Occupations associated with treatment seeking and biopsychosocial functioning at a tertiary orofacial pain clinic:

A cross-sectional study

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Abstract

Background.—The aim of this study was to describe whether certain occupations were over- or underrepresented and to compare biopsychosocial functioning by types of occupation and employment status among adults seeking orofacial pain (OFP) treatment.

Methods.—The authors extracted self-reported employment status, occupation, and biopsychosocial functioning from initial appointment records of 444 treatment-seeking adults at a university-affiliated OFP clinic. The authors categorized occupations in major and minor occupational groups according to the 2018 Standard Occupational Classification. The authors compared proportions between their sample and the corresponding state level, using a ratio and 95% CI (1.00 = equal representation in sample vs state, <1.00 = underrepresentation, > 1.00 = overrepresentation).

Results.—Among major occupational categories, health care practitioners and technical occupations were the most common in the study sample (22.4%) and the second most overrepresented (ratio, 3.20; 95% CI, 2.59 to 3.97) after the arts, design, entertainment, sports, and media occupations (ratio, 3.95; 95% CI, 2.15 to 7.26). Among minor occupational categories, teachers and instructors were the most common in the study sample (11.2%) and the most overrepresented (ratio, 90.71; 95% CI, 65.67 to 125.30), followed by managers (ratio, 43.87; 95% CI, 29.61 to 64.99) and photographers (ratio, 40.89; 95% CI, 10.23 to 163.4). No differences were observed in biopsychosocial functioning between major occupational categories. However, those not working due to health reasons or disability had worse biopsychosocial functioning (insomnia,

anxiety and depression, life satisfaction, sleep health, pain intensity, pain-related interference; all *P* < .034) than those who were employed.

Conclusions.—Several occupations are strongly over- and underrepresented among adults seeking OFP treatment. Differences were not explained by biopsychosocial functioning.

Practical Implications.—Future research should attempt to identify and address the underlying mechanisms of association between occupation and seeking care for OFP.

Keywords

Occupational category; employment; orofacial pain; access to care; biopsychosocial

Chronic orofacial pain (OFP) is associated with reduced satisfaction with life,[1] anxiety and depression symptomatology,[2,3] and disrupted sleep,[4–7] among other physical and mental health outcomes.[8] Although OFP clinicians and researchers have long advocated for using a biopsychosocial framework for understanding and managing OFP,[9–11] more is known about the biological and psychological correlates and consequences of OFP than the social aspects.[12] For example, although we know that patients with chronic pain report worse social functioning than pain-free peers[13,14] and that various aspects of their social environment shape how pain is experienced, expressed, and treated,[15] we know little about how things like occupation shape treatment seeking for OFP. There are several reasons why occupation may be relevant for how people experience or cope with OFP. Most adults spend a considerable amount of time at work, and work can be related to factors known to aggravate OFP. For example, work can be a major source of stress (eg, interpersonal conflict, performance pressure, or precarious working conditions).[16–20] Additional occupational characteristics may strain the orofacial region, such as prolonged speaking or poor head and neck ergonomics.[21–25] For these reasons and others, occupation may be associated with OFP symptoms and treatment seeking as well as with differences in biopsychosocial functioning among those with OFP.

To our knowledge, no previous study has investigated explicitly the associations between occupational status and biopsychosocial variables among adults seeking care for OFP. Although work may contribute to OFP symptomatology, not working also may be a potent source of stress or indicator of high-impact pain, especially if people are facing substantial financial strain or otherwise wish to work but are prevented from doing so by their pain. Therefore, our study had 2 aims. The first aim was to describe whether certain occupations were overrepresented or underrepresented in treatment-seeking adults at a tertiary OFP clinic (relative to the prevalence of those occupations at the state level). The second aim was to test whether occupational categories were associated with insomnia symptoms, satisfaction with life, sleep health, pain intensity, pain interference, and anxiety and depression symptoms (ie, biopsychosocial functioning); compare biopsychosocial functioning among those who were employed vs not working for pay; and test for differences in biopsychosocial functioning between subcategories of those not working for pay (ie, retired, going to school, taking care of house, disabled, or unemployed). Because the study was exploratory in nature, we did not have a priori hypotheses.

METHODS

Study design

We conducted a cross-sectional chart review on adult patients seeking treatment for chronic OFP at a university-affiliated tertiary OFP clinic from November 2020 through March 2023.

Procedures

As part of routine care, new patients seen at the OFP clinic completed psychological and pain questionnaires and underwent a thorough clinical examination by an OFP resident and an attending OFP specialist. During the examination, the patients received OFP diagnoses based on diagnostic criteria according to International Classification of Orofacial Pain.[26] This study was approved by the institutional review board of the Office of Research Integrity at the University of Kentucky (54563).

Measures

We retrieved the following measures from the intake form completed by the patients at their first visit.

Demographics—Patients self-reported age (years) and biological sex (male, female).

Insomnia Symptomatology—We measured insomnia symptomatology with the Insomnia Severity Index.[27] The Insomnia Severity Index contains 7 items that rate patients' self-reported difficulties with sleep onset and maintenance, satisfaction with sleep, daytime sleep-related impairment, and distress. Each item is coded from 0 through 4, yielding a total score of 0 through 28, with higher scores indicating more severe insomnia symptoms. We calculated a total score by summing all items ($a = .90$).

Self-reported Satisfaction With Life—We assessed self-reported satisfaction with life with the Satisfaction With Life Scale, consisting of 5 items designed to assess global satisfaction with life.[28] Each item was coded from 1 through 7, yielding a total score of 5 through 35, with higher scores indicating higher life satisfaction. It has been validated in the general population.[28] We calculated a total score by summing all items ($a = .91$).

Self-reported Sleep Health—We measured self-reported sleep health with the Pittsburgh Sleep Quality Index, a 19-item questionnaire measuring 7 sleep components (sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, sleeping medication use, daytime dysfunction).[29–31] Each component is coded from 0 through 3, yielding a total score of 0 through 21, with higher total scores indicating worse sleep health. We calculated a total score by summing all components.

Self-reported Pain Intensity and Pain-Related Interference—We measured self-reported pain intensity and pain-related interference using the Graded Chronic Pain Scale (Version 2.0).[32] We computed pain intensity by averaging 3 items assessing current, worst, and average pain intensity on a scale ranging from 0 (no pain) through 10 (worst imaginable pain). Higher scores indicated greater pain intensity ($a=.91$). We measured pain interference

by averaging 3 items assessing how much in the previous month pain interfered with daily activities; recreational, social, and family activities; and ability to work on a scale ranging from 0 (no interference) through 10 (unable to carry on any activities). Higher scores indicated greater pain interference.[22,33]

Self-reported Anxiety and Depression Symptoms—We measured self-reported anxiety and depression symptoms using the Patient Health Questionnaire-4.[34] Each item is coded 0 through 3, yielding a total score of 0 through 12, with higher scores reflecting greater anxiety and depression symptomatology. We calculated a total score by summing all items (a=.86).

Occupation and Employment—At their initial appointments at OFP clinic, patients self-reported their employment statuses by selecting between full-time employed, part-time employed, unemployed, disabled, or retired. Patients competed responses about their occupations through free-text format. First, we classified patients as employed (including part-time workers) or not working for pay. We classified employment categories into both major occupational groups and minor occupational groups (more specific categories nested within each major occupational group) according to the 2018 Standard Occupational Classification (SOC) codes available in the Occupational Employment and Wage Statistics survey (Version May 2021, https://www.bls.gov/oes/current/oes_ky.htm). This classification did not include self-employed or military occupations. We coded occupations that could not be classified accurately in any of the available major occupational categories as missing (n=7). In addition, 10 patients had free-text occupations that could not be accurately classified into minor categories. We classified the main reason for not working for pay according to categories from the sample adult questionnaire of the National Health Interview Survey 2019 into unemployed, seasonal or contract work, retired, unable to work for health reasons or disabled, taking care of house or family, going to school, or working at job or business but not for pay. Coding of occupational category and employment status was performed by 2 independent reviewers (L.S., A.A.-B.), and interrater reliability was assessed with Cohen κ. Disagreements were resolved by consensus with 2 other reviewers (I.A.B., F.P.K.).

