Pain catastrophizing and employment histories

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Background
Studies examining pain catastrophizing and employment have had mixed findings. No study of pain catastrophizing has examined its relationship to lifetime employment status in a general clinical population.

Aims
To examine pain catastrophizing in relationship to lifetime employment functioning in a sample of US primary care patients (rather than injured workers).

Methods
A cross-sectional anonymous self-report survey of consecutive adults in a US internal medicine outpatient clinic. We assessed pain catastrophizing using the Pain Catastrophizing Scale and employment histories using a four-item author-developed measure.

Results
There were 239 participants and an initial participation rate of 70%. While pain catastrophizing was not related to the number of different full-time jobs held or the percentage of time employed in adulthood, pain catastrophizing was statistically significantly associated with ever having been paid ‘under the table’ \([F(1,236) = 27.89, P < 0.001]\) and ever having been fired from a job \([F(1,237) = 50.78, P < 0.001]\), as well as with not getting along with fellow employees \([F(1,60) = 7.48, P < 0.01]\).

Conclusions
In this clinical sample, pain catastrophizing demonstrated varying relationships with different aspects of lifetime employment, rather than exerting an overall global effect on employment.

Key words
Employment; pain; pain catastrophizing; Pain Catastrophizing Scale; work.

Introduction
Pain catastrophizing, a cognitive process characterized by the over-perception of and/or over-response to pain \cite{1}, has not been extensively examined with regard to employment. While studies indicate that pain catastrophizing is a significant predictor for returning to work \cite{2} as well as severity in whiplash disability \cite{3}, no relationship with work attendance has been demonstrated \cite{4}. However, previous studies have examined acutely injured participants and their employment functioning in the immediate aftermath of injury. In this study, we examined relationships between pain catastrophizing and reported employment status during subjects’ entire adulthood.

Methods
Participants were men and women attending for non-emergency medical care at a US internal medicine outpatient clinic. We excluded those younger than 18 or older than 90, those who appeared to have medical (e.g. pain), intellectual (e.g. learning disability), cognitive (e.g. dementia) or psychiatric (e.g. psychosis) problems severe enough to preclude completing a survey, as well as those with language difficulties. During clinic hours one of the authors approached patients in the clinic lobby following registration and informally assessed exclusion criteria. The recruiter explained the focus of the study and invited each patient to complete a six-page anonymous survey. Surveys were completed in the lobby before participants’ appointments with care providers and placed in sealed envelopes in a collection box. The first section of the survey contained demographic questions. The second assessed pain catastrophizing by the Pain Catastrophizing Scale (PCS) \cite{5}, a 13-item self-report measure of catastrophic thoughts and feelings about pain. The PCS has a five-point Likert-style response scale (0 = not at all to 4 = all the time) with a scoring range of 0–52; higher scores indicate higher levels of catastrophic thoughts and feelings. The PCS has
been validated in both clinical and non-clinical populations [1,6,7]. In this study, Cronbach’s alpha was 0.98. The third section explored lifetime employment history, using a four-item author-developed measure:

(1) Since age 18, how many different full-time jobs have you had in your lifetime?
(2) Since age 18, what percentage of the time have you been employed, part- or full-time?
(3) Have you ever had any jobs that you were paid ‘under the table’ (i.e. payment that the worker did not report as taxable income) and
(4) Have you ever been fired from a job? (‘yes’ responses were further examined through 10 provided options, e.g. late for work, missed shifts/days, used unacceptable language, ‘other’). We have used this questionnaire in previous studies and made no changes for this study.

This project was reviewed and exempted by an institutional review board. Implied consent was assumed from agreement to complete the survey and explicitly clarified on the cover page of the survey. Data were analyzed using the Statistical Package for the Social Sciences, version 16. We calculated Pearson correlation coefficients ($r$) for relationships between continuous variables, whereas for comparisons between two groups, we calculated one-way analyses of variance ($F$ statistic). We calculated Cohen’s $d$ statistic for the difference in means between two groups ($d$ represents the difference between two means in standard deviation units) as an indicator of effect size. There was no funding for this study.

