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Worker Recovery Expectations and Fear-Avoidance Predict Work Disability in a Population-Based Workers' Compensation Back Pain Sample

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Study Design. Prospective, population-based cohort study.

Objectives. To examine whether worker demographic, pain, disability, and psychosocial variables, assessed soon after work-related back pain disability onset, predict 6-month work disability.

Summary of Background Data. Greater age, pain, and physical disability, and certain psychosocial characteristics may be risk factors for prolonged back pain-related work disability, although many studies have been small, findings have been inconsistent, and some psychosocial variables have not been examined prospectively.

Methods. Workers (N = 1,068) completed telephone interviews assessing demographic, pain, disability, and psychosocial variables 18 days (median) after submitting Workers' Compensation back pain disability claims. Administrative measures of work disability 6 months after claim submission were obtained.

Results. At 6 months, 196 workers (18.4%) were receiving work disability compensation. Age, race, education, and baseline pain and disability were significant predictors of 6-month disability. Adjusting for baseline demographics, pain, disability, and other psychosocial variables, high work fear-avoidance (odds ratio, 4.6; 95% confidence interval, 1.6–13.7) and very low recovery expectations (odds ratio, 3.1, 95% confidence interval, 1.5–6.5) were significant independent predictors.

Conclusions. Among individuals with acute work-related back pain, high pain and disability, low recovery expectations, and fears that work may increase pain or cause harm are risk factors for chronic work disability.

Key words: back pain, occupational back pain, workers' compensation, disability, recovery expectations, fear-avoidance, psychosocial. **Spine 2006;31:682–689**

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Low back pain is the most prevalent and costly disabling work-related disorder.[1–6] In U.S. Workers' Compensation settings, work-related back pain is referred to as an "injury," although the association with biologic injury is usually unclear. A minority of workers with acute back pain develop prolonged disability resulting in enormous direct and indirect costs.[4,7–11] Because the risk of chronic disability rises with increased time off work, interventions may be most successful if initiated within the first few months. However, application of secondary prevention programs to all workers with acute back pain would not be cost-effective as most return to work fairly quickly. Rather, there is a need to identify risk factors for prolonged disability, so that early interventions may be focused on high-risk workers.

In a systematic literature synthesis, we found greater age, pain, and physical disability to be the most frequently identified predictors of chronic work disability.[7] Considerable research has also confirmed the importance of patients' appraisals and other psychosocial variables. For example, worse outcomes have been reported for workers who blamed work factors for their pain, rated their relations with coworkers as poor, and had low expectations of recovery.[12–14] Cognitive variables found to be associated with disability among patients with chronic back pain include fear-avoidance (work/activity avoidance due to fear of increased pain or harm)[15–20] and catastrophizing (excessive focus on pain and its threat, and feeling helpless to control pain).[21,22] However, prospective studies are needed to determine whether such appraisals shortly after work-related back pain onset predict chronic work disability.

The objective of this study was to examine whether selected psychosocial characteristics of individuals with new Workers' Compensation back pain disability claims predicted work disability 6 months later. We focused on this time period because most people with work-related back pain return to work by then and most workers disabled at 6 months continue to be disabled long-term.[4] We hypothesized that each of the following characteristics would predict work disability: low recovery expectations, worse mental health, blaming of work factors for the pain, perception of poor relations with coworkers, higher catastrophizing, and greater work fear-avoidance. We further hypothesized that these psychosocial variables would add significantly to baseline

sociodemographic characteristics, pain intensity, and physical disability in the prediction of work disability. A secondary aim was to examine whether previous findings regarding age, pain intensity, and physical disability as predictors of work disability would be replicated in workers with recent Washington State Workers' Compensation back pain disability claims.

