Pain and suicidal thoughts, plans and attempts in the United States

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Abstract

Objective—This study examined the association between pain and suicidality in the general US population.

Method—Using data from the National Comorbidity Survey – Replication, we assessed relationships between four measures of pain (back and neck, headache, other non-arthritic pain, and a summary score of the count of these conditions) and 12-month suicidal thoughts, plans, and attempts using chi-square tests and logistic regression models. Multivariate logistic regression models controlled for demographic characteristics, chronic health conditions, mood, anxiety and substance use disorders.

Results—In multivariate models adjusting for concurrent psychiatric disorders and other chronic medical conditions, suicidal ideation was associated with head pain (OR 1.9, 95% CI: 1.2, 3.0) and the pain summary score (OR 1.2, 95% CI: 1.0, 1.4). Suicide attempt was also associated with head pain (OR 2.3, 95% CI: 1.2, 4.4) and pain summary score (OR 1.7, 95% CI: 1.1, 2.6). Other non-arthritic pain was associated with suicide attempts (OR4.0, 95% CI: 1.8, 9.1).

Conclusions—These findings highlight the importance of pain as a potentially independent risk factor for suicide, particularly among those with head pain or multiple forms of co-occurring pain. Individuals suffering from chronic pain may be particularly appropriate for suicide screening and intervention efforts.

Keywords

Suicide; chronic pain; headache; suicidal ideation

1. Introduction

Chronic pain is common in the United States, with over a quarter of adults reporting some form of persistent and/or significant pain [1,2]. Pain is also associated with numerous general medical conditions and poorer mental health [3-6]. Individuals with chronic pain have a higher prevalence of depression, anxiety, alcohol and drug abuse or dependence than those without pain [4,7-10].

Prior research has identified a link between pain and suicide. In a recent review, Tang and Crane [11] reported that chronic pain was associated with increased risk of suicide mortality [e.g. 12,13] and that rates of suicidal ideation and attempts were higher in individuals with pain than those without [14,15]. Edwards and colleagues [16] found that over 30% of patients seeking treatment for chronic pain reported some form of recent suicidal ideation. Similarly, over 37% of patients receiving opioid therapy from their primary care physicians reported suicidal thoughts and over 20% reported a lifetime suicide attempt [17].

Of the existing research on pain and suicidality, few studies have utilized large, non-clinical samples. Magni and colleagues [18] examined data collected from a nationally representative sample of Hispanics in the early 1980's. In Hispanics, lifetime suicidal thoughts and attempts were approximately 2-3 times more common in those with abdominal pain than those without [18]. Additionally, Breslau et al. [19] examined a random sample of young adults in a large health care organization and found that migraine headaches were significantly associated with lifetime reports of suicide attempts after accounting for co-occurring psychiatric problems.

This line of research was substantially enhanced by a recent survey that examined the association between four chronic pain conditions (migraines, back pain, arthritis or fibromyalgia) and suicidal thoughts and attempts in population-based sample of Canadians [9]. These authors found that, even after controlling for psychiatric comorbidity, the presence of any pain condition was associated with increased risk of suicidal thoughts and attempts; this relationship was particularly strong for migraines and back pain. However, these analyses did not control for other common co-occurring medical conditions so the specific impact of pain, as opposed to medical disability, on suicidality remains unknown. Also, the analyses did not examine impact of pain conditions other than migraines, back pain, arthritis, or fibromyalgia, although other types of pain are common and may also be problematic. Additionally, this effort did not examine the impact of multiple pain complaints on suicidal ideation, although patients who report one type of pain often have additional pain complaints [9,10]. Further research is needed to replicate these findings and establish the relationship between differing types of pain and suicidality in representative samples of the general US population after controlling for other co-occurring psychiatric and medical conditions.

We examined the association between four measures of pain (back and neck, headache, other/ unspecified non-arthritic pain, and a summary count of these pain conditions) in the past 12-months and 12-month suicidal thoughts, plans, and attempts in a nationally representative sample of US adults. We hypothesized that individuals with these two specific types of pain and those with other/unspecified non-arthritic pain would report greater likelihood of suicidal thoughts, plans and attempts than those who did not report each of these conditions. Additionally, we hypothesized that patients with multiple pain conditions would have greater risk of suicidal thoughts, plans and attempts than patients reporting only one pain condition. Finally, we hypothesized that 12-month pain would be associated with greater12-month suicidal thoughts, plans, and attempts even after controlling for other known risk-factors for suicidality such as psychiatric comorbidities, general medical health conditions, and demographic characteristics.

