

# A MULTI-DIMENSIONAL MEASURE OF PAIN FOR PEOPLE NOT IN PAIN

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## OBJECTIVE

The perception of pain is an emotional reaction of every human being. It is a very effective motivator. However, the way in which previous pain experience motivates the individual toward seeking medical care has not been clearly specified.

Although pain is a universal human experience, the perception of pain is individualistic. Perception will vary directly with one's state of health. A person in pain will perceive pain differently from a person not experiencing pain.

The majority of people are not ordinarily in pain. Nevertheless, it can still be assumed that the average man has attitudes about pain. It is also assumed that these attitudes relate directly to the function of pain as a motivator. But how is the perception of pain measured in people not in pain? This measurement is the problem viewed in an exploratory manner, of this paper.

## METHODOLOGY

Having assumed that pain does vary individually, a further assumption was made. Pain perception is a multi-dimensional attitude. It requires all of the dimensions of this attitude to predict behavior related to medical care. The initial dimensions explored were actions toward seeking medical care for oneself, relatives and loved ones and the meaning of pain itself. These questions were asked in open-ended form of 140Ss. Their responses were content analyzed. This analysis provided the basis for the instrument developed in this current research project.

Sample. Sixty-eight undergraduates enrolled in basic psychology courses at state universities in Massachusetts voluntarily completed the inventory involved in the study. The students were all non-majors in psychology. They were principally lower middle class, including both American and foreign born (95.3% American born). There were 69.1% male and 30.9% female.

Procedure. Thirty statements, derived from the first study, were presented to 68 Ss. Instructions were given for the Ss to indicate agreement, disagreement, or no opinion in regard to each statement. Under the assumption of multi-dimensionality, the responses were factor analyzed.

Factor analysis was performed using the SPSS FACTOR computer program. A principal component solution without iteration was used as the first step in the factor analysis. Using the default options, factors with Eigen values greater than 1.0 were found. Twelve factors accounted for 73.2% of the variance in the data.

The final step involved an oblique rotation of the data to determine the simplest and simultaneously most realistic solution. The 12 factors, here called Pain Perception Inven-

tory Scales, are shown in Table 1 together with sample items from the scales and the factor loadings of sample items. These scales represent hypotheses as to the dimensionality of a preliminary measure.

## RESULTS

The Pain Perception Inventory Scales may be described as follows:

Tolerance. This scale accounted for 11.9% of the variance. The two items shown as sample items for the Tolerance Scale in Table 1 were the only ones with factor loadings of greater than  $\pm 0.500$ . The scale title, Tolerance, refers to the limited ability to withstand or tolerate pain indicated in the two items taken together.

Experience. This scale accounted for 8.8% of the variance. It is a direct statement of a person's experience with pain. Absolute denial of the pain experience probably is an indication of invalid responses.

Economics. An additional 7.9% of the variance was accounted for by this scale. A third item, not shown on Table 1, had a -0.498 loading on this scale. This third item represented delay in seeking medical advice, except for emergencies. The three items taken together make it appear that economics is an appropriate label for this scale. However, the sample item "I try to endure pain" does not easily fit under the "economics" title. Subjects may use the lack of endurance as a rationalization for the cost expenditure involved in seeking medical help. This scale is hypothesized to differentiate most readily between persons in pain and those not. However, it probably has low reliability, since responses would be based on temporary body conditions.

Hindrance. This scale, adding 6.7% of the variance, seems well defined by the items set out in Table 1. This Hindrance scale is hypothesized to differentiate between those who seek medical treatment rapidly and those who do so more slowly.

Delay. This scale accounts for an additional 5.9% of the variance. The scale straightforwardly describes delay in seeking medical attention.

Definition. Another 5.7% of the variance is accounted for by this factor. The association between pain and misery is indicated.

Helplessness. This scale adds 5.4% of the variance. These items appear to indicate a high degree of dependence on other people, thus leading to helplessness in the face of the whims of others who often are the source of pain.

Comparative, Empathy, Self-control, Cognizance and Inconsistency. Together these scales account for 21.0% of the variance. These items are hypothesized to be the least useful in attempting to predict medical care use from one's perception of pain.

Comparative Scale. The relationship between physical aspects of pain and mental aspects are stressed.

Empathy. The subject's empathetic experience of pain is the manifest content of this scale.

Self-Control. This scale indicates the subject's belief in "mind over matter".

Cognizance. Score indicates acceptance or disregarding of pain.

Inconsistency. This scale indicates that medical help is sought for both physical and mental pain, while disagreeing that there are two types of pain.

#### SCIENTIFIC IMPORTANCE

The prediction of medical care behavior is the objective of this research. It is an in-

itial attempt at providing a predictive measure to be used before the onset of symptoms. If one can assign the derived medical care behaviors to known national, regional and local disease rates, efficient planning can be undertaken.

In addition to planning of personnel needs, plant expansions, and allocation of facilities, new education programs may be built on the data provided using the PPI. Not only must recalcitrant patients be identified and re-educated, but there also should be a program designed for the re-education of medical personnel, whose input at earlier stages of the delaying patient's life did much to form the attitudes displayed in this instrument.

TABLE 1. PAIN PERCEPTION INVENTORY SCALES

Scales and % Variance Accounted For		Sample Items	Loadings
1. Tolerance (11.9%)		Pain is an intolerable feeling from which there is no escape.	-0.735
		I seek medical treatment within 24 hours of feeling pain.	-0.801
2. Experience (8.8%)		I have experienced a great deal of pain.	0.743
3. Economics (7.9%)		I try to endure pain.	0.684
		The cost of a doctor would determine the frequency of seeking medical advice.	-0.752
4. Hindrance (6.7%)		Pain is the absence of comfort.	0.513
		I complain when I have any kind of pain.	0.874
		Pain is both physical and mental sensation.	0.603
		Pain is anything that restricts normal movement.	-0.681
5. Delay (5.9%)		I would seek medical treatment if pain was bothering me for more than a week.	-0.853
6. Definition (5.7%)		I associate pain with misery.	0.818
7. Helplessness (5.4%)		People cause pain.	0.825
8. Comparative (5.1%)		Mental pain is greater than physical pain.	0.797
9. Empathy (4.8%)		One can experience pain from the observation of other people.	0.816
10. Self-control (4.0%)		Your attitude towards pain can control the sensation to a large extent.	-0.756
11. Cognizance (3.7%)		I try to ignore pain.	0.762
12. Inconsistency (3.4%)		There are two types of pain, physical and mental.	0.761
		I seek medical help for both physical and mental pain.	-0.624
		I seek medical help for mental pain.	-0.624