PSYCHOPHYSICAL EVALUATION OF THE DESCRIPTORS OF PAIN IN THE POSTOPERATIVE

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This experimental study aimed to evaluate 20 descriptors of the post-operative pain considering the adequate level of each in describing it. A total of 48 post-operated patients, age between 14 and 70 years old, 60.4% male, participated in the experiment. They judged the descriptors through the Magnitude Estimation Method aiming to qualify and select those with the highest and lowest frequency of attributions in the description of the post-operative pain. The results showed that among the descriptors evaluated, terrible, strong, unbearable, intense and violent were the most frequently ones, whereas the least frequently attributed descriptors were: colossal, smashing, fulminating, blinding and lacerating. The results showed that the most frequently attributed descriptors in the description of post-operative pain are those that represent high magnitude of pain.

DESCRIPTORS: pain, postoperative; psychophysics; subject headings; methods

EVALUACIÓN PSICOFÍSICA DE LOS DESCRIPTORES DE DOLOR EN EL POST-OPERATORIO

Estudio experimental, a través del cual fueron evaluados 20 descriptores de dolor post-operatorio, considerando el grado de adecuación que cada paciente utilizó para describirlo, siendo para ello utilizado el Método de Estimación de Magnitud. Participaron 48 pacientes pos-operados, con edades entre 14 y 70 años, siendo que 60,4% eran del sexo masculino. El propósito fue cuantificar e identificar aquellos descriptores con mayor o menor atribución dado al dolor pos-operatorio. Entre los descriptores con mayor atribución dados por los pacientes se encontraron, terrible, fuerte, insoportable, intenso y violento; y como los de menor atribución, inmensurable, opresivo, fulminante, que ciega y cruel. Los descriptores de mayor atribución para describir dolor pos-operatorio fueron aquellos que expresaban una elevada magnitud del dolor.

DESCRIPTORES: dolor; postoperatorio; psicofísica; descriptores

AVALIAÇÃO PSICOFÍSICA DE DESCRITORES DE DOR NO PÓS-OPERATÓRIO

Trata-se de estudo experimental, no qual foram avaliados descritores da dor pós-operatória, considerando o grau de adequação de cada um deles para descrevê-la. Participaram 48 pacientes pós-operados, com idade entre 14 e 70 anos, 60,4% do sexo masculino, os quais julgaram 20 descritores, pelo Método de Estimação de Magnitude, com o propósito de quantificá-los e identificar aqueles de maior e os de menor atribuição na descrição da dor pós-operatória. Dentre os descritores julgados pelos pacientes, terrível, forte, insuportável, intensa e violenta foram os de maior atribuição, e colossal, esmagadora, fulminante, que cega e dilacerante os de menor atribuição. Os descritores de maior atribuição na descrição da dor pós-operatória foram aqueles que expressaram elevada magnitude de dor.

DESCRITORES: dor pós-operatória; psicofísica; descritores; métodos

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INTRODUCTION

Pain has been measured by means of frequently ordinal unidimensional and multidimensional instruments. Although useful, these scales do not permit measuring the ratio between different pain intensities or qualities. It becomes impossible to assess how much larger or smaller one is than the other, or the intensity of one descriptor in relation to another to describe the pain felt. From a statistical viewpoint, these instruments do not allow for higher-level operations, because the order does not provide information about the magnitude of the differences among the scale elements[1].

More modern and precise methods, which produce scaling at ratio level, such as Magnitude Estimation and Intermodal Pairing, permit knowledge about the ratio between stimuli and responses. It can be determined if one stimulus is greater than another, if one intensity is stronger than another, guiding decision making on analgesics in pain situations.

The properties of an ideal pain measure include: a. providing sensitive measures, free from distortions inherent in the subject's and the experimenter's expectations, in the adverse effects of the used drugs and in psychophysical scaling itself; b. giving immediate information about the subjects' precision and reliability in realizing the tasks (in psychophysical assessment methods, the sensitivity and validity of experimental pain measures allow for the identification of individuals who, of their own choice or due to a lack of ability, unsatisfactorily perform the tasks required by the method); c. distinguishing the sensitive-discriminative aspects (intensity, sensorial quality, location and duration) from the hedonic qualities of the pain (emotional and motivational – anxiety, fear, stress, aversion); d. allowing for experimental and clinical assessment, making possible reliable comparisons between both and e. generating absolute instead of relative scales, which permit valid analyses among and inside different groups at different moments[2].

