# Depressive Symptoms and Risk of Occupational and Non-occupational Injury in the US Working Population

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#### Abstract

The purpose of this study was to examine the association between depressive symptoms and the subsequent incidence of injury by its work-relatedness in the US working population. This study an átusel- Seokh, A o t 704-701 Mi.jThstnctjThtihtr 7hi the s d OHd O O M H





depression on their overall health as 'very serious.' Depression severity was determined using the number of missed workdays due to depression, the number of treatment episodes and the duration of depression. A binary indicator of health care utilization was constructed related to depression using information on whether the person reported any depression-related medication and any depression-related ambulatory visits to dinics, outpatient departments or emergency rooms.

The main outcome variable in this study was incidents of injury in rounds 3 to 5; information retrieved from medical condition files in which individuals responded that "the medical condition they experienced during the four or five months since the previous interview" was due to an accident or injury. If the injury happened while the person was at work, it was identified as an occupational injury at the specific round. ICD-9 codes of injury condition were used to categorize the injured body region and type of injury based on the Barell classification matrix [22]. Injury severity was calculated using the Abbreviated Injury Scale (AIS) with ICD-9 codes and the self-perceived overall health impact of the injury [23]. Only the first injury

Black		3,770(12.7)	148(10.8)			
Education*						
Less than high school		6,914(23.2)	340(24.9)			
High school graduate		8,828(29.7)	410(30.0)			
Some college		6,764(22.7)	347(25.4)			
College or more		7,266(24.4)	269(19.7)			
Marital status*						
Married		18,014(60.5)	655(48.0)			
Never married		7,689(25.8)	403(29.5)			
Divorced, widowed, separated		4,069(13.7)	308(22.5)			
Family income *						
Low (<125% FPL)		3,947(13.3)	273(20.0)			
Middle (125-399% FPL)		14,293(48.0)	660(48.3)			
High ( 400% FPL )		11,532(38.7)	433(31.7)			
No usual source of health care*		8,780(29.5)	335(24.5)			
Health insurance coverage*						
Any private		22,674(75.2)	938(68.7)			
Public only		1,678(5.6)	134(9.8)			
Uninsured		5,720(19.2)	294(22.5)			
Physical activity <sup>§*</sup>		17,092(57.4)	679(49.7)			
Current smoking <sup>  *</sup>		5,921(19.9)	452(33.1)			
Alcohol or substance abuse problem		33(0.1)	5(0.4)			
Obese (BMI 30)*		7,819(26.3)	436(31.9)			
Activity limitation *		357(1.2)	72(5.3)			
Cognitive function limitation <sup>¶</sup>		222(0.8)	59(4.3)			
Co-morbidity *		1,024(3.4)	85(6.2)			
Self-rated physical health: Poor*		220(0.7)	68(5.0)			
Self-rated mental health: Poor*		670(2.3)	343(25.1)			
Occupational group*						
White collar		16,161(54.3)	767(56.2)			
Service		5,120(17.2)	288(21.1)			
Farm		324(1.1)	13(1.0)			
Blue collar		7,722(25.9)	283(20.7)			
Job tenure <sup>*</sup>						
Less than 1 year		10,357(34.8)	637(46.6)			
More than 5 years		12,451(41.8)	429(31.4)			

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Overtime work	2,673(9.0)	108(8.0)				
Work status: Part-time*	8,504(28.6)	520(38.1)				
Non-occupational injury	2,713(9.1)	179(13.1)				
Occupational injury	1,355(4.6)	85(6.2)				
Person-round	119,088	5,464				
*p<0.05.						
<sup>a</sup> Numbers may not sum to total due to missing information						
Family income: family income as percent of federal poverty line (FPL)						

§Physical activity: moderate or vigorous physical activity 3 times per week

<sup>II</sup>Current smoker: has smoked at least 100 cigarettes in their lifetime and currently smoke every day or some days.

Activity limitation was defined as having any activity limitation at work/home due to the medical condition.

Cognitive function impairment was defined as experiencing confusion or memory loss, having problems making decision, or requiring supervision for personal safety.

Charlson co-morbidity index 1.

Table 1: Demographic characteristics of the 31,138 employed MEPS respondents, aged 18-64 at baseline and the incidence rate of injuries in follow-up time

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The distribution of injury characteristics between workers who were and were not depressed is depicted in Table 2 Individuals with depressive symptoms were more likely to have had an injury of any kind. Falling was the most common cause of injuries among workers with and without depressive symptoms. Sport-related accidents were a common cause of injury (9.4%) among those who did not have depressive symptoms. The diagnosis of injury among workers with

and without depression differed slightly. Musculoskeletal disorders were most common for workers with and without depressive symptoms, but depressed workers experienced a higher proportion of fractures or dislocations, crushing amputation, poisoning, and toxic or late effects. The injuries of depressive workers tended to be more severe and require longer treatment than the injuries of those without depressive symptoms. However, there were no significant differences in the number of lost workdays and the number of injury treatment episodes between workers with and without depressive symptoms.

Selected characteristics	No depressive symptom (N=3,898)	Depressive symptoms (N=248)			
Cause of injury*					
Fall	867(22.2)	79(31.8)			
Motor vehicle related	752(19.3)	43(17.3)			
Sports related	366(9.4)	14(5.7)			
Other	1913(49.1)	112(45.2)			
Diagnosis of injury					
Superficial wound, contusion	348(8.9)	18(7.3)			
MSDS (arthropathy, back, sprain/strain)	1,473(37.8)	87(35.1)			
Fracture/dislocation	488(12.5)	42(16.9)			
Crushing, amputation, poisoning, toxic, late effect	183(4.7)	13(12.5)			
Open wound/internal organ injury	521(13.4)	31(12.5)			
Traumatic complication, NEC	530(13.6)	35(14.1)			
Other					
ISS score (mean, SD)	7.6(6.1)	9.9(7.9)			
Injury severity (ISS)*					

Minor (ISS 1~8)	209(51.5)	98(39.5)			
Moderate (ISS 9~15)	1217(31.2)	78(31.5)			
Severe (ISS 16)	672(17.2)	72(29.0)			
Injury treatment duration*					
More than one round	555(14.2)	52(21.0)			
Lost work days					
More than one day	1515(38.9)	95(38.3)			
No. injury episodes					
Multiple	1167(29.9)	77(31.1)			
*p<0.05					

Table 2:

Characteristics

the 95% confidence intervals for the non-significant associations were relatively wide; therefore, caution should be used in interpreting the non-significant results.

Even considering such limitations, this study differs from previous research in several ways: longitudinal design, a nationally representative sample of the working population, a focus on the differential impact of occupational injury, an ability both to differentiate pre-existing depression and PTSD from post-injury

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