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A Comparative Study of Coping Among Women With Fibromyalgia, Neck/Shoulder and Back Pain

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Passive coping strategies for pain (e.g., catastrophizing) have been implicated in the development and maintenance of chronic pain conditions such as fibromyalgia (FM). Catastrophizing may thus be independently associated with FM, controlling for pain parameters such as intensity and complexity. This cross-sectional study compared coping strategies for pain (Coping Strategies Questionnaire; CSQ) among women with FM ($n = 81$), neck/shoulder pain ($n = 76$), and back pain ($n = 131$). Sociodemographics and pain parameters were also assessed. FM patients reported stronger pain intensity, higher consumption of analgesics and sedatives, and higher disability than the other patients did. They also reported higher scores for the CSQ subscales—diverting attention, catastrophizing, praying/hoping, and pain behaviors—and lower scores for self-efficacy beliefs. Multivariate analyses controlling for relevant confounders ruled out most differences in coping strategies between groups, with the exception of diverting attention and pain behaviors. The results indicate that passive coping is not independently related to FM, but is, rather, dependent on a more general dysfunction due to pain.

Key words: coping, fibromyalgia, neck/shoulder pain, back pain

Neck/shoulder and back pain are the most common musculoskeletal disorders in the Western world today. For example, 50% to 80% of the general population have experienced an episode of back pain during their lifetime (Nachemson,

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1991; Skovron 1992). In 90% of the cases the pain resolves within 3 to 4 months, but 2% to 10% of the patients develop chronic conditions (Snook & Jensen, 1984; Spengler et al., 1986). Fibromyalgia (FM) is not as frequent as neck/shoulder and back pain, but affects 2% to 4% of the general population and accounts for 12% to 20% of patients visiting rheumatic disease clinics, with a dominance among women (Forseth & Gran, 1992; Jacobsson, Lindgärde, & Manthorpe, 1989; Raspe, Baumgartner, & Wolfe, 1993; Wolfe & Hawley, 1994; Wolfe et al., 1995; Wolfe et al., 1990).

FM is a syndrome characterized by tender point pain (i.e., at least 11 of 18 specific sites of deep muscle tenderness) and widespread musculoskeletal pain (upper and lower body) of 3 months duration or longer. The tender points are associated with characteristic symptoms such as general muscular pain, stiffness, fatigue, and nonrestorative sleep (Wolfe, 1986, 1989; Wolfe et al., 1990). Other frequent symptoms include irritable bowel syndrome, headache, psychological distress, and marked functional disability (Bengtsson, Bäckman, Lindblom, & Skogh, 1994; McCain, 1994; Yunus, Masi, & Aldag, 1989; Yunus, Masi, Calabrao, Miller, & Feigenbaum, 1981). In addition, the patient often experiences anxiety and feelings of despondency and hopelessness (Bengtsson, 1994; McCain, 1994; Wolfe et al., 1990; Yunus, 1989). The disorder usually begins at the age of 20 to 40 (“Consensus Document on Fibromyalgia,” 1993) and the course is chronic with few, and generally transitory, remissions (Bengtsson et al., 1994; Felson & Goldberg, 1986; Hawley & Wolfe, 1991; Hawley, Wolfe, & Cathey, 1988; Ledingham, Doherty, & Doherty, 1993; Nørregard et al., 1993).

Psychological characteristics make a significant contribution to the development of chronic disability due to musculoskeletal pain. According to the fear-avoidance model (Waddell, Newton, Henderson, Somerville, & Main, 1993), there are individual differences in the perception of fear in response to pain. Besides experiencing severe pain, some patients also perceive a strong fear of pain. The patients often attempt to manage this fear by coping strategies, which are geared to avoiding activities perceived as potentially painful. Pain coping strategies refer to thoughts and actions patients adopt to manage pain and its effects (e.g., Jensen & Linton, 1991; Katz, Ritvo, Irvine, & Jackson, 1996). Coping with pain can be classified into cognitive, including pain management techniques (e.g., distraction); and behavioral strategies, referring to actions for managing pain (e.g., taking pain medication; Fernandez, 1986). Further, they can reflect active or passive styles (e.g. Snow-Turek, Norris, & Tan, 1996). Active coping (e.g., problem solving), involves attempts to relieve or control pain, or to function in spite of it. Passive coping (e.g., praying/hoping) generally entails the tendency to avoid activity, rely on others, or take pain medication to reduce pain. Helplessness and catastrophizing thoughts also characterize the passive coping style (Nicholas, Wilson, & Goyen, 1992). Passive coping may lead to physical inactivity, which in turn, is followed by physical deterioration, for example, loss of muscular strength and mobility. These are often experienced as new symptoms and act to reinforce physical and social inactivity with deleterious effects on the mental and physical health of patients (Waddell et al., 1993).

