Analysis of the applicability of different pain questionnaires in three hospital settings: outpatient clinic, ward and emergency unit

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ABSTRACT

Objective: To assess the applicability of pain assessment instruments in three hospital settings. **Methodology:** This study comprised 60 patients with musculoskeletal pain cared for at the Conjunto Hospitalar de Sorocaba: orthopedic ward, Rheumatology outpatient clinic, and orthopedic emergency unit. **Questionnaires:** Brief Pain Inventory (BPI); McGill Pain Questionnaire (MPQ); Visual Analogue Scale for pain (VAS). **Results:** In the emergency unit, the male sex predominated, the mean age being 35 years. In the outpatient clinic, 18 men (mean age, 42 years) and two women (mean age, 55 years) were interviewed. In the orthopedic ward, men predominated (mean age, 30.7 years). In the orthopedic emergency unit and ward, the duration of application was shorter for VAS and longer for MPQ. The VAS duration of application was the shortest and did not differ in the three settings. In the orthopedic ward and emergency unit, patients preferred the BPI, and, at the ward, the VAS was the second option. In the outpatient clinic, the patients preferred BPI (80%), followed by MPQ, while the interviewers were equally divided between those same questionnaires. In the orthopedic emergency unit, the interviewers preferred the BPI (40%), and the remaining interviewers were equally divided between the other two instruments. There was more agreement than disagreement between the preferences of patients and interviewers. **Conclusion:** The multidimensional instruments for pain assessment have limitations regarding their applicability in daily health care activities.

Keywords: pain measurement, health care, pain assessment questionnaire.

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INTRODUCTION

According to the International Association for the Study of Pain (IASP), pain "is an unpleasant sensory and emotional experience associated with actual or potential damage, or described in terms of such damage".[1]

Although pain assessment has a subjective component, instruments have been created in an attempt to make the follow-up of patients with pain uniform.

The instruments used are questionnaires and indices that quantify the intensity of pain, its impact on daily activities and quality of life, in addition to describing the other clinical characteristics of pain. The instruments can be classified as unidimensional or multidimensional. The unidimensional instruments assess only one characteristic, usually intensity, while the multidimensional ones assess pain in more than one dimension.[2,3]

The advantages of the unidimensional instruments are their easy and rapid application, and low cost. The advantage of the multidimensional instruments lies in the fact that they manage to assess pain in all its complexity, such as intensity, location, and affective and sensory qualities.[4]

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The unidimensional instruments are usually used to measure pain intensity and are as follows: numerical scales; nominal scales; and the visual analogue scale (VAS). The ordinal numerical scales are easily applied, because human beings are in contact with numbers since childhood.[4]

Similarly, the nominal scales are very useful, because the adjectives used are easily understood and can express pain in the qualitative form accurately. They use categories, such as mild, moderate, and severe. The limit between each category depends on the patient assessed, which is a weak point in the methodology, because the individuals assessed tend to choose the extremes of the scales, jeopardizing the result.[5-7]

The VAS for pain is a 10-cm baseline with the following expressions at its endpoints: "no pain" and "unbearable pain". Despite the already cited advantages, the elderly and children sometimes have difficulties in using it, because of the abstraction level required to its understanding. For those specific populations, instruments with other visual resources, such as drawings representing facial expressions, have been proposed.[6]

The multidimensional instruments assess the following dimensions of pain: sensory-discriminative, relating to spatial, pressure, tension, thermal, and vivacity pain characteristics; affective-motivational, relating to sensations of tiredness, fear, punishment, and autonomous reactions; and finally, evaluative, relating to the global situation experienced by the individual. However, it is worth noting that sensory, emotional and cultural factors can influence the interpretation and answer.[3,4,8]

The use of such questionnaires has been incorporated into health care routines. The variety of such instruments determines the need for an analysis of their applicability in several clinical settings. The clinical condition and the nature of care provided can determine a difference in the applicability of the instruments, and, thus, influence the choice of which instrument to use according to the situation.