2. Methods

The National Comorbidity Survey Replication (NCS-R) is a psychiatric epidemiology survey that was carried out between February 2001 and April 2003 using a multistage clustered area probability sample of the English-speaking US household population ages 18 and over [20]. The NCS-R instrument consists of 2 parts. Part I includes a core diagnostic assessment of DSM-IV mental disorders (n=9,282). Part II, which included the questions about chronic pain, was administered to 5,692 of the 9,282 NCS-R respondents, over-sampling those who had clinically

significant psychopathology in Part I. The sample weights provided in the public release of the NCS-R dataset adjust for differential probabilities of selection, over-sampling of Part I respondents with a mental disorder and unit non-response, while also post-stratifying the sample to the 2000 Census on sociodemographic and geographic variables [21].

DSM-IV diagnoses were identified among NCS-R respondents using the World Health Organization Composite International Diagnostic Interview (CIDI) version 3.0 [22]. We examined 12-month diagnoses of mood, anxiety, and substance use disorders. Lifetime chronic health conditions were measured by a count (0, 1, 2, 3, 4 or more) of the following conditions: seasonal allergies, stroke, heart attack, heart disease, high blood pressure, asthma, lung disease, diabetes, ulcer, seizure disorders, and cancer. Additionally, multivariate models controlled for gender, age, race, educational attainment, marital status, and poverty level income.

Participants were asked several questions related to their suicidal thoughts and behaviors: "Have you ever seriously thought about committing suicide?"; "Have you ever made a plan for committing suicide?"; and, "Have you ever attempted suicide?" Respondents who endorsed the ideation item were asked the plan and attempt items; respondents endorsing any lifetime suicidal thought or behavior items were then asked if the thought or behavior had occurred in the past 12 months.

Chronic pain was measured using a series of "yes or no" questions: "Have you ever had any of the following: Arthritis or rheumatism?", "Chronic back or neck problems?", "Frequent or severe headaches?", and "Any other chronic pain?" "Other chronic pain" thus refers to pain not attributable to arthritis, back or neck pain, or headache.

In order to determine 12 month prevalence, respondents endorsing any of these items were then asked "Did you still have (the condition) or receive any treatment for (it/them) at any time during the past 12 months?" Because NCS-R did not include a follow-up question regarding the 12-month prevalence arthritis and the goal of this study was to examine the relationship between recent pain and suicidality, we excluded pain conditions secondary to arthritis from our analyses. In addition to examining the relationship between each of the three pain items and suicidality, a pain count score (0-3) was created indicating the number of different pain conditions endorsed.

Bivariate relationships between the chronic pain and suicidality items were assessed using chi-square tests and logistic regression models. Separate multivariate logistic regression models were used to assess the relationship between each type of pain and suicidality controlling for the risk factors noted above. We used the Taylor expansion method to estimate sampling errors of estimators based on complex sample designs with the SURVEYLOGISTIC and SURVEYFREQ procedures in SAS 9.1. The Institutional Review Board at the University of Michigan approved this study.

3. Results

Based on a dataset of 5,692 adults representing the adult US population, the 12-month prevalence of chronic pain is 19.0% (95% CI: 17.4, 20.5) for back or neck pain, 12.7% (95% CI: 11.5, 14.0) for headache pain, and 6.7% for other non-arthritic pain (95% CI: 5.8, 7.5). The prevalence of any of these conditions was 29.0% (95% CI: 26.8, 31.2). These conditions were consistently related to suicidality. Headache had the strongest bivariate association with suicidality. Individuals suffering from chronic headaches were 4.3 times (95% CI: 2.8, 6.7) more likely to think about suicide, 4.6 times (95% CI: 2.5, 8.4) more likely to plan suicide, and 6.5 times (95% CI: 3.5, 12.0) more likely to have attempted suicide in the past 12-months than those without chronic headaches (see Table 1).