When examining new measurement methods with a view to developing techniques that approximate the ideal measure, it has been defended that language can help to achieve the ideal pain assessment target.

Pain descriptors quantified at ratio level could be used to assess the painful experience, complying with ideal pain measurement properties. Moreover, they would specify different dimensions of the painful experience, anchoring responses to subjective standards, to be applied to experimental and clinical pain assessment.

Psychophysical methods, such as Magnitude and Intermodal Pairing Estimation methods, with different answer modalities, could be used to quantify such descriptors, making them valid for clinical pain measurement[2].

Studies have demonstrated that people are capable of satisfactorily performing the tasks requested at more precise measurement levels, appointing the precision of measuring the painful experience by means of descriptors. They have emphasized the importance of these methods to identify subjects whose performance does not attend to the research criteria, alerting to the importance of the veracity of pain reports in experimental and clinical situations[3].

The pain descriptors were investigated in a trial study, in which 20 patients participated, who were between 19 and 39 years old and were submitted to dental pulp stimulation. The method used was Intermodal Pairing. It was demonstrated that the subjects were capable of accomplishing the proposed tasks (pairing dynamometric force with the intensity of painful stimuli and descriptors of intensity and displeasure), producing valid scales for nociceptive stimuli and for the language that can be used to describe this stimulus. The selected words precisely reflected the intensity of the painful experience, strengthening the use of pain descriptors for experimental or clinical pain assessment. As to the hedonic pain qualities, it was observed that the subjects were capable of relating the discomfort of the stimulus to words from this group, while the graphs and statistical tests showed the subjects' greater difficulty to carry out the task related to the sensorial descriptors. According to the authors, this could be related to the inadequacy of the words for the experimental situation, in which the subject voluntarily controls the maximum intensity of the stimulus and can interrupt it whenever (s)he wants[4].

Pain descriptors and psychophysical methods like Intermodal Pairing have been used to examine the magnitude of the scores attributed to the descriptors chosen by patients with specific pains, and to verify the patients' ability to understand the proportionality concept. Study participants were 42 patients with back pains, who scaled pain descriptors through intermodal pairing and magnitude estimation

methods. The results showed that most patients were capable of judging proportions[5].

Also, with respect to pain descriptors and psychophysical methods, authors have investigated the reliability and validity of verbal descriptor scales in a double-blind trial study. Two experiments were carried out. Participants were 20 male and female subjects, between 18 and 38 years old, who were submitted to surgical extraction of the third molar and made judgments through the intermodal pairing method, with dynamometric force and pressure time modalities on a button. In the second experiment, 20 men and 20 women, between 18 and 42 years old, M=21 years, assessed the painful feeling provoked by electric stimuli applied to the dental pulp. The results showed that the descriptors were reliably quantified through the Intermodal Pairing method[6].

In this context, considering that people are capable of judging the pain they feel using ratio scales, and that pain descriptors can reflect the different dimensions of the painful experience, we considered it important to develop this study, in the attempt to collaborate to the research on verbal information in our culture. Thus, this study aimed to:
- Identify the mean estimates of 20 pain descriptors, selected from a study[5], considering the adequacy of each to describe postoperative pain.

MATERIAL AND METHOD

We assessed 20 pain descriptors, selected from a study[5], using the Psychophysical Magnitude Estimation method. The pilot test was done at the start of the trial with four participants, who were included in the sample. This study was approved by the Institutional Review Board at the University of São Paulo at Ribeirão Preto Medical School *Hospital das Clínicas*, Process HCRP No 7481/1998, and by the Institutional Review Board at the *Faculdade de Medicina do Triângulo Mineiro*, located in Uberaba, Minas Gerais, Protocol CEP/FMTM No 0152/00.

Participants

Study participants were 48 patients between 14 and 70 years old, of whom 60.41% were men. These patients were in the first or second postoperative day after orthopedic, gynecologic, vascular and abdominal surgeries. All participants were unaware of the kind of scaling performed and signed the Consent Term, after being informed about the research and its objective.