Statistical analysis

We used descriptive statistics to describe the final sample. To address the primary aim (ie, investigating the over- or underrepresentation of occupational categories in an OFP-seeking treatment sample), we first calculated percentages of patients who were employed vs not working for pay. To test which occupational categories were more or less represented, we only considered patients categorized as employed. We calculated proportions of each major and minor SOC categories of our sample and compared them to the corresponding proportions of SOC categories in Kentucky reported by the Occupational Employment and Wage Statistics survey. This approach allowed us to appraise the occupational distribution of our sample using the occupational distribution of Kentucky as reference. We compared the ratio between the sample proportion and state proportion (95% CI) for major and minor occupation categories using the OpenEpi TwobyTwo module.[35] A ratio of 1 signified equal representation of sample compared with the occupational distribution of Kentucky,

whereas a proportion less than 1 and greater than 1 signified underrepresentation and overrepresentation, respectively, in our sample.

To address the secondary aim (ie, testing for differences in biopsychosocial functioning between different employment and occupational groups), we compared biopsychosocial functioning measures of those employed and not working for pay with independent *t* test and χ_2 test. We used 1-way analyses of variance to test whether major occupational categories differed in biopsychosocial functioning. Lastly, we compared biopsychosocial functioning between the employed category and subcategories of not working for pay. As age and sex were not equally distributed among the different employment categories, we repeated the comparisons using linear regression, adjusting for age and sex.

We conducted data analyses using SPSS (Version 27) (IBM).

RESULTS

We considered a total of 473 patients (female, 76.7%; mean [SD] age, 44.6 [15.8] years) for the study. We excluded 29 patients because they did not respond to the occupation question. Thus, we analyzed 444 patients (female, 78.6%; mean [SD] age, 44.9 [15.8] years). Sample demographic characteristics are presented in Table 1. Disagreement on initial employment and occupational category classification occurred on 40 cases ($\kappa = .912$). Thirty-seven of those were resolved through discussion between the 2 primary raters (L.S., A.A.-B.). A discussion with 2 additional researchers (I.A.B., F.P.K) resolved the remaining 3 entries. Of 444 patients, 290 (65.5%) were employed and 154 (34.5%) were not working for pay. Of the latter, 58 (37.6%) were retired, 30 (19.5%) were unable to work for health reasons or were disabled, 28 (18.2%) were going to school, 26 (16.9%) were unemployed or looking for work, and 12 (7.8%) were taking care of house or family.

Primary aim: occupational representation among patients with OFP compared with the occupational distribution of Kentucky

We included only employed patients (n=290) for these analyses. Seven of these had their occupational category coded as missing, leaving 283 patients available for analysis (Table 2). The two most common major occupational categories in our sample were health care practitioners and technical occupations (22.4%) and educational instruction and library occupations (13.8%). In Kentucky, these major occupational categories accounted for 7.0% and 5.0% of employed adults, respectively. Compared with the state occupational distribution, 6 major categories were overrepresented in the OFP clinic: arts, design, entertainment, sports, and media occupations (ratio, 3.95; 95% CI, 2.15 to 7.26); followed by health care practitioners and technical occupations (ratio, 3.20; 95% CI, 2.59 to 3.97); educational instruction and library occupations (ratio, 2.82; 95% CI, 2.12 to 3.76); life, physical, and social science occupations (ratio, 2.53; 95% CI, 1.06 to 6.04); business and financial occupations (ratio, 1.73; 95% CI, 1.15 to 2.61); and management occupations (ratio, 1.61; 95% CI, 1.11 to 2.34) (Figure 1).

The most common minor occupational categories in our sample were teachers and instructors (11.2%), registered nurses (10.0%), and managers (7.5%). These minor

categories were overrepresented compared with the state occupational distribution by a ratio of 90.71 (95% CI, 65.67 to 125.30), 4.36 (95% CI, 3.09 to 6.15), and 43.87 (95% CI, 29.61 to 64.99), respectively. Among the 38 minor categories considered in our sample, 24 were overrepresented, with the highest ratios for managers, teachers, and instructors (mentioned above) and photographers (ratio, 40.89; 95% CI, 10.23 to 163.40) (Table 2).

Six major occupational categories were underrepresented in the OFP clinic, relative to the state occupational distribution (Table 2). For example, although 12.0% of employed adults in Kentucky worked in transportation and material moving occupations, only 1.0% of employed patients with OFP reported such occupations (ratio, 0.082; 95% CI, 0.029 to 0.28). Other underrepresented major occupational categories were food preparation– and serving-related occupations (ratio, 0.13; 95% CI, 0.041 to 0.39); production occupations (ratio, 0.17; 95% CI, 0.075 to 0.43); construction and extraction occupations (ratio, 0.19; 95% CI, 0.049 to 0.78); installation, maintenance, and repair occupations (ratio, 0.32; 95% CI, 0.12 to 0.84); and office and administrative support occupations (ratio, 0.61; 95% CI, 0.43 to 0.93).

Secondary aim: differences in biopsychosocial functioning among employment and occupational groups

We observed no statistically significant differences in biopsychosocial functioning among the major occupational categories within the employed group (Table 3).

Those who were employed vs those not working for pay differed in all the biopsychosocial functioning variables (Table 4). Specifically, those who were not working due to health reasons or being disabled had worse insomnia (P=.001), anxiety or depression (P=.034), satisfaction with life (P=.001), sleep health (P<.001), pain intensity (P=.002), and pain-related interference (P<.001) than those who were employed (Figure 2). Patients not working due to health reasons or being disabled also reported higher pain-related interference than patients from all the other subcategories of those not working for pay and worse biopsychosocial functioning than those going to school or retired (Table 4). None of the other categories of patients who were not working for pay differed from each other on biopsychosocial functioning measures. Controlling for age and sex did not substantively change any of the results (Table 4).

DISCUSSION

Our study compared occupational distribution among adults seeking OFP treatment relative to the state distribution and examined biopsychosocial functioning based on different types of occupations and employment status. We found that several occupational categories were strongly associated with seeking care at a university-affiliated tertiary OFP clinic. Among 22 major occupational categories, there was evidence of overrepresentation in 6 in our sample, with the most overrepresented being arts, design, entertainment, sports, and media occupations. This was somewhat unexpected given this was only the seventh most common major category in our sample. Health care practitioners and technical occupations as well as educational instruction and library occupations were the 2 most common major categories observed in our sample, and both also were overrepresented relative to the

state occupational distribution. Using our population-based approach, we also were able to identify overrepresentation in less common categories (eg, life, physical, and social science occupations), which might not have been noticed from clinical observation alone.

Analyses of minor occupational categories allowed us to identify more specific types of occupations that may have been driving the overrepresentation of major categories in our sample. For example, within the arts, design, entertainment, sports, and media occupations major category, there was evidence of overrepresentation for all minor categories examined: photographers, public relations specialists, and designers. There was also evidence of overrepresentation for all or most minor categories within the health care practitioners and technical occupations major category and educational instruction and library occupations category (Figure 1). The minor categories most commonly observed in our sample were teachers and instructors, registered nurses, and managers, with ratios of 90.71, 4.36, and 43.87 relative to the state occupational distributions, respectively. Counterintuitively, whereas registered nurses were the second most common minor category in our sample, it was estimated to be only the 22nd most overrepresented.

