care for the children were asked to rate the children's pain on an identical visual analogue scale as close to the time of the children's ratings as was possible.

A nurse's questionnaire was administered to the participating nurses. Of the 33 nurses who participated in the study 28 (85%) returned the questionnaire.

Two directive statements were used to elicit data from nurses regarding pain assessment, and the factors influencing nurses' decisions to administer analgesic medications to children. The questionnaire items were stated as follows.

1. Please list the factors you consider when assessing a child for pain, ie, How do you reach the conclusion that a child is or is not in pain?

2. Please list the factors that you consider when deciding whether to give a child a p.r.n. analgesic medication.

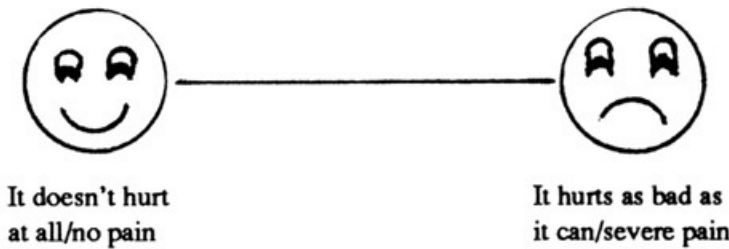


Figure 1
Visual analogue scale for nurses and children

The visual analogue scale yielded quantitative data which was categorized into one of four categories: no pain (0 mm), mild pain (1-33 mm), moderate pain (34-67 mm) and severe pain (68-100 mm) (see Table 1). Pearson's product moment correlation coefficient as well as Chi-square tests were used to examine the relationship between nurses' and children's scores. A $p < .05$ level of confidence was accepted for the statistical analysis. Content analysis was used to analyze the data from the nurses' questionnaires. Data were also obtained regarding the children's age, sex and surgical procedure. The participating nurses ($n=28$) were asked to state the amount of general nursing experience they had, as well as their experience as paediatric nurses.

Results

The sample

The majority of children in the sample were males ($n=32$, 64%). The mean age of the children was 11 years and the mode was 6 years. The most frequent type of surgery that the children had undergone was orthopaedic surgery ($n=22$, 44%).

The data obtained regarding the amount of experience the nurses had, revealed that the majority (86%) had less than one year of paediatric nursing experience. In addition, most of the nurses in the sample (74%) had worked exclusively as paediatric nurses.

Children's and nurses' pain ratings

Results of the study showed that all of the children indicated that they had some degree of pain postoperatively. Only two children recorded scores of zero or "no pain" on one of the three ratings (see Table 1). In addition, 58% of the children's reported pain was moderate or severe in intensity (68-100 mm). A number of children (18%) reported pain that *increased* throughout the day. Some of the children (32%) reported pain that was moderate or severe at all three rating times. Four children were discharged unexpectedly at the time of the 1600 hr rating, thus accounting for the n=46 as shown in Table 1.

The nurses in the study consistently identified the presence of pain in the children whose pain they were asked to estimate (see Table 1). Results of the correlational analysis showed that all three of the correlations carried out on nurses' and children's pain scores at the three different time intervals were positive ($r=.48$, $r=.14$, $r=.33$), and two of the three correlations were statistically significant (see Table 2). Chi-square tests showed no significant difference between nurses' and children's ratings of pain (see Table 3).

Table 1

Intensity of Pain Reported by Children and Nurses by Frequency^a

	No Pain 0mm	Pain Intensity		Sev. Pain 68-100mm	Total
		Mild Pain 1-33mm	Mod. Pain 34-67mm		
Children's pain ratings at 0800 a.m.	0	18	16	16	50
Nurses' pain ratings at 0800 a.m.	1	26	11	12	50
Children's pain ratings at 1200 p.m.	0	17	25	8	50
Nurses' pain ratings at 1200 p.m.	0	21	22	7	50
Children's pain ratings at 1600 p.m.	2	24	15	5	46
Nurses' pain ratings at 1600 p.m.	0	26	12	8	46

^a Frequency refers to the number of children's or nurses' pain scores that fell within each pain intensity category.

Table 2

Correlation^a Between Children's Pain Scores and Nurses' Pain Scores

Children's Pain Ratings	ra	r2	p
Children's and nurses' pain scores at 0800 a.m.	.48*	.22	.00
Children's and nurses' pain scores at 1200 noon	.14	.02	.16
Children's and nurses' pain scores at 1600 p.m.	.33*	.10	.01

^a Pearson's product moment coefficient: r

* Significant association at P<.01

Table 3

Chi-Square^a Values, Nurses' and Children's Pain Scores

Time	x2
0800 a.m.	3.29
1200 noon	.68
1600 p.m.	1.02

^a df=2

p<.05

Nurses' questionnaire

Responses from the nurse's questionnaire indicated that behavioural cues (the child's facial expression, holding or guarding the operative site and not moving easily), as well as verbal cues (crying, whining and groaning) were considered the most important factors in the nurses' assessment of pain in children (see Table 4). The majority of nurses specified that they considered the time lapse since the last analgesic medication was administered as being the most important factor that they considered in their decision to medicate or not medicate children for pain (see Table 5).

Table 4

Factors Identified by Nurses as Most Important in Assessment of Pain in Children (n=28)

Factors	<u>n</u> ^a	% ^b
Behavioural cues	25	89.3
Verbal/vocal cues	22	78.6
Physiological signs & symptoms	19	67.9
Surgery type	12	42.9
Time since surgery	10	35.7
Time since last analgesic given	6	21.4
Parent's report of child's pain	5	17.9
Child's fear of needles	2	7.1
Miscellaneous	10	35.7

^a Frequencies refer to the number of subjects (nurses who listed the factor).