This study aimed at assessing the applicability of the pain assessment instruments in each of the following hospital settings: orthopedic emergency unit; Rheumatology outpatient clinic; and orthopedic ward. The following aspects were assessed: duration of the application of the instrument and preference of patients and interviewers.

MATERIAL AND METHODS

Case series

The study assessed 60 patients complaining of musculoskeletal pain (acute or chronic) cared for at the following units of the Conjunto Hospitalar de Sorocaba (CHS): orthopedic ward (20 patients); Rheumatology outpatient clinics (20 patients); and orthopedic emergency unit (20 patients).

Exclusion criteria

The exclusion criteria were as follows: physical and intellectual disability to answer the questionnaires applied; and patients who chose not to participate in the study.

Instruments applied[3]

1 - Brief Pain Inventory - Short Form (BPI): multidimensional instrument that uses a 0-10 scale to rate the following items: pain intensity; interference of pain with the patient's walking ability, daily activities, normal work, social activities, mood, and sleep. The patient assesses his/her pain in the last 24 hours at its worst, at its least, on the average, and right at the time of form completion.

2 - McGill Pain Questionnaire (MPQ): multidimensional instrument that assesses several aspects of pain by use of words (descriptors) that the patient chooses to express his/her pain. The descriptors fall into four major groups: sensory-discriminative; affective-motivational; evaluative-cognitive; and miscellaneous. The rank value for each descriptor is based on its position in the word set. Only one word in each subgroup should be chosen by the patient to characterize his/her pain, being 20 the possible maximum value. The pain rating index is the sum of the rank values of each descriptor, being 78 the maximum. The MPQ comprises a body diagram to better locate pain and assess its periodicity and duration.

3 - Visual Analogue Scale (VAS): unidimensional instrument that assesses pain intensity. It is a continuous line whose endpoints are identified as 0 (no pain) and 10 (worst possible pain). The respondents are asked to specify their present pain intensity by indicating a position along the continuous line between two endpoints.

Questionnaire application methods

The questionnaires were applied in the waiting room of the Rheumatology outpatient clinic and the orthopedic emergency unit, and at bedside in the orthopedic ward. They were applied in the following order: VAS, BPI, and MPQ.

Variables

The variables assessed were the duration of application and the preference of patients and interviewers regarding the understanding of the questions by the interviewees.

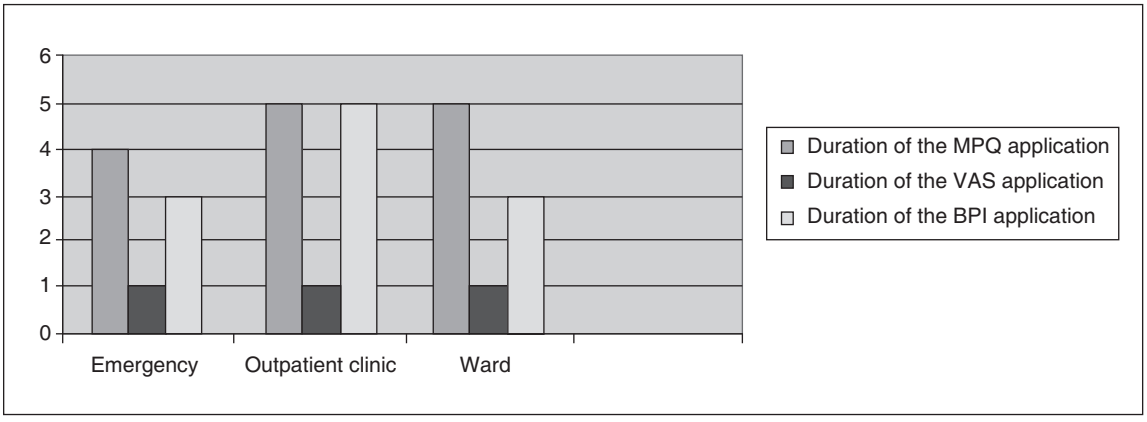

Figure 1
Duration of the application of each questionnaire in the three health care settings.
MPQ: McGill Pain Questionnaire; VAS: Visual Analogue Scale of pain; BPI: Brief Pain Inventory.

