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Depressive Symptoms and Sleepiness among Latino Farmworkers in Eastern North Carolina

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Abstract

Depression and sleepiness are both risk factors for occupational accidents and unintentional injury. Relatively little is known about the experiences of these risk factors in the immigrant Latino farmworker population. This analysis uses prospective panel data from a sample of Latino farmworkers in Eastern North Carolina that was collected at monthly intervals during the 2008 agricultural season to: describe depressive symptoms and daytime sleepiness among immigrant Latino farmworkers across the agricultural season; delineate associations of depressive symptoms with sleepiness across time; and determine whether depressive symptoms precede sleepiness, or if sleepiness precedes depressive symptoms. Results indicated that 45% of farmworkers experienced elevated depressive symptoms across the season, whereas 20% experienced elevated sleepiness. Elevated depressive symptoms were more common among farmworkers living in barracks, and less common among those living in trailers. Sleepiness was more common among women than men. There was no evidence that depressive symptoms contributed to sleepiness, or that sleepiness contributed to depressive symptoms. The pattern of results suggests that a substantial proportion of Latino farmworkers experience levels of depressive symptoms or sleepiness that places them at risk for occupational accident or unintentional injury. The results also suggest that depressive symptoms and sleepiness do not cause each; rather, the association of depressive symptoms with sleepiness hints at the possibility of a common physiologic mechanism such as circadian disruption.

Keywords

depression; sleepiness; farmworkers; immigrants

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Introduction

Sleepiness and depression are both risk factors for workplace accidents and worker injury. Major headline incidents like the 1986 Chernobyl nuclear power plant accident and the 1989 Exxon Valdez oil spill have been attributed partially to sleepiness and subsequent error, because they occurred at times of peak sleepiness.[1] greater risk of work-related injury[2] greater risk of work-related injury[3] and disability[4] and poorer occupational safety behavior[5] and poorer occupational safety behavior.[5]

Elevated depressive symptoms are also a risk factor for occupational accidents and for workplace injuries. Drawing on data from a hospital registry, Wan and colleagues [6] reported that poor mental health increased the risk for unintentional injury. Likewise, evidence from cohort studies suggests that injury risk is higher among individuals characterized as "depressed" relative to the non-depressed. More relevant to occupational health, evidence suggests that the risk of work-related injury is elevated among depressed individuals in manufacturing[7] and agriculture. [8]

Unfortunately, understanding of these accident and injury risk factors in agriculture in general, as well as for immigrant Latino farmworkers in particular, remains underdeveloped. A growing body of research describes the mental health of immigrant farmworkers as poor,[9] but studies of sleepiness in this occupational group are missing. Indeed, in reviewing the National Institute for Occupational Safety and Health's portfolio of research, the National Research Council and the Institute of Medicine advised sleep research be given greater attention.[10]

Although the absence of sleep research in agricultural health is problematic in itself, in part because of its potential implications for occupational health, it is also problematic because researchers have long recognized the interrelationship between daytime sleepiness and depression.[11;12] It is possible that sleepiness and depression are reciprocally related such that the biological, affective and behavioral sequelae of depression compromises restorative sleep and contributes to subsequent sleepiness.[13;14] Sleepiness, in turn, makes individuals more vulnerable to the stresses of everyday life, which may exacerbate depressive symptoms and contribute to the onset of major depressive disorder.[15] Part of this vulnerability is attributed to changes in basic neurochemistry that alters the way individuals interpret and respond to negative circumstances in their daily lives.[16] Despite its plausibility, there are few data to corroborate the notion that depressive symptoms and sleepiness are reciprocally related. The absence of data on the potential reciprocal association of depression and sleepiness has implications for treatment[13;17] and for understanding the role that each plays in occupational safety and health. Additional motivation for studying the putative links between depression and daytime sleepiness is the general absence of sleep research with Latino samples.[18;17]

The goal of this study is to develop a better understanding of the interrelationship among depressive symptoms and daytime sleepiness among immigrant Latino farmworkers. To achieve this goal we use prospective panel data collected at monthly intervals to accomplish three specific aims. This paper will: 1) describe depressive symptoms and daytime sleepiness among immigrant Latino farmworkers across the agricultural season; 2) delineate associations of depressive symptoms with sleepiness across time; and 3) determine whether depressive symptoms precede sleepiness, or if sleepiness precedes depressive symptoms.