^b Percentages refer to the per cent of the total number of subjects (nurses) who answered the questionnaire.

Table 5

Factors Identified by Nurses as Most Important in the Decision to Administer an Analgesic Medication to Children (n=28)

Factors	<u>n</u> ^a	% ^b
Time since last analgesic given	18	64.3
Behavioural cues	15	53.6
Verbal cues	14	50.0
Time since surgery	12	42.9
Surgery type	12	42.9
Physiological signs & symptoms	9	32.1
Nurse's anticipation of child's pain, i.e., from a painful treatment, or ambulation	8	28.6
Child's fear of needles	3	10.7
Parent's request for analgesic medication for their child	2	7.1
Miscellaneous	11	39.3

^a Frequencies refer to the number of subjects (nurses) who listed the factor.

^b Percentages refer to the per cent of the total number of subjects (nurses) who answered the questionnaire.

Discussion

The results, which showed that all of the children reported pain in the postoperative period, were concerning. These findings concur with those of Mather and Mackie (1983), as well as Lukens (1982). The explanation for the occurrence of pain in the children was not clear in the study. Certainly the results suggest that further research is indicated to examine the appropriateness and time intervals of analgesic medications which were ordered as well as the actual administration of p.r.n. analgesic medications by nurses.

There was a relatively strong concordance between nurses' ratings of children's pain and children's ratings of their own pain. It was apparent however that, in spite of the fact that the nurses knew that the children were experiencing pain, the children still reported pain. A question was raised as to whether the nurses acted on their assessments.

It was noted that the results which demonstrated a strong concordance between nurses' and children's pain ratings were in contrast with those results found by Lukens (1982). The use of a visual analogue pain scale rather than a colour instrument (used in Lukens's study) may have accounted for the disparity in results. The visual analogue may have been a more sensitive instrument in the recording of pain intensity over time.

It was possible that other variables may have influenced both nurses' and children's pain ratings. The non-probability sampling technique may have influenced the results. Random (probability) sampling produces a more accurate and representative sample.

Results from the nurses' questionnaire concur with other studies that examined similar assessment factors (Calamaras & Sullivan, 1980; Lukens, 1982). The similar results suggest that certain criteria may be widely used by nurses in their assessments of children's pain. The nurses who answered the questionnaire were able to generate a number of diverse factors both in their assessment of pain as well as in their decision making regarding the administration of analgesic medications to children.

Implications

The results of the study have implications for nursing practice and research. However, generalization of the findings beyond the sample is not possible. Notwithstanding the limitations of the study, the following implications for nursing are noted.

The nurses' assessments of the children's pain were in concordance with the children's ratings of their own pain. This finding was encouraging: it suggests that nurses are able to assess pain in children. All the children in the study however, reported postoperative pain. It was apparent that, while the nurses were able to identify pain in the children correctly, they may not have acted on their assessments. While it may be difficult to obtain complete absence of pain in the postoperative period, medications and other interventions can ensure that children will not have to endure unrelieved severe pain in the postoperative period. Thus with careful nursing assessment and adequate intervention with analgesia, the pain that children experience can be managed. Nurses have an explicit responsibility to make pain relief a part of their care.

Further research is indicated to confirm whether or not nurses act on their assessments of pain in postoperative children. Replication of the study with the addition of an examination of the patterns of administration of analgesic medications by nurses to children may shed light on the problem of unrelieved pain in children. In addition, a study is indicated to identify other

factors that influence nurses' decisions to medicate children for pain subsequent to their assessments.

In spite of the inherent limitations of the study, the results support the assertion that children do experience unrelieved pain in the postoperative period. The nurses were able to assess the children's pain but the prevalence of this pain raised the question of whether or not the nurses acted on their assessments. Other factors may have influenced the nurses' decisions to medicate or not medicate the children subsequent to the nursing assessment process.

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RÉSUMÉ

Douleurs postopératoires: comparaison des évaluations faites par les enfants et par leurs infirmières

Cette étude de corrélations examine l'intensité de la douleur que présentent les enfants après une intervention chirurgicale, au moyen d'une échelle d'évaluation de la douleur (échelle analogue et visuelle de 100 mm). Les évaluations de la douleur par les infirmières (n=33) ont été obtenues simultanément et comparées aux résultats des évaluations des enfants (n=50).

Les résultats ont été assez troublants dans la mesure où tous les enfants ont fait état de douleurs et 58 % des rapports ont indiqué une douleur modérée ou forte (de 68 à 100 mm). Les infirmières étaient conscientes de la douleur des enfants et des corrélations positives significatives à 2 ou 3 fois l'évaluation ($r=0,48$, $r=0,33$, $p \leq 0,05$) ont été notées entre les résultats analogues des enfants et ceux des infirmières. Les tests au chi carré n'ont révélé aucune différence significative entre les résultats des infirmières et ceux des enfants quand les résultats ont été classés par catégories.

Bien qu'il y ait eu concordance entre les résultats des évaluations de la douleur des enfants et ceux de l'évaluation des infirmières, les enfants ont continué de faire état de douleurs à chaque évaluation subséquente, fait qui a soulevé une question importante, à savoir si les infirmières prenaient ou non des mesures pour soulager les enfants.