
Pain Rating Scales and Assessment of Paediatric Pain: Knowledge and Self-reported Practice of Clinicians at a Tertiary Centre, Southern Nigeria

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Abstract: Background: Pain is one of the major reasons why children present to healthcare facilities. It is inadequately assessed and undertreated worldwide, whereas valid and easy to use tools to facilitate its assessment are widely available. Objectives: To describe clinicians' knowledge and self-reported practice on the use of pain rating scales in the assessment of pain in children at the University of Port Harcourt Teaching Hospital (UPTH). Methods: A semi-structured and self-administered questionnaire, was used to collect data from a convenience sample of physicians and nurses attached to clinical departments/units where children are cared for between June and August 2017. Their perception and practice toward assessment of pain were analysed. Results: Ninety-five (48.2%) physicians and 102 (51.8%) nurses participated in the study. Majority (33.5%) of them had 5-10 years work experience while 25% had more than 15 years. Commonest source of knowledge of assessing pain in children was school for 30% of respondents (14.7% of doctors; 44.1% of nurses) and in-service training (23.4%). More physicians (29.5%) did not know any pain assessment scale compared to nurses (17.6%), while 65.3% of doctors had never used any scale for assessing pain in children, as well as 44% of nurses. The most accurate judge of the intensity of the child/adolescent's pain was the child (41%), followed by the child's primary nurse (14.7%), the treating physician (11.7%) than the child's parent/caregiver (11.2%). Conclusion: There are gaps in the knowledge of healthcare providers concerning assessment of pain in children and pain rating scales are not routinely used. Capacity building interventions are required to enable application of standard practice for assessment of children's pain.

Keywords: Assessment, Paediatric Pain, Pain Rating Scale, Southern Nigeria

1. Introduction Background

Management of pain is an integral part of the care of paediatric patients, moreover well managed pain has been shown to be associated with positive outcomes, including faster recoveries, fewer complications and decreased health care resources. [1-3] The overall prevalence rates for different childhood pains range from 4-88%. [3] These pains are related to injuries and diseases for which children present to healthcare facilities, as well as interventional procedures they are subjected to. But, optimal pain relief can only be achieved when the pain has been properly assessed, as this forms the basis for decisions about interventions and their evaluation, making good pain assessment the cornerstone of

pain management. [4] The gold standard of pain assessment is self-report because pain is a subjective and multifaceted experience that varies significantly between individuals. [4, 5] There are principles for assessment of paediatric pain, including among others the use of pain rating scales. These scales enhance the ability of patients to communicate the severity of their pain to health care professionals, the ability of clinicians to communicate among themselves, and are useful for establishing a baseline as well as measuring response to treatment. [3, 4] Commonly used ones include the Visual Analogue Scale (VAS) and the Numeric Rating Scale (NRS) for older children. [4, 6] The physiological and/or behavioural scale (Neonatal/Infant Pain Scale), and scales showing drawings or images (Wong-Baker Faces Pain Scale- FPS) are used for newborns, younger children and

patients with limited cognitive ability, and are acceptable alternative to self report. [4, 6].

Over the last several decades, the assessment of pain in children has become a standard of pediatric care and most institutions approved using the pain assessment tools as their basic instrument to determine the intensity of pain and management of the different type of pains encountered in paediatrics. [6-8].

In an effort to reduce the burden of under assessment and inadequate treatment of pain, the American Pain Society (APS) in 1996 instituted the “pain as the 5th vital sign, thus to be assessed and recorded as often as other vital signs, to raise awareness of the presence of pain and health care professionals should act on the information obtained. [4, 8, 9] Moreover, pain relief is considered a basic right of the child and not an option, implying that health care providers who care for children have the obligation to alleviate their pain whenever possible. [8] Hence, clinicians need to be knowledgeable in the assessment of pain for its optimal relief. [7, 10] It has been demonstrated that training of healthcare workers improve their capacity to assess and manage pain in children. [7, 11] However, these training programmes are still not readily available in many resource limited settings including Nigeria.

Pain assessment practices and use of pain rating scales in children have not been studied in our health facility. This study will generate information that will be a starting point for targeted improvement efforts. Thus, the survey was conducted to describe clinicians' knowledge and self-reported practice on the use of pain rating scales in the assessment of pain in children at the University of Port Harcourt Teaching Hospital.

2. Methods

This study was a cross-sectional survey carried out from June to August 2017, among healthcare professionals who attend to children at the University of Port Harcourt Teaching Hospital (UPTH). The UPTH is an 800-bedded federal tertiary health institution serving Rivers State and the neighbouring states in the southern part of Nigeria, and a major referral centre for children in Port Harcourt and its environs.

A structured and self-administered questionnaire was used to obtain information from a convenience sample of physicians and nurses attached to clinical departments/units where children are cared for, and those in educational units, through their unit heads during various departmental activities. The questionnaires were retrieved that same or following day.