■ Methods

Study Participants and Procedures. The Washington Workers' Compensation Disability Risk Identification Study Cohort is a prospective, population-based study to identify risk factors for chronic musculoskeletal disorder disability.[23] This report focuses on workers who enrolled in the first year of the study. Workers aged 18 years or older who submitted Workers' Compensation claims for work-related back pain and received at least 1 day of temporary total disability wage replacement (*i.e.*, had at least 4 days of work disability, as required for receiving wage replacement), July 2002 to June 2003, were identified through weekly reviews of the Washington State Department of Labor and Industries claims database. We examined all claims covered by the state fund, which insures approximately two thirds of nonfederal Washington workers. The other third, covered by larger self-insured companies, were excluded due to insufficient administrative data.

Trained interviewers telephoned identified claimants, screened them for eligibility, and conducted computer-assisted telephone interviews with study enrollees. Exclusion criteria were worker denial of work-related back pain and inability to be interviewed in English or Spanish. A Spanish version of the interview was prepared by an accredited professional translator, and Spanish-speaking interviewers used this and the U.S. Spanish Short Form-36 version 2 (SF-36v2) Mental Health scale[24] with claimants who preferred to be interviewed in Spanish. The study was approved by the University of Washington institutional review board and all participants provided informed consent and were paid $10.

At the time of data analysis, among 2,277 claimants identified, 1,205 (53%) enrolled, 514 (22%) could not be contacted within the 6-week window for baseline interviews, 85 (4%) were ineligible, and 473 (21%) declined to participate. We excluded claims ultimately not accepted for disability compensation, leaving a sample of 1,068. This sample did not differ significantly from study nonparticipants accepted for disability compensation (N = 857) in age or gender. However, participants had more work disability days (median = 16 *vs.* 13 days, Mann-Whitney test, $P = 0.01$) and were more likely to be on work disability (18.4% *vs.* 14.6%, $\chi^2 = 4.85$, $P = 0.03$) at 6 months.

Measures

Pain Intensity and Disability. Participants rated their average pain intensity in the past week on a 0 (no pain) to 10 (pain as bad as could be) scale.[25,26] Physical disability was assessed by the Roland-Morris Disability Questionnaire (RDQ),[27] which is valid, reliable, and responsive to change.[27–33]

Psychosocial Predictor Measures

Mental Health. The Mental Health (MH) scale of the SF-36v2 (1-week time frame),[24] a widely used, valid, reliable quality of life measure, was scored based on general U.S. population norms. Low scores indicate psychologic distress and high scores reflect psychologic well-being.

Catastrophizing was assessed by averaging responses to three questions from the Pain Catastrophizing Scale[34] concerning thoughts when in pain ("I feel I can't stand it anymore," "It is awful and I feel that it overwhelms me," "I keep thinking about how badly I want it to stop"; 0 = "not at all" to 4 = "greatly").

Recovery Expectations, Coworker Relations, and Blame. Participants rated their certainty they would be working in 6 months (0 = "not at all certain" to 10 = "extremely certain"), relations with coworkers (0 = "don't get along well at all" to 10 = "get along extremely well"), and perceptions of blame for the pain (self, work factor, someone/something else, no one) (Vermont Disability Prediction Questionnaire[12]).

Work fear-avoidance was assessed by averaging responses to two items from the Fear Avoidance Beliefs Questionnaire work scale ("my work might harm my back," "my work makes, or might make, my pain worse"; 0 = "completely disagree" to 6 = "completely agree").[16]

Outcome: Work Disability. The primary outcome was wage replacement compensation for temporary total disability ("work disability") 6 months (180 days) after claim submission. We also examined the number of days of wage replacement receipt in this period ("work disability duration"). We expected that results would be similar for these two outcomes. Temporary total disability payments are stopped when a worker returns to work or is judged to be medically stable and able to work.

Statistical Analysis. We used descriptive statistics, χ^2 analyses, and logistic regression to summarize the baseline and outcome measures and their bivariate associations. We then used multivariate logistic regression to examine the relationships of age, gender, race (categorized as white *vs.* non-white because non-white subgroups were too small to analyze separately), education, and baseline pain intensity and physical disability to 6-month work disability (on *vs.* off). Next, we conducted likelihood ratio tests to determine whether the psychosocial variables as a group and individually added significantly to the prediction of work disability. We then constructed a final multivariate logistic regression model with all baseline demographic, pain, disability, and psychosocial variables. To predict work disability duration, we used Cox proportional hazards regression analyses[35] and followed the same approach. Tests for effects of interview language (Spanish or English) and interactions of language with other independent variables were not statistically significant, and repeating the regressions without the Spanish interviews did not change the results.