Statistical methods used

The Friedman test[19] was used to compare the MPQ, VAS, and BPI regarding their duration of application. That analysis was performed separately in the sectors assessed (emergency unit, ward, and outpatient clinic). The Kruskal-Wallis test[19] was used to compare the results of the variables studied in each of the sectors assessed. That analysis was performed separately for the MPQ, VAS, and BPI. The chi-square test was used to compare the preferences of the interviewers and respective patients regarding the ideal scale.

The significance level adopted in all tests was 0.05 or 5%.

Ethics

This project and the written informed consent were submitted to and approved by the Committee on Ethics in Research of the Center of Medical and Biological Sciences of the PUC-SP.

RESULTS

The orthopedic emergency group comprised 20 patients, 15 of whom were males, whose mean age was 35 years (range, 19 to 64; median, 28). The mean age of the females was 47 years (range, 27 to 80; median, 38). The outpatient clinic group comprised 18 males and two females. The mean age of the males was 42 years (range, 20 to 69; median, 37.5), and the females were 69 and 52 years-old. The orthopedic ward group comprised 16 males, whose mean age was 30.5 years (range, 18 to 61 years; median, 32.5), and four females, whose mean age was 55.2 years (range, 40 to 80; median, 45). The mean age of the 60 patients studied was 35.6 years, and most patients were males (49 patients – 81.6%).

The durations of the application of the questionnaires were as follows: in the orthopedic emergency group, the mean duration was four minutes for the MPQ, one minute for the VAS, and three minutes for the BPI; in the outpatient clinic group, the mean duration was five minutes for the MPQ, one minute for the VAS, and five minutes for the BPI; in the orthopedic ward group, the mean duration was five minutes for the MPQ, one minute for the VAS, and three minutes for BPI. In the orthopedic emergency unit and in the orthopedic ward, the duration of application was shorter for the VAS, intermediate for the BPI, and longer for the MPQ. In the outpatient clinic, the duration of application was the same for the MPQ and BPI. The duration of application of the VAS was shorter than that of the other two questionnaires, but it did not differ according to the locations of the interviews (Figure 1).

Patients and interviewers were asked which questionnaire they preferred, considering the level of understanding and ease of use. The BPI was chosen by 55%, 50%, and 80% of the patients in the orthopedic ward, orthopedic emergency unit, and outpatient clinic, respectively. The VAS was chosen by 28% and 40% of the patients in the orthopedic ward and orthopedic emergency unit, respectively. No patient in the outpatient clinic preferred the VAS. The MPQ was elected by 17%, 10%, and 20% of the patients in the orthopedic ward, orthopedic emergency unit, and outpatient clinic, respectively. Neither patients

Table 1
Distribution of the questionnaires according to the preference of patients and physicians in the three hospital settings

Questionnaire/Setting		Emergency	Outpatient clinic	Ward
MPQ	Patients	10%	20%	17%
	Interviewers	30%	50%	0%
VAS	Patients	40%	0%	28%
	Interviewers	30%	0%	0%
BPI	Patients	50%	80%	55%
	Interviewers	40%	50%	100%

MPQ: McGill Pain Questionnaire; VAS: Visual Analogue Scale of pain; BPI: Brief Pain Inventory.

nor interviewers chose the VAS in the outpatient clinic. In the orthopedic emergency unit, 40% of the interviewers preferred the BPI, and the remaining 60% were equally divided between the two other questionnaires (30% each). In the outpatient clinic, BPI and MPQ were equally preferred by the interviewers. In the orthopedic ward, all interviewers preferred the BPI. The statistical analysis showed that, in all three settings, there was more agreement than disagreement between the preferences of patients and interviewers (Table 1).

