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# The West Haven-Yale Multidimensional Pain Inventory (WHYMPI) [1]

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## Summary

The complexity of chronic pain has represented a major dilemma for clinical researchers interested in the reliable and valid assessment of the problem and the evaluation of treatment approaches. The West Haven-Yale Multidimensional Pain Inventory (WHYMPI) was developed in order to fill a widely recognized void in the assessment of clinical pain. Assets of the inventory are its brevity and clarity, its foundation in contemporary psychological theory, its multidimensional focus, and its strong psychometric properties. Three parts of the inventory, comprised of 12 scales, examine the impact of pain on the patients' lives, the responses of others to the patients' communications of pain, and the extent to which patients participate in common daily activities. The instrument is recommended for use in conjunction with behavioral and psychophysiological assessment strategies in the evaluation of chronic pain patients in clinical settings. The utility of the WHYMPI in empirical investigations of chronic pain is also discussed.

## Introduction

Chronic pain is a complex, subjective phenomenon that is uniquely experienced by each patient. Within this perspective on pain, knowledge about patients' idiosyn-

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cratic appraisals of their experience of pain and coping repertoires becomes critical for optimal treatment planning and for accurately evaluating treatment outcome. For example, subjective evaluations of the pain experience are likely to be important factors in determining motivation for treatment and treatment adherence. Moreover, patients' appraisals may have implications for the response of others, including health care professionals, as perceptions of life circumstances are likely to influence patients' communications with significant others. Fordyce [5] has suggested that the probability of sympathetic attempts to provide relief and comfort are directly proportional to the intensity of the pain complaint. Moreover, patients' perceptions of the responses of others to their suffering is likely to influence the patients' reports of pain intensity [e.g., 4], their mood [e.g., 9], and their behavior [e.g., 5]. Unfortunately, little attention has been given to the patients' perceptions of the impact of pain on their lives or the response of others to their plight.

A number of authors have called for the development of comprehensive assessment protocols that are designed specifically for use with chronic pain patients [e.g., 8,16,18]. Based on a cognitive-behavioral perspective of chronic pain that emphasizes patients' perceptions and appraisals [cf., 19], Turk and Kerns [18] have suggested that pain assessment should consist of a number of components including: (a) evaluation of the patients' perception of pain and the meaning of pain for him or her, (b) evaluation of the physical, emotional, cognitive, and behavioral responses that occur with pain, (c) evaluation of the impact of pain on different aspects of the patient's life (e.g., vocational, social, marital, as well as physical), (d) responses of significant others, (e) coping strategies employed, and (f) evaluation of the descriptive characteristics of the pain such as location, intensity, quality, and chronology of the pain experience and treatment.

The major purpose of the present study was to develop a multidimensional assessment instrument for use with chronic pain patients that was psychometrically sound and was theoretically linked to a cognitive-behavioral perspective. The instrument that was developed, the West Haven-Yale Multidimensional Pain Inventory (WHYMPI), was designed to provide a brief but comprehensive assessment of the subjective experience of pain that could be included as part of an extended assessment protocol in conjunction with other procedures. This instrument was viewed as being only one part of a comprehensive assessment regimen as suggested by Turk and Kerns [18]. The development of a psychometrically sound multidimensional assessment protocol that includes subjective, behavioral, and psychophysiological components should enhance our understanding of pain, assist in the development and evaluation of new treatment approaches, and provide the clinician with a viable strategy for the assessment of individual differences among chronic pain patients.

## Methods

### *Construction of the WHYMPI*

Three separate sections of a single instrument (West Haven-Yale Multidimen-

sional Pain Inventory, WHYMPI) were created. * The first section was designed to be the most comprehensive and focused especially on the evaluation of perceived pain intensity and the impact of pain on various aspects of the patients' lives. The second section was designed to evaluate patients' perceptions of the responses of significant others to their communications of pain. The final section evaluated the frequency of patients' performance of common activities. The development of each section is described below.

*Part I.* Six scales were developed a priori for inclusion in this section. Patients recorded their responses to each question on a 7-point scale. The 6 general concepts incorporated in part I were: (a) pain severity and suffering; (b) pain-related life interference, including interference with family and marital functioning, work and work-related activities, and social-recreational activities; (c) dissatisfaction with present level of functioning in each of the areas listed in (b); (d) appraisal of support received from spouse, family and significant others; (e) perceived life control, incorporating the perceived ability to solve problems and feelings of personal mastery and competence; and (f) affective distress, including ratings of depressed mood, irritability, and tension.