The reason why some occupations were overrepresented is unclear. According to the job demand-control-support model, the psychological stress and strain of a job (and subsequent potential impact on health) is determined by an interaction among that job's demands, controllability, and access to support resources.[36,37] Part of the reason for overrepresentation among patients with OFP may be a function of not only the demanding nature of these occupations but also low decision latitude and support availability. Moreover, some of these overrepresented occupations may involve night shifts (eg, nursing), long working hours, repetitive strain, and poor posture,[38] which have been linked to higher pain and risk factors,[39] including musculoskeletal pain and systemic inflammation.[40] Our results confirmed that muscle pain, especially myofascial pain, was the most frequent diagnosis received from our patient population. However, contrary to the demand-control-support model, we did not find differences in biopsychosocial functioning between major or minor occupational categories (although we did not specifically assess for job-related stress). Thus, identifying and addressing specific reasons for the associations between occupation and seeking of care for OFP remain important yet challenging goals for future research. Part of this challenge may derive from the multifactorial nature of OFP conditions and from the fact that factors that contribute to temporomandibular joint disorders, such as stress, posture, and oral parafunctional habits,[41] are not exclusive to any specific occupation.

There was also evidence of underrepresentation in our sample in 6 major categories, with the biggest underrepresentation being for transportation and material moving occupations. For example, although office and administrative support occupations were the fourth most common in our sample, they were underrepresented relative to the state distribution. One possibility is that patients in these underrepresented categories may not have the time, work schedule flexibility (the clinic is only open Monday through Friday from 9:00 AM through 5:00 PM), or resources to access care. In addition, many of these underrepresented categories are traditionally male dominated, and men may not seek care for OFP as often as women. Still, these possibilities are speculative and were not tested explicitly. Future work should examine the factors that lead to underrepresentation of specific occupations in OFP clinics.

We observed that patients who were not working due to health reasons or disability exhibited worse psychosocial functioning, poorer sleep health, and greater pain intensity and pain-related interference than those who were employed and to the other subcategories of not working for pay. These findings are not surprising, as these factors may mutually reinforce each other.[42,43] Patients not working due to health reasons or disability may have more pain due to their health condition, which may worsen their sleep health.[44] They also may have lower engagement in social activities, less satisfactory employment opportunities, and financial stress.[45] This chronic state of poor biopsychosocial functioning consequently may contribute to escalation of pain and overall disability.[46] Because of the cross-sectional nature of our data, we cannot determine whether the worse pain and biopsychosocial functioning came before or after the participants' occupation status became not working for pay.

Our study has limitations. First, the determination of employment classification relied on interpretation of self-reported data; therefore, the possibility of misclassification for certain patients cannot be excluded. Some categories had a small sample size, thereby limiting the precision of our estimates and ability to draw definite conclusions. Because of the retrospective chart-review methodology, we could not assess important variables like job demands (average hours per day, day or night shift, work-related repetitive strain and posture), type of working contract (regular vs temporary), control, support, relational social class, or job-related perceived stressors. Future studies should incorporate more comprehensive and extensive occupational history assessments. Similarly, we did not include any adjustment for oral parafunctional habits, despite their important contribution to OFP onset and prognosis. Moreover, this study was conducted among patients seeking treatment at a large tertiary university-affiliated OFP clinic. As such, these findings may not be applicable to different contexts, such as private dental or medical practices. Finally, the cross-sectional nature of the data prevented us from forming any causal conclusions. Despite these limitations, our study offers insights into the occupational distribution of adults seeking treatment in a tertiary OFP clinic.

CONCLUSIONS

Several occupations are over- and underrepresented among adults seeking treatment at a university-affiliated tertiary OFP clinic. Differences were not explained by biopsychosocial functioning. Future work should attempt to elucidate underlying mechanisms by which certain occupations may contribute to OFP symptoms and affect access to care. ■