In multivariate models, 12-month drug or alcohol use disorders, anxiety disorders, and mood disorders were consistently related to higher likelihood of 12-month suicidal ideation and attempt (see Table 2 and Table 3). The number of general medical conditions was predictive of suicide planning and attempt. Mood and anxiety disorders were consistently related to suicide plans. After accounting for these psychiatric disorders, general medical conditions, and other demographic factors, study analyses showed varying results for the relationships between particular pain conditions and different aspects of suicidality. Chronic head pain and the pain summary score are related to both suicidal ideation and suicide attempt (For head pain ORs were: 1.9, 95% CI: 1.2, 3.0 for ideation and 2.3, 95% CI: 1.2, 4.4 for attempt; for pain summary score ORs were: 1.2, 95% CI: 1.0, 1.4 for ideation and 1.7, 95% CI: 1.1, 2.6 for attempt.). Other non-arthritic pain was a significant predictor only of a suicide attempt (OR other pain: 4.0, 95% CI: 1.8, 9.1). Interestingly, in the multivariate models, back and neck pain was unrelated to any aspect of suicidality and none of the chronic pain conditions were predictive of suicide planning.

4. Discussion

According to the present findings, approximately 29% of the US population reports experiencing significant pain within the past 12-months. In unadjusted analyses, the presence of pain is significantly associated with an increased risk of suicidal ideation, planning, and attempts. Even after accounting for other physical problems and psychopathology within the past 12-months known to increase suicide risk (e.g., depression, drug or alcohol use disorders), in most cases, those with pain remain at an elevated risk for suicidal thoughts and attempts. Additionally, the presence of multiple pain conditions appears to be particularly problematic in terms of risk of 12-month suicidality. For example, individuals with two or more types of chronic pain are almost three times more likely to report a suicide attempt than those without chronic pain even after adjusting for other risk factors.

These findings are consistent with a growing body of research linking chronic pain to increased risk for suicidality [11]. The majority of this research has focused on suicidal behaviors in clinical samples of patients with chronic pain [e.g., 15,16]. A recent population-based study of the residents of Canada found that the presence of any of four common pain conditions increased the odds of suicidal thoughts and behaviors [9]. The present findings document similar levels of association (unadjusted odds ratios of 1.7 to 6.5 depending on the type of pain) between pain and suicidality within the general US population.

Because of a lack of clear control groups in much of the prior research, it has been difficult to determine the extent to which pain is a unique risk factor for suicidal thoughts and behaviors above and beyond other known risk factors. Consistent with two other large surveys [9,19], the present findings indicate that, even after controlling for depression, anxiety disorders, and substance use disorders, in most cases, pain was still associated with suicidal thoughts and attempts. Edwards and colleagues [16] have previously suggested that catastrophic thinking about pain and poor pain-related coping may mediate the link between pain and suicide rather than the link being mediated solely through concurrent psychiatric disorders. It is also possible that pain conditions lead to increased hopelessness, decreased self-efficacy to manage periods of depression, increased social isolation and loss of social support that might, in turn, increase the risk of suicidal thoughts and behaviors. In the present study, depression and other suicide-related risk factors diminish the association between pain and suicidality, but pain remains significantly associated with elevated suicidality, suggesting that psychiatric disorders may mediate part of the link between pain and suicidality but that other mediators are also likely operative. Future research that examines other factors in addition to concurrent depression and anxiety is needed to more comprehensively elucidate the specific links between pain and suicidality.

A unique contribution of the present study is that it allowed for the comparison between different types of pain and level of suicidality. Our results indicate that, after controlling for other risk factors, the strongest associations between pain and suicidality exist for headache. This is consistent with previous research reporting a particularly strong relationship between migraines and suicidality [9,14,19]. It has been known for some time that patients with migraine headaches have higher rates of depressive disorders [23] however only a few studies have documented a strong association between headaches and suicidal thoughts and behaviors, after accounting for psychiatric disorders The present findings are consistent with those of Ratcliffe et al. [9] who found that, after controlling for co-occurring psychopathology, the associations between migraines and suicidal thoughts and behaviors were stronger than those with between other chronic pain conditions and suicidality. These authors suggest that altered functioning of serotonergic systems found among patients with migraines and suicidality may underlie this association [9]. Further research is needed to better understand the mechanisms tying headaches to increased risk for suicide but the consistency of these findings in two large epidemiological samples is intriguing.