*Part II.* Part II was developed to evaluate patients' perceptions of the range and frequency of responses by significant others to displays of pain and suffering. Patients recorded the frequency with which others responded to them with a particular behavior on a 6-point scale, ranging from 'never' to 'very frequently.' A list of 21 responses, derived from interviews with significant others, were chosen for inclusion in this section of the WHYMPI (e.g., 'expresses sympathy,' 'ignores me').

*Part III.* Stimuli for the third part were adopted from 2 sources; various activity lists and lists of activity goals for treatment developed by chronic pain patients seen at the West Haven, Connecticut VA Medical Center. The set of activities includes 30 common domestic activities, household chores, social activities, and recreational activities. Patients were asked to indicate how often they engaged in each listed activity on a 6-point scale.

*Subjects*

Item analysis and psychometric assessment of the WHYMPI scales were conducted on a sample of 120 (81.5% male) chronic pain patients. These patients were consecutive referrals to the pain management programs of the West Haven, CT V.A. Medical Center and the Long Beach, CA V.A. Medical Center. The mean age of the patients was 50.8 (S.D. = 14.5).

All patients complained of chronic pain with a mean duration of 10.2 years (range 6 months–40.6 years). The distribution of primary pain syndrome was quite broad (e.g., herniated disc, rheumatoid arthritis) with the largest group of patients (36.4%) reporting lower back pain. Sixty-eight percent reported being currently married, 55.8% had had at least one pain-related surgery, and 67.4% were taking a prescribed analgesic medication.

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* Copies of the WHYMPI are available from the first author. Address requests to: Robert D. Kerns, Ph.D., Psychology Service 116B4, VA Medical Center, West Haven, CT 06516, U.S.A.

*Procedure*

In both of the pain patient samples, the WHYMPI was administered as part of a comprehensive assessment and treatment program offered by hospital-affiliated pain clinics. Although the WHYMPI was self-administered, the clinicians conducting the assessments were free to respond to patients' questions. In order to assess scale stability, 60 patients at the West Haven program were administered the WHYMPI a second time during the multiple-session evaluation procedure.

*Data analysis*

*Item analysis and scale construction.* The initial WHYMPI items were factor analyzed to aid in determining item clusters. Because the items chosen for part I were based on 6 a priori scales, confirmatory factor analysis was conducted [cf., 13]. This approach used the correlation matrix for the 22 inventory items on part I to conduct a 6-factor oblique confirmatory factor analysis (CFA). The LISREL V software for testing structural equation models [7] was used to assess how well this a priori model fit the observed data. In other words, item analysis of part I employed a standard oblique common factor analytic model with the exception that the factor loading matrix was theoretically restricted in such a way as to make the resulting solution mathematically unique [cf., 13]. Items were considered to display good convergent validity if they had a statistically significant factor loading on the hypothesized scale.

Parts II and III were factor analyzed using principal axis factoring followed by Varimax and Promax oblique rotations. Items were retained if they displayed both good convergent validity (defined as a correlation with the hypothesized factor $\geq 0.40$) and good discriminant validity (considered satisfactory if the magnitude between the highest and second highest factor loading was $\geq 0.15$).

Finally, the reliability and stability of the WHYMPI scales were assessed. Total scale scores using the summated ratings procedure [11] were computed for those items retained from the preceding analyses. Internal consistency was evaluated for each scale by coefficient alpha [3]. Pearson product-moment correlations were used to evaluate the stability of the WHYMPI scale scores over a 2-week interval for a subset of patients ($n = 60$).

*Scale validity.* The WHYMPI scales were assessed for construct validity as follows. First, the WHYMPI scale scores for patients from the West Haven VA sample ($n = 90$) were correlated with their scores on 9 scales from well-known and established questionnaires. These questionnaires included the Present Pain Intensity and the total Pain Rating Index scales from the McGill Pain Questionnaire (MPQ) [15], the Beck Depression Inventory (BDI) [2], the Depression Adjective Check List (DACL) [14], the State-Trait Anxiety Inventory-State form (STAI-S) [17], the Multidimensional Health Locus of Control Scale that is comprised of Internal, Powerful Others, and Chance subscales (MHLC) [20], and the Marital Adjustment Scale (MAS) [12].