Acknowledgments

ABBREVIATION KEY

|	
NA	Not applicable
OFP	Orofacial pain

SOC	Standard Occupational Classification

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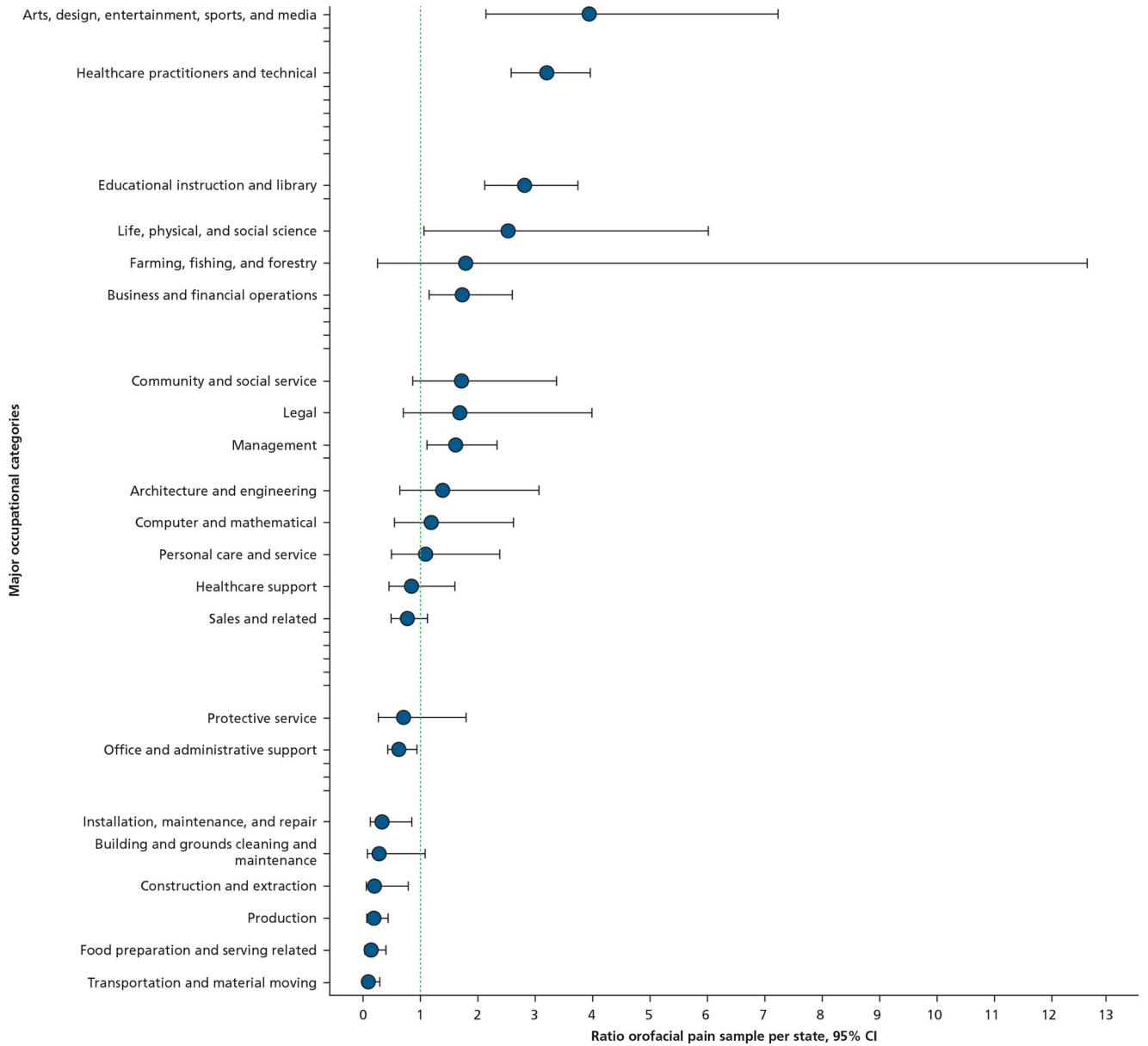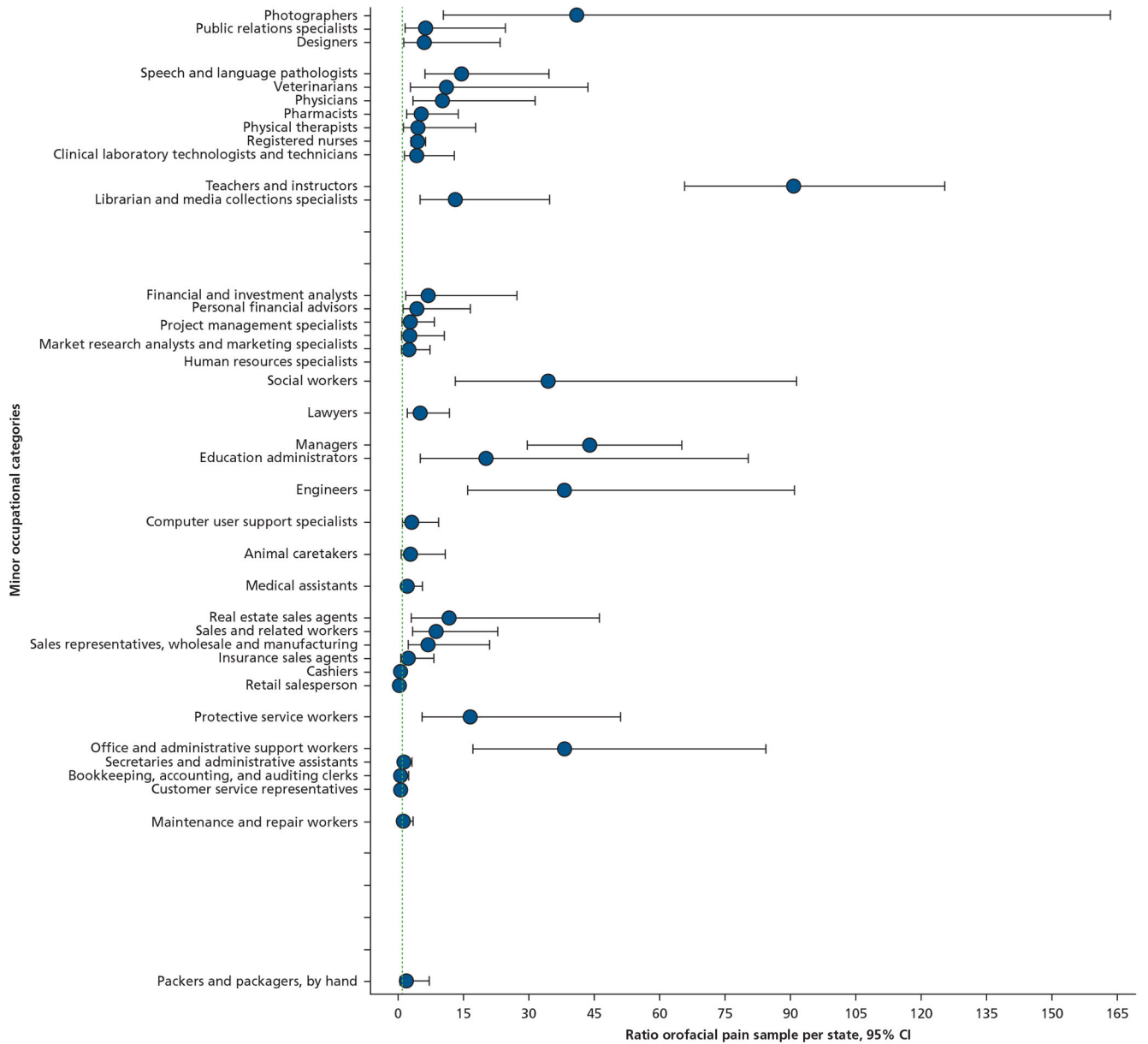
Figure 1.
Ratio between sample proportion (orofacial pain clinic) and state proportion for major and minor occupation categories, presented as a point estimate and 95% CIs.
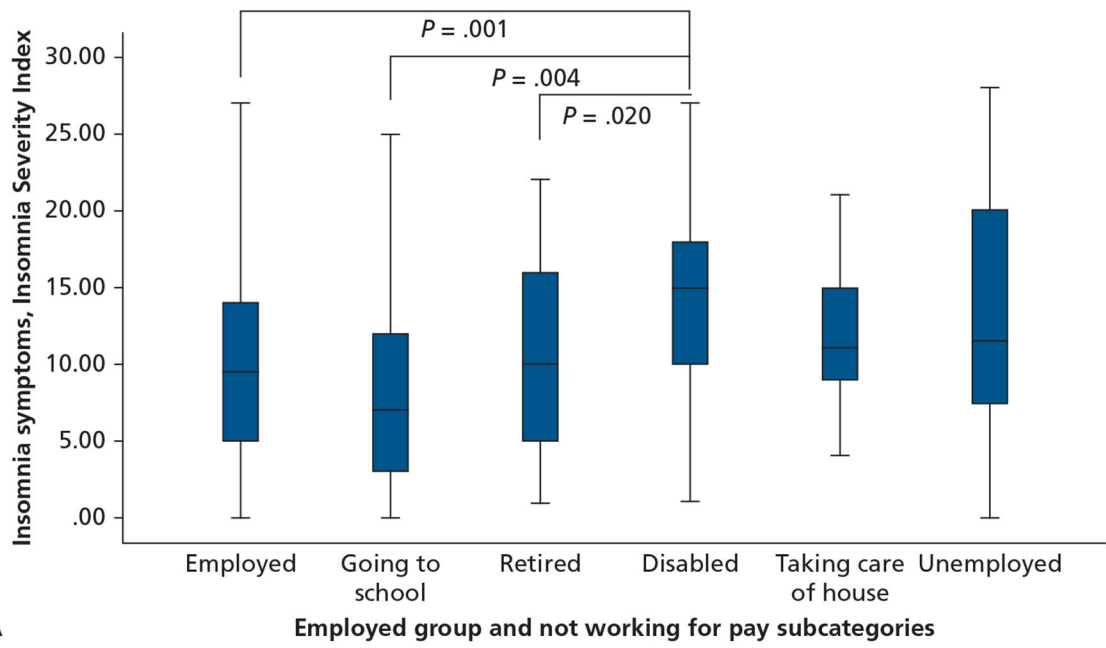
A Employed group and not working for pay subcategories
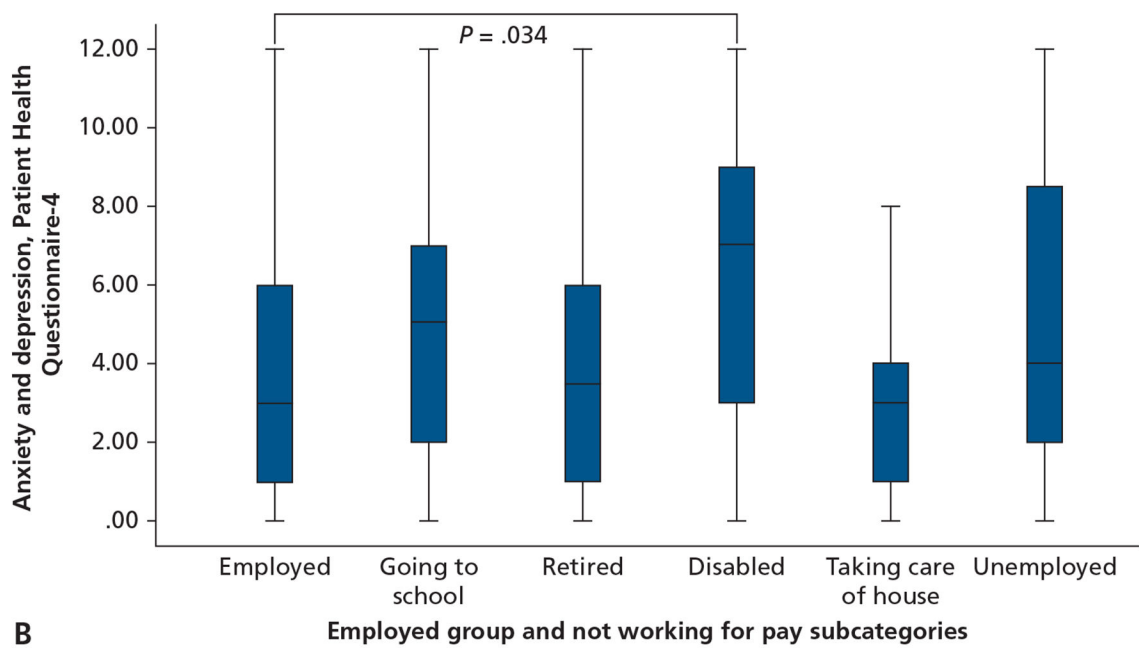
B Employed group and not working for pay subcategories

