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Catastrophizing and Pain-Coping in Young Adults: Associations With Depressive Symptoms and Headache Pain

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Abstract: Cognitive and behavioral pain-coping strategies, particularly catastrophizing, are important determinants of the pain experience. Most studies of pain-coping are performed in samples of treatment-seeking patients with longstanding pain complaints. Individual differences in pain-coping styles may also significantly affect day-to-day pain and quality of life in nonclinical samples, though this has rarely been investigated. In particular, headache pain is common in the general population, and little is known about how pain-related coping affects pain and quality of life among headache sufferers from a nonclinical setting. In this study, 202 generally healthy subjects were divided into 2 groups, those who reported problem headaches and pain-free control subjects. Reports of pain-related catastrophizing and the use of active pain-coping strategies did not differ between the groups, but differential associations between pain-coping strategies and emotional functioning were observed. Specifically, within the headache group only, those reporting higher levels of pain catastrophizing and lower levels of active pain-coping showed the highest level of depressive symptoms. Further, higher catastrophizing was associated with greater headache pain and pain-related interference. These findings suggest that catastrophizing has little influence on emotional functioning in those without ongoing pain complaints and highlight the importance of coping in modulating the consequences of pain on day-to-day functioning, even in samples from nonclinical settings. Moreover, these findings indirectly suggest that interventions that increase adaptive coping and decrease catastrophizing may help to buffer some of the deleterious functional consequences of headache pain.

***Perspective:** This study adds to a growing literature that conceptualizes catastrophizing as a diathesis, or risk factor, for deleterious pain-related consequences. These data suggest that catastrophizing may require the presence of a pain condition before its detrimental effects are exerted.*

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***Key words:** Chronic pain, pain, catastrophizing, headache, pain-coping, active coping.*

Cognitive, affective, and behavioral pain responses are important features of the pain experience; they shape long-term pain-related outcomes and serve as prime targets for psychosocial interventions aimed at improving pain-related quality of life.[31,39] Catastrophizing, generally classified as a passive and maladaptive pain-coping strategy, is a negative cognitive and affective process involving magnification of pain-related symptoms, helplessness, pessimism, and rumination about pain. Catastrophizing is a consistently-important predictor of pain-related outcomes,[13,46] showing associations with day-to-day pain symptoms and with the development of persistent pain, even in initially healthy samples.[15,41]

Though the specific nature of catastrophizing is under debate,[49,50] one hypothesis about catastrophizing is that it may function as a diathesis, varying widely between individuals but not manifesting its detrimental effects until a pain condition is present. Data from community

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samples indicate a fairly normal distribution of catastrophizing scores, and a statistically significant, though slight, elevation in catastrophizing in those experiencing moderate pain compared with pain-free adults.[5] Moreover, catastrophizing measured before surgery predicts post-operative pain severity.[24] These findings suggest that catastrophizing about pain may not act in isolation, but rather, requires the presence of a significantly painful event or condition to be activated and exert its effects. For example, 2 hypothetical individuals, 1 with a pain condition and 1 without, might report similar degrees of catastrophizing; however, the negative effects of catastrophizing would only be manifested in the individual with pain.

This conceptualization has not been previously tested, though in a recent couples study, catastrophizing among spouses of individuals with chronic pain was only associated with depressive symptoms when the spouse themselves experienced pain.[32] This relationship was observed despite no differences in mean levels of pain catastrophizing between spouses with and without pain. Such findings indirectly suggest that the negative effects of catastrophizing (on depressive symptoms) may be observed exclusively in the context of a personal experience of pain, which serves as a catalyst for catastrophizing-related cognitive and affective processes.

Headache offers an attractive model in which to investigate this hypothesis, because it is an intermittent pain condition that is common in the general population, allowing investigation of these hypotheses in a sample of individuals from a nonclinical setting (ie, relatively healthy young adults surveyed during daily life vs previous studies of patients suffering from chronically, disabling headache surveyed at a tertiary care facility). Compared with headache-free control subjects, individuals with headaches report greater catastrophizing in laboratory studies,[25,51] and in reports of daily coping processes.[20,27] In addition to simply evaluating differences in catastrophizing between headache sufferers and control subjects, our study also compares the relationship between catastrophizing and negative mood among individuals who experience headache pain to that relationship in pain-free individuals. In this way, we hope to shed light on the conceptualization of catastrophizing as a diathesis for deleterious outcomes. We hypothesized that (1) individuals with headache pain would report higher degrees of catastrophizing and lower levels of active pain-coping compared with pain-free control subjects, and that (2) higher levels of catastrophizing and lower levels of active coping would be associated with depressive symptomatology only in the individuals reporting headache pain. Lastly, in the context of the larger body of literature linking catastrophizing and pain-related outcomes independent of depression, it was hypothesized that (3) greater catastrophizing and lower degrees of active coping would be associated with greater headache pain and pain-related life interference among individuals with headache pain.

Methods

Participants

Participants were undergraduate students attending a large, public, urban, mid-Atlantic university; they received course credit in exchange for participating in the study. We defined 2 mutually exclusive groups of undergraduate students: Those with problem headaches and pain-free control subjects (see procedure section for inclusion/exclusion criteria). A total of 202 individuals met criteria and were included in one of these groups. The mean age of the participant sample was 21.3 years, with a range of 17 to 59 years (SD = 6.2). The majority of the sample was female (ie, approximately 70%). The racial breakdown of the sample was approximately 49% Caucasian, 32% African-American, and 10% Asian-American with relatively small percentages of patients representing other racial groups. The majority of the research participants were single (87%). The average duration of headache pain for individuals comprising the problem headache group was 11 years (SD = 8.7). The characteristics of these participants are relatively typical for a college student population (ie, single, young, and relatively healthy). See Table 1 for a breakdown of demographic information by group status (ie, control versus problem headache).

Measures

Demographics

Demographic information was collected from all participants for descriptive purposes. Specifically, informa-

Table 1. Descriptive Data Presented by Group Status (ie, Headache Group Versus Control Subjects) Including Means and Standard Deviations

Variables	Headache Group (N = 85)	Control Group (N = 117)	P Value
Age	22.3 ± 6.7	20.5 ± 5.7	.04*
Female sex	83.5%	59.8%	.001†
White ethnicity	72.6%	32.2%	.00†
Number of physician visits (per year)	1.3 ± 3.1	1.1 ± 5.4	.78*
BDI Total Score	10.5 ± 8.8	4.8 ± 5.6	.000‡
CSQ Active Coping	2.3 ± 1.0	2.4 ± 1.1	.64‡
CSQ Catastrophizing	1.5 ± 1.2	1.3 ± 1.2	.10‡
	Headache Indices		
Headache-free days/ month	19.8 ± 6.9		
Headache Severity Score	4.8 ± 1.7		
BPI Pain Interference	3.7 ± 1.9		

Abbreviations: BDI, Beck Depression Inventory; BPI, Brief Pain Inventory; CSQ, Coping Strategies Questionnaire.

*t test.

†χ^2 test.

‡Analysis of covariance.

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