The correlation matrix derived from the above measures and the WHYMPI scales was then factor analyzed (principal axis factoring followed by Varimax and Promax rotations) in order to simplify the task of assessing the interrelationships of these scales. Thus, construct validity was assessed by means of factorial validity [cf., 1].

## Results

*Scale construction*

*Part I.* The chi-square goodness-of-fit test provided by the LISREL program indicated that the theoretical 6-factor oblique CFA model accounted for the observed data without significant deviations, $\chi^2$ (194) = 220.27, $P$ = ns. With one exception, as hypothesized the 6 scales displayed small to moderate intercorrelations. The Interference and Dissatisfaction scales, however, displayed a 0.82 correlation that seriously questioned the discriminant validity of these two scales. The discriminant validity of these scales was not supported, $\chi^2$ (1) = 3.71, $P$ = ns, and therefore the items from both scales were combined into a single Interference-Dissatisfaction scale. A 5-factor oblique CFA was found to be adequate for these data, $\chi^2$

TABLE I

ITEM COMPOSITION OF THE A PRIORI SCALES (PART I) OF THE WHYMPI

| Factor loading | Inventory item |
|---|---|
| *Scale 1: Interference* | |
| 0.85 | Affects ability to participate in social activities |
| 0.83 | Affects the amount of satisfaction from social activities |
| 0.74 | Affects ability to work |
| 0.70 | Interference with daily activities |
| 0.69 | Affects ability to do household chores |
| 0.67 | Affects the amount of satisfaction from family activities |
| 0.60 | Affects the amount of satisfaction from work |
| 0.54 | Affects friendships with other than family members |
| 0.49 | Affects marital and family relationships |
| *Scale 2: Support* | |
| 0.80 | Amount of spouse [a] worry regarding pain problem |
| 0.79 | Supportiveness of spouse in relation to pain problem |
| 0.68 | Degree of spouse attentiveness to pain problem |
| *Scale 3: Pain severity* | |
| 0.75 | Severity of pain during the past week |
| 0.73 | Amount of suffering experienced because of pain |
| 0.56 | Level of pain at the present moment |
| *Scale 4: Self-control* | |
| 0.96 | Amount of control over life during the past week |
| 0.68 | Ability to deal with problems during the past week |
| *Scale 5: Negative mood* | |
| 0.87 | Degree of irritability during the past week |
| 0.66 | Amount of tension or anxiety during the past week |
| 0.59 | Overall mood (high to low) during the past week |

[a] For unmarried patients, a significant other was identified and these patients made their ratings in reference to that person.

TABLE II

ITEM COMPOSITION OF THE WHYMPI SIGNIFICANT OTHER RESPONSE SCALES

| Factor loading | Inventory item |
|---|---|
| *Scale 1: Punishing responses* | |
| 0.87 | Expresses irritation at me |
| 0.84 | Expresses frustration at me |
| 0.80 | Expresses anger at me |
| 0.61 | Ignores me |
| *Scale 2: Solicitous responses* | |
| 0.80 | Gives me pain medication |
| 0.70 | Gets me something to eat |
| 0.63 | Takes over my chores |
| 0.49 | Asks me how he/she can help |
| 0.47 | Turns on the T.V. |
| 0.43 | Gets me to rest |
| *Scale 3: Distracting responses* | |
| 0.79 | Involves me in activities |
| 0.70 | Talks to me to take my mind off the pain |
| 0.51 | Encourages me to work on a hobby |
| 0.44 | Reads to me |

(199) = 228.27, $P$ = ns. Additionally, all items correlated significantly with their hypothesized factors, indicating that our criterion for convergent validity was met.

Following the refinement and confirmation of the factor structure of part I, a simple summated ratings method [11] was used to estimate factor scores. The 20 items retained as well as the factor loadings from the 5-factor oblique CFA are contained in Table I.