Materials & Methods

The data used in this analysis were collected in 2008 as a part of an ongoing community-based participatory research (CBPR) study conducted in eastern North Carolina. Community

partners included North Carolina Farmworkers Project based in Benson, Green County Health Care, Inc., operating out of Snow Hill, and Columbus County Community Health Center located in Whiteville, North Carolina. Data collection focused on 11 eastern North Carolina counties that have large migrant and seasonal farmworker populations and are served by the community partner agencies.

Sampling & Recruitment

Participants were selected from a sample of 287 farmworkers who participated in a 2007 study of pesticide exposure. The sampling and data collection procedures used with this original cohort have been described elsewhere[19] as have findings relevant to the occupational health of these workers.[20–23] In a subsequent data collection project, farmworker camps from which data collection occurred in 2007 were visited in random order in the summer of 2008. All farmworkers present in these camps who enrolled in the 2007 study were asked to participate in the 2008 study. After 29 camps had been visited, the target sample of 120 participants had been exceeded (N=122); and recruitment stopped.

Data Collection

Data were collected from June through September, 2008, by three teams of trained data collectors. Data collection teams included both male and female interviewers who were fluent Spanish speakers. Participants completed an interviewer-administered questionnaire, which was used to overcome challenges associated with low literacy among farmworkers. The questionnaire, which was administered in Spanish, contained 57 items and took about 15 minutes to complete. The questionnaire was developed in English and translated by an experienced translator who was a native Spanish speaker familiar with Mexican Spanish. Validated Spanish language versions of scales were used where available. The translated questionnaire was reviewed by four fluent Spanish speakers familiar with farm work, and then pretested with 17 Spanish-speaking farmworkers and revised as needed. The questionnaire included items assessing basic personal characteristics (e.g., age, education, years in agriculture); health risk behavior (e.g., alcohol and drug use, sexual behavior and condom use), as well as items assessing daytime sleepiness and depressive symptoms. A federally authorized Institutional Review Board (FWA #00001435) approved all sampling, recruitment, and data collection procedures. Signed informed consent was obtained from all participants.

Measures

Daytime sleepiness was assessed using the Epworth Sleepiness Scale (ESS).[24] The ESS is an 8-item instrument that asks participants their relative likelihood of dozing off or falling asleep in different settings involving varying levels of stimulation (e.g., sitting and reading, talking with someone, sitting at a traffic light). Participants chose a response ranging from “would never doze” to slight, moderate, and high “chance of dozing,” which takes values of zero to three, respectively. Responses are summed with higher values indicating greater sleepiness, and the sum was set to missing if less than 5 questions were answered.[24] The summary score can also be dichotomized such that values of 10 or higher are coded as 1, indicative of excessive daytime sleepiness, and all other values are coded zero.

Depressive symptoms was assessed using a 10-item version of the Center for Epidemiologic Studies-Depression (CES-D) Scale originally developed by Kohout and colleagues.[25] Taken from the original CES-D,[26] the items ask about the frequency of positive (e.g., happy, enjoyed life) and negative (e.g., sad, depressed) emotions in the previous week as well as items about interpersonal relations (e.g., people were unfriendly) and somatic symptoms (e.g., I could not get “going”). Participants chose a response ranging from zero (“rarely or none of the time”) to 3 (“most or all of the time [5 – 7 days]”), and items were summed with

higher values indicating greater depressive symptomatology. The sum of depressive symptoms was set to missing if any question was missing a valid response. Grzywacz and colleagues [27] found the ten-items used by Kohout and colleagues captured the content of the full CES-D across multiple samples of immigrant Latinos obtained from different regions of the country, and subsequent evaluation suggests no discernable variation in immigrant farmworkers' ability to interpret the short CES-D items and articulate a response.[28] Three depressive symptoms variables were created from the short CES-D. First, a simple sum score was created to describe depressive symptoms in the sample. Next, a dichotomous "caseness" variable was created such that individuals with values of 10 or higher were classified as having elevated depressive symptoms. Finally, the short CES-D contains a difficulty sleeping item (i.e., "my sleep was restless/Dormí mal") which could confound the primary association of interest in this study (i.e., depressive symptoms-sleepiness); consequently, we created a third variable reflecting the sum of nine depressive symptoms, not including the difficulty sleeping item.