■ Results

Sample Characteristics

The median number of days between claim submission and the baseline interview was 18 days (mean, 21.1 days; SD, 9.7 days; range, 10–58 days). The mean (SD) study participant age was 39.2 (11.1) years (range, 18–71 years). A total of 108 interviews were conducted in Spanish. On average, participants reported moderate levels of pain (mean, 5.3; SD, 2.7) and physical disability (RDQ mean, 12.7; SD, 7.1). Workers aged 45 to 54 years, and

reporting higher baseline pain and disability, were significantly more likely, whereas non-whites and college graduates were significantly less likely, to be on work disability at 6 months (Table 1).

Psychosocial Predictors of 6-Month Work Disability

Six months after claim submission, 196 (18.4%) study participants were receiving work disability compensation. The median number of work disability days was 16 days (mean, 52.9 days; SD, 68.3 days; interquartile range, 4–80 days). The logistic regressions predicting 6-month work disability status and the proportional hazards regressions predicting work disability duration yielded the same conclusions; therefore, we present only the logistic regression results.

Recovery expectations, mental health, catastrophizing, and work fear-avoidance each showed statistically significant ($P < 0.05$) associations with work disability ($P = 0.05$ for blame perception) (Table 2). Workers who were extremely certain that they would be working in 6 months had a median of 11 work disability days; the median number of days for those with low certainty (0–4 ratings) was over 12 times higher. Workers with MH scores at the U.S. population mean or better had a median of only 8 disability days, whereas those with poor mental health (>2 SD below the mean) had a median of 67 days. Similarly, workers with very low catastrophizing scores had a median of 7 disability days; those with the highest scores had a median of 63 days. As a group, the psychosocial measures added significantly to the demographic, pain, and disability measures in predicting 6-month work disability (likelihood ratio test, $P = 0.0002$). Examined individually, the psychosocial variables that added significantly were recovery expectations ($P < 0.0001$), the SF-36v2 MH scale ($P < 0.05$), and work fear-avoidance ($P < 0.0001$).

Recovery expectations and work fear-avoidance were the only statistically significant psychosocial predictors in the multivariate logistic regression model (Table 3). Adjusting for all other variables, workers with high work fear-avoidance had 4.6 times higher odds (95% CI, 1.6–13.7) of being on work disability at 6 months than those with very low fear-avoidance, and workers with the lowest certainty they would be working in 6 months had 3.1 times higher odds (95% CI, 1.5–6.5) than those with the highest certainty. Figures 1 and 2 show survival curves for various levels of recovery expectations and fear-avoidance. Gender ($P = 0.03$), race ($P = 0.001$), pain intensity ($P = 0.01$), and RDQ scores ($P < 0.0001$), but not age or education, remained statistically significant in the final multivariate model.

These results imply that Workers' Compensation claimants with certain psychosocial profiles may be at very high risk for prolonged disability. For example, 64 workers had both high work fear-avoidance (scores ≥5) and low recovery expectations (0–4 ratings) (Figure 3).

Table 1. Sample Baseline Characteristics and 6-Month Work Disability (N = 1,068)

