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Health Care Providers' Attitudes and Beliefs Towards Common Low Back Pain: Factor Structure and Psychometric Properties of the HC-PAIRS

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Objective: The factor structure, reliability and validity of the Health Care Providers' Pain and Impairment Relationship Scale (HCPAIRS) were determined in the current study. Furthermore, the ability of the HC-PAIRS to serve as a predictor for work and activity recommendations of paramedical health care providers was examined.

Design: For the current study, 156 therapists from several paramedical disciplines (mostly physiotherapy, manual therapy, chiropractic, and McKenzie) completed the HC-PAIRS and questionnaires measuring the perceived harmfulness of physical activities. Furthermore, the therapists gave recommendations for work and physical activity for patients described in vignettes. Since a factor structure was already known for the HC-PAIRS a confirmatory factor analysis was carried out. Reliability of the HC-PAIRS was determined by computing Cronbach's α . Validity was examined by reviewing associations between scores on the HC-PAIRS and scores on measures of the harmfulness of physical activities and recommendations for work and physical activity. Regression analyses were carried out to determine whether scores on the HC-PAIRS were a predictor of recommendations for work and physical activity while controlling for other variables.

Results: In contrast to previous research, factor analysis revealed only 1 factor and suggested that 2 items should be removed from the HC-PAIRS. This factor had a Cronbach's α of 0.84. The HC-PAIRS showed adequate validity. All associations between scores on the HC-PAIRS and scores on measures of the harmfulness of physical activities and recommendations for work and physical activity were in the expected directions and ranged between 0.25 and 0.62 ($P < 0.01$).

Scores on the HC-PAIRS were the only significant predictor of recommendations for work and physical activity when controlling for possible confounders including gender, years of experience in the treatment of back pain, judgments of severity of symptoms, and judgments of severity of pathology.

Conclusion: The HC-PAIRS appears to be a reliable and valid measure of health care providers' attitudes and beliefs about the relationship between pain and impairment. The role of health care providers' attitudes in the treatment of low back pain is discussed.

Disability levels among patients with nonspecific low back pain (ie, back pain not caused by a radicular syndrome, cauda equina syndrome, fractures, infections, inflammation, a tumor or metastasis¹) can vary widely. Research has shown that these disability levels cannot sufficiently be explained from actual physical pathology or pain levels.² Recently, a number of studies have highlighted the role of fear-avoidance beliefs as important predictors of chronic pain disability.³⁻⁶ In line with these findings, an etiological model has been proposed that is based on the specific fear that physical activity will cause (re)injury.^{7,8} This model presents a possible pathway by which injured patients either become mired in a negative spiral, leading to disability, or successfully recover. A patient who catastrophizes (who is convinced that his or her body is extremely vulnerable, weak, and must be carefully protected from overstrain) is likely to be fearful of movement/(re)injury when experiencing pain. These fearful reactions are associated with increased muscular reactivity and avoidance and in the long run lead to disuse, depression, and disability. On the other hand, a patient who does not catastrophize about pain is more likely to resume daily activities and recover successfully.

A specific concern for patients with nonspecific low back pain who also catastrophize about their pain is the belief that pain is invariably linked to movement and activities. This belief leads patients to think that physical activities should be avoided and thus would also lead to higher levels of reported disability. One instrument to measure beliefs of patients with low back pain with regard to the relationship between pain and impairment is the Pain and Impairment Relationship Scale (PAIRS), which was originally developed by Riley et al.⁹ Several studies have shown an association between scores on the PAIRS and scores on measurements of impairment,⁹⁻¹² which is an indication of its validity. Furthermore, the PAIRS has demonstrated adequate internal consistency⁹ and test-retest reliability.¹² An important issue with regard to beliefs on the relationship between pain and impairment is which factors influence these beliefs. Research has shown that past pain experiences,¹³ cultural background,¹⁴ and different socioeconomical reinforcements^{15,16} influence pain beliefs of low back pain patients.

Another reinforcer of patients' beliefs could be the projected beliefs of their health care provider.^{2,17} This factor has only recently gained the attention of the scientific community.