Personal characteristics such as gender, age, educational attainment, worker type (i.e., seasonal versus migrant), whether the participant came to the US with an H2A visa, and current housing type (i.e., house, barracks, or trailer) were assessed.

Analysis

Descriptive statistics for the depression and sleepiness variables were examined for farmworker characteristics of interest. The average and standard deviation of the symptoms were calculated across all three time points and the frequencies and percentages of caseness was counted as the number of participants that met caseness at least once across all time points. Pearson correlations were calculated to further understand the bivariate association between depressive symptoms and daytime sleepiness at each time point. Intraclass correlations were calculated to examine clustering of observations in both depressive symptoms and daytime sleepiness among individuals recruited from the same camp and among individuals over time.

Finally, a linear mixed effects model (LMM) approach was used to examine depressive symptoms and sleepiness as outcomes. A LMM approach is valuable because it can accommodate the nested structure of the data as well as handle the unbalanced data across time resulting from incomplete follow-up of study participants.[29] The covariates included in the depressive symptoms model were the previous time point's depressive symptoms variable, current time point sleepiness, previous time point sleepiness, time point, and housing type. The covariates for the daytime sleepiness variable were similar as they included the previous time point's sleepiness variable, current time point depression, previous time point depression, and gender. Standardized regression coefficients and the associated SEs were reported. These data analyses were performed with SAS 9.2 (SAS Institute, Cary, NC).

Results

The sample consisted primarily of men (n=109, 89.3%), most of whom were classified as migrant (Table 1). Approximately 40% of the sample were 40 years of age or older, another 35% were 30–39 years of age, and the remainder were between 18 and 29. Half of the sample (n=62) had six years or less of formal education, while another 40% reported having between 7 and 9 years of education. Three-fourths (76%) of the sample reported having a temporary work (H2a) visa, and most participants lived in either a trailer or a house, although approximately 20% lived in barracks.

Nearly one-half (45%) of the sample reported significant depressive symptoms at one point across the agricultural season, and about 20% reported high levels of daytime sleepiness during the agricultural season (Table 1). Both elevated depressive symptoms and daytime sleepiness fall across the agricultural season: each is most common in June and lowest in August, but sleepiness declined more precipitously from 12% in June to 4% in August (66% decline), whereas depression declined from 22% to 17% (23% decline) in the same period. Similarly, the co-occurrence of elevated depressive symptoms and excessive sleepiness declined across the season: the prevalence of comorbidity was 5.3% (n = 6), 4.2% (n=5), and 3.4% (n=4) in June, July and August, respectively.

There were few differences by personal characteristics in rates of elevated depressive symptoms and daytime sleepiness. Elevated depressive symptoms differed by housing type; although individuals in barracks only accounted for 21% of the sample, they accounted for nearly 33% of the cases of elevated depressive symptoms. By contrast, individuals living in trailers accounted for 42% of the sample, but less than 30% of the cases of elevated depressive symptoms. Trend ($p = 0.09$) evidence suggests that migrant workers may be at greater risk for elevated depressive symptoms than seasonal farm workers. Rates of elevated sleepiness differed by gender: although women only accounted for 11% of the sample, they accounted for 29% of the cases of elevated sleepiness. Trend ($p = 0.08$) evidence suggests that elevated sleepiness may be more common among farmworkers without an H2A visa relative to those with an H2A visa.

Depressive symptoms in June were significantly correlated with depressive symptoms in July but not August, while sleepiness in June was significantly correlated with subsequent sleepiness in both July and August. Consistent with these bivariate associations, the within-person intraclass correlation coefficient (ICC) across all three time-periods was 0.22 for depressive symptoms, and 0.32 for sleepiness. The within-camp correlation of depressive symptoms was (ICC = 0.20), and the within-camp correlation for sleepiness (ICC = 0.14).

Depressive symptoms and daytime sleepiness are modestly correlated over time (Table 2). Preliminary analyses (not shown) using data pooled across all three observation periods indicated significant bivariate associations of excessive daytime sleepiness (i.e., ESS scores ≥ 10) with indicators of depressive symptoms from each content domain of the CES-D (i.e., negative affect, positive affect, interpersonal relations, and somatic symptoms) thereby supporting the use of a summary score of depressive symptoms. The within time period correlation was highest in June ($r = 0.36$), and of comparable magnitude in July and August ($r = 0.21$ and 0.21, respectively). Finally, the bivariate evidence suggests that depressive symptoms are not significantly correlated with subsequent levels of sleepiness, but that sleepiness in June is significantly correlated with depressive symptoms in August ($r = 0.25$, $p < .01$).