Generally weak associations have been found between active coping and adaptation to pain (e.g., Brown & Nicassio, 1987). Passive coping, mainly catastrophizing, has consistently been associated with greater pain (Brown, Nicassio, & Wallston, 1989; Flor & Turk, 1988; Keefe, Brown, Wallston, & Caldwell, 1989), depression (Brown, et al., 1989; Parker et al., 1989; Sullivan & D’Eon, 1990; Snow-Turek et al., 1996), disability (Parker et al., 1989), and poorer psychological adjustment (Brown et al., 1989; Manne & Zautra, 1990; Parker et al., 1989; Snow-Turek et al., 1996).

Passive coping may thus facilitate chronification of symptoms. The extent to which passive coping may be implicated in the development of widespread pain conditions, for example FM, secondary to a well-localized musculoskeletal pain condition, for example neck/shoulder or back pain, remains to be elucidated. One possible mediator between psychosocial factors (e.g., coping) and chronic, widespread pain can be the activation of so-called trigger points (TPs). TPs consist of tissue that has been damaged at an earlier stage and later on react to new strain. By engaging surrounding tissue they can contribute to the creation of new TPs. Groups of TPs can be involved in a negative spiral whereby physical or psychological stress or both initiate a motor or physiological response, which in turn leads to activation of TPs and to a localized response (pain, weakness). This may then lead to the activation of nearby TPs and contribute to the spreading and intensifying of the pain (Sola, 1984). Several other plausible physiological mechanisms can be found in the literature (e.g., Hägg, 1991; Indahl, Kaigle, Reikerås, & Holm, 1997; Lundberg et al., 1994; Schleifer & Ley, 1994).

Catastrophizing may be linked to all these mechanisms by increased physical and mental levels of stress. It could thus be argued that the propensity to react to pain with passive coping may be a vulnerability factor for the development or maintenance of FM or both. If this is the case, FM patients would be expected to report a more frequent use of passive coping strategies for pain than other patient groups; for example, with back pain and neck/shoulder pain, independently of pain parameters such as intensity, duration, and use of medication. If, on the other hand, passive coping is a function of a more severe clinical picture, differences in passive coping between patient groups would be ruled out in multivariate analyses controlling for pain parameters. We present a cross-sectional study designed to investigate differences in pain parameters and pain coping strategies among FM, neck/shoulder, and back pain patients. FM patients were expected to report a greater use of passive coping strategies for pain, independently of their clinical picture. The clinical picture was compared between the three groups to see if any differences could be found.

MATERIALS AND METHODS

Patients

The sample consisted of 288 female patients, aged 18 to 64 years, with FM (*n* = 81), neck/shoulder pain (*n* = 76), and back pain (*n* = 131). Patients were recruited to the study while seeking help for pain at primary care and physiotherapy centers, in a catchment area in the southwest of Stockholm. Analysis of variances (ANOVAs) and chi-square tests (χ^2) showed no significant differences between the three patient groups with regard to age, marital status, education, or ethnic background. The mean age of the sample was 46±11 years. Twenty-five percent had a high educational level (i.e., university), 69% were married/cohabited, and 24% had an ethnic background (Table 1).

Measures

Demographics and sick leave. A sociodemographic questionnaire was used to assess age, education, ethnic background (i.e., whether the patient was of an ethnic origin other than Swedish), and marital status. Sick-leave duration during the past 12 months (i.e., no sick leave, 1–30 days sick leave and >30 days

TABLE 1
Sociodemographic Data for Patients With FM, Neck/Shoulder Pain and Back Pain

	FM (%)		*Neck/Shoulder Pain (%)*		*Back Pain (%)*	
	M	*SD*	*M*	*SD*	*M*	*SD*
Age (years)	47.2	9.1	45.4	10.9	44.8	11.6
Education						
Mandatory	27	33.3	16	21.1	39	29.8
High School	32	39.5	32	42.1	49	37.4
University	16	19.8	24	31.6	31	23.7
Other education	6	7.4	4	5.3	12	9.2
Marital status						(130)
Single	13	16.0	10	13.2	22	16.9
Married/cohabit	52	64.2	57	75.0	89	68.5
Divorced/separated	15	18.5	8	10.5	15	11.5
Widow/er	1	1.2	1	1.3	4	3.1
Ethnic background[d]	(76)					
Yes	24	31.6	17	22.4	33	25.2
No	52	68.4	59	77.6	98	74.8

[a] *n* = 81. [b] *n* = 76. [c] *n* = 131. [d] Whether the patient was of an ethnic origin other than Swedish.

sick leave) was also measured. The patients were also asked to complete the following measures. All questionnaires were preceded by instructions.