*Part II.* Ratings on the 21 items in part II for patients who reported living with a spouse or significant other (n = 95) were factor analyzed using exploratory factor analytic procedures (principal axis factoring). Both the Kaiser and Scree criteria indicated that a 3-factor solution was most appropriate for these data. The amount of common variance accounted for by the 3 factors was 53.7%, 19.4%, and 9.9%, respectively. Examination of the factor loadings for this 3-factor solution indicated that 14 of the 21 items met our criteria for convergent and discriminant validity. These 14 items were then used to create 3 significant other response scales using the summated rating procedure.

Table II presents the 14 significant other response items along with their respective factor loadings. The content of the 4 items in scale one suggested that this factor reflected Punishing Responses. Examination of the content of scales 2 and 3 indicated that these scales characterized Solicitous and Distracting Responses, respectively.

*Part III.* Ratings on the 30 activity checklist items contained in part III of the WHYMPI were factor analyzed using principal axis factoring. A 4-factor solution was selected based on the number of eigenvalues greater than one. The amount of

TABLE III

ITEM COMPOSITION OF THE WHYMPI ACTIVITIES SCALES

| Factor loading | Inventory item |
|---|---|
| *Scale 1: Household chores* | |
| 0.79 | Prepare a meal |
| 0.78 | Help with house cleaning |
| 0.70 | Wash dishes |
| 0.69 | Do laundry |
| 0.66 | Go grocery shopping |
| *Scale 2: Outdoor work* | |
| 0.68 | Work on house repairs |
| 0.65 | Wash the car |
| 0.64 | Mow the lawn |
| 0.59 | Work on the car |
| 0.50 | Work in the garden |
| *Scale 3: Activities away from home* | |
| 0.59 | Take a trip |
| 0.52 | Go out to eat |
| 0.51 | Go to a movie |
| 0.48 | Take a ride in the car |
| *Scale 4: Social activities* | |
| 0.70 | Visit relatives |
| 0.51 | Visit friends |
| 0.46 | Go to the park or beach |
| 0.44 | Play cards or other games |

common variance accounted for by the 4 factors was 32.2%, 19.0%, 16.5%, and 8.4%, respectively. Inspection of factor loadings indicated that 18 of the 30 items met our convergent and discriminant validity criteria.

The 18 activity items and their factor loadings are presented in Table III. Scale 1 was interpreted as reflecting activities related to household chores. Scale 2's content involved outdoor work, scale 3 suggested activities away from home, and scale 4 appeared to be comprised of social activities.

*Reliability, stability, and scale intercorrelations*

Table IV presents the reliability and stability (test–retest) coefficients and intercorrelations among the 12 WHYMPI scales. The reliability (internal consistency) estimates for all scales appear to be quite satisfactory, ranging from 0.70 to 0.90. The stability coefficients were in the 0.62–0.91 range, indicating that a substantial proportion of the reliable variance in these scales was stable over time.

The right portion of Table IV presents the intercorrelations among the WHYMPI scales. As can be seen, these correlations range in absolute magnitude from 0.00 to 0.58. All of these intercorrelations are lower than the reliability coefficients for the 12 scales, which indicates that each scale contains unique, reliable variance or, in other words, discriminant distinctiveness of each scale is demonstrated.