Results from multivariate models suggest that depressive symptoms and sleepiness are associated (Table 3). Results indicated that the depressive symptoms at the previous visit did not predict depressive symptoms at the current visit. However, a higher level of current sleepiness was associated with increased depressive symptoms. Sleepiness at the previous visit was not significantly associated with current depressive symptoms. Turning to current sleepiness, a significant lagged effect was found such that previous sleepiness predicted current sleepiness. Greater depressive symptoms currently were significantly associated with greater sleepiness, but there was no evidence that previous depressive symptoms predicted current sleepiness.

Discussion

Elevated sleepiness and depressive symptoms are both viewed as risk factors for work-related accidents and injury, yet little is known about these risk factors in agriculture in general, and among farmworkers in particular. Especially important is previous research of a possible reciprocal association between elevated sleepiness and depressive symptoms. Understanding the relative dependence of these occupational risk factors has implications for health care delivery (appropriate identification and treatment of pathology; see[13 and30]), as well as for creating and targeting occupational health interventions. The goal of this paper was to develop a better understanding of the interrelationship among depressive symptoms and daytime sleepiness among immigrant Latino farmworkers.

The results of this study provide one of the first descriptions of sleepiness in the Latino population. Very little sleep-related research has been done with immigrant Latino samples despite the substantial growth in the immigrant Latino population.[18] Sleep research with Latino samples is especially important given the connection between sleep and occupational health outcomes,[2;3] and the fact immigrant Latinos are over-represented in the most dangerous occupational sectors including agriculture.[31] Our results suggest that 20% of immigrant Latino farmworkers reported elevated sleepiness at some point during the agricultural season that could place them at risk for injury. The only comparative data that could be located was a prevalence of 15.5% reported by Baron et al.,[32] using data from older Latinos (M=65.7 years) in the Multi Ethnic Study of Athlerosclerosis. This single point of comparison suggests that sleepiness may be elevated among Latino farmworkers. Possible elevated sleepiness among farmworkers could be the consequence of the temporal structure of farmwork; that is, the absolute number of work hours and inadequate time for physical recovery and rest, and the timing of those work hours such as when work activities are shifted to the morning and evening/twilight hours to accommodate summer heat or particular crop needs. Both of these have the potential to contribute to disrupted sleep and subsequent daytime sleepiness, and therefore warrant attention in occupational health research and intervention.

The description of elevated depressive symptoms and sleepiness among Latino farmworkers is also a contribution to the literature. Although there is a growing literature on Latino mental health,[9] this is the first study to document elevated depressive symptoms among farmworkers living in barracks. Perhaps the relative crowding in these dormitory style dwellings, or the close living quarters with relatively unknown individuals contributes to poorer mental health compared to those in other types of dwellings that are shared with more well-known individuals. This is an important area for future research. Elevated sleepiness was more common among women than men, and potentially among those who did not have a temporary work (H2A) visa. The observed gender difference in sleepiness is consistent with observations that women report higher feelings of sleepiness whereas men report more sleepy behavior.[30] The differential rate of elevated sleepiness by work visa status may be attributed to generally poorer housing conditions in non-H2a camps,[33] which may compromise workers' ability to obtain restorative sleep.

The prevalence of co-occurring elevated sleepiness and significant depressive symptoms was relatively infrequent. Our estimates suggest that 3 to 5% of Latino farmworkers experienced both elevated sleepiness (i.e., ESS score ≥ 10) and elevated depressive symptoms (i.e., CES-D score ≥ 10). It is unclear whether co-occurring excessive sleepiness and depressive symptoms is elevated in our sample because good comparative data are not available. Nevertheless, the rate of co-occurrence is non-negligible; and it requires further research to determine its personal and occupational health-related implications.

