Pain Assessment in Children Using a Modified Wong Baker Faces Pain Rating Scale

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Objective: Pain assessment in children is an important measure in treatment planning and to establish effectiveness of treatment. To evaluate the efficiency of a Modified Wong-Baker Faces Scale (MWBFS) and evaluate its comfortability with Wong-Baker Faces Scale (WBFS).

Methods: Study consists of 50 children aged 3 to 12 years old. Following dental treatment like restoration, extraction, pulp therapy etc, patients were asked to relate the pain experienced during treatment by selecting a face from the MWBFS template and WBFS template. Patients’ comfortability with both the scales recorded.

Results: All the 50 children preferred the MWBFS (100% preference) over the WBFS. A statistical significance of \(< 0.001\) indicates true reliability of MWBFS.

Conclusion: MWBFS is a reliable scale. Hence, it can be used successfully in pediatric dentistry by clinicians and researchers.

Keywords: pain, pain assessment, pediatric dentistry

Introduction

Pain is referred to as the fifth vital sign and is an important reason for which patients seek health care [1]. The only way to ensure that patients receive equally high quality pain relief is to rely on the proven reliable indicator of pain, the patient’s self report whenever the patient can provide it. Thus assessment of pain is important in treatment planning programs and in establishing effectiveness of treatments.

Measures of a patient’s pain must be reliable and accurately reflect the intensity of pain being experienced. The limited verbal skills in children place them at a disadvantage in terms of communicating their pain. Hence several pain assessment tools have been developed that facilitate self-report of pain in children [2]. Some of the pain rating scales that can be used in children are visual analogue scale, descriptive pain scale, numerical pain scale, faces pain scale, analogue chromatic scale, palpation, questioning etc. Some other methods like Mc Gill pain questionnaire & pediatric pain questionnaire, are used for detailed assessment of pain [3].

Scales to assess pain in children have been extensively studied. The Wong–Baker Faces Scale (WBFS) is one of several faces scales that has been demonstrated in multiple pediatric settings for pain assessment [4]. Most children 3 years old and above are able to use this scale effectively and accurately,
and its validity and reliability have been confirmed by studies in children 3 to 18 years of age, in various settings and populations [5]. Additionally, the Faces Scale was the most preferred scale by children and their parents when compared with other tools [2].

Several versions of this scale are now available [6]. Some of these have a smiling face while the others have a neutral face to represent “no pain” [1,2]. Recent data suggest that the versions with the smiling face may lead to overestimation of pain since children with no pain but with distress from other sources may be reluctant to choose the smiling face in WBFS [7].

The present study aims to evaluate and compare the preference and efficiency of the Modified Wong–Baker Faces Scale (MWBFS) with WBFS.

Materials and Methods

The study was done in a private dental college, Chennai. The study consists of 50 children aged 3 to 12 years old. Exclusion criteria include: children above 12 years of age; physically disabled, mentally disabled and medically compromised children; children with previous unpleasant dental experience; and refusal to participate.

Two laminated charts representing the WBFS (Figure 1) and MWBFS (Figure 2) were made. Chotta Bheem, an Indian cartoon character was used to depict the faces in the MWBFS, as children could easily relate their feelings to it.

Parents were explained about the study and informed consent obtained from them prior to the treatment. After obtaining baseline demographics, dental treatments like extraction, restoration or pulp-therapy were performed. Once the treatment is completed, patients were asked if pain was present or not during the treatment. Then patients were given two laminated charts of MWBFS and WBFS. They were then asked to rate the pain experienced in both the scales, by circling the faces. After that they were asked to select the preferred pain rating scale.

Patients’ pain rating and comfortability preference with both the scales were recorded and compared. Data were entered into SPSS ver. 17.0 (SPSS Inc., Chicago, IL, USA). Statistical analysis was performed using IBM SPSS software ver. 19 (IBM Corp., Armonk, NY, USA). Reliability between the two scales is expressed in terms of Kappa statistics.

Results

All the 50 children preferred the MWBFS (100% preference) over the WBFS.

Agreement between the MWBFS and WBFS was good. Statistical significance of <0.001 indicates true reliability of MWBFS (Table 1).

![Wong-Baker Faces Scale](image1)

**Figure 1.** Wong-Baker Faces Scale.

<table>
<thead>
<tr>
<th>Measure of agreement</th>
<th>Kappa</th>
<th>Percent agreement</th>
<th>Approx. Sig.</th>
</tr>
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<tbody>
<tr>
<td>WBFS: Wong-Baker Faces Scale</td>
<td>0.660</td>
<td>39 (78%)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>MWBFS: Modified Wong-Baker Faces Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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*Approx. Sig.: approximate significant. *p < 0.05.
Discussion

Developmental changes in response to painful stimuli occur early in infancy. In fact anticipatory fears of sharp objects can be seen in children around 1 year of age [8]. As a child matures, develops a broader vocabulary, and witnesses a variety of environments, his or her ability to communicate feeling becomes increasingly sophisticated [9].

An essential and major part of handling and treating pediatric dental patients is centered around managing their fear, anxiety, and pain; hence recording of the same creates an important document [10]. It may appear difficult to measure the degree of pain or discomfort in a young child, especially preschool children because of their level of cognitive and language development [9].

Pain reporting should become a part of daily history taking before any dental treatment in children. The behavior of a child worsens with increase in intensity of pain because children may not have a fully developed ability to recognize and interpret the physiological and cognitive manifestations of anxiety. Measures of dental pain in children tends to concentrate on the behavioral component of fear or on nonverbal tools such as pictures [9].

When the data analysis was completed, children in all age groups preferred the MWBFS. This could be because they could relate themselves with the familiar cartoon character.

A total of 78% agreement and statistical significant difference (<0.001) indicates that MWBFS is a reliable scale.

Some of the errors noticed with the WBFS are: 10 children with pain, circled the smiley face with 0 rating which indicated no pain in the WBFS. Whereas they circled 2, 4 and 6 ratings in the MWBFS based on varied intensity of pain. One 3-year-old child who experienced no pain, circled the smiley face with 10 rating in WBFS indicating worst pain. Whereas she circled the 0 rating in the MWBFS indicating no pain. Children had difficulty to understand the smiley faces in the WBFS, which was not the same with MWBFS.

The present study finding supports that both WBFS and MWBFS were appropriate tools used for assessment of pain among children aged 3 to 12 year who undergo selected procedures among Indian population.

In our experience, children had more difficulty understanding the smiley faces in WBFS. The child could relate their pain with ease when emotions are incorporated on a familiar face, which makes them easy to rate their pain experience and prefer the MWBFS.

Some of the limitations of the study are:

1. This study donot assess the multidimensional nature of pain. More sophisticated measures include analysis of the sensory and cognitive components of pain.
2. Fear and anxiety may bias pain reporting and interfere with attempts at measuring pain intensity.
3. Children who come from cultures that find crying to be less acceptable or honorable may under report pain.

Conclusion

Having a reliable method for assessing patients’ level of pain is an essential part of performing interventional procedures in patients with chronic pain. Pain is entirely subjective and its links with pathology are indirect. Hence, the only way to successfully assess pain is to believe the patient. Pain is what the patient says it is.

MWBFS is a reliable scale. Hence, it can be used successfully in pediatric dentistry by clinicians and researchers. The face or the character in the MWBFS can be modified or changed according to the patients favorite cartoon character or will.

Why this paper is important to pediatric dentists:

• Assessment of pain should be done before and after any dental procedures to establish effectiveness of treatment.
• The modification would be helpful for Indian children as they can relate with the character used in this scale.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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References