Pain variables. The Pain Questionnaire (Arnér, 1984; Carlsson, 1984) was used to collect data on pain duration, frequency, complexity (i.e., one or several types of pain), and intensity (least to worst through a visual analogue scale (VAS) graded from 0 (*no pain*) to 10 (*worst conceivable pain*). Intake of analgesics and sedatives (regularly, occasionally, and never) were also assessed. Finally, disability was evaluated by an index consisting of 15 items (yes or no answers) about different aspects of disability related to pain, mobility, and social life, where a high score corresponds to high disability. Cronbach for the disability index was .84. Reliability and validity for the entire Pain Questionnaire are reported in Arnér and Carlsson.

Coping strategies questionnaire. The Coping Strategies Questionnaire (CSQ; Rosenstiel & Keefe, 1983) assessed the patients' coping abilities. It consists of 44 items measuring the extent to which respondents engage in six different cognitive and two behavioral pain coping strategies. The cognitive coping strategies include (a) diverting attention (thinking of things that serve to distract one from the pain), (b) reinterpreting pain sensations (imagining the pain as a different sensation, e.g., heat, or as a sensation that appears outside the body), (c) coping self-statements (telling oneself that one can cope with pain, no matter how bad it gets), (d) ignoring pain sensations (denying that the pain hurts or affects one in any way), (e) praying/hoping (telling oneself to hope and pray that the pain will get better someday), and (f) catastrophizing (negative self-statements, negative beliefs about future, catastrophizing thoughts and ideations). The two behavioral coping strategies include (a) increasing behavioral activities (engaging in activities that divert one's attention from the pain) and (b) pain behaviors (overt pain behaviors that reduce pain sensations, such as taking analgesics). The perceived effectiveness of the coping efforts was rated with two items: control over pain and ability to decrease pain. These two items were summed up in an index of self-efficacy.

The CSQ items are graded from 0 to 6, with a high score representing a more frequent use of coping strategies. The Swedish version of the CSQ, has a satisfactory internal consistency, that is, alphas ranging from .70 to .80 (Jensen & Linton, 1993).

Design and Procedure

The design was cross-sectional. Diagnoses were established by general practitioners or rheumatologists. Neck/shoulder and back pain were assessed according to the Swedish version of the ICD–9 (Socialstyrelsen, 1987). FM was diagnosed according to the American College of Rheumatology (ACR) criteria (Wolfe et al., 1990), that is, widespread pain (upper and lower body) of 3 months' duration or longer in combination with tenderness at 11 or more of the 18 specific tender point sites on digital palpation or by use of a dolorimeter with a force of 4 kg. No reliability tests were conducted on the diagnoses. All patients were volunteers and gave their informed consent to participate in the study. Confidentiality was guaranteed. Ethical committee approval was sought and given.

Statistical Analysis

Differences between the diagnostic groups in terms of sociodemographics, pain-related data, coping, and disability were evaluated by chi-square tests (χ^2) and ANOVAs with the post hoc Tukey HSD and the Bonferroni correction tests. The associations between diagnoses and coping were examined by means of multiple linear regressions, controlling for possible confounders. All tests were two-tailed and the alpha level of $p < .05$ was used for all the analyses.

RESULTS

Pain Characteristics

There was an overall significant difference between the three groups (Table 2) regarding pain intensity, $F(2, 275) = 11.58$, $p < .0001$) and duration, $F(2, 270) = 10.83$, $p < .0001$). Post hoc tests showed that FM patients had higher pain intensity and longer pain duration (all, $p <.0001$), compared with the two other diagnoses. Further, chi square tests indicated that the FM patients experienced their pain as more frequent, $\chi^2\,(8) = 70.15$, $p < .0001$ and complex than the other patients groups; that is, had different types of pain, $\chi^2\,(2) = 18.09$, $p < .0001$). In addition, they consumed more analgesics, $\chi^2\,(4) = 16.93$, $p < .01$ and sedatives, $\chi^2\,(4) = 43.30$, $p < .0001$. Finally, an overall significant difference between the diagnostic groups was observed in terms of perceived disability, $F(2, 279) = 66.89$, $p < .0001$). Post hoc tests revealed that patients with FM felt more disabled than neck/shoulder ($p < .0001$) and back pain patients ($p < .0001$).

Coping

Our hypothesis stated that the FM patients would have a poorer ability to cope with pain (e.g., more catastrophizing) than neck/shoulder and back pain patients.