Departments and units involved included: Departments of Paediatrics (with an average of 2,000 hospital admission yearly); Surgery (Paediatric Surgery Unit (with an average of 10 surgeries weekly), Burns and plastics Unit, Orthopedics

Unit, Ear-Nose & Throat Unit, Ophthalmology Unit); Paediatric Dentistry and Nursing services (Ward Nurses, Nurse Tutors and Nurses in the Post Basic School of Nursing (Paediatrics)). The services provided by these health care professionals include treatments of common and specialised conditions in children as well as supportive care.

Data collected included biodata, knowledge about assessment of pain and pain rating scales and their use. Respondents could tick more than one option per question, where applicable.

Approval for the study was obtained from the Research Ethics Committee of the hospital and informed consent obtained from the respondents.

Descriptive statistics was used to present demographic data. Chi-square was used to compare the responses of the doctors and nurses to each question at a 95% confidence interval and a p-value less than 0.05 was considered significant. All tests were done with the Epi Info v7 software (CDC, USA).

3. Results

Out of 220 questionnaires distributed, 197 (90% response rate) were returned from 95 (48.5%) physicians and 102 (51.8%) nurses. One third of the respondents, 66 (33.5%) had 5 to 10 years working experience post graduation while 49 (25%) had more than 15 years. (Table 1)

Table 1. Characteristics of the study population.

Role	Frequency	Percentage
Doctor	95	48.2
Nurse	102	51.8
Total	197	100
Years of work experience		
5 years	52	26.4
5 - 10 years	66	33.5
10 - 15 years	30	15.2
>15 years	49	24.9
Total	197	100

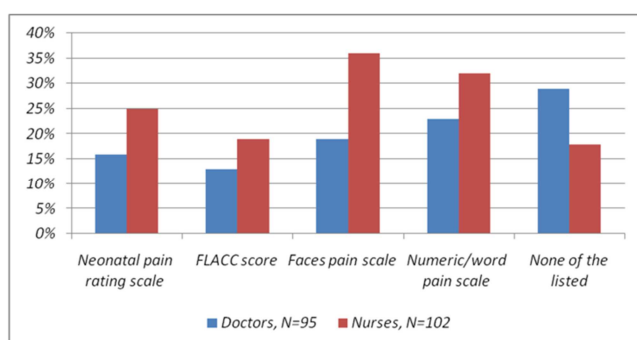
The commonest sources of knowledge of assessment of pain in children were the training school (29.9%) and in-service training (23.4%). The training school was the source of knowledge for a significantly higher proportion of nurses, compared to doctors ($p=0.0001$) (Table 2).

The child was believed to be the most accurate judge of the intensity of his/her pain (41%) and significantly so by more doctors than nurses ($p=0.0005$), followed by the child's primary nurse (14%) with more nurses than doctors believing so, the difference was significant ($p<0.0001$). The parent/caregiver was believed to be the least accurate judge of the intensity of his/her child's pain (11%) (Table 2). Majority of respondents were not aware of the existence of a pain rating scale recommended for use in the hospital.

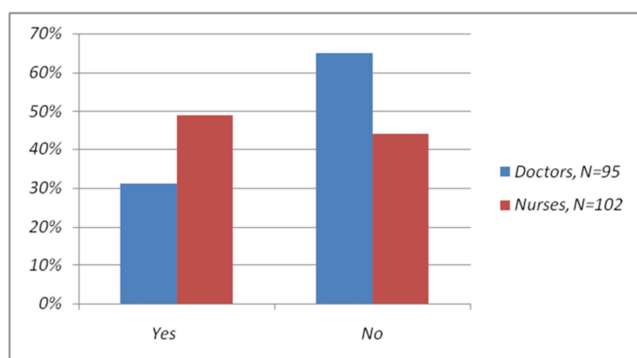
Table 2. Knowledge and perception of assessment of paediatric pain.

	Doctors (n=95) (%)	Nurses (n=102) (%)	Total	P-value
Source of knowledge of assessment and management of pain in children				
Training school	14 (14.7)	45 (44.1)	59 (29.9)	<0.0001
In-service training	23 (24.2)	23 (22.6)	46 (23.4)	0.78
Self development	16 (16.8)	16 (15.7)	32 (16.2)	0.82
Colleagues	8 (8.4)	3 (2.9)	11 (5.6)	0.09
Who is the most accurate judge of the intensity of a child's pain				
The child	51 (53.7)	30 (29.4)	81 (41.1)	0.0005
The child's primary nurse	2 (2.1)	27 (26.5)	29 (14.7)	<0.0001
The treating physician	9 (9.5)	14 (13.7)	23 (11.7)	0.3530
Child's parent/ caregiver	11 (11.6)	11 (10.7)	22 (11.2)	0.8595
Existence of a pain rating scale recommended for use in the hospital				
Yes	7 (7.4)	8 (7.8)	15 (7.6)	0.9001
No	29 (30.5)	41 (40.2)	70 (35.5)	0.1564
I don't know	59 (62.1)	53 (52)	112 (56.8)	0.150

More nurses than doctors knew about pain rating scales, of which the commonest were the Faces Pain Scale and the Numeric Pain Scale. A significantly higher proportion of nurses knew the Faces Pain Scale ($p=0.006$), whereas a significantly higher proportion of doctors did not know any of the listed pain rating scales ($p=0.04$) (Figure 1).