		6-Month Work Disability			
Baseline Characteristic	n (%)	Duration (days) [median (IQR)]	Disabled [n (%)]	Crude OR*	95% CI
Age (yr)†					
≤29	245 (23)	13 (3–48)	34 (14)	0.74	0.48–1.14
30–44	481 (45)	18 (4–90)	86 (18)	1.00	
45–54	239 (22)	19 (5–140)	59 (25)	1.51‡	1.03–2.19
55+	102 (10)	16 (4–61)	17 (17)	0.92	0.52–1.63
Gender					
Male	740 (69)	17 (4–83)	140 (19)	1.00	
Female	328 (31)	14 (4–67)	56 (17)	0.88	0.63–1.24
Race†					
White	750 (71)	19 (4–94)	150 (20)	1.00	
Non-White	311 (29)	14 (4–50)	45 (14)	0.68‡	0.47–0.97
Education					
Less than high school	155 (15)	20 (5–105)	31 (20)	0.99	0.62–1.59
High school	373 (35)	20 (5–96)	75 (20)	1.00	
College or vocational/technical	454 (42)	15 (4–61)	81 (18)	0.86	0.61–1.22
College graduate	86 (8)	12 (4–36)	9 (10)	0.46‡	0.22–0.97
Pain intensity rating					
0–3	266 (25)	6 (3–14)	4 (2)	1.00	
4–6	401 (38)	17 (5–69)	66 (16)	12.90‡	4.64–35.86
7–10	398 (37)	47 (10–172)	126 (32)	30.34‡	11.05–83.28
Roland Disability Score					
0–6	257 (24)	4 (2–10)	2 (1)	1.00	
7–13	253 (24)	10 (3–27)	18 (7)	9.77‡	2.24–42.54
14–18	273 (25)	30 (8–121)	61 (22)	36.69‡	8.87–151.80
19–24	285 (27)	96 (30–184)	115 (40)	86.25‡	21.03–353.74

IQR = interquartile range; OR = odds ratio; CI = confidence interval.
*OR obtained from logistic regression predicting 6-mo work disability status (on or off) from the baseline variable.
†Age was missing for 1 subject, and 7 subjects declined to provide information on their race or said they did not know their race.
‡Statistically significant ($P < 0.05$).

At 6 months, over half (56.3%) were on work disability and the median number of disability days was 174.

■ Discussion

Psychosocial variables assessed shortly after submission of a Workers' Compensation back pain disability claim added significantly to sociodemographic characteristics and measures of pain intensity and physical disability in predicting 6-month work disability. Two psychosocial variables were significant predictors in the multivariate model: recovery expectations and work fear-avoidance.

Controlling for baseline sociodemographics, pain, and disability, workers with very low expectation of working in 6 months, as compared with those with very high expectation, had over 3 times higher odds of work disability at 6 months. Recovery expectation appears to be one of the most consistent predictors of work disability across studies and disability compensation systems. Among Vermont workers with acute work-related back pain, recovery expectations predicted 3-month work status.[12] Among Canadians with work-related back or extremity pain, recovery expectations predicted work disability duration in the year after onset.[14,36] Recovery expectations also predicted return to work as well as disability duration and healthcare and wage loss compensation costs over 18 months among Canadians with work-related back disability.[13] Finally, worker prediction of inability to work was associated with significantly longer time to return to work among Norwegians with back disorders.[37]

Given this body of research, our finding that at only 18 days (median) after claim submission, almost 10% of workers in our sample reported low certainty that they would be working 6 months later is quite sobering. Research is needed to identify the reasons for low recovery expectations soon after back pain onset, and to elucidate the mechanisms by which low expectations are associated with persistent work disability. Qualitative (*e.g.*, worker interviews) as well as quantitative studies may prove informative.

This study extends previous work[16–19,38] demonstrating significant concurrent associations between fear-avoidance and disability. Even after controlling for demographics, pain, disability, and other psychosocial variables, workers with high work fear-avoidance had almost 5 times higher odds than those with very low fear-avoidance of being on work disability at 6 months. Little prior research has examined fear-avoidance as a predictor of subsequent work disability. However, in a