The most meaningful contribution of the study is evidence indicating the absence of an iterative reciprocal association between depressive symptoms and sleepiness. Results from the lagged analyses yielded no evidence that depressive symptoms predicted subsequent sleepiness or that sleepiness preceded depressive symptoms suggesting no causal relationship between sleepiness and depressive symptoms among Latino farmworkers. These results are inconsistent with previous research suggesting that sleepiness contributes to major depression over time,[15] and that unmanaged or poorly managed depression could produce subsequent experiences of sleepiness.[13] However, our results are entirely consistent with the broader literature indicating a robust correlation between sleepiness and depression.[34] Our results add to this literature by documenting the contemporaneous association of sleepiness and depressive symptoms in a sample of immigrant Latinos, a population with limited sleep-related research.[18]

The absence of a temporal association between depressive symptoms and sleepiness is informative. Theoretically, the fact that earlier depression is unrelated to subsequent sleepiness and vice versa suggests that depression and sleepiness and not causally related to each other, at least in the short term. Rather, the observed robust intercorrelation is likely due to other causes. Chellappa and colleagues [12] and others[14;35] suggest that disruptions to circadian and homeostatic processes involving basic neurochemistry may account for the interrelationship of depression and sleepiness. This possibility is compelling because it is consistent with our results indicating that rates of elevated depressive symptoms and excessive sleepiness are greatest at the beginning of the agricultural season; the period following migration when circadian and homeostatic processes are most likely to be disrupted from physical relocation and accompanying changes in a myriad of circumstances ranging for daily work habits and routines, to changes in eating behavior and climate, to changes in housing or sleeping accommodation and social connections. This is a fertile area for research, and farmworkers provide an excellent model for studying these processes.

The significant bivariate association of sleepiness in June with depressive symptoms in August (see Table 2) is noteworthy. The association is noteworthy because it is statistically robust despite the small sample size, and because it is consistent with evidence from previous research suggesting that sleepiness may accentuate negative emotions[16] and potentially contribute to major depressive disorder.[15] Although this single association should not be over-interpreted, it is compelling because the absence of a sleepiness-depression association from one month the next (evidenced in both bivariate and multivariate analyses) suggests a potential protracted latency between sleepiness, presumably caused by disrupted sleep, and the onset of elevated depressive symptoms. This protracted latency is consistent with Walker's and Van der Helm's[16] suggestion that disordered sleep and subsequent sleepiness alters basic neurochemistry making individuals more likely to interpret environmental stimuli negatively. When combined with evidence that stressors like the pace of work escalate in the later portion of the agricultural season (i.e., August-September),[9] the bivariate association hints at the possibility of a potential causal association that is worthy of more deliberate study.

The results of this study need to be considered in light of its limitations. The generalizability of the study findings is unclear, both because the sample was not designed to represent any particular group of immigrant Latino farmworkers, but also because the context of agricultural work is different in the Southeast relative to other regions of the country.[36] Another limitation is the fact that this study did not explore factors like stress exposure, alcohol use or anxiety that could assist in interpreting levels of sleepiness in this sample and the possible intercorrelation of sleepiness with depression. Third, it is possible that the instruments used to assess key concepts may not be valid in immigrant Latino farmworkers. Although less concerning for the CES-D because it has undergone previous evaluation,[27; 9]

the Epworth Sleepiness Scale has not been fielded in this population before. As researchers respond to Loredo and colleagues'[18] call for more sleep-related research among Latinos, an important first step will be determining the cross-cultural equivalence of common instruments used in sleep research. Finally, this study was unable to connect depressive symptoms and sleepiness with occupational health outcomes.

Limitations notwithstanding, this study makes several contributions. First, it marks one of the first forays into sleep research, a domain of agricultural health research highlighted by the National Research Council and the Institute of Medicine.[10] Next, the results document that a substantial proportion of immigrant Latino farmworkers in eastern North Carolina may be at elevated risk for poor occupational health outcomes because of excessive sleepiness and depressive symptoms. Moreover, this elevated risk is most acute during early phases of the agricultural season and for specific groups of farmworkers (i.e., those living in barracks and potentially those without a work visa). Finally, our results help understand the interrelationship between sleepiness and depression. All of these results have the potential of improving the health of agricultural workers, either through the creation and targeting of outreach interventions if warranted by future research, or through the creation of therapeutic strategies for minimizing or treating Latino farmworkers' experiences of elevated depressive symptoms or sleepiness.