TABLE IV

SUMMARY INFORMATION ABOUT THE WHYMPI SCALES

| Scale | k [a] | M [b] | S.D. | Reliability [c] | Stability [d] | Scale intercorrelations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1. Interference | 9 | 3.74 | 1.26 | 0.90 | 0.86 | | | | | | | | | | | |
| 2. Support | 3 | 4.31 | 1.47 | 0.83 | 0.80 | 0.09 | | | | | | | | | | |
| 3. Pain severity | 3 | 3.55 | 1.11 | 0.72 | 0.82 | 0.58 | 0.05 | | | | | | | | | |
| 4. Self-control | 2 | 3.63 | 1.57 | 0.79 | 0.68 | −0.15 | 0.06 | −0.16 | | | | | | | | |
| 5. Negative mood | 3 | 3.23 | 1.32 | 0.73 | 0.69 | 0.26 | −0.03 | 0.34 | −0.52 | | | | | | | |
| 6. Punishing responses | 4 | 0.97 | 0.94 | 0.84 | 0.84 | 0.00 | −0.38 | 0.03 | −0.14 | 0.20 | | | | | | |
| 7. Solicitous responses | 6 | 2.57 | 1.15 | 0.78 | 0.89 | 0.34 | 0.56 | 0.31 | −0.08 | 0.04 | −0.29 | | | | | |
| 8. Distracting responses | 4 | 1.72 | 1.11 | 0.74 | 0.62 | 0.10 | 0.42 | 0.05 | 0.11 | −0.01 | −0.24 | 0.49 | | | | |
| 9. Household chores | 5 | 2.71 | 1.30 | 0.86 | 0.91 | −0.27 | −0.31 | −0.25 | 0.16 | −0.21 | 0.17 | −0.31 | −0.17 | | | |
| 10. Outdoor work | 5 | 1.19 | 1.04 | 0.77 | 0.83 | −0.10 | 0.08 | −0.18 | 0.04 | 0.03 | 0.14 | −0.15 | 0.01 | 0.12 | | |
| 11. Activities away from home | 4 | 1.79 | 0.83 | 0.70 | 0.88 | −0.29 | −0.05 | −0.19 | 0.19 | −0.20 | −0.01 | −0.10 | 0.07 | 0.27 | 0.31 | |
| 12. Social activities | 4 | 1.94 | 0.95 | 0.74 | 0.87 | −0.27 | 0.04 | −0.02 | 0.31 | −0.11 | 0.03 | 0.08 | 0.19 | 0.23 | 0.05 | 0.49 |

Note: For $r$ values $\pm 0.20$, $P < 0.05$.

[a] Number of items in scale.

[b] Scale scores were computed by summing over all items and then the mean was computed based on the number of scale items.

[c] Internal-consistency reliability estimated using Cronbach's alpha (n = 120).

[d] Pearson product-moment correlation between scores obtained 2 weeks apart (n = 60).

TABLE V

FACTOR STRUCTURE FOR THE CONSTRUCT VALIDATION OF THE WHYMPI

| Scale | Factors | | | |
|---|---|---|---|---|
| | I | II | III | IV |
| STAI – State | 0.86 | −0.05 | 0.29 | −0.35 |
| BDI | 0.76 | −0.17 | 0.18 | −0.33 |
| DACL | 0.68 | −0.09 | 0.16 | −0.28 |
| WHYMPI – Negative mood | 0.59 | 0.01 | 0.36 | −0.21 |
| WHYMPI – Self-control | −0.76 | 0.18 | −0.16 | 0.47 |
| WHYMPI – Solicitous responses | −0.06 | 0.79 | 0.24 | 0.09 |
| WHYMPI – Distracting responses | 0.04 | 0.62 | 0.07 | 0.15 |
| MAS | −0.20 | 0.71 | 0.25 | 0.18 |
| WHYMPI – Support | −0.08 | 0.55 | 0.13 | 0.03 |
| MHLC – Powerful others | −0.10 | 0.35 | 0.10 | 0.10 |
| WHYMPI – Household chores | −0.25 | −0.32 | −0.17 | 0.39 |
| WHYMPI – Punishing responses | 0.24 | −0.58 | 0.02 | −0.07 |
| WHYMPI – Pain severity | 0.35 | 0.22 | 0.81 | −0.23 |
| WHYMPI – Interference | 0.51 | 0.19 | 0.70 | −0.32 |
| MPQ – Total Pain Rating Index | 0.07 | 0.08 | 0.47 | −0.04 |
| MPQ – Present Pain Intensity | 0.26 | 0.16 | 0.44 | −0.06 |
| MHLC – Chance | 0.02 | −0.12 | 0.24 | −0.16 |
| WHYMPI – Activities away from home | −0.36 | 0.05 | −0.21 | 0.74 |
| WHYMPI – Social activities | −0.38 | 0.15 | −0.02 | 0.68 |
| WHYMPI – Outdoor work | −0.10 | 0.06 | −0.17 | 0.37 |
| MHLC – Internal | −0.35 | 0.18 | −0.22 | 0.34 |
| Interfactor correlations | | | | |
| Factor II | −0.10 | | | |
| Factor III | 0.32 | 0.25 | | |
| Factor IV | −0.44 | 0.12 | −0.18 | |

Note: Numbers represent the correlation of a scale with the factor.