To study the influence of this factor, Rainville et al¹⁷ adapted the PAIRS to measure beliefs of health care providers about the relationship between pain and impairment. This Health Care Providers' Pain and Impairment Relationship Scale (HCPAIRS) was developed by replacing all first-person references in the PAIRS with the term "chronic back pain patients." For example, the item "I can't go about my normal life activities when I am in pain" was modified into "Chronic back pain patients can't go about their normal life activities when they are in pain." In their first study, Rainville et al¹⁷ determined internal consistency, factor structure, and validity by administering the HC-PAIRS among 150 community health care providers and 66 functional restoration providers. Internal consistency appeared adequate. Factor analysis using principal component analysis with varimax rotation revealed 4 factors, which were labeled "functional expectations," "social expectations," "need for cure," and "projected cognition." Validity of the HCPAIRS was determined by comparing scores of the functional restoration providers, who are trained not to believe in a strong relationship between pain and impairment, with scores of the community health professionals. As expected, the functional restoration providers obtained a significantly lower score on the HC-PAIRS.

The results of the analyses also raised several questions.

First, Rainville et al¹⁷ used varimax rotation, which assumes uncorrelated factors. But since all items of the HC-PAIRS are expected to be part of the same construct, it would be more likely to assume that any underlying factors are correlated. An indication of this association between underlying factors from the data is the fact that the first 3 factors show item-overlap.

This overlap also makes it difficult to interpret the distinct features of each factor. Second, 2 items, together forming the fourth factor, were found to decrease the internal consistency of the HC-PAIRS. Furthermore, the scores of the functional restoration providers differed significantly in the expected direction from the scores of the community health care providers for all factors, except for the fourth factor, for which no difference was found. Rainville et al¹⁷ argue that this fourth factor (items 10 and 13) should perhaps be deleted from the overall scale. Third, the initial validity of the HC-PAIRS was determined by

comparing scores between groups of therapists, who are expected to behave differently based on the job role they fulfill. It would, however, be interesting to relate HC-PAIRS scores to the actual treatment provided.

Rainville et al¹⁸ tackled this last question in a subsequent study, although it was not their primary objective. In this study, the HC-PAIRS was administered to 41 orthopedic spine surgeons and 41 family physicians. Furthermore, all health care providers were presented with 3 patient vignettes of patients who were out of work because of their back pain and were asked to give their opinion on severity of symptoms, severity of pathology, the most appropriate level of physical activity, and the appropriate level of work activity. These patient vignettes were used as a measure of actual treatment provided, since it is impossible to present the same patient to a large group of therapists in real life. The study objectives were to explore physicians' recommendations for work and physical activity and to determine factors that might influence these recommendations.

However, the results could also be seen as indicative of the validity of the HC-PAIRS, if recommendations were associated in the expected directions with scores on the HC-PAIRS.

Results showed that, although recommendations for work and physical activity vary widely, scores on the HC-PAIRS were significantly correlated with work and activity recommendations for 2 of the 3 vignettes, in such a way that a higher score on the HC-PAIRS was associated with restriction of work and activity. Severity of symptoms appeared of influence on work and activity recommendations in a similar direction, ie, when symptoms were perceived as more severe, recommendations for work and activity were more restrictive. Severity of symptoms was surprisingly also positively associated with physician's pain beliefs (measured by HC-PAIRS), suggesting perhaps that these beliefs are of influence on the attention that physicians pay to certain pain behaviors or symptoms, and the perceived severity of them. Severity of back pain pathology had no significant influence on recommendations for work and physical activity.¹⁸ The current study was carried out to determine reliability and validity of a Dutch version of the HC-PAIRS. First of all an attempt was made to replicate the factor structure of the HC-PAIRS found by Rainville et al¹⁷ by means of a confirmatory factor analysis. Reliability was measured by calculating internal consistency. Second, validity was determined by reviewing associations between scores on the HC-PAIRS and recommendations for work and physical activity by health care providers using the same vignettes as Rainville et al¹⁸ did.

Scores on the HC-PAIRS were also compared with scores on 2 measurements of the perceived harmfulness of physical activities.