In multivariate analyses, patients who reported "other" pain did not have increased odds ratio for suicidal ideation, but they did have the highest estimated odds ratio of all pain conditions for suicide attempts. This potentially suggests that there may be more unplanned or impulsive attempts in this group of patients. The design of the present study does not allow for further examination of the types of pain affecting patients who make up this group. However, it may be that patients who have less common pain conditions differ in systematic ways from those with more common complaints. They may also have lower levels of tolerance for their condition, due to less effective treatment or a less accepted pain trajectory. Finally, the present findings indicate that the effect of pain on suicidality increases monotonically with each additional concurrent pain condition. Patients with multiple pain conditions may be at particularly high risk for suicidality and deserve close clinical attention.

Limitations

The present findings should be interpreted carefully. First, these analyses are cross-sectional and focus on the association between the report of pain and suicidality within the past 12-months. Although pain and suicidality both occurred during the same 12 month period, the extent to which pain occurred before, during, or after periods of suicidal thoughts or behaviors is unknown. We also excluded arthritis from our analyses because the NCS-R does not ask about arthritis pain in the prior 12 months. Arthritis pain may be qualitatively different from the other pain conditions, last longer, be more constant rather than episodic, and have a different relationship with psychiatric conditions, such as depression. Recent research indicates that arthritis may not be as closely related to suicidality as other chronic pain conditions [9].

Our methods for identifying pain were based on epidemiological rather than clinical assessments and may have missed other important pain conditions. Categorizing pain experiences by location of the pain did not fully address other crucial aspects of the pain experience (e.g., the duration, intensity, etc.). Also, the broader validity of the pain questions is unknown and it is likely that participants interpreted these questions differently. The items on the NCS-R do not allow for the determination of how many participants endorsed back and neck pain secondary to arthritis. Thus, it is not known: (a) how many participants failed to endorse back or neck pain because they attributed these forms of pain to arthritis or (b) how many participants with neck or back pain secondary to arthritis endorsed the neck and back pain items

However, despite these weaknesses, the overall magnitude and pattern of associations between pain and suicidality in the present sample are generally consistent with what has been reported using more comprehensive measures of these constructs in smaller, clinical samples. It's

important to note that the observed associations between pain and suicidal thoughts and behaviors were modest. Issues with the pain measures and the use of a 12-month cross-sectional design may also have weakened the strength of these associations. The psychiatric disorders used as covariates may have failed to account for individuals with sub-syndromal levels of symptoms. Also, psychiatric disorders may have been under diagnosed in patients with pain despite the use of a validated semi-structured diagnostic interview, and the use of these disorders as covariates may have underestimated the true extent to which they could better account for the relationship between pain and suicidal thoughts and behaviors. Finally, despite the large size of the overall sample, low numbers of participants with individual pain conditions and 12-month suicidality may have diminished the power to detect significant relationships. However, the general consistency of the findings adds confidence in both the direction and the potential strength of the relationship. Future research using improved measures and examining suicide risk over time is needed to fully elucidate the nature and extent of the impact of pain on risk of suicidal thoughts and behaviors.

Conclusions

To our knowledge this is the first study to examine the association between several different types of pain and 12-month suicidal ideation and attempts in a nationally representative sample of US households. The findings are consistent with a recent study among Canadians [9] and extend those results by demonstrating the unique contribution of pain to suicide risk after controlling for other forms of medical comorbidity. Pain is consistently related to higher suicidality and, in most cases, this relationship remains when analyses are adjusted for co-occurring psychiatric and chronic medical conditions. Although existing initiatives for reducing suicide risk emphasize the importance of examining several demographic, psychiatric, environmental, and physical health-related risk factors for suicide [27,28], in practice, many efforts to identify and target at-risk patients focus only on the presence of psychiatric symptoms or recent suicide attempts [e.g., 29,30,31]. The results of this study highlight the importance of attending to pain as a potentially potent and independent risk factor for suicide. Future suicide reduction efforts may want to explicitly target patients with pain as an important high risk group. The present findings indicate that those with multiple forms of co-occurring pain may be particularly appropriate for suicide screening and intervention efforts.

Acknowledgment

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Table 1

Percent endorsing and unadjusted odds ratios for 12-month suicide ideation, plan, and attempt by chronic pain condition.