C

D
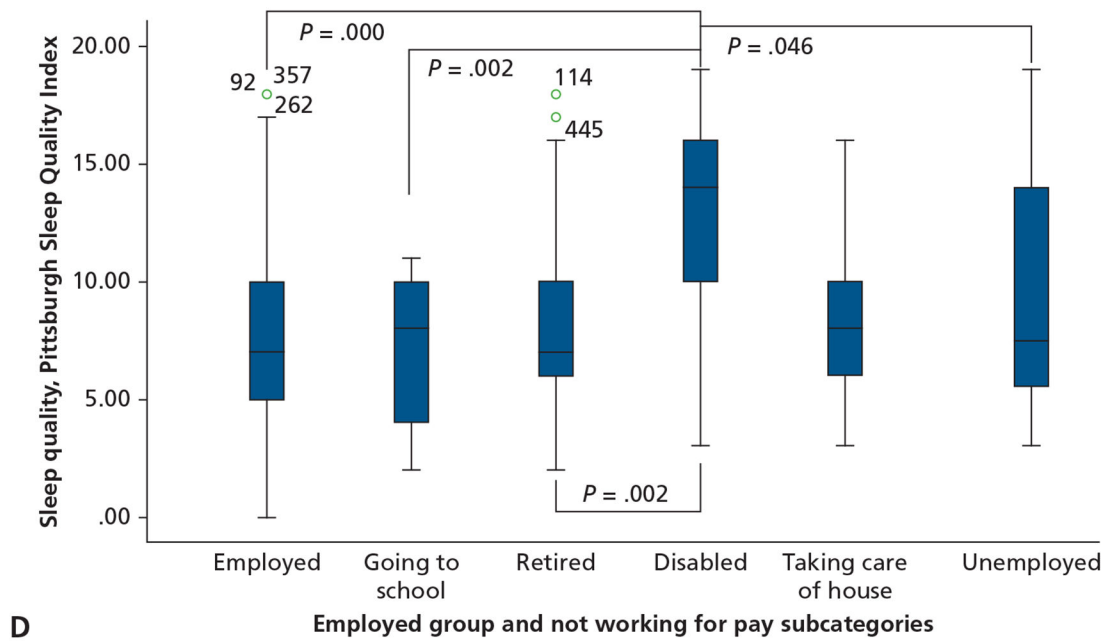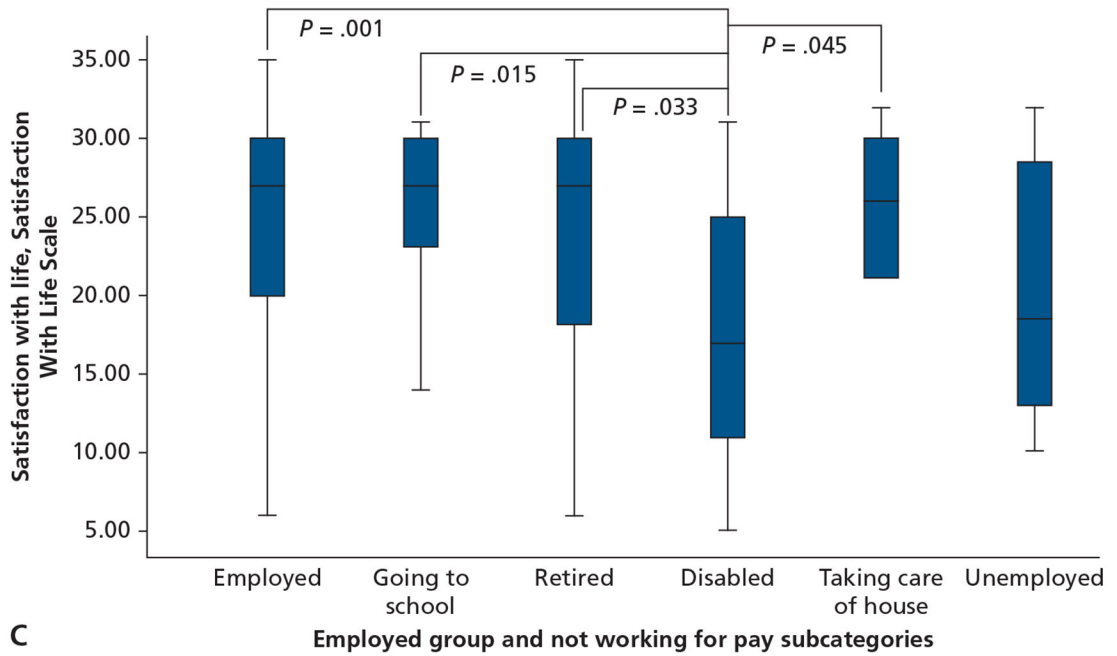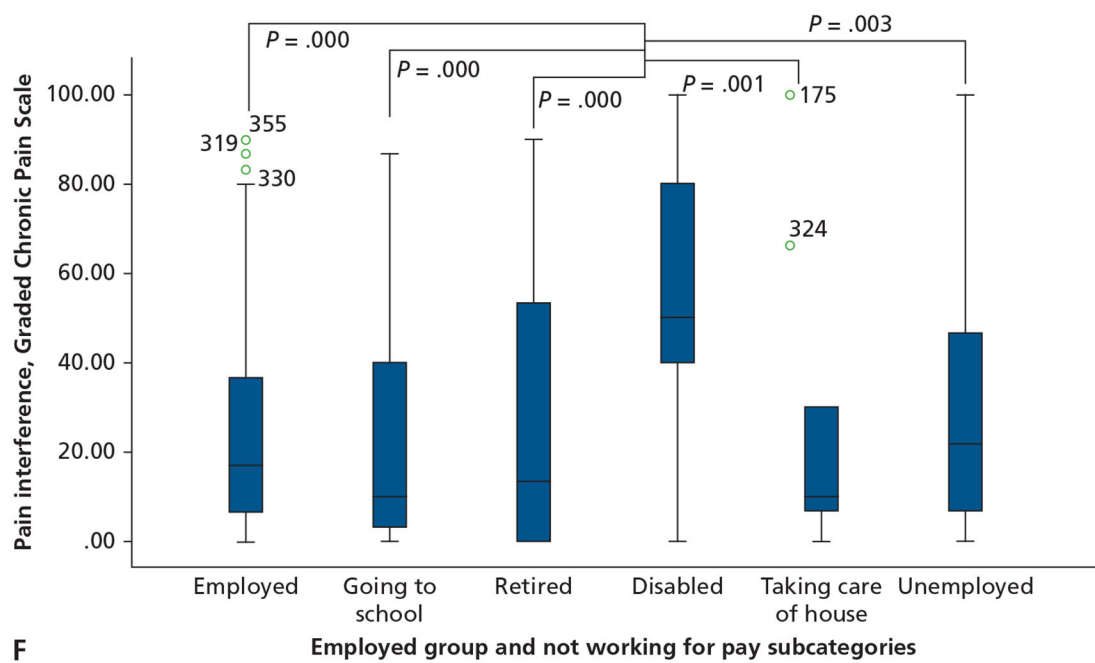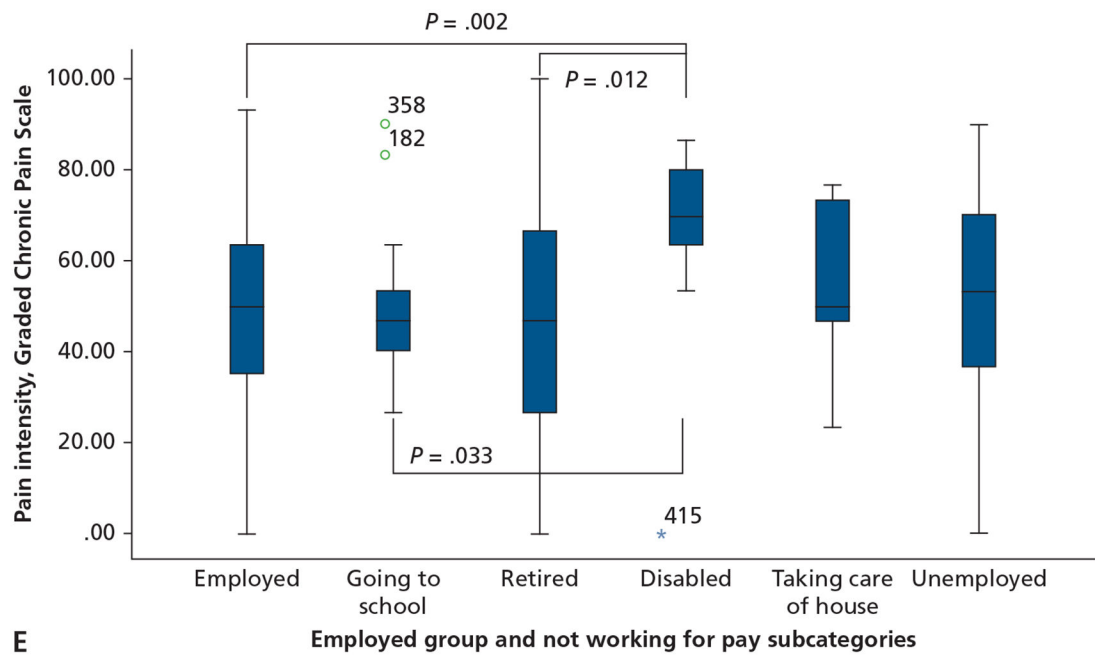
Figure 2.