These 2 measurements were an adapted version of the Tampa Scale for Kinesiophobia (TSK),^{7,19} and a selection of photographs from the Photograph Series of Daily Activities (PHODA).²⁰ The TSK is questionnaire aimed at measuring the fear that physical activity may cause (re)injury. In chronic back pain patients, the TSK has found to be a strong predictor of physical performance and self-reported functional disability levels.²¹ The PHODA has been developed to identify the specific activities patients with musculoskeletal pain fear.

PHODA has shown to be elevated in highly fearful and to be responsive to patients fear-reducing techniques such as exposure in vivo.²² Finally, we examined whether scores on the HC-PAIRS could serve as a predictor for work and activity recommendations when correcting for potentially confounding variables. Participants in this study were paramedical health care providers (physiotherapists, manual therapists, Cesar therapists, etc.). In this paper the more general term "therapists" will be used to describe all participants.

MATERIALS AND METHODS

Sample

One hundred fifty-six therapists were recruited from 4 groups. These 4 groups were 25 chiropractors attending an educational training course from the Dutch Chiropractic Association, 13 physiotherapists attending a lecture from a regional association of physiotherapists, 73 manual therapists from a random sample of members of the Dutch Association for Manual Therapy, and 45 therapists (physiotherapists, Cesar therapists, and osteopaths) attending an informative meeting for a treatment outcome study.

Measurements

Sociodemographics

Age, sex, treatment discipline, work setting, and years of experience in the field of back pain management were recorded prior to the other measures.

Attitude Measurements

The Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS) is a questionnaire for assessing the attitudes and beliefs of health care providers about functional expectations for CLBP patients.¹⁷ It consists of 15 statements rated on a 6-point Likert scale ranging from "totally disagree" to "totally agree." A high score on the HC-PAIRS denotes a strong conviction that chronic low back pain and physical impairment are strongly linked together. For this study the HC-PAIRS was translated into Dutch by the authors. To check whether the HC-PAIRS had been translated correctly, the Dutch version was sent to a translator to be translated back into English. This English version was then sent to Dr. James Rainville to be checked for significant differences in meaning compared with the original version of the HC-PAIRS. No major differences were reported.

Recommendations for Physical Activity

Rainville et al¹⁸ used 3 vignettes of work-disabled, chronic low back pain patients without severe pathology. Physicians were asked to rate each vignette on 4 aspects (each on a 5-point scale). These aspects were severity of pain symptoms and severity of pathology, both ranging from "very mild" to "extremely severe," recommendations for physical activity levels, ranging from "no activity limitations" to "limit all physical activities," and recommendations regarding work levels, ranging from "full time full duty" to "remain off work." The vignettes contained descriptions of symptoms, relevant physical findings, results of diagnostic tests, and previous treatments. All vignettes suggested back pain with a nonspecific cause. The 3 vignettes and the corresponding questions were translated into Dutch by the authors and presented to the subjects after they had completed the HC-PAIRS.

Perceived Harmfulness of Physical Activities

The TSK was designed to measure fear of movement or reinjury in patients^{7,19} and was adapted to measure concerns of movement or reinjury therapists have for their patients. The adapted TSK (TSK-HC) consisted of 17 items that had to be rated on a 6-point Likert scale ranging from "totally disagree" to "totally agree." As an example, the original item "I wouldn't have this much pain if there weren't something potentially dangerous going on in my body" was adapted to read "Back pain patients wouldn't have this much pain if there weren't something potentially dangerous going on in their body." The Photograph Series of Daily Activities (PHODA) consists of 98 photographs of people carrying out daily activities.

²⁰A selection of 41 pictures was made for this study, based on elevated ratings of patients of these photographs in a previous study.²² Therapists were asked to rate each of these photographs on a 7-point scale (ranging from "not harmful at all" to "extremely harmful") according to how harmful they judged each activity to be for the back of a patient with nonspecific low back pain. The sum of all 41 ratings was computed.

Procedure All participating therapists received the questionnaires by mail and returned them either during the education courses or with a reply-paid envelope for those who did not attend any course.