Table 2. Baseline Worker Psychosocial Variables and 6-Month Work Disability

		6-Month Work Disability			
Baseline Psychosocial Predictor (score range)	n (%)	Duration (days) [median (IQR)]	Disabled [n (%)]	χ^{2*}	*P*
Recovery expectations (0–10)				105.41	<0.0001
Very low (0)	51 (5)	137 (32–188)	26 (51)		
Low (1–4)	45 (4)	134 (20–188)	19 (42)		
Moderate (5–7)	149 (14)	34 (5–162)	41 (28)		
High (8–9)	144 (13)	16 (5–94)	26 (18)		
Very high (10)	629 (59)	11 (4–37)	64 (10)		
Don't know/didn't answer	50 (5)	68 (10–183)	20 (40)		
Mental Health (0–100)				87.71	<0.0001
<2 SD below population mean	160 (15)	67 (18–182)	56 (35)		
1–2 SD below population mean	217 (20)	31 (6–168)	64 (29)		
<1 SD below population mean	293 (28)	18 (4–92)	52 (18)		
At/above population mean	397 (37)	8 (3–21)	24 (6)		
Catastrophizing (0–4)				97.42	<0.0001
High (3+)	252 (24)	63 (10–183)	92 (37)		
Moderate (2–2.9)	308 (29)	27 (6–129)	63 (20)		
Low (1–1.9)	248 (23)	14 (4–46)	30 (12)		
Very low (<1)	260 (24)	7 (3–17)	11 (4)		
Blame				9.47	0.05
Work	533 (50)	19 (5–105)	113 (21)		
Self	191 (18)	10 (3–35)	22 (12)		
Someone/something else	147 (14)	19 (5–66)	24 (16)		
No one/nothing	160 (15)	20 (5–95)	31 (19)		
Don't know/didn't answer	37 (3)	10 (4–49)	6 (16)		
Relations with coworkers (0–10)				4.54	0.10
Poor–fair (0–7)	112 (11)	20 (4–116)	26 (23)		
Good (8–10)	945 (88)	15 (4–72)	166 (18)		
Don't know/didn't answer	11 (1)	66 (18–156)	4 (36)		
Work fear-avoidance (0–6)				61.60	<0.0001
High (5–6)	496 (46)	39 (7–157)	138 (28)		
Low–moderate (3–4.9)	436 (41)	11 (3–38)	54 (12)		
Very low (<3)	136 (13)	6 (3–16)	4 (3)		

IQR = interquartile range.
*χ^2 test of association between baseline measure and work disability status at 6 mo (on or off).

Table 3. Association of Baseline Worker Psychosocial Characteristics With 6-Month Work Disability: Crude (Unadjusted) Odds Ratios (95% CI) and Adjusted Odds Ratios (95% CI) From Multivariate Logistic Regression Model

Baseline Psychosocial Predictor (score range)	Crude OR	95% CI	Adjusted OR*	95% CI	*P*
Recovery expectations (0–10)					
Very low (0)	9.18‡	5.00–16.84	3.08‡	1.46–6.48	0.003
Low (1–4)	6.45‡	3.38–12.30	2.05	0.98–4.26	0.06
Moderate (5–7)	3.35‡	2.15–5.22	1.66	0.99–2.76	0.05
High (8–9)	1.95‡	1.18–3.20	1.44	0.82–2.52	0.21
Very high† (10)	1.00		1.00		
Don't know/didn't answer	5.89‡	3.16–10.96	2.93‡	1.36–6.32	0.006
Mental Health (0–100)					
<2 SD below population mean	8.37‡	4.95–14.15	1.59	0.82–3.08	0.17
1–2 SD below population mean	6.50‡	3.92–10.78	1.84	0.99–3.42	0.06
<1 SD below population mean	3.35‡	2.01–5.58	1.66	0.91–3.03	0.10
At/above population mean†	1.00		1.00		
Catastrophizing (0–4)					
High (3+)	13.02‡	6.75–25.08	1.29	0.56–2.97	0.55
Moderate (2–2.9)	5.82‡	3.00–11.31	0.98	0.44–2.17	0.97
Low (1–1.9)	3.12‡	1.52–6.36	0.83	0.37–1.89	0.67
Very low† (<1)	1.00		1.00		
Blame					
Work	1.12	0.72–1.74	1.05	0.60–1.83	0.86
Self	0.54‡	0.30–0.98	0.96	0.47–1.99	0.92
Someone/something else	0.81	0.45–1.46	0.91	0.45–1.85	0.80
No one/nothing†	1.00		1.00		
Don't know/didn't answer	0.81	0.31–2.10	1.54	0.49–4.84	0.46
Relations with coworkers (0–10)					
Poor–fair (0–7)	1.42	0.89–2.27	1.41	0.79–2.52	0.24
Good† (8–10)	1.00		1.00		
Don't know/didn't answer	2.68	0.78–9.27	1.47	0.30–7.19	0.64
Work fear-avoidance (0–6)					
High (5–6)	12.72‡	4.61–35.06	4.64‡	1.57–13.71	0.005
Low–moderate (3–4.9)	4.66‡	1.66–13.13	2.96	0.98–8.90	0.05
Very low† (<3)	1.00		1.00		

