

# The language of pain: A short study

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## Abstract

**Background:** Pain perception is a very controversial topic in child patients. It is affected by various factors such as fear, anxiety, previous experiences, parental factors, and pain threshold. The communication of such pain by the child to the parent is also very confusing with children having rudimentary and developing communication skills. A study to evaluate the pain perception of children and the parental understanding of the children's pain would be helpful in this scenario. The effect on behavior due to pain is also attempted in this particular study. **Materials and Methods:** A cross-sectional study of 100 children aged between 5–13 years accompanied by either parent was performed. Data collection was done with the help of questionnaires, which assessed the parental understanding of the child's pain. Pain perception recording was done with the Visual Analog Scale of Faces (VASOF). The behavior of the child was noted using the Frankl's behavior rating scale. Data was collated and statistical analysis was performed using the SPSS (version 10) software. **Results and conclusion:** The results show that parental factors such as education, work culture, influence parental understanding of pain. VASOF proves to be a reliable tool for pain perception in children. Behavior of the child shows a positive correlation to pain perception.

**Keywords:** Behavior rating, pain perception, visual analog scale

## Introduction

Pain is the most frequent symptom of oral disease.<sup>[1]</sup> It has also been famously referred to as the fifth vital sign.<sup>[2]</sup> But it is unfortunate that pain recording is not a part of normal history taking procedure. The recording of pain perception has been questioned for its efficacy and need whether it is really required.<sup>[3]</sup> The importance of pain assessment cannot be underestimated as it is vital for diagnosis and it is also helpful to predict post treatment healing. It also serves as criteria for establishing success of treatment and patient satisfaction as pain is often the complaint for which the patient approaches the dentist in the first place.

Pain perception, especially in children is a highly confusing and controversial topic due to the fact that recording of pain perception in children is stated to be highly variable and unreliable. Children have poor communication skills and are not able to comprehend complex questionnaires that are perceived to be the gold standard in recording pain perception in parents. Several attempts have been made to simplify the questionnaires to be used in children and figurative description has also been attempted. The various scales that are used for pain recording are:

- Questionnaire-based survey tools
- Numerical rating Scales
- Faces scales
- Visual analog scales

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- Adjective Scales
- Color scales

An exhaustive review of such scales is available in literature.<sup>[3]</sup> The Visual Analog Scale of Faces (VASOF) is regarded as the gold standard for pain recording in children.<sup>[4]</sup> Pain recording is further complicated by the fact that various factors influence pain perception in children. Age, previous dental experience, fear, and anxiety are a few of the factors having an influence on pain perception. Parental understanding of children's pain is also equally important as often the history of illness is recorded with input from the parent as the child is not able to comprehend complex questions regarding the progress of dental disease. The current study was undertaken with a regard to study the interplay of factors in pain perception by the patient.

## Objectives of the Study

To record the pain perception of children with the Visual analogue scale and correlate it with various environmental factors and parental understanding of the pain felt.

Also, to correlate the pain perception of the patient with his/her behavior in the dental set up.

## Materials and Methods

A cross-sectional study was planned with a sample size of one hundred children (100) accompanied by either parent. Children accompanied by guardians were not included in the study. The ages of the children chosen were between 5 and 13 years. The children were divided into two groups based on their age as 5-9 years and an older age group of 10-13 years. Children with any obvious extra oral swelling and differently

abled children were excluded from the study. A control group of thirty (30) healthy children were selected from siblings of the patients, children of teaching and non teaching staff in the college. Informed consent was taken from all the parents who accompanied the children after a proper description of the study. The parents were provided questionnaires which were printed in three languages that were used in that particular region – English, Kannada, and Marathi. The questionnaire included questions to elicit the personal information of the patient and parental understanding of child’s pain.

A recording of the pain perception was done using the VASOF [Figure 1]. This scale comprises a row of five faces showing expressions which range from a minimum score of 1 (No pain) to score 5 (Excruciating pain). The faces were made of a boy and girl showing no ethnicity or racial features in the form of a cartoon with expressions. All the children were shown the VASOF with needed explanations to understand the concept. They were asked to choose the face most similar to what they were feeling at that moment. The behavior of the child was noted based on the Frankl’s behavior rating scale. The VASOF was administered again after thirty minutes and repeated on the next follow-up appointment. All the recordings of this study were done by a single examiner to avoid interexaminer bias. The SPSS software (version 10.0) was used for the statistical analysis.

## Results

Total samples of one hundred (100) children were taken in the study of which 55 were girls and 45 were boys. The VASOF scores recorded show the moderate (rating 3) to be the most commonly given rating by the children [Figure 2]. The behavior rating of the children showed a majority of positive behavior with negative behavior increasing with the intensity of pain. The recording of the VASOF on the next succeeding appointment showed a trend towards decrease in scores with the average decrease being two scores in the scale.