Statistical Analyses Since Rainville et al¹⁷ had already determined the factor structure of the HC-PAIRS, a confirmatory factor analysis was carried out using LISREL 8.14 statistical software.²³ The correlation matrix and standard deviations of the HC-PAIRS items were used as input. Analyses were started with the model proposed by Rainville et al,¹⁷ and the model was adjusted according to suggestions made by the software. In contrast to Rainville et al,¹⁷ factors were allowed to be correlated. Modifications were carried out until changes in χ^2 of the modifications dropped below 4. The first model and the final model were tested for identification (ie, whether the estimates found are unique for the data used) by saving the fitted covariances of the respective models and using them as input. This should yield a perfect fit.

Before performing the factor analysis, all items were examined for heterogeneity, since this can bias the results of the analysis.²⁴ The criteria were, first, a Skewness and Kurtosis between ± 1.5 , and second, that no more than 70% of all scores on an item be located in the extreme categories (either 1–2 or 5–6).

Associations between scores on the HC-PAIRS on the one hand and expertise and recommendations for work and activity, scores on the TSK-HC, and scores on the PHODA on the other were computed using Pearson correlation coefficients.

Furthermore, regression analyses were carried out to check whether scores on the HC-PAIRS could serve as a predictor for work and activity recommendations when correcting for potential confounders.

RESULTS

Sociodemographics

As mentioned before, 156 therapists (55.4% men) with an average age of 41 (SD = 7.9, range 24–68 years) were included in the analyses. The predominant treatment disciplines were manual therapy (39.2%), physiotherapy (31.1%), chiropractic (16.9%), and McKenzie (5.4%). Most therapists worked in private practices (95.4%) for an average of 36 hours per week (SD = 11.5, range 8–64 hours). The average years of work experience was 13.9 years (SD = 8.0, range 0.5–33 years), and the experience with the treatment of back pain was 13.6 years (SD = 8.1, range 0–33 years).

Data Examination Of the 156 therapists included in the analysis, 150 had no missing values on the HC-PAIRS. Six therapists had missing values, but in all cases less than 10% of all values were missing.

A neutral score (on the middle of the scale) replaced missing values on the HC-PAIRS. The same procedure was followed for missing values on the TSK-HC and PHODA. If there were more than 10% missing values on a scale, then, for that therapist, the scale was excluded from the analyses. Finally, 146 therapists completed the PHODA and 154 completed the TSK-HC. It was impossible to replace missing values on the patient vignettes, since the scales were of a unidimensional nature. Only 7 therapists (4.4%) had missing values. In all analyses these were excluded.

None of the items of the HC-PAIRS was excluded from factor analysis because of nonheterogeneity.²⁴ Means and standard deviations for all HC-PAIRS items are given in Table 1. Internal consistency (as measured by Cronbach's α) of the scale was 0.83, but, similar to the results of the Rainville et al.

(1995) study,¹⁷ items 10 and 13 were found to improve α upon deletion, although not by much. In fact, α improved to 0.84.

Scores on the HC-PAIRS varied widely among health care providers, ranging from 25 to 76 (theoretical range is 15–90).

Factor Analysis

A confirmatory factor analysis was carried out using LISREL 8.14 statistical software. The correlation matrix and standard deviations of the HC-PAIRS items were used as input.

Analyses were started with the 4-factor model proposed by Rainville et al.¹⁷ Results provided by LISREL showed that this initial model fitted poorly to the data (non-normed fit index [NNFI] = 0.76). Furthermore, the first 3 factors appeared highly correlated (ranging from 0.83 to 0.88), which might suggest that they make up 1 factor instead of 3 separate ones.

The check for identification showed that the model was identified.

Modifications of the model according to suggestions made by LISREL did not lead to a model that adequately fitted to the data (NNFI stayed below 0.90). We therefore decided to start a new analysis with a 1-factor model. For this analysis, items 10 and 13 were deleted from the scale, since, both in the Rainville et al.¹⁷ study and in the current study, these items appeared to be tapping into a different belief construct. For this 1-factor model (consisting of HC-PAIRS items 1–9, 11, 12, 14, and 15) all factor loadings were highly significant, but the model still poorly fit the data (NNFI = 0.79), so modifications were necessary. Since this was a completely different model from the original one, identification was checked again. The model was found to be identified.