*Validity assessment*

A combination of the Kaiser and Scree criteria indicated that a 4-factor solution was most appropriate for the intercorrelations of the 12 WHYMPI scales with the 9 scales from previously validated instruments (see Methods for a list of these scales). This solution accounted for 94% of the common variance.

The factor structure resulting from the promax rotation is contained in Table V. Factor 1 appeared to represent a general affective distress dimension. As can be seen in Table V, the previously validated instruments that had high correlations with this factor were the STAI, the BDI, and the DACL, all measures of affective distress. The WHYMPI negative mood scale also had a high positive correlation with this factor and, as predicted by cognitive-behavioral formulations of depression, the WHYMPI self-control scale was inversely related to this factor.

Factor 2 was interpreted as representing support from significant others. Marital satisfaction, as measured by the MAS, as well as the WHYMPI scales of Support,

Solicitous Responses, and Distracting Responses, had high positive correlations with this factor. As expected, the WHYMPI Punishing Responses scale correlated negatively with this factor.

As displayed in Table V, factor 3 appeared to be related to Pain Severity and Interference. Both of the MPQ scales and the 2 WHYMPI scales that measured Pain Severity and the amount of Interference due to pain had major correlations on this factor.

Factor 4 suggested an Activity Level Dimension. Major loadings on this factor included the WHYMPI scales of Activities Away From Home and Social Activities. The WHYMPI Self-Control scale and the MHLC Internal Scale were also moderately correlated with this factor.

In sum, both the primary and secondary loadings contained in Table V suggested converging evidence for the internal as well as the external construct validity of the 12 WHYMPI scales.

## Discussion

The present study describes the development and psychometric evaluation of a brief self-administered inventory designed to be used in the context of a multidimensional assessment of chronic pain. As a comprehensive measure of several important aspects of the subjective experience of chronic pain, the West Haven-Yale Multidimensional Pain Inventory (WHYMPI) fills a frequently noted void in the pain assessment literature. The ease of administration of the inventory, its contemporary theoretical foundation, and the demonstration of good reliability and validity argue for its applicability as an important clinical and research tool.

The WHYMPI, in its final form, is a 52-item inventory divided into 3 parts, each containing several subscales. The first part evaluates 5 important dimensions of the pain experience; perceived interference of pain in various areas of patients' functioning, support and concern of significant others, pain severity, self-control, and negative mood. Part II examines the responses of significant others to communications of pain. Three subscales measure the perceived frequency of punishing, solicitous, and distracting responses. The third part assesses the patients' report of their participation in 4 categories of common daily activities; household chores, outdoor work, activities away from home, and social activities.

The WHYMPI is theoretically linked to the cognitive-behavioral perspective of pain [19]. Within this perspective, emphasis is placed on assessment of the subjective distress experienced by patients in terms of pain and suffering and also on the impact of the pain problem on various aspects of the patients' lives (e.g., interference with work-related, social, and recreational activities). In addition, a hallmark of this perspective is the importance placed on patients' perceptions of self-control and problem-solving abilities. The cognitive-behavioral approach, as an extension of operant formulations of pain [6], emphasizes the evaluation of observable pain behavior, including both 'pain behaviors' (e.g., overt demonstrations of pain) and 'well behaviors' (e.g., participation in instrumental activities), and environmental,

particularly social, contingencies for these behaviors. The WHYMPI specifically evaluates the patients' perceptions of their present activity level and the responses of significant others to their communications of pain.

As the first comprehensive instrument for the assessment of chronic pain developed within the cognitive-behavioral perspective, the WHYMPI has potential research and clinical applications. For example, several of the scales (e.g., Interference, Self-Control, Negative Mood, Pain Severity, and the Activity Scales) might be important dependent measures in the evaluation of cognitive-behavioral and other comprehensive pain treatment approaches. We have demonstrated the utility of the WHYMPI as a clinical research tool in a recent treatment outcome study [10]. In that study, the WHYMPI displayed sensitivity to change as a function of treatment.

Another application of the WHYMPI that may prove useful is in the evaluation of the role of significant others in the development and maintenance of chronic pain. Although not designed to replace direct observation of pain patients and their interactions with others, Part II of the WHYMPI provides a relatively simple, reliable, and seemingly valid assessment of the perceived response of others contingent on demonstrations of pain. The 3 scales in this section may have important implications for evaluating the relationship between social contingencies for pain and instrumental behavior, dependency, mood, and the subjective experience of pain.