**Figure 1.** Pain rating scales known by the respondents.

A significantly higher proportion of nurses have used a pain rating scale to assess children's pain compared to doctors ($p=0.008$), while more doctors (65%) than nurses (44.1%) had never used anyone ($p=0.002$) (Figure 2).

**Figure 2.** Frequency distribution of respondents who had ever used a pain rating scale in the assessment of children's pain.

4. Discussion

Adequate paediatric pain management, which depends on a thorough assessment of the pain, is now universally considered an ethical obligation. [1, 7, 12] Thus, the role of training institutions, especially medical and nursing schools, in equipping health care professionals with knowledge and skills to meet up with this obligation cannot be overemphasized. In this study, as in previous reports in developing countries, few respondents received their knowledge of pain assessment from their training schools, highlighting the lack of information about pain assessment and management for both physicians and nurses during their education. [1, 9, 12, 13].

Self report makes the child who can communicate verbally well the best judge of the intensity of his/her pain, which the majority of respondents in this study failed to identify.

In the same vein, studies in Sudan and Kenya also found similar knowledge gap in pain assessment, with healthcare workers relying more on observing the child's behaviour to assess the pain instead of self report, the single most reliable indicator of pain. [1, 5, 12] This could be misleading as it may not give sufficient information on the intensity of the pain while the lack of observable pain does not mean lack of pain. On the other hand, studies in America and India had reported better knowledge of healthcare providers in this aspect of children's pain assessment, and this could be attributed to the level of awareness and consideration accorded to the issue of pain relief in children in recent years. [5, 14] It is however of great concern that the opinion of the parent/caregiver was the least considered in this study while exploring who the best judge of the child's pain is, perhaps implying that in our routine practice, caregivers may not be considered as partners in the management of their children. It is understandable that nurses perceive themselves as best judges as they spend more time with the patient, however, even though the child's expression of the pain experience can be affected by many

factors, nurses need to trust patient self-report if pain is to be effectively evaluated and controlled. [6].

Pain rating scales are tools used as part of an effective pain assessment process, to determine the severity of the expressed pain. [6] There are validated ones for different ages and level of development in both non-verbal and verbal children. [4, 6] In the index study, 23% of health professionals did not know any of the commonly used pain scale, which was similar to 26% reported by de Freitas *et al* in Brazil, while Alhassan *et al* in Sudan reported an even higher proportion of physicians (60%), even though the latter study was restricted to physicians only. [1, 13] On the other hand, half of respondents in an Indian survey have enumerated some pain scales used in children but none of them reported routine use of any of the pain assessment scales. [14] The failure to routinely assess pain, which has been shown to be an important reason for unrelieved pain had been reported previously. [1, 12-14] In the present survey, the majority of respondents had never used a pain rating scale to evaluate the intensity of pain in children, in spite of a greater proportion of them having more than 5 years experience in clinical practice. This is quite disturbing as the underutilisation of these tools may result in children receiving inadequate pain treatment with its consequent sequelae. However, it is noteworthy that nurses did better than physicians in utilisation of pain tools. This finding that was also reported by Nuseir *et al* in Jordan, who attributed it to the fact that nurses devote more time to their patients compare to other care providers. [10] Furthermore, with the recommendation that pain be regarded as the fifth vital sign, to be recorded together with the others, it becomes understandable that nurses, who have the responsibility of taking and recording vital signs, know better and make use of these scales more often than physicians. [4, 8, 9] A future study exploring the perception of pain in children treated by these health professionals may better depict the magnitude of the gaps in knowledge and practice of evaluation of childhood pain.

Few respondents in this study rightly knew that the hospital had no recommended pain rating scale for children. The lack of pain assessment scales in hospitals have been reported previously. [1] In the study in Sudan, Alhassan *et al* found that 1 out of the 9 paediatric hospitals surveyed had paediatric pain management formal educational materials and management protocols. [1] They suggested that to be the reason why that particular hospital had the highest percentage of physicians who either received some pain management education or had some awareness about pain assessment scales. This buttresses the fact that institutionalisation of pain assessment and relief improves patients' clinical outcomes with lower pain prevalence. [7, 8] On the other hand, while in-service trainings could be used as strategies to increase the level of knowledge of clinicians on pain control as demonstrated in several studies, the integration of the subject of pain control in curricula of health training institutions would ensure health workers are adequately equipped for service delivery. [7, 11, 15].

5. Conclusion / Recommendations

This study showed that clinicians had inadequate knowledge about pain assessment in children and pain rating scales, which are underutilised. There is an urgent need to build the capacity of healthcare professionals in using appropriate tools to assess paediatric pain, to reduce unnecessary suffering in children.

Healthcare institutions should provide in-service trainings regularly on pain and its assessment as well as provide the necessary tools and protocols, while the integration of pain in the learning content of health training institutions is also advocated.

Conflicts of Interest

The authors declare that they have no competing interests.

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