Next, the model was adjusted according to suggestions made by LISREL until changes in χ^2 of the modifications dropped below 4. All changes consisted of the addition of error covariances between HC-PAIRS items. Six of these error covariances were added, leading to a model with an NNFI of 0.96 and a χ^2 of 74.88 (df 59; $P = 0.08$). The check for identification showed that the model was identified. Internal

consistency of the factor was 0.84 (as measured by Cronbach's α). Scores on the HC-PAIRS still varied widely with a range from 20 to 66 (theoretical range is 13–78). The final 1-factor model is shown in Figure 1.

Validity

Similar to the Rainville et al¹⁸ study, a sum score was calculated for work and activity recommendations by summing up the scores on the separate patient vignettes. For the [table 1] test of the validity of the HC-PAIRS, correlations between the sum score of the remaining items (all items except item 10 and 13) and recommendations for work and physical (separate patient vignettes and totals) activity were computed. These correlations are shown in Table 2. Scores on the HC-PAIRS significantly correlated with all recommendations for work and physical activity (separate patient vignettes and totals). Correlations varied between 0.25 and 0.45 (P in all cases 0.002 or less). This means that a high score on the HC-PAIRS (ie, a strong belief that pain and impairment are invariably linked) is associated with recommendations to limit work and physical activity. Perceived severity of symptoms and severity of pathology also had, in some cases, an influence on work and activity recommendations. Severity of symptoms correlated with work recommendations in vignettes 2 ($r = 0.22$, $P = 0.007$), 3 ($r = 0.27$, $P = 0.001$), and with total work recommendations in vignette 1 ($r = -0.16$, $P = 0.046$), although this last correlation is in the opposite direction of what would be expected. Severity of pathology correlated with work ($r = 0.43$, $P < 0.001$) and activity recommendations ($r = 0.40$, $P < 0.001$) in vignette 3, and with totaled work ($r = 0.18$, $P = 0.027$) and activity recommendations ($r = 0.28$, $P < 0.001$) in vignette 3. Other factors such as age, sex, years of work experience, years of experience with the treatment of low back pain, treatment discipline, or preferred method used in the treatment of low back pain were not reflected in work and activity recommendations.

HC-PAIRS scores appeared to be related to ratings of severity of symptoms for vignettes 2 and 3 and to ratings of severity of pathology for all 3 vignettes.

Next, associations between scores on the HC-PAIRS and scores on the TSK-HC and PHODA were computed. HCPAIRS scores correlated to 0.62 ($P < 0.001$; $N = 154$) with scores on the TSK-HC and to 0.49 ($P < 0.001$; $N = 146$) with scores on the PHODA. In other words, a belief in a strong relationship between pain and impairment is associated with increased worry that physical activity may lead to (re)injury and with a higher perceived harmfulness of daily activities in nonspecific low back pain patients.

Regression analyses were performed to explore the factors associated with therapists' work and activity recommendations.

Two regression models were tested: 1 with totaled work recommendations and 1 with totaled activity recommendations as the dependent variable. The independent variables were in both cases score on the HC-PAIRS, sex, totaled severity of symptoms, totaled severity of pathology, and years of experience in the treatment of back pain. The score on the HCPAIRS was the strongest predictor of both work (adjusted $R^2 = 0.16$; $\beta = 0.355$; $P < 0.001$) and activity (adjusted $R^2 = 0.25$; $\beta = 0.446$; $P < 0.001$) recommendations. None of the other variables was a significant predictor.

[FIGURE 1]

DISCUSSION

Similar to both studies by Rainville et al,^{17,18} the current study showed that the HC-PAIRS is an adequate measurement instrument for measuring attitudes and beliefs of health care providers regarding the relationship chronic low back pain and impairments and disabilities. Scores on the HC-PAIRS varied widely among health care providers. Again, the HC-PAIRS demonstrated adequate internal consistency as measured by Cronbach's α . Furthermore, items 10 and 13 would raise α upon deletion, which again suggested that they might be deleted from the scale. This suggestion was supported by the fact that the original first 3 factors from the Rainville et al¹⁷ study were strongly interrelated, whereas the original fourth factor (consisting of items 10 and 13) correlated much less with the other factors.