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Table 1

Personal characteristics of farmworkers in Eastern North Carolina, by depression and daytime sleepiness

	Sample		Depression		Sleepiness	
			Symptoms§	Caseness	Symptoms	Caseness
	N	%	M(SD)	N (%)	M(SD)	N (%)
Sample*	122	100	5.9 (2.8)	55 (45.1)	5.0 (2.5)	24 (19.7)
Time						
June	114	32.3	6.8 (4.3)	25 (37.3)	5.3 (3.7)	14 (45.2)
July	120	34.0	6.2 (3.6)	22 (32.8)	5.3 (3.0)	12 (38.7)
August	119	33.7	4.8 (4.1)	20 (29.9)	4.5 (3.1)	5 (16.1)
Sex						
Male	109	89.3	5.8 (2.8)	47 (85.5)	4.7 (2.4)	17 (70.8)
Female	13	10.7	7.1 (2.8)	8 (14.5)	7.0 (2.6)	7 (29.2)‡
Age						
18 to 24 years	10	8.2	5.3 (2.8)	3 (5.5)	5.1 (1.8)	1 (4.2)
25 to 29 years	19	15.6	6.3 (2.8)	9 (16.4)	5.3 (2.2)	6 (25.0)
30 to 39 years	43	35.2	6.6 (2.4)	25 (45.5)	5.2 (2.6)	10 (41.7)
40+ years	50	41.0	5.4 (3.1)	18 (32.7)	4.7 (2.6)	7 (29.2)
Educational attainment						
0 to 6 years	62	50.8	6.0 (2.9)	27 (49.1)	4.7 (2.8)	13 (54.2)
7 to 9 years	49	40.2	6.0 (2.6)	23 (41.8)	5.5 (2.0)	10 (41.7)
10+ years	11	9.0	5.1 (3.8)	5 (9.1)	4.1 (2.1)	1 (4.2)
Worker type						
Migrant	109	89.3	6.1 (2.9)	52 (94.5)†	5.0 (2.5)	21 (87.5)
Seasonal	13	10.7	4.4 (2.2)	3 (5.5)	4.4 (2.6)	3 (12.5)
H2A Visa						
No	29	23.8	6.6 (2.6)	15 (27.3)	5.0 (3.0)	9 (37.5)†
Yes	93	76.2	5.7 (2.9)	40 (72.7)	5.0 (2.3)	15 (62.5)
Housing Type						
House	44	36.1	6.2 (3.1)	21 (38.2)	5.1 (2.2)	7 (29.2)
Barracks	26	21.3	7.4 (2.6)	18 (32.7)‡	5.1 (2.2)	6 (25.0)

	Sample		Depression		Sleepiness	
			Symptoms§	Caseness	Symptoms	Caseness
	N	%	M(SD)	N (%)	M(SD)	N (%)
Trailer	52	42.6	5.0 (2.4)	16 (29.1)	4.8 (2.9)	11 (45.8)

§Depressive symptoms is the sum of participants' responses to the short CES-D (Grzywacz et al., 2006).

*for all variables, except time, the depression and sleepiness M(SD) is the average of all time points and the N (%) are those with at least one "caseness" across all time points.

**1 missing value

‡*p*-value of chi-square test < .01;

†*p*-value of chi-square test < .10

Table 2

Inter-correlation of depressive symptoms with daytime sleepiness over time.

	(1)	(2)	(3)	(4)	(5)	(6)
Depression, June (1)	1.00					
Sleepiness, June (2)	0.36***	1.00				
Depression, July (3)	0.28**	0.14	1.00			
Sleepiness, July (4)	0.16	0.42***	0.21*	1.00		
Depression, August (5)	0.13	0.25**	0.21*	0.09	1.00	
Sleepiness, August (6)	0.18	0.25**	0.07	0.32***	0.21*	1.00

* $p < 0.05$,

** $p < .01$,

*** $p < .001$ (two-tailed)

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Table 3

Lagged associations of depressive symptoms and daytime sleepiness over time.

	Depressive symptoms		Sleepiness	
	b	**SE**	**b**	**SE**
Depression	n/a		0.20	0.05***
Depressive symptoms, previous	0.12	0.07†	−0.001	0.05
Sleepiness	0.37	0.08***	n/a	
Sleepiness, previous	−0.03	0.08	0.23	0.06***
Gender				
Female	n/a		0.99	0.72
Housing Type				
House	0.22	0.78	n/a	
Barracks	1.57	0.95†	n/a	
Trailer	*Ref*	*Ref*	n/a	

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$ (two-tailed)

Models control for the effects of time period.