DISCUSSION

Pain is considered a personal and subjective experience, whose perception is multidimensional; it differs in both sensory quality and intensity, being influenced by affective-emotional variables.[2]

Pain relief is currently seen as a basic human right. Therefore, it is not only a clinical issue, but an ethical issue as well, which involves all health professionals. It is known that untreated pain can adversely affect the patient's well-being, evolve to a state of long-term persistent (chronic) pain, having, thus, high financial and social costs.[3,4]

Pain affects millions of people throughout the world, being the major cause for medical consultation. Several studies have shown that, despite the development of innumerous analgesic agents, many patients still experience intense pains.[5,6] Most health professionals ignore the impact of pain on the patient. In fact, the underestimation of an individual's pain, in addition to underprescription and non-administration of medications, has shown to contribute to the current medical problem.

Lack of knowledge is pointed as a key factor in the ineffective pain control. Physicians and nurses often have inadequate conceptions about the opioids regarding the risk of addiction, physical dependence, tolerance, and adverse effects.[7]

The unidimensional scales are still unsatisfactory, because they are limited to a single dimension of pain. Our study used the unidimensional scale VAS, which is limited to assessing only present pain intensity. The analyses using only unidimensional scales are simple and limited, because they ignore other aspects as important as intensity. Other characteristics, such as pain location, sensory and affective characteristics, impact of pain on the patient's well-being, use of medications and pain relief, can be assessed with multidimensional scales.[5-9]

The BPI, in its reduced form, is a multidimensional instrument that allows pain assessment in several aspects, such as pain location, intensity, comparison between the extremes of pain intensity, treatment assessment, relief resulting from treatment, and impact on the patient's daily life. In addition, it provides information about age and sex.

The MPQ allows a very comprehensive analysis of the patient's pain because it assesses several aspects of pain. It evaluates verbal descriptors individually and in its totality, and comprises temporal properties of pain. In addition, it assesses pain location in the body diagram, and analyzes in a simple and objective way the present pain intensity. The drawbacks of the MPQ were the long duration of its application, and the patients' difficulty in understanding its verbal descriptors.[10-12]

The VAS, of easy and rapid application, is easily understood by the patient, being, thus, an adequate way to estimate the present pain intensity. However, as it is a unidimensional instrument, it analyzes only pain intensity, ignoring its other aspects.[5-7]

The discrepancy regarding the results is due to the fact that, although all three instruments are used to clinically assess pain, they measure different aspects of that symptom.

Intensity is the most important characteristic in terms of follow-up, being the parameter used by physicians and patients to indicate improvement or worsening. Its use has become widespread.[5,6,13,14] However, in several cases, other characteristics of pain should be considered. Because VAS is of easy and rapid application, it should be indicated for emergency settings.

The MPQ comprises a list of descriptors classified as sensory-discriminative, affective-motivational, evaluative-cognitive,

and miscellaneous. Its major characteristic is its qualitative nature, although the indices generated receive a quantitative treatment.[10,12] The transformation of qualitative (descriptors) into quantitative (indices) variables can be criticized and does not always reflect what is expected in a clinical evaluation. Its predominant qualitative nature favors scientific studies and makes its use difficult in daily clinical practice.[14-18]

The BPI assesses the major clinical characteristics of pain and its impact on daily functions. Its elements involve the items that are usually used in medical consultations for diagnosis and follow-up, being, thus, preferred by physicians and patients. Its use can be particularly useful in the primary and secondary health care sector, mainly for the follow-up of chronic diseases.[17]

In our study, in the three health care settings, BPI was preferred by physicians and patients. It is multidimensional, and, thus, more complete, easily understood and applicable. On the other hand, when only intensity is enough for a medical assessment, the VAS should be used. Farrar *et al.*,[18] in a recent article, have concluded that pain intensity better determines the variation in pain improvement and worsening in the treatment of painful syndromes.

In conclusion, although multidimensional instruments provide more comprehensive data about pain, they also have some limitations regarding their application. Sometimes, such instruments consist in very long questionnaires, making their application difficult in severely ill patients. Thus, in the acute pain settings, only the assessment of pain intensity should be prioritized.

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