The current study showed an important difference in factor structure from the original 4-factor solution.¹⁷ After deletion of items 10 and 13, the remaining items appeared to be part of one and the same factor, suggesting that the HC-PAIRS measures a unidimensional construct.

The validity of the HC-PAIRS appeared to be adequate.

Scores on the HC-PAIRS were consistently associated with recommendations for work and physical activity and in the expected directions. The only other factors associated with work and activity recommendations were, in some cases, severity of symptoms and severity of pathology. No other therapist characteristics were associated with work and activity recommendations.

Similar to the Rainville et al¹⁸ study, HC-PAIRS scores were associated with ratings of severity of symptoms and also with ratings severity of pathology. As Rainville et al¹⁸ pointed out, this might indicate that therapists' beliefs and attitude influence not only their behavior (the information that they provide) but also the medical information they view as being important.

[TABLE 2]

Further evidence for the validity of the HC-PAIRS has been found in the statistical association between beliefs about a strong relationship between pain and impairment (measured by the HC-PAIRS) and a higher perceived harmfulness of daily activities for the backs of patients with nonspecific low back pain (measured with the TSK-HC and PHODA).

This study also examined whether scores on the HC-PAIRS could serve as predictors for work and activity recommendations.

Regression analyses showed that scores on the HC-PAIRS were the only significant predictor compared with sex, ratings of severity of symptoms, ratings of severity of pathology, and years of experience in the treatment of back pain.

Unfortunately, it was impossible to determine the relationship between scores on the HC-PAIRS and recommendations health care providers give in real life. Although the vignettes were chosen by Rainville et al¹⁸ to resemble real patients and it was attempted to provide all the necessary information, responses to the questions might be different from real life.

An important difference between the current study and those by Rainville et al^{17,18} is that the subjects in the current study were all paramedical health care providers instead of more medical health care providers, like orthopedic spine surgeons, community health providers, and family physicians.

Still, scores and psychometric properties of the HC-PAIRS were quite similar. This suggests that the HC-PAIRS could be applied to a broad range of health care providers.

As stated in the introduction, therapists' attitudes and beliefs might be of influence on patients' attitudes and beliefs and, through this pathway, on patients' behavior and impairments.

This study also suggests an influence of therapists' attitudes and beliefs on their actual behavior, which in turn might be an important source of information for the patients. In a recent validation of the Obstacles to Return-to-Work Questionnaire (ORQ), the investigators found that the subscales regarding "perceived prognosis of return to work" and "physical workload and harmfulness" were among the important predictors of sick leave 9 months after.²⁵ A large number of patients rely on their health care provider for advice regarding when to return to work and which activities can or cannot be carried out. Furthermore, it might even be that therapists' attitudes and beliefs influence the information they gather about their patients, which could be another source of information for patients' about their complaints. If a health care provider only asks about physical workload, and has little attention for psychosocial factors, then a patient will quickly conclude that his or her physical workload played an important role in their complaints.

For future research, it would be interesting to find out how therapists' beliefs and attitudes are related to patients' beliefs and attitudes and, even more interesting, on their outcome.

The HC-PAIRS could be very helpful in these efforts.

At the moment, the questionnaire could already be used to measure effects of professional education among health care providers or tailor information (such as medical guidelines) to current attitudes and beliefs.

The HC-PAIRS is a direct measure of attitudes, in the sense that it focuses on attitudes that are formed in a conscious way (ie, explicit attitudes). Unfortunately, measures of explicit concepts are vulnerable to biases, such as a tendency for socially desirable answers. It is therefore that researchers have begun to develop assessment instruments for the identification of implicit attitudes and beliefs. Greenwald and Banaji,²⁶ for example, argue that people also have an implicit orientation, which is not under conscious control. This implicit orientation can also have an important influence on behavior,²⁶ especially since every-day activities

are probably mostly guided by spontaneous and automatic attitudes and not by a conscious and deliberate analysis of the attitude toward that activity. Research has shown that the explicit attitude of a person toward an attitude object often tells little about implicit attitude of that person toward the object. Since an implicit orientation is not under formed consciously and deliberately, it is less likely to be influenced by processes such as social desirability and demand characteristics. One important method to measure implicit orientations is the Implicit Association Test (IAT).^{27,28} To gather information on whether scores on the HC-PAIRS are influenced by social desirability, it would be interesting to compare HC-PAIRS scores with responses on the IAT. Of course it would be even more interesting to link these implicit attitudes to actual behavior, but this remains a challenge for the future.