Box plots displaying the difference in biopsychosocial measures among the employed group and the subcategories of not working for pay group. **A.** Insomnia. **B.** Anxiety and depression. **C.** Satisfaction with life. **D.** Sleep quality. **E.** Pain intensity. **F.** Pain interference. *P* values are calculated with 1-way analysis of variance.

Table 1.

Demographics and primary orofacial pain diagnoses of the 444 patients included in the study, categorized by employment status.

| CHARACTERISTIC	TOTAL (N = 444)	EMPLOYED (n = 290)	Retired (n = 58)	NOT WORKING FOR PAY (n = 154)			
				Going to School (n = 28)	Not Working Due to Health Reasons or Disability (n = 30)	Taking Care of House or Family (n = 12)	Unemployed or Looking for Work (n = 26)
Sex, No. (%)							
Male	75 (16.9)	57 (19.6)	5 (8.6)	7 (25.0)	4 (13.3)	0 (0.0)	3 (11.5)
Female	349 (78.6)	220 (75.9)	49 (84.5)	20 (71.4)	26 (86.7)	11 (100.0)	23 (88.5)
Missing	20 (4.5)	13 (4.5)	4 (6.9)	1 (3.6)	0 (0.0)	0 (0.0)	0 (0.0)
Age, Y, Mean (SD)	44.9 (15.8)	43.0 (13.9)	64.2 (6.7)	23.9 (6.6)	52.7 (9.0)	39.6 (7.6)	38.7 (15.9)
Age Range, No., Mean (SD)							
18-35 y	143 (32.2)	96 (33.1)	0 (0.0)	24 (85.7)	4 (13.3)	5 (41.7)	14 (53.8)
36-50 y	113 (25.5)	93 (32.1)	2 (3.4)	3 (10.7)	5 (16.7)	7 (58.3)	3 (11.5)
51-65 y	121 (27.3)	67 (23.1)	25 (43.1)	0 (0.0)	20 (66.7)	0 (0.0)	9 (34.7)
>65 y	47 (10.5)	19 (6.5)	27 (46.5)	0 (0.0)	1 (3.3)	0 (0.0)	0 (0.0)
Missing	20 (4.5)	15 (5.2)	4 (7.0)	1 (3.6)	0 (0.0)	0 (0.0)	0 (0.0)
Primary Orofacial Pain Diagnosis, No. (%)							
Myofascial pain	243 (54.7)	164 (56.6)	24 (41.4)	14 (50.0)	16 (53.4)	10 (83.4)	16 (61.4)
Articular pain	97 (21.9)	64 (22.1)	13 (22.4)	9 (32.1)	6 (20.0)	1 (8.3)	4 (15.4)
Neuropathic pain	47 (10.6)	23 (7.9)	11 (19.0)	2 (7.1)	6 (20.0)	1 (8.3)	4 (15.4)
Primary headache	20 (4.5)	15 (5.2)	3 (5.2)	1 (3.6)	1 (3.3)	0 (0.0)	0 (0.0)
Odontogenic pain	12 (2.7)	6 (2.0)	2 (3.4)	1 (3.6)	1 (3.3)	0 (0.0)	2 (7.8)
Idiopathic pain	5 (1.1)	4 (1.4)	1 (1.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Missing	20 (4.5)	14 (4.8)	4 (6.9)	1 (3.6)	0 (0.0)	0 (0.0)	0 (0.0)

Table 2.

Frequency of major and minor occupational categories according to SOC[*] codes of the included sample compared with Kentucky, in descending order of representation of major categories.

MAJOR OCCUPATIONAL CATEGORIES (SOC CODE)	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP[†] SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)	MINOR OCCUPATIONAL CATEGORIES (SOC CODE)[‡]	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)
Arts, Design, Entertainment, Sports, and Media (27-0000)	16,570 (1.0)	10 (3.4)	3.95 (2.15 to 7.26)[§]	Photographers (27-4021)	320 (<0.1)	2 (0.7)	40.89 (10.23 to 163.40)[§]
				Public relations specialists (27-3031)	2,120 (0.1)	2 (0.7)	6.17 (1.55 to 24.57)[§]
				Designers (27-1024)	2,230 (0.1)	2 (0.6)	5.87 (1.47 to 23.36)[§]
Health Care Practitioners and Technical (29-0000)	130,900 (7.0)	65 (22.4)	3.20 (2.59 to 3.97)[§]	Speech-language pathologists (29-1127)	2,260 (0.1)	5 (1.7)	14.47 (6.07, 34.54)[§]
				Veterinarians (29-1131)	1,200 (0.1)	2 (0.7)	10.90 (2.74 to 43.43)[§]
				Physicians (29-1229)	1,930 (0.1)	3 (1.0)	10.00 (3.29 to 31.37)[§]
				Pharmacists (29-1051)	5,060 (0.3)	4 (1.4)	5.17 (1.95 to 13.69)[§]
				Physical therapists (29-1123)	2,940 (0.2)	2 (0.7)	4.45 (1.11 to 17.71)[§]
				Registered nurses (29-1141)	43,540 (2.0)	29 (10.0)	4.36 (3.09 to 6.15)[§]
				Clinical laboratory technologists and technicians (29-2010)	4,700 (0.3)	3 (1.0)	4.17 (1.36 to 12.87)[§]
Educational Instruction and Library (25-0000)	92,660 (5.0)	40 (13.8)	2.82 (2.12 to 3.76)[§]	Teachers and instructors (25-3099)	2,380 (0.1)	33 (11.2)	90.71 (65.67 to 125.30)[§]
				Librarian and media collections specialists (25-4022)	2,000 (0.1)	4 (1.4)	13.08 (4.94 to 34.65)[§]
Life, Physical, and Social Science (19-0000)	12,910 (1.0)	5 (1.7)	2.53 (1.06 to 6.04)[§]	NA[‖]	NA	NA	NA