Pain condition	IDEATION	PLAN	ATTEMPT
Back or neck problems			
No	2.3	0.6	0.4
Yes	3.8	1.1	1.0
$\chi^2 1$ (p-value)	8.6 (0.003)	3.4 (0.066)	6.0 (0.014)
OR (95% CI)	**1.7 (1.2,2.4)**	1.7 (1.0,3.2)	**2.6 (1.2,5.8)**
Frequent or severe headaches			
No	1.9	0.5	0.3
Yes	7.6	2.2	1.9
	51.9	30.5	43.8
$\chi^2 1$ (p-value)	(<0.001)	(<0.001)	(<0.001)
			6.5
OR (95% CI)	**4.3 (2.8,6.7)**	**4.6 (2.5,8.4)**	**(3.5,12.0)**
Other non-arthritic chronic pain			
No	2.3	0.6	0.4
Yes	5.6	2.1	2.3
	19.8	14.1	29.1
$\chi^2 1$ (p-value)	(<0.001)	(<0.001)	(<0.001)
			6.2
OR (95% CI)	**2.5 (1.6,3.8)**	**3.5 (1.7,7.1)**	**(3.0,13.0)**
# of chronic pain items endorsed (0-3)			
0	1.8	0.4	0.3
1	3.7	1.2	0.7
2	5.3	1.8	1.6
3	13.8	3.7	5.8
	54.2	29.0	71.8
$\chi^2 3$ (p-value)	(<0.001)	(<0.001)	(<0.001)
OR (95% CI) [*]	**1.9 (1.6,2.3)**	**2.1 (1.6,2.7)**	**2.8 (1.9,3.9)**

[*] odds ratio associated with pain count treated as a continuous variable

Table 2

Multivariate logistic regression models of pain and suicidality (n=5,692)

Predictor	Model 1			Model 2		
	IDEATION	PLAN	ATTEMPT	IDEATION	PLAN	ATTEMPT
Sex						
Female	1.0 (0.7,1.5)	0.7 (0.4,1.3)	0.7 (0.4,1.3)	0.9 (0.7,1.3)	0.7 (0.4,1.3)	0.6 (0.3,1.1)
Male	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Age						
18-44	1.3 (0.9,1.8)	3.3 (1.5,7.3)**	6.1 (2.3,16.1)***	1.2 (0.9,1.7)	3.1 (1.5,6.8)**	5.6 (2.1,15.0)***
45+	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Race-ethnicity						
Other	1.1 (0.7,1.5)	1.3 (0.8,2.2)	2.0 (0.9,4.5)	1.1 (0.7,1.6)	1.4 (0.8,2.2)	2.1 (0.9,4.8)
Non-Hispanic White	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Marital Status						
Previously married	1.1 (0.8,1.7)	1.6 (0.8,3.0)	1.7 (0.7,4.1)	1.2 (0.8,1.8)	1.6 (0.8,3.0)	1.8 (0.7,4.3)
Never married	2.4 (1.6,3.5)***	2.1 (0.9,5.0)	2.2 (1.0,4.6)*	2.5 (1.7,3.7)***	2.2 (0.9,5.3)	2.3 (1.1,4.7)*
Married/cohabiting	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Education						
>= High School (12+)	1.0 (0.7,1.6)	0.9 (0.3,2.3)	1.6 (0.7,3.4)	1.1 (0.7,1.7)	1.0 (0.4,2.4)	1.8 (0.9,3.9)
< High School (0-11)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Poverty Status						
Poverty	1.4 (0.9,2.1)	1.3 (0.6,2.7)	2.0 (1.0,3.8)*	1.4 (0.9,2.2)	1.3 (0.6,2.6)	2.0 (1.1,3.7)*
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Chronic Health Conditions						
# of conditions (0-4+)	1.2 (1.0,1.4)*	1.5 (1.2,1.8)***	1.5 (1.1,2.0)*	1.1 (1.0,1.3)	1.4 (1.1,1.7)***	1.4 (1.1,2.0)*
Substance Abuse						
Substance Abuse (12 mo.)	2.7 (1.6,4.8)***	2.0 (0.8,5.0)	3.3 (1.2,9.0)*	2.7 (1.6,4.8)***	1.9 (0.8,4.9)	3.4 (1.2,9.3)*
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Anxiety Disorders						
Anxiety Disorder (12 mo.)	4.1 (3.0,5.7)***	7.1 (3.1,16.5)***	5.3 (2.4,11.5)***	3.8 (2.7,5.2)***	6.7 (2.9,15.3)***	5.0 (2.2,11.0)***
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Mood Disorders						
Mood Disorder (12 mo.)	6.9 (5.0,9.5)***	12.2 (6.0,24.6)***	7.8 (3.5,17.0)***	6.2 (4.7,8.2)***	10.8 (5.5,21.4)***	7.4 (3.4,16.0)***
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Chronic Pain (type)		(Back or neck problems)			(Frequent or severe headaches)	
Chronic Pain (12 mo.)	0.9 (0.6,1.2)	0.6 (0.3,1.1)	1.2 (0.5,2.7)	1.9 (1.2,3.0)**	1.5 (0.8,2.7)	2.3 (1.2,4.4)*
All others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)