OR = odds ratio; CI = confidence interval. Wage replacement receipt was analyzed as 1 = on and 0 = off.
*Each variable in the multivariate model adjusted for age, gender, race, education, pain intensity, RDQ, and other psychosocial variables.
†Reference.
‡Statistically significant ($P < 0.05$).

small study of patients with acute work-related back pain, the FABQ work scale was a stronger predictor of work status after a 4-week physical therapy program than were measures of pain, physical disability, and mental health.[39,40] Recently published European Guidelines for Prevention in Low Back Pain (http://www.backpaineurope.org) recommended randomized controlled trials to assess the effects of information aimed at reducing fear-avoidance beliefs and speculate that demonstrated benefits of physical exercise in reduc-

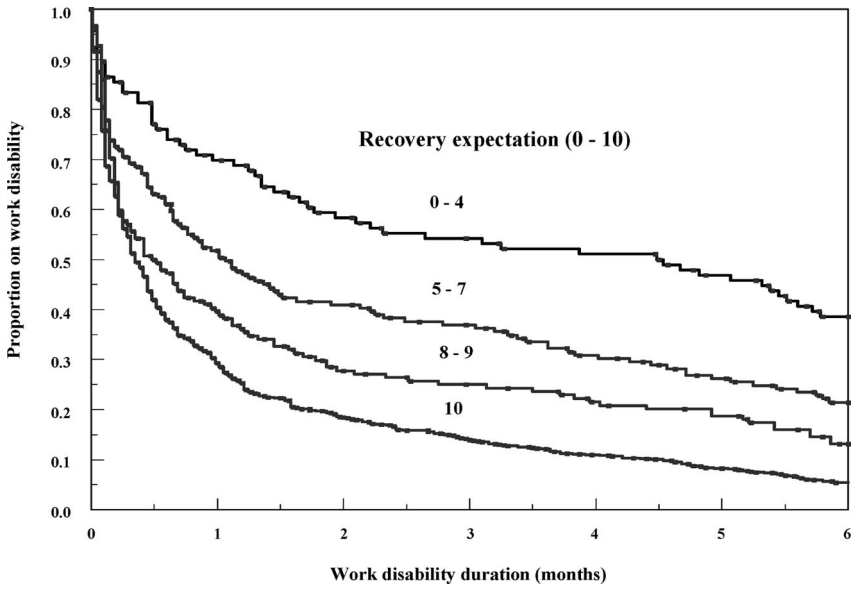

Figure 1. Survival curve showing work disability duration for different levels of recovery expectations (rating of how certain the claimant was that he/she would be working in 6 months; from 0 = "not at all" to 10 = "extremely").