## Discussion

The VASOF is an amalgamation of the VAS (Visual Analog Scale) and the Scale of Faces. The VAS is presented as a 10 cm line, anchored by verbal descriptors, usually ranging from no pain to worst pain imaginable. The patient is asked to mark on the scale the amount of pain he is feeling. The faces scale provides a set of six faces which may be line diagrams, cartoons or actual photographs. Generally, children have shown a preference for the Scale of faces as compared to the VAS.<sup>[5,6]</sup> The VAS has been extensively researched and shows good sensitivity and validity for children seven years or older.<sup>[7,8]</sup> The three important criteria that need to be applied during the evaluation of a certain technique or method of estimation are validity, reliability and sensitivity. Validity is the ability of the instrument to measure the presence or absence of a variable. Reliability is the ability to measure the same

variable with the same scoring at different points of time. The sensitivity of a pain rating scale is the ability of the scale to detect change. The validity of the VASOF is proved in this study by the fact that the children suffering from pain have scored a wide variation of ratings in the scale with all the ratings being recorded in the sample population. It is also shown by the fact that ninety percent (90%) of the control group showed an absence of pain by scoring the rating one (No pain) in the scale. The reliability of the scale was shown by the fact that the scoring of the scale taken at the second instance showed ninety two percent (92%) correlation. This agrees with the study by Bijur *et al*,<sup>[9]</sup> which also showed a ninety percent (90%) reliability. The sensitivity of the scale is shown by the fact that (87%) of the patients showed an appreciable difference between the first and third recording of the VASOF which was done at the second appointment. The sensitivity of a pain scale also depends on the number of levels available for scoring as more levels would mean that even a small change can be noted. Hence it should be stated that the sensitivity of the VASOF would be lesser than the VAS.<sup>[10]</sup>

The age group of children older than 5 years was chosen for the study as children below this age are not able to grasp the concept of pain reporting. Young children who have not experienced school are not used to being asked questions by strangers. They are also not experienced in giving quantitative ratings or estimates. Questions such as, “Are you tired?” or “Are you hungry?” are generally treated

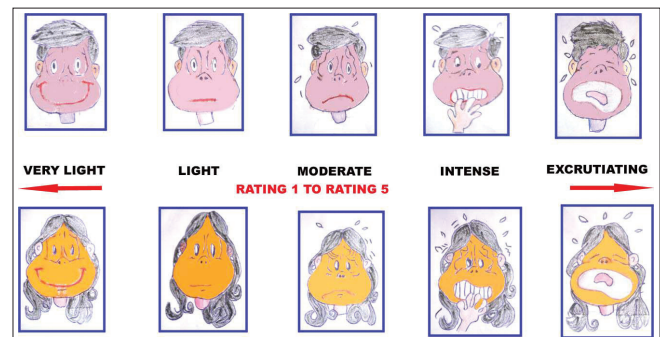


Figure 1: Visual analog scale of faces

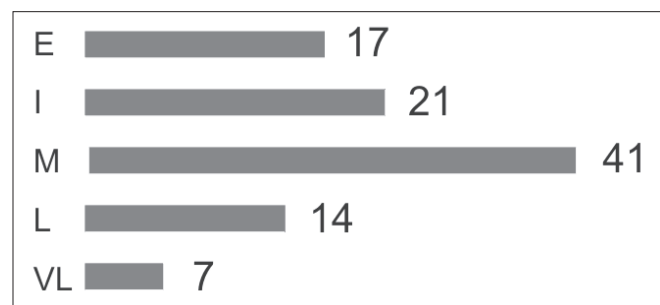
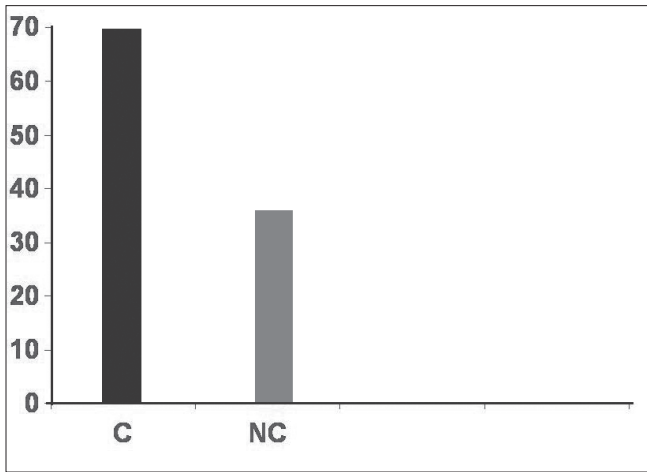
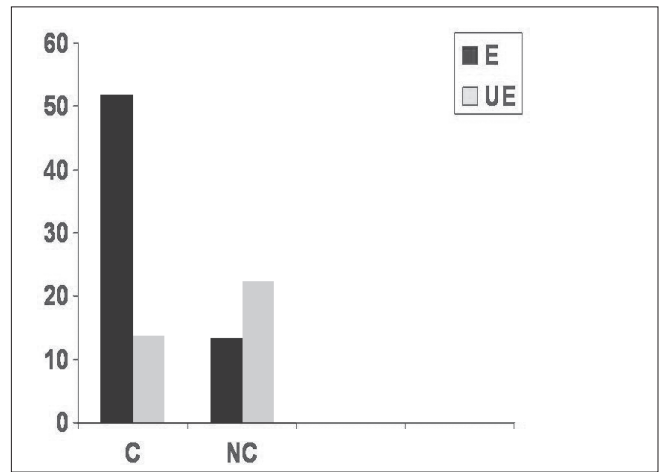