Results
We approached 349 individuals and 70% (244) agreed to participate. Of those who did not, 68 refused, 13 appeared too distressed, 21 appeared too burdened (e.g. by children), 13 had language difficulties and 21 were unable to commit the time. Of the 244 participants, 239 completed all study measures. One hundred and fifty-one (63%) were women and 88 (37%) were men. Most were white (77%), followed by African-American (20%) and other (3%). All but 2% had graduated from high school; 24% had earned at least a bachelors degree. Table 1 presents descriptive data regarding respondents’ age and employment history. Four percent (10) of respondents reported never having a full-time job as an adult; 29% (69) reported ever having had a job that was paid ‘under the table’ and 26% (62) reported ever being fired from a job. The number of jobs fired from ranged from 1 to 10, with most fired from only one (57%) or two (23%) jobs. Five reasons for firings were endorsed by at least 12 respondents each (allowing for statistical comparisons): missed shifts/days ($n = 22$), late for work ($n = 14$), did not get along with the boss ($n = 22$), did not get along with fellow employees ($n = 13$) and ‘other’ ($n = 14$).

The correlation between scores on the PCS and the number of full- or part-time adult jobs was not statistically significant ($r = 0.12, P < 0.10$), nor was the correlation between PCS scores and the percentage of time employed full-time ($r = -0.03, P < 0.60$). Table 2 presents further comparisons of PCS scores as a function of employment variables. Respondents who reported ever having been paid ‘under the table’ had statistically significantly higher PCS scores than those who did not. Respondents who reported ever having been fired had statistically significantly higher PCS scores than those who did not. Of the reasons for being fired, only ‘not getting along with fellow employees’ was statistically significantly associated with PCS scores.

Discussion
In this study, pain catastrophizing was statistically significantly associated with being paid ‘under the table’ and being fired, but not with the number of jobs held or the percentage of time employed in adulthood. Thus, while work was maintained at a comparable level among all participants, those with pain catastrophizing were more likely to report employment difficulties.

Strengths of this study include the use of a naturalistic sample of patients rather than injured individuals or those undergoing rehabilitation, using a consecutive sample and examination of multiple rather than single employment variables. Weaknesses include the self-reported nature of

| Table 1. Descriptive data for the sample |
|-------------------------------|-----------------|-----------------|
| **Variable**                  | **Range**       | **$M$ (SD)**    |
| Age                           | 21–80           | 45.6 (15.0)     |
| Number of full-time jobs held | 0–25            | 4.5 (3.1)       |
| Estimated % of time employed  | 0–100           | 62 (32)         |
| Score on the PCS              | 0–44            | 13.2 (13.1)     |

$SD$, standard deviation.

| Table 2. Mean PCS scores as a function of employment variables |
|-------------------------------|------------------|------------------|
| **Employment variable**       | **Yes**          | **No**           |
|                               | **$M$ (SD)**     | **$M$ (SD)**     | **$F$** | **$P$ value** | **$d$** |
| Ever been paid ‘under the table’ | 19.9 (13.3)     | 10.4 (12.1)     | 27.9    | <0.001        | 0.71    |
| Ever been fired from a job    | 22.5 (13.0)      | 10.0 (11.6)     | 50.8    | <0.001        | 0.96    |
| Ever fired for not getting along with fellow employees | 30.9 (4.1) | 20.3 (13.6) | 7.5 | <0.01 | 0.81 |

$SD$, standard deviation.
the data, the use of only four employment variables and lack of assessment for possible contributory psychiatric or medical comorbidities. Our findings are consistent with the mixed findings in the currently limited literature in this area and suggest that further investigation into the impact of pain catastrophizing on employment is warranted.

Key points

• Pain catastrophizing and its potential effect on employment have been infrequently studied and findings have been mixed.
• In this study, pain catastrophizing was associated with having ever been paid ‘under the table’ and having ever been fired from a job (particularly for not getting along with fellow employees), but not with actual number of jobs or percentage of time employed in adulthood.
• Pain catastrophizing appears to have erratic negative effects, depending on the aspect of employment being examined.

Conflicts of interest

None declared.

References