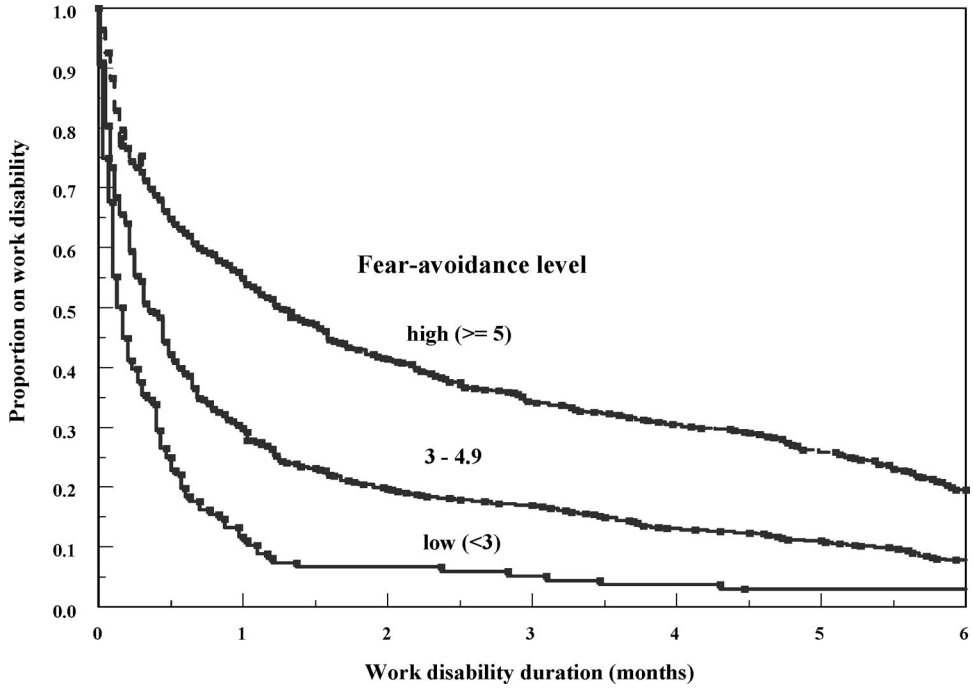

Figure 2. Survival curve showing work disability duration for different levels of work fear-avoidance (agreement with statements that work might be harmful and make pain worse; 0 = "completely disagree" to 6 = "completely agree").

ing work disability may be due to both increased activity and reduction in fear-avoidance beliefs and behaviors. Among patients with chronic back pain, reductions in fear-avoidance after exercise programs were associated with decreases in self-reported physical disability.[19,41] Promising treatments include graded exposure to feared activities, shown to decrease fear and improve functioning of patients with chronic back pain.[42–44] Treatments that target specific feared work activities, with task modifications as appropriate, warrant study.

Baseline pain and physical disability, although moderately associated with each other, each predicted work disability after controlling for the other and for demographic and psychosocial variables in our study. Previous studies similarly found pain and disability measures to predict work disability.[7,14,45] We also observed associations between demographic variables and work disability. Whites had greater disability, consistent with studies of Missouri Workers' Compensation back pain claims that found that, compared with blacks, whites had longer claim periods,[46] and among those without legal representation, whites had significantly greater temporary total disability costs and higher impairment ratings.[47] Research is needed to identify the reasons for