MAJOR OCCUPATIONAL CATEGORIES (SOC CODE)	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP[†] SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)	MINOR OCCUPATIONAL CATEGORIES (SOC CODE)[‡]	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)
Farming, Fishing, and Forestry (45-0000)	3,650 (0.2)	1 (0.3)	1.79 (0.25 to 12.68)	NA	NA	NA	NA
Business and Financial Operations (13-0000)	79,310 (4.0)	21 (7.2)	1.73 (1.15 to 2.61)[§]	Financial and investment analysts (13-2051)	1,920 (0.1)	2 (0.7)	6.82 (1.71 to 27.13)[§]
				Personal financial advisors (13-2052)	3,150 (0.2)	2 (0.7)	4.15 (1.04 to 16.53)[§]
				Project management specialists (13-1082)	7,320 (0.4)	3 (1.0)	2.68 (0.87 to 8.26)[§]
				Market research analysts and marketing specialists (13-1161)	4,930 (0.3)	2 (0.7)	2.65 (0.67 to 10.56)[§]
				Human resources specialists (13-1071)	8,320 (0.4)	3 (1.0)	2.36 (0.77 to 7.27)
Community and Social Service (21-0000)	30,670 (2.0)	8 (2.8)	1.71 (0.86 to 3.38)	Social workers (21-1029)	760 (0.3)	4 (1.3)	34.33 (12.98 to 91.33)[§]
Legal (23-0000)	10,650 (1.0)	6 (2.1)	1.68 (0.70 to 4.00)	Lawyers (23-1011)	6,670 (0.4)	5 (1.7)	4.91 (2.06 to 11.69)[§]
Management (11-0000)	10,1520 (6.0)	25 (8.6)	1.61 (1.11 to 2.34)[§]	Managers (11-9199)	3,430 (0.2)	23 (7.5)	43.87 (29.61 to 64.99)[§]
				Education administrators (11-9039)	650 (<0.1)	2 (0.7)	20.13 (5.03 to 80.26)[§]
Architecture and Engineering (17-0000)	28,220 (2.0)	6 (2.1)	1.39 (0.63 to 3.07)	Engineers (17-2199)	860 (<0.1)	5 (1.7)	38.04 (15.92 to 90.90)[§]
Computer and Mathematical (15-0000)	33,070 (2.0)	6 (2.1)	1.18 (0.54 to 2.62)	Computer user support specialists (15-1232)	6,520 (0.4)	3 (1.0)	3.01 (0.98 to 9.27)
Personal Care and Service (39-0000)	36,210 (2.0)	6 (2.1)	1.08 (0.49 to 2.39)	Animal caretakers (39-2021)	4,850 (0.3)	2 (0.7)	2.69 (0.68 to 10.74)
Health Care Support (31-0000)	69,980 (4.0)	9 (3.1)	0.84 (0.44 to 1.60)	Medical assistants (31-9092)	12,670 (0.7)	4 (1.4)	2.06 (0.78 to 5.46)

MAJOR OCCUPATIONAL CATEGORIES (SOC CODE)	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP[†] SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)	MINOR OCCUPATIONAL CATEGORIES (SOC CODE)[‡]	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)
Sales and Related (41-0000)	169,400 (9.0)	20 (6.9)	0.77 (0.48 to 1.12)	Real estate sales agents (41-9022)	1,130 (0.1)	2 (0.7)	11.58 (2.91 to 46.12)[§]
				Sales and related workers (41-9099)	3,040 (0.2)	4 (1.4)	8.61 (3.25 to 22.79)[§]
				Sales representatives, wholesale and manufacturing (41-4011)	2,900 (0.2)	3 (1.0)	6.77 (2.19 to 20.87)[§]
				Insurances sales agents (41-3021)	6,450 (0.4)	2 (0.7)	2.03 (0.51 to 8.07)
				Cashiers (41-2011)	44,390 (2.4)	3 (1.0)	0.44 (0.14 to 1.36)
				Retail salespersons (41-2031)	51,230 (2.8)	2 (0.7)	0.26 (0.064 to 1.02)
Protective Service (33-0000)	38,700 (2.0)	4 (1.4)	0.70 (0.26 to 1.79)	Protective service workers (33-9099)	1,190 (0.1)	3 (1.0)	16.49 (5.34 to 50.90)[§]
Office and Administrative Support (43-0000)	238,350 (13.0)	23 (7.9)	0.61 (0.43 to .93)[§]	Office and administrative support workers (43-9199)	1,030 (0.1)	6 (2.1)	38.11 (17.23 to 84.30)[§]
				Secretaries and administrative assistants (43-6014)	21,980 (1.2)	4 (1.3)	1.19 (.45 to 3.15)
				Bookkeeping, accounting, and auditing clerks (43-3031)	22,530 (1.2)	2 (0.7)	0.58 (0.14 to 2.32)
				Customer service representatives (43-4051)	36,020 (1.9)	3 (1.0)	0.54 (0.18 to 1.68)
Installation, Maintenance, and Repair (49-0000)	82,150 (4.0)	4 (1.4)	0.32 (0.12 to .84)[§]	Maintenance and repair workers (49-9071)	17,940 (1.0)	3 (1.0)	1.09 (0.36 to 3.37)
Building and Grounds Cleaning and Maintenance (37-0000)	47,910 (3.0)	2 (0.7)	0.27 (0.068 to 1.08)	NA	NA	NA	NA
Construction and Extraction (47-0000)	66,500 (4.0)	2 (0.7)	0.19 (0.049 to 0.78)[§]	NA	NA	NA	NA

MAJOR OCCUPATIONAL CATEGORIES (SOC CODE)	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP[†] SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)	MINOR OCCUPATIONAL CATEGORIES (SOC CODE)[‡]	EMPLOYMENT IN STATE, NO. (%)	EMPLOYMENT OF OFP SAMPLE, NO. (%)	RATIO, OFP SAMPLE AND STATE (95% CI)
Production (51-0000)	18,1820 (10.0)	5 (1.7)	0.17 (0.075 to 0.43)[§]	NA	NA	NA	NA
Food Preparation and Serving Related (35-0000)	154,060 (8.0)	3 (1.0)	0.13 (0.041 to 0.39)[§]	NA	NA	NA	NA
Transportation and Material Moving (53-0000)	213,190 (12.0)	3 (1.0)	0.082 (0.029 to 0.28)[§]	Packers and packagers, hand (53-7064)	7,430 (0.4)	2 (0.7)	1.75 (0.44 to 7.10)
Self-employed [¶]	NA	9 (3.1)	NA	NA	NA	NA	NA
Missing	NA	7 (2.4)	NA	NA	NA	NA	NA

[*] SOC: Standard Occupational Classification.

[†] OFP: Orofacial pain.

[‡] Only minor occupational categories with a frequency of at least 2 are reported in the table. There were 103 patients in minor categories with frequency of 1.

[§] Statistically significant association.

[¶] NA: Not applicable.

[#] Self-employed occupations are not included in the SOC.

Table 3.

Comparison of biopsychosocial functioning (expressed as mean [SD] scores) among the major occupational categories (N = 283).