The ANOVAs (Table 3) provided support for the hypothesis with respect to praying/hoping, $F(2, 284) = 8.40$, $p < .0001$, and catastrophizing, $F(2, 285) = 14.69$, $p < .0001$. Post hoc tests demonstrated that the differences could be at-

TABLE 2
Clinical Characteristics of Patients With FM, Neck/Shoulder and Back Pain

	FM[a]			*Neck/Shoulder Pain*[b]			*Back Pain*[c]		
Characteristics	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Pain intensity (0–100)	76	85.43	12	74	73.49	17	128	75.52	20
Pain duration (months)	73	65.6	60.8	72	28.5	65.9	128	31.8	44.3
Sick-leave	75						130		
No sick-leave		7	9.3		22	28.9		43	33.1
1-30 days		10	13.3		32	42.1		46	35.4
>30 days		58	77.3		22	28.9		41	31.5
Pain complexity (type)									
One type		10	12.3		32	42.1		43	33.3
Several types		71	87.7		44	57.9		86	66.7
Pain frequency						128			
All the time		52	64.2		23	30.3		25	19.5
All the time[d]		16	19.8		10	13.2		14	10.9
Almost all the time		8	9.9		16	21.1		51	39.8
Almost every day		4	4.9		23	30.3		25	19.5
Almost every week		1	1.2		4	5.3		13	10.2
Use of analgesics									
Regularly		28	34.6		9	11.8		25	19.1
Occasionally		39	48.1		37	48.7		64	48.9
Never		14	17.3		30	39.5		42	32.1
Use of sedatives									
Regularly		19	24.1		2	2.6		4	3.1
Occasionally		16	20.3		9	11.8		10	7.6
Never		44	55.7		65	85.5		117	89.3
Disability (0–15)	75	10.45	3.05		4.55	3.86		5.51	3.40

[a]*n* = 81. [b]*n* = 76. [c]*n* = 131. [d]Except 1 hr or so immediately after treatment.

tributed to a more frequent use of praying/hoping by the FM patients versus neck/shoulder ($p < .5$) and back pain patients ($p < .0001$). Similar results were obtained for FM patients versus back pain and neck/shoulder pain patients regarding catastrophizing ($p < .0001$) and $p <.05$, respectively). An overall significant difference was shown between the diagnostic groups concerning the coping strategies pain behaviors, $F(2, 285) = 13.19$, $p < .0001$ and diverting attention, $F(2, 285) = 14.27$, $p < .0001$. The differences were related to higher scores for these coping strategies among FM patients (all post hoc tests $p < .0001$). Finally, an overall difference in scores for self-efficacy beliefs was observed between the groups, $F(2, 257) = 5.57$, $p < .01$, which according to post hoc testing was due to lower scores on self-efficacy beliefs for FM patients compared to back pain patients ($p < .01$).

Multivariate Analyses

A series of multiple linear regression analyses was performed to investigate the associations between diagnostic groups and coping strategies after adjustment for confounders. In these analyses, diagnostic groups, age, and ethnic background were used as independent variables together with those variables that were found to

TABLE 3
Coping Strategies Among Patients With FM, Neck/Shoulder Pain and Back Pain

	Fibromyalgia[b]		*Neck/Shoulder Pain*[c]		*Back Pain*[d]	
Coping Strategies[a]	*M*	*SD*	*M*	*SD*	*M*	*SD*
Diverting attention	15.51	6.16	10.76	6.30	11.04	6.92
Reinterpreting pain sensations	5.14	6.10	3.83	5.42	4.95	5.69
Coping self statements	17.22	6.21	18.49	7.73	18.44	8.49
Ignoring sensations	11.77	7.22	13.32	6.37	13.28	8.14
Praying/hoping[e]	12.83	7.00	9.78	6.70	8.79	7.17
Catastrophising	15.94	8.95	9.09	7.37	11.61	7.87
Increased behavioural activities	18.12	5.61	16.28	7.43	15.73	7.94
Pain Behaviours	19.17	4.99	14.64	5.38	16.26	6.16
Self-efficacy believes[f]	5.52	2.13	6.41	2.05	6.71	2.32

[a]The CSQ-items are graded from 0–6, with a high score representing a more frequent use of coping strategies. [b]*n* = 81. [c]*n* = 76. [d]*n* = 131. [e]For Fibromyalgia, *n* = 80. [f]For Fibromyalgia *n* = 54; for back pain *n* = 130.