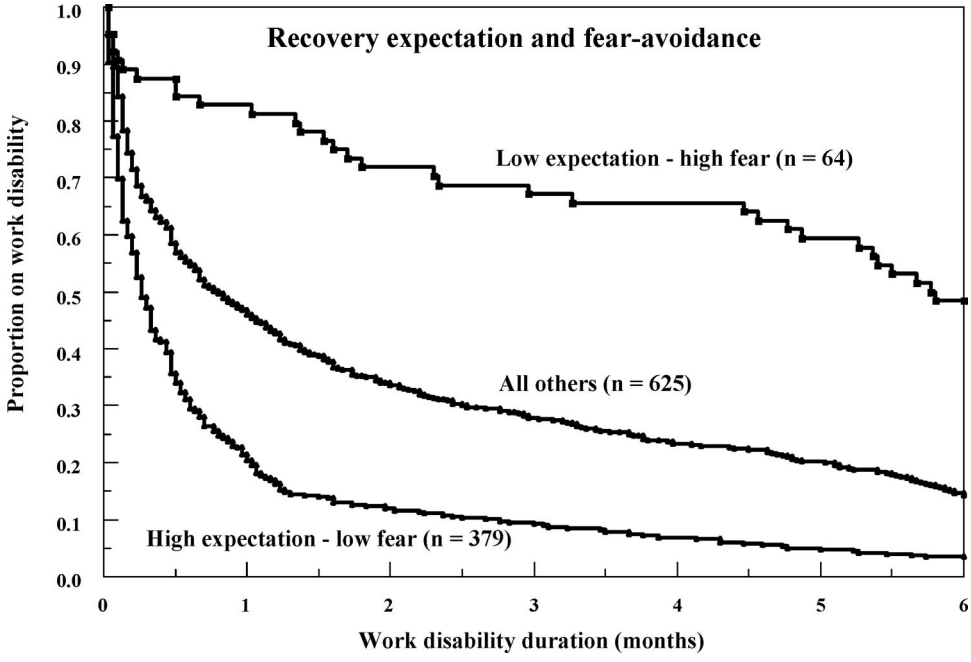

Figure 3. Survival curve showing work disability duration for workers with low recovery expectations (<5 on 0–10 scale) and high work fear-avoidance (≥5 on 0–6 scale), workers with high (10) recovery expectations and low (<5) fear-avoidance, and all others.

this racial disparity. We also found workers 45 to 54 years of age to have higher odds of work disability. It is unclear why age over 54 years did not predict work disability. Because the associations of baseline characteristics with outcomes may vary with differing intervals between baseline and outcome assessment,[48] it is possible that we may observe an effect for the oldest age group at longer follow-ups. Finally, college graduates were significantly less likely to be on work disability at 6 months. Previous smaller studies of workers with back pain[7,45,49] have failed to find an association between education and work disability but may have lacked statistical power to detect effects.

One study limitation is that we were unable to contact about 20% of potential study participants and another 20% declined to participate. Study participants and nonparticipants did not differ in age or gender, but participants had higher rates of work disability. Although our findings were consistent with those in other settings, additional studies are necessary to establish their generalizability. Second, although work disability compensation is a proxy for work status, these two variables are not identical and research is needed to determine whether their associations with baseline predictors are similar.[48] Third, we examined a select group of predictor variables; other important factors may be identified in future work. Finally, we focused only on prediction of disability at 6 months. Different findings may emerge for longer follow-ups.[50]

Strengths of the study include a large, population-based sample; prospective design; worker-reported information obtained soon after claim submission; and objective administrative measures of work disability compensation with complete follow-up data. Furthermore, because Washington State employers are required to obtain Workers' Compensation insurance through the state fund (or to self-insure), the potential sample was representative of Washington State workers with work-related back pain disability claims.

Our findings have implications for the clinical management of patients with work-related back pain and for future research. We recommend that clinicians assess such patients' pain intensity, physical disability, perceived ability to work currently and in the future, and fear of work and other activities increasing pain or causing harm. Presence of risk factors identified in this study should prompt efforts to facilitate successful return to work and other activities, close monitoring, and a stepped care approach, such that failure to improve triggers more intensive rehabilitation efforts or referral for occupational or rehabilitation medicine services. Further research is needed to develop an accurate method to identify workers with recent-onset back pain at high risk for chronic disability and a cost-effective intervention that could be implemented on a population basis. Such studies hold promise for substantially reducing the number of workers who become chronically disabled by back pain.

■ Key Points

- In a population-based sample of 1,068 Washington State workers who filed work disability claims for back pain, 18% were receiving wage replacement compensation for work disability 6 months later.
- Not adjusting for other factors, workers with lower recovery expectations, poorer SF-36v2 Mental Health scores, higher catastrophizing, and greater work fear-avoidance 18 days (median) after claim submission were significantly ($P < 0.05$) more likely to be receiving work disability wage replacement compensation at 6 months.
- Adjusting for baseline demographics, pain, physical disability, and all other psychosocial variables assessed, workers with lower recovery expectations and greater work fear avoidance at baseline were significantly ($P < 0.05$) more likely to be receiving work disability wage replacement compensation at 6 months.

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