Acknowledgments:

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TABLE 1

TABLE 1. Means and Standard Deviations (SD) for HC-PAIRS Items (N = 156)		
No.	Item	Mean (sd)
1	Chronic back pain patients can still be expected to fulfill work and family responsibilities despite pain	3.4 (1.2)
2	An increase in pain is an indicator that a chronic back pain patient should stop what he is doing until the pain decreases	3.5 (1.3)
3	Chronic back pain patients cannot go about normal life activities when they are in pain	2.7 (1.0)
4	If their pain would go away, chronic back pain patients' would be every bit as active as they used to be	3.5 (1.2)
5	Chronic back pain patients should have the same benefits as the handicapped because of their chronic pain problem	2.5 (1.1)
6	Chronic back pain patients owe it to themselves and those around them to perform their usual activities even when their pain is bad	4.0 (1.2)
7	Most people expect too much of chronic back pain patients, given their pain	3.2 (1.0)
8	Chronic back pain patients have to be careful not to do anything that might make their pain worse	2.7 (1.2)
9	As long as they are in pain, chronic back pain patients will never be able to live as well as they did before	3.1 (1.4)
10	When their pain gets worse, chronic back pain patients find it very hard to concentrate on anything else	4.2 (0.8)
11	Chronic back pain patients have to accept that they are disabled persons, due to their chronic pain	2.9 (1.2)
12	There is no way that chronic back pain patients can return to doing the things they used to do unless they first find a cure for their pain	2.9 (1.2)
13	Chronic back pain patients find themselves frequently thinking about their pain and what it has done to their life	3.2 (1.3)
14	Even though their pain is always there, chronic back pain patients often don't notice it at all when they are keeping themselves busy	3.4 (1.1)
15	All of chronic back pain patients' problems would be solved if their pain would go away	2.8 (1.1)
HC-PAIRS (total)		48.1 (9.4)
HC-PAIRS (without items 10 and 13)		40.7 (8.9)

FIGURE 1

FIGURE 1. Final LISREL factor model including estimates (factor loadings between items and factor and error covariances between items).

TABLE 2

TABLE 2. Pearson Correlation Coefficient Matrix for Work and Activity Recommendations and Therapist Characteristics

			Vignette 1		Vignette 2		Vignette 3	
		HC-PAIRS Factor 1	Severity of Symptoms	Severity of Pathology	Severity of Symptoms	Severity of Pathology	Severity of Symptoms	Severity of Pathology
Vignette 1								
Work	Pearson <i>r</i>	0.246**	−0.094	0.149				
	<i>N</i>	155	154	154	—		—	
Activities	Pearson <i>r</i>	0.379***	−0.098	0.108				
	<i>N</i>	155	154	153				
Vignette 2								
Work	Pearson <i>r</i>	0.300***			0.217**	0.064		
	<i>N</i>	155	—		153	155	—	
Activities	Pearson <i>r</i>	0.340***			0.149	0.113		
	<i>N</i>	155			153	155		
Vignette 3								
Work	Pearson <i>r</i>	0.410***					0.272**	0.396***
	<i>N</i>	155	—		—		155	154
Activities	Pearson <i>r</i>	0.350***					0.138	0.428***
	<i>N</i>	154					154	153
Totals								
Work	Pearson <i>r</i>	0.411***	−0.161*	0.108	0.112	0.045	0.105	0.178*
	<i>N</i>	155	154	154	153	155	155	154
Activities	Pearson <i>r</i>	0.453***	−0.122	0.131	0.057	0.100	0.113	0.281***
	<i>N</i>	153	152	152	151	153	153	152

**P* < 0.05.

***P* < 0.01.

****P* < 0.001.

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