Method

The Magnitude Estimation method was used, which is one of the most elegant psychophysical methods, in which the subjects is oriented to scale stimuli, attributing them with numbers proportional to the value (module) established by the researcher for a stimulus taken as the standard. If the presented stimulus has twice the intensity, adequacy, quality or any other characteristic that is being investigated, than the standard stimulus, it will receive a number twice as high. If it is twice as small, it will receive half the value of the standard stimulus and so on.

Procedure

The patients were individually interviewed in the preoperative phase and received instructions about the task they had to perform during the postoperative phase, that is, to scale stimuli (pain descriptors in this study), making proportional judgments. In the postoperative phase, the observer questioned each patient about the occurrence of pain directly related with the surgical procedure and, in those cases when the patient agreed, remembered the task reported in the preoperative phase, adding that the words (stimuli) could be appropriate or not to describe the situation they felt. They should attribute scores to each of the 20 descriptors, using the module 100 as a reference, attributed to the descriptor *monstrous*, which was taken as the standard. In those situations when the patient judged that a certain descriptor was twice as adequate as the descriptor *monstrous* to describe the postoperative pain, (s)he was oriented to attribute a value twice as high, that is, equal to 200. On the other hand, if the descriptor were twice less adequate than *monstrous* to describe the painful experience, the score would be 50. Thus, the participants judged all descriptors, which were presented randomly.

Material

A paper block was used which, on the first page, contained specific instructions about the task the patients had to perform and, on the following pages, a list of 20 pain descriptor and their respective definitions and a pen.

RESULTS AND DISCUSSION

This research presents a ratio scale, which allows for the use of all mathematical properties. We calculated the geometric means (GM) and the geometric standard deviation (GSD) of the estimates the patients attributed to each descriptor. The obtained values are shown in Table 1.

Table 1 – Geometric means (GM), geometric standard deviation (GSD) of magnitude estimates attributed to pain descriptors and respective position order (PO)

Descriptor	GM	GSD	PO	Descriptor	GM	GSD	PO
Terrible	115,56	343,27	1st	Tremendous 1.5 x terr	75,9	93,48	11th
Strong	113,78	144,93	2nd	Brutal 1.5 of terr and strong	75,61	41,18	12th
Unbearable	111,92	147,82	3rd	Inhuman	71,72	103,42	13th
Intense	110,35	188,46	4th	Annihilating	70,72	89,68	14th
Violent	104,22	110,53	5th	Tearing	68,36	89,68	15th
Deep	103,7	238,2	6th	Blinding	68,22	49,32	16th
Monstrous	100	0	7th	Hallucinating	67,3	54,57	17th
Hair-raising	98,17	180,97	8th	Fulminating	64,6	86,25	18th
Despairing	88,66	134,44	9th	Crushing 2x te	62,46	91,42	19th
Maddening	77,71	150,4	10th	Colossal 2x terr	59,32	34,77	20th

In this research, *terrible, strong, unbearable, intense* and *violent* were appointed as the most adequate and *colossal, crushing, fulminating, hallucinating* and *blinding* as the least adequate words to describe postoperative pain. Once quantified, a proportion of two times more or two times less adequacy between the most and the least adequate word was observed. Thus, *terrible* (GM=115.56) was considered 1.95 times more adequate to describe postoperative pain than *colossal* (GM=59.32*)* and 1.85 more adequate than *crushing* (GM=62.46). *Tremendous* (GM=75.90) was 1.5 times less adequate than *terrible*, which was 1.49 times more adequate than *maddening* (GM=77.71) and so on.

The most attributed descriptors expressed sensory *(intense*), affective (*terrible*) and evaluative (*unbearable, strong* and *violent*) aspects of the painful experience, in accordance with the categorization of the Portuguese version of the MPQ[7].

Literature appoints descriptors from the three groups, chosen by patients submitted to different surgical procedures. A study carried out[8] with 40 adult patients after surgery, aimed at examining the applicability and validity of the MPQ-short form, showed that the most frequently chosen descriptors were: *acute, colic, bite, painful, sensitive, exhaustive, stab, burn, heavy, breaking, sick, frightening, chastening* and *cruel,* in the sensory and affective categories. In another study[9] of 88 adult and postoperative patients, aimed at getting to know the quality of postoperative pain, it was described as: *stab, prick, squeeze, stretching, heavy* and *sensitive* from the sensitive group; *tiresome* and *exhaustive* from the affective group and *dull* from the evaluative group.