TABLE 4
Multiple Linear Regression Analysis of the Associations Between FM, Neck Pain and the Coping Strategies Diverting Attention and Pain Behaviors

Predictors	*Diverting Attention Std.* β	*Pain Behaviors Std.* β
Age	.119	.029
Ethnic background	.054	–.045
FM patients	.200*	.203*
Back pain patients	.034	.099
Disability	.080	.129
Sick leave	.117	.062
Use of analgesics	.039	.294**
Use of sedatives	–.057	.054
Pain frequency	.000	–.060
Pain duration	.105	–.022
Pain intensity	–.001	.011
R^2	.139	.241
Adjusted R^2	.099	.241

*$p < .05$. **$p < .001$.

TABLE 5
Multiple Linear Regression Analysis of the Associations
Between FM and Back Pain Regarding Coping Strategy Diverting Attention

Predictors	*Std.* β
Age	.119
Ethnic background	.054
FM patients	.172*
Neck pain patients	.030
Disability	.080
Sick leave	.117
Use of analgesics	.039
Use of sedatives	–.057
Pain frequency	.000
Pain duration	.105
Pain intensity	–.001
R^2	.139
Adjusted R^2	.139

*$p < .05$. **$p < .001$.

be unevenly distributed between groups, that is, disability, sick leave, use of analgesics and sedatives, pain frequency, duration, and frequency. The coping variables praying/hoping, catastrophizing, pain behaviors, diverting attention, and self-efficacy were treated as dependent measures. The associations between diagnostic groups and praying/hoping, catastrophizing, and self-efficacy were ruled out by the introduction of confounders. However, the diverting attention strategy was used more often by FM patients than neck pain patients (std. β = .20, $p < .05$; Table 4) and back pain patients (std. β = .172, $p < .05$; Table 5). FM patients also used more pain behaviors than the neck pain patients did (std. β = .203, $p < .05$). Among the confounders, use of analgesics was positively associated with scores for pain behaviors (std. β = .294, $p < .001$).

DISCUSSION

This cross-sectional investigation studied differences in coping strategies between patients with three different pain conditions, that is, FM, back pain, and neck/shoulder pain. FM patients were hypothesized to manifest more passive coping than the other groups, also after taking relevant confounders into consideration. The patients with FM had a poorer clinical picture than the other patient groups. They had had their pain much longer and experienced it as more frequent, intensive, and complex. In addition, they consumed more analgesics and sedatives, felt more disabled, and had been on sick leave longer. The results concerning differences in the use of coping strategies between the three diagnostic groups were, in part, consistent with our hypothesis. FM used more of the passive coping strategies—praying/hoping and catastrophizing—but also more diverting attention and pain behavior than the other patients. They also reported lower scores for self-efficacy beliefs than back patients. With the exception of diverting attention and pain behaviors, the differences in coping strategies were ruled out when relevant confounders were taken into consideration. An explanation of these results is that the high levels of passive coping displayed by FM patients are not related to an enduring propensity toward maladaptive responses to pain but, rather, to a generally greater physical disability.

Further analyses conducted separately among the three diagnostic groups revealed that diverting attention was related to longer pain duration among FM patients, and to use of analgesics among patients with neck/shoulder pain. The importance of this cognitive coping strategy for patients' adaptation is, however, unclear. Diverting attention has been described as an adaptive coping strategy by some authors (e.g., Martin et al., 1996), and as a maladaptive one by others (e.g., Nicassio, Schoenfeld-Smith, Radojevic, & Schuman, 1995). In our sample of FM patients it was largely unrelated to pain parameters, thus any conclusions of its' effectiveness are unwarranted.

The pain behaviors' subscale of the CSQ measures overt behaviors aimed at managing pain, that is, taking medication, resting, walking, relaxing, taking hot showers or baths, and using electric pads. Based on the item content of this scale, the associations with use of analgesics and sedatives observed among patients with neck/shoulder pain, and FM, respectively, could thus be expected. Among FM patients, pain behaviors were performed more frequently by those with a foreign ethnic background, indicating that they are more prone toward overt behavioral coping with pain than Swedes. Also in the FM group, pain behaviors were related to less frequent pain. This may indicate that pain behaviors may be efficacious in decreasing the frequency of pain in this patient group.

The study has a number of limitations that must be acknowledged. For instance, the questions about use of medications and the pain behaviors' subscale of the CSQ have very similar content, and therefore not surprisingly show strong associations. Obviously, the main limitation of this study consists of the cross-sectional design, which precludes causal interpretations of the results. In spite of these limitations, the findings extend our knowledge about the differential coping modes among the studied patient groups in failing to show independent relations between FM and passive coping. Rather, FM patients greater use of catastrophizing and praying/hoping was attributable to a greater impact of pain on physical functioning.

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