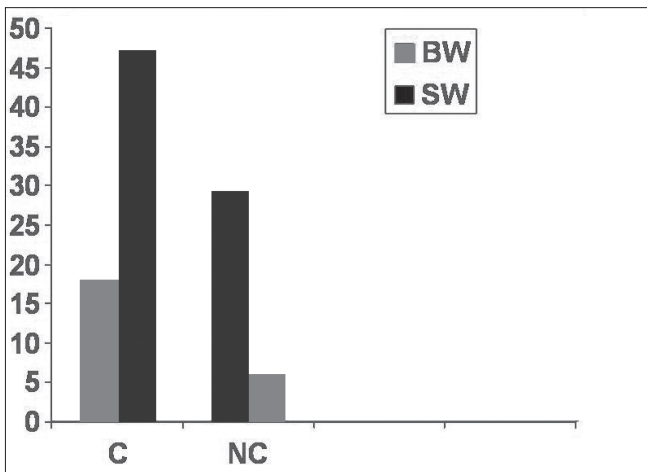
Figure 2: Pain perception in children



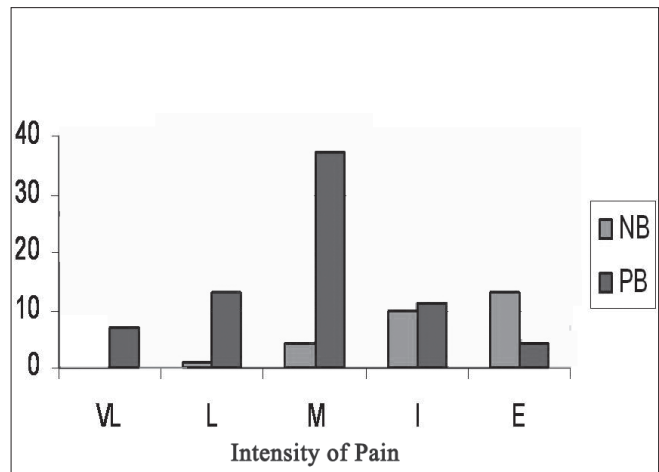
**Figure 3:** Correlation of pain perception between child and parent



**Figure 4:** Correlation of education level of parent and understanding of pain perception



**Figure 5:** Correlation of work status of parent and understanding of pain perception



**Figure 6:** Correlation of intensity of pain and behavior of child in dental set up

as yes or no questions by the child. Many children in such age groups have a tendency to use the extremes of the scale treating it as dichotomous rather than graded.

When the correlation of the pain felt by the patient's and the parental understanding was done, it was noted that correlation was seen in sixty seven (67%) of the cases [Figure 3]. Correlation when compared to the sex of the child showed that forty one percent (41%) were able to express their pain while only twenty six percent (26%) of the boys were able to do so. This shows that the communicative ability of girls is superior to that of boys even in childhood. When the education levels of parents were taken into consideration it was noted that the educated parents (52%) were more aware of their children's discomfort than the uneducated parents (13%) [Figure 4]. The correlation of work status of the parents

and understanding the pain of the child showed that working parents (47%) do not sympathise with their children's pain as compared to non- working parent (53%) [Figure 5].

The behavior of the child was evaluated showing an overall positive behavior in the dental set-up (65%). The behavior of the child worsened with increasing intensity of pain [Figure 6]. A previous experience with dental treatment caused more negative behavior in the child showing that behavior management skills and pain control techniques is still unsatisfactory among dental professionals.

## Conclusions

The present data depicts the following:

1. Visual analog scale of faces can be used as a reliable tool

(VASOF) for children above five years of age.

2. Parental factors such as Education, working parents influence the understanding of child's pain.
3. Factors such as age of child, intensity of pain, and previous dental experience affect the behavior of the child in the dental set up.

Pain reporting should become a part of daily history taking in the curriculum. Further research would help in validating and finding better pain reporting methods for children.

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