In a sample of 52 adult patients submitted to different surgical procedures, it was observed that 84% of them chose a maximum of 10 descriptors from the 20 existing MPQ subgroups, with one descriptor from the affective group being chosen by 75% of the sample[10]. In another double blind study, aimed at comparing the effect of analgesia before and after the surgical incision, carried out among 42 adult patients submitted to elective surgeries, it was shown that the most frequently chosen descriptors in the postoperative phase, through the MPQ, were: *vague, painful, sensitive, annoying* and *tiresome*[11].

A wide-ranging comparison among all descriptors in this study and those chosen by patients who used the MPQ is not possible, as the number of descriptors ranked in this trial is small (20 descriptors) in relation to MPQ descriptors. Moreover, they were not ranked in the different dimensions of the painful experience as in the above mentioned instrument. However, some of the most attributed descriptors belonged to the Portuguese version of the MPQ[7] and described different dimensions of the painful experience, as observed in other studies[9-11].

In this study, the following descriptors appeared in the first five positions: *terrible, strong, unbearable, intense* and *violent;* in the second study[5], it was observed that these positions were occupied by the words *terrible, unbearable, maddening, deep* and *tremendous* while, in the third study[12], the descriptors were *annihilating, hallucinating, colossal, fulminating* and *unbearable.* The descriptor *unbearable* appears among the first descriptors in the three experiments, occupying the third, second and fifth positions, while *terrible* appears in the first position in this and another study[5].

The mean estimates appear very closely to one another, appointing the fact that these are words with very similar meanings, and that they occupy positions which can superimpose one another through new statistical analyses. Quantifications in other studies, considering the multiple dimensions of the painful experience, will definitely be useful to elaborate pain measurement instruments that generate ratio scaling.

In a study[13] carried out to examine the postoperative pain language, nurses attributed higher scores to the descriptors *intense, strong* and *unbearable,* which occupied the first, second and third positions in the observed order and, in this study, the same descriptors appeared in the second, third and fourth positions, respectively. In another study[14], carried out among patients in the third decade of their life, submitted to posterior colpoperineoplasty posterior and Burch, in which the pain descriptors were used, it was observed that the most attributed words in the patients' judgments were: *unbearable, terrible, despairing, intense* and *tremendous. Terrible, unbearable* and *intense* were also selected in this study.

Literature appoints unnecessary suffering in the postoperative phase[15], and the greater attribution of words indicating high magnitudes, whether in the affective, sensory or evaluative dimension of the painful experience, seems to confirm the reality observed by the researchers, that is, that postoperative pain has been assessed inadequately.

As to the descriptors selected in the different experiments, it was observed that nurses, physicians and patients described postoperative pain through words that represent multiple qualities of the painful experience.

Another aspect observed was the subjects' ability to satisfactorily perform the tasks requested by the Magnitude Estimation method. The patients were capable of judging proportions, although subjects with lower education levels presented greater difficulties to accomplish the requested task[5]. In this sense, we agree in this study that subjects who are capable of making this judgment cannot be deprived of this task. Researchers are responsible for determining what psychophysical method is to be used to measure the different continua.

It should be highlighted that the advantage of verbal scales is that they propose to measure the different dimensions of the painful experience and are used in experimental and clinical pain assessment, reflecting subjective experiences. Furthermore, the support of subjectivity derives from the supposition that it is not always possible to eliminate all interpretations and distortions, as these can be related to the observer him-/herself. The greatest concern must focus on the motives that made the subjects distort them, and not only on the fact of presenting distortions.

CONCLUSION

After assessing the descriptors through the Magnitude Estimation method, it can be concluded that, in terms of adequacy to describe postoperative pain, the descriptors with the highest mean estimates resulting from patients' judgment were: *terrible, strong, unbearable, intense* and *violent* and those with the lowest mean estimates: *colossal, crushing, fulminating, blinding* and *tearing.*

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