*
  $p<0.05$

**
  $p<0.01$

***
  $p<0.001$

Table 3

Multivariate logistic regression models of pain and suicidality (n=5,692)

Predictor	Model 3			Model 4		
	IDEATION	**PLAN**	**ATTEMPT**	**IDEATION**	**PLAN**	**ATTEMPT**
Sex						
Female	1.0 (0.7,1.5)	0.7 (0.4,1.3)	0.7 (0.4,1.4)	1.0 (0.7,1.4)	0.7 (0.4,1.3)	0.6 (0.3,1.2)
Male	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Age						
18-44	1.4 (1.0,1.9)	**3.8 (1.6,8.8)** **	**7.3 (2.6,20.5)** ***	1.3 (0.9,1.9)	**3.3 (1.5,7.2)** **	**6.3 (2.4,16.6)** ***
45+	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Race-ethnicity						
Other	1.1 (0.7,1.5)	1.3 (0.8,2.2)	2.2 (1.0,5.2)	1.1 (0.7,1.5)	1.3 (0.8,2.2)	2.1 (0.9,4.9)
Non-Hispanic White	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Marital Status						
Previously married	1.1 (0.7,1.6)	1.4 (0.8,2.8)	1.6 (0.6,4.3)	1.1 (0.8,1.7)	1.5 (0.8,2.9)	1.6 (0.6,4.2)
Never married	**2.4 (1.6,3.5)** ***	2.2 (0.9,5.2)	**2.2 (1.1,4.6)** *	**2.4 (1.7,3.6)** ***	2.2 (0.9,5.3)	**2.4 (1.2,5.0)** *
Married/cohabiting	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Education						
>= High School (12+)	1.1 (0.7,1.7)	1.0 (0.4,2.6)	1.7 (0.7,3.9)	1.1 (0.7,1.7)	0.9 (0.3,2.4)	1.8 (0.8,4.1)
< High School (0-11)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Poverty Status						
Poverty	1.3 (0.9,2.1)	1.2 (0.6,2.5)	**2.1 (1.1,4.1)** *	1.4 (0.9,2.1)	1.3 (0.6,2.6)	**2.0 (1.1,3.9)** *
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Chronic Health Conditions						
# of conditions (0-4+)	1.1 (1.0,1.3)	**1.4 (1.1,1.7)** ***	**1.4 (1.0,1.9)** *	1.1 (1.0,1.3)	**1.4 (1.1,1.7)** ***	**1.3 (1.0,1.8)** *
Substance Abuse						
Substance Abuse (12 mo.)	**2.6 (1.5,4.6)** ***	1.8 (0.7,4.7)	**3.7 (1.4,9.9)** **	**2.7 (1.5,4.8)** ***	1.9 (0.8,4.9)	**3.3 (1.2,9.3)** *
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Anxiety Disorders						
Anxiety Disorder (12 mo.)	**4.0 (2.9,5.6)** ***	**6.9 (3.0,16.0)** ***	**5.5 (2.4,12.3)** ***	**3.9 (2.8,5.4)** ***	**6.9 (3.0,15.8)** ***	**5.1 (2.3,11.3)** ***
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Mood Disorders						
Mood Disorder (12 mo.)	**6.5 (4.8,8.9)** ***	**10.8 (5.3,21.7)** ***	**7.0 (3.3,14.8)** ***	**6.3 (4.7,8.5)** ***	**11.1 (5.5,22.7)** ***	**6.7 (3.1,14.7)** ***
All Others	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Chronic Pain (type)	(Other non-arthritic chronic pain)			(# of chronic pain items endorsed (0-3))		
Chronic Pain (12 mo.)	1.3 (0.9,1.9)	1.5 (0.8,2.9)	**4.0 (1.8,9.1)** ***	**1.2 (1.0,1.4)** *	1.0 (0.8,1.4)	**1.7 (1.1,2.6)** *
All others	1.0 (--)	1.0 (--)	1.0 (--)			

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  p<0.05

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  p<0.01

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  p<0.001