Part III of the WHYMPI, comprised of the activity scales, provides an important extension to measures developed for use with pain patients that assess 'uptime' or other more general categories of activity (e.g., sitting, standing, lying) that are often evaluated in the context of operant pain treatment approaches. Although relying on self-report, the scales may be useful in developing more specific behavioral goals for patients and in evaluating change in activity levels as a function of treatment. In conjunction with other scales from the WHYMPI and other measures, the ability of the clinician to assess variables associated with activity levels may aid in more individually tailored approaches to increasing instrumental behavior.

Although the present results are promising, future research is encouraged to cross-validate the results on other populations. The present sample consisted largely of male patients who were veterans of the United States Armed Services. The generalizability of the results to samples of other groups of pain patients needs to be established. In addition, comparison of chronic pain patients with patients who have other chronic diseases (e.g., diabetes, angina) is encouraged in order to establish whether the results are specific to pain patients or any group of patients with a chronic disease.

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## References


1 Allen, M.J. and Yen, W.M., Introduction to Measurement Theory, Brooks/Cole, Monterey, CA, 1979.
2 Beck, A.T., Ward, C.H., Mendelson, M., Mock, J. and Erbaugh, J., An inventory for measuring depression, Arch. gen. Psychiat., 4 (1961) 561–571.
3 Cronbach, L.J., Coefficient alpha and the internal structure of tests, Psychometrika, 16 (1951) 297–334.
4 Flor, H., Kerns, R.D. and Turk, D.C., The role of the spouse in the maintenance of chronic pain, Manuscript submitted for publication, 1985.
5 Fordyce, W.E., Behavioral Methods in Chronic Pain and Illness, Mosby, St. Louis, MO, 1976.
6 Frederiksen, L.W., Lynd, R.S. and Ross, J., Methodology in the measurement of pain, Behav. Ther., 9 (1979) 486–488.
7 Joreskog, K.G. and Sorbom, D., LISREL V: Analysis of Linear Structural Relationships by Maximum Likelihood and Least Squares Methods, International Educational Services, Chicago, IL, 1981.
8 Keefe, F.J., Behavioral assessment and treatment of chronic pain, J. consult. clin. Psychol., 50 (1982) 896–911.
9 Kerns, R.D. and Turk, D.C., Depression and chronic pain: the mediating role of the spouse, J. Marriage Fam., 46 (1984) 845–852.
10 Kerns, R.D., Turk, D.C., Holzman, A.D. and Rudy, T.E., Comparison of cognitive-behavioral and behavioral approaches to the outpatient treatment of chronic pain, Clin. J. Pain, in press.
11 Likert, R., A technique for the measurement of attitudes, Arch. Psychol., 140 (1932) 1–55.
12 Locke, H.J. and Wallace, K.M., Short marital-adjustment and prediction tests: their reliability and validity, Marriage Fam. Living, 21 (1959) 251–255.
13 Long, J.S., Confirmatory Factor Analysis, Sage Publications, Beverly Hills, CA, 1983.
14 Lubin, B., Adjective check lists for measurement of depression, Arch. gen. Psychiat., 12 (1965) 57–62.
15 Melzack, R., The McGill Pain Questionnaire: major properties and scoring methods, Pain, 1 (1975) 277–299.
16 Sanders, S.H., A trimodal behavioral conceptualization of clinical pain, Percept. Motor Skills, 48 (1979) 551–555.
17 Spielberger, C.D., Gorsuch, R.L. and Lushene, R.E., STAI Manual for the State-Trait Anxiety Inventory, Consulting Psychologists Press, Palo Alto, CA, 1970.
18 Turk, D.C. and Kerns, R.D., Conceptual issues in the assessment of clinical pain, Int. J. Psychiat. Med., 13 (1983) 15–26.
19 Turk, D.C., Meichenbaum, D. and Genest, M., Pain and Behavioral Medicine: a Cognitive-Behavioral Perspective, Guilford, New York, 1983.
20 Wallston, F.A., Wallston, B.S. and DeVellis, R., Development of the Multidimensional Health Locus of Control (MHLC) scales, Hlth Educ. Monogr., 6 (1978) 160–170.