MAJOR OCCUPATION CATEGORIES (SOC* CODE)	NO.	INSOMNIA SYMPTOMS, INSOMNIA SEVERITY INDEX, 0-28, MEAN (SD)	ANXIETY AND DEPRESSION, PATIENT HEALTH QUESTIONNAIRE-4, 0-12, MEAN (SD)	SLEEP HEALTH, PITTSBURG SLEEP QUALITY INDEX, 0-21, MEAN (SD)	SATISFACTION WITH LIFE, SATISFACTION WITH LIFE SCALE, 5-35, MEAN (SD)	PAIN INTENSITY, GRADED CHRONIC PAIN SCALE, 0-10, MEAN (SD)	PAIN-RELATED INTERFERENCE, GRADED CHRONIC PAIN SCALE, 0-10, MEAN (SD)
Office and Administrative Support (43-0000)	23	10.1 (6.7)	2.0 (3.0)	8.4 (4.4)	25.1 (5.4)	40.4 (24.8)	22.9 (25.0)
Transportation and Material Moving (53-0000)	3	9.3 (5.5)	4.7 (1.5)	9.0 (0.0)	16.7 (4.5)	46.7 (37.6)	32.2 (26.6)
Production (51-0000)	5	5.4 (3.6)	0.8 (1.3)	4.0 (1.8)	30.4 (3.2)	45.3 (38.1)	18.7 (29.2)
Sales and Related (41-0000)	20	10.5 (7.4)	4.2 (3.7)	7.4 (3.9)	23.2 (7.5)	54.4 (20.6)	30.4 (27.7)
Food Preparation and Serving Related (35-0000)	3	9.2 (5.0)	3.5 (3.5)	6.5 (4.9)	23.0 (7.1)	44.2 (22.2)	18.3 (30.4)
Healthcare Practitioners and Technical (29-0000)	65	9.7 (6.0)	3.7 (2.9)	7.5 (4.0)	24.6 (6.7)	48.6 (18.6)	25.9 (27.9)
Management (11-0000)	25	11.1 (7.8)	3.7 (3.6)	8.7 (5.1)	24.6 (9.1)	51.0 (19.4)	25.3 (24.8)
Educational Instruction and Library (25-0000)	40	10.7 (7.0)	3.9 (3.3)	7.8 (4.5)	26.6 (6.1)	45.2 (19.8)	21.8 (21.5)
Installation, Maintenance, and Repair (49-0000)	4	8.0 (3.6)	4.5 (1.3)	4.3 (4.2)	25.7 (7.1)	59.2 (19.1)	20.8 (17.3)
Business and Financial Operations (13-0000)	1	9.1 (5.9)	2.8 (3.0)	6.0 (3.8)	23.9 (6.2)	49.3 (23.9)	29.2 (29.0)
Health Care Support (31-0000)	9	11.4 (8.6)	4.7 (3.5)	10.2 (7.1)	23.3 (7.1)	52.9 (18.9)	27.9 (22.5)
Construction and Extraction (47-0000)	2	9.5 (3.5)	2.0 (2.8)	7.5 (4.9)	24.0 (11.3)	33.3 (4.7)	23.3 (18.8)
Building and Grounds Cleaning and Maintenance (37-0000)	2	7.0 (0.0)	NA[†]	3.5 (0.7)	18.0 (0.0)	33.3 (0.0)	20.0 (0.0)

MAJOR OCCUPATION CATEGORIES (SOC* CODE)	NO.	INSOMNIA SYMPTOMS, INSOMNIA SEVERITY INDEX, 0-28, MEAN (SD)	ANXIETY AND DEPRESSION, PATIENT HEALTH QUESTIONNAIRE-4, 0-12, MEAN (SD)	SLEEP HEALTH, PITTSBURG SLEEP QUALITY INDEX, 0-21, MEAN (SD)	SATISFACTION WITH LIFE, SATISFACTION WITH LIFE SCALE, 5-35, MEAN (SD)	PAIN INTENSITY, GRADED CHRONIC PAIN SCALE, 0-10, MEAN (SD)	PAIN-RELATED INTERFERENCE, GRADED CHRONIC PAIN SCALE, 0-10, MEAN (SD)
Protective Service (33-0000)	4	10.5 (7.3)	3.5 (1.3)	9.7 (4.5)	26.3 (6.6)	59.2 (20.4)	18.3 (21.9)
Personal Care and Service (39-0000)	6	4.3 (4.3)	3.3 (3.8)	8.0 (2.6)	29.2 (3.4)	48.3 (23.3)	11.7 (19.1)
Computer and Mathematical (15-0000)	6	12.0 (2.9)	6.5 (3.3)	7.4 (2.3)	19.2 (8.1)	50.7 (21.0)	43.3 (31.0)
Community and Social Service (21-0000)	8	8.8 (5.0)	3.5 (2.3)	7.8 (3.4)	28.7 (5.2)	47.9 (22.0)	17.1 (24.9)
Architecture and Engineering (17-0000)	6	6.7 (7.1)	3.5 (2.7)	7.0 (2.2)	28.7 (5.2)	53.3 (23.4)	24.4 (32.1)
Arts, Design, Entertainment, Sports, and Media (27-0000)	9	13.5 (8.0)	4.1 (2.9)	8.0 (3.8)	21.4 (8.9)	35.7 (31.2)	31.9 (34.3)
Life, Physical, and Social Science (19-0000)	5	9.2 (4.0)	2.8 (2.1)	7.8 (3.5)	23.5 (4.9)	54.7 (12.8)	18.7 (12.2)
Legal (23-0000)	6	10.8 (6.0)	5.0 (7.1)	6.0 (3.7)	21.0 (8.5)	48.0 (29.3)	30.7 (41.3)
Farming, Fishing, and Forestry (45-0000)	1	12.0 (0.0)	NA	NA	25.0 (0.0)	80.0 (0.0)	80.0 (0.0)
Self-employed[‡]	10	11.6 (7.5)	3.0 (1.8)	6.4 (5.6)	20.1 (3.8)	57.6 (30.6)	41.0 (29.9)
P Value[§]	NA	.834	.387	.886	.133	.984	.834

* SOC: Standard Occupational Classification.

[†] NA: Not applicable.

[‡] Self-employed occupations are not included in the SOC.

[§] P values for 1-way analysis of variance test the null hypotheses that all major occupational categories have equal means of biopsychosocial functioning measures.

Table 4.

Biopsychosocial functioning measures of the 444 patients included in the study, categorized by employment status.

MEASURE	TOTAL (N = 444), MEAN (SD)	EMPLOYED (n = 290), MEAN (SD)	NOT WORKING FOR PAY, MEAN (SD)						P VALUE*	P VALUE†	P VALUE‡
			Total (n = 154)	Retired (n = 58)	Going to School (n = 28)	Not Working Due to Health Reasons or Disability (n = 30)	Taking Care of House or Family (n = 12)	Unemployed or Looking for Work (n = 26)			
Psychosocial Functioning											
Insomnia symptomatology	10.5 (6.8)	9.9 (6.5)	11.4 (7.1)	10.3 (6.2)	8.7 (7.0)	15.2 (7.0)	11.2 (6.4)	12.9 (8.3)	.022§	<.001§	.001§
Anxiety and depression	4.0 (3.2)	3.7 (3.1)	4.4 (3.5)	3.8 (3.4)	4.4 (3.0)	5.7 (3.9)	2.7 (2.8)	5.2 (3.8)	.053	.014*	.045§
Sleep quality	8.1 (4.3)	7.7 (4.2)	8.9 (4.5)	8.2 (4.2)	7.8 (3.5)	12.5 (4.7)	8.0 (3.7)	8.8 (5.0)	.007§	<.001§	<.001§
Satisfaction with life	24.2 (7.0)	24.7 (6.7)	23.3 (7.5)	24.3 (7.6)	25.7 (4.9)	19.2 (8.2)	27.5 (5.4)	21.0 (7.7)	.048§	<.001§	<.001§
Pain Intensity	51.4 (22.7)	49.7 (21.5)	54.5 (24.5)	51.1 (28.6)	50.2 (18.0)	68.4 (19.9)	50.0 (17.9)	53.1 (24.5)	.033§	.002§	.001§
Pain-Related Interference	29.7 (29.0)	25.7 (26.1)	37.2 (32.4)	33.0 (31.9)	29.7 (27.1)	62.4 (28.0)	21.1 (31.8)	34.6 (31.6)	<.001§	<.001§	<.001§

*
Results of independent t test and χ^2 test between employed group and not working for pay group combined.

†
Results of analysis of variance between the employed group and all the subcategories of the not working for pay group.

‡
Results of linear regression between the different employed and not working for pay categories controlling for age and sex.

§
Statistically significant.