



Associations of occupational attributes and excessive drinking



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ABSTRACT

Numerous work-related drinking mechanisms have been posited and, oftentimes, examined in isolation. We combined data from over 100 occupational attributes into several factors and tested the association of these factors with measures of alcohol use. We used the NLSY79 2006 wave, a U.S. representative sample of 6426 workers ages 41 to 49 and the 2006 Occupational Information Network database (O*NET), a nationally representative sample of nearly 1000 occupations. We conducted exploratory factor analysis on 119 occupational attributes and found three independent workplace characteristics – physical demands, job autonomy, and social engagement – explained the majority of the variation. We then tested the association of these composite attributes with three drinking measures, before and after adjusting for gender, race/ethnicity, and a measure of human capital using count data models. We then stratified by gender and repeated our analyses. Men working in occupations with a one standard deviation higher level of physical demand (e.g. construction) reported a higher number of heavy drinking occasions (+20%, $p < 0.05$). Job autonomy was not significantly associated with measures of alcohol use and when the combined association of higher levels of physical demand and lower levels of job autonomy was examined, modest support for job strain as a mechanism for work-related alcohol consumption was found. In our pooled sample, working in occupations with one standard deviation higher levels of social engagement was associated with lower numbers of drinking days (–9%, $p < 0.05$) after adjustment. Physical demand and social engagement were associated with alcohol consumption measures but these relationships varied by workers' gender. Future areas of research should include confirmatory analyses using other waves of O*Net data and replicating the current analysis in other samples of workers. If our results are validated, they suggest male workers in high physical demand occupations could be targets for intervention.

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Introduction

Understanding the association between occupations and excessive drinking is important from both public health and economic perspectives. In 2010, most (64.8%) full-time employed adults consumed alcohol while 29.7% reported binge drinking and 8.5% reported heavy drinking, defined as binge drinking on 5 or more occasions in the past 30 days (Substance Abuse and Mental Health Services Administration, 2011). Most of the 56.6 million adult binge drinkers (74.7%) and 16.5 million heavy drinkers (74.0%) were employed in 2010 (Substance Abuse and Mental Health Services Administration, 2011). For employers and, consequences of employees' excessive drinking include high job turnover rates, co-worker conflict, injuries, higher health benefit costs, and

workplace aggression (Mangione et al., 1999; McFarlin and Fals-Stewart, 2002; McFarlin, Fals-Stewart, Major, & Justice, 2001; Webb et al., 1994). Economic costs resulting from lost productivity, health care costs, and legal and criminal consequences of excessive drinking were estimated \$223.5 billion in 2006 (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011).

Research on the prevalence of alcohol misuse among workers has found those employed manual occupations have higher rates of excessive drinking (Hemmingsson & Ringback Weitof, 2001). In particular, farm workers and service industry employees have been found to have higher risk and those working in professional occupations lower risk (Jarman, Naimi, Pickard, Daley, & De, 2007; Matano, Wanat, Westrup, Koopman, & Whitshell, 2002). Workers in construction and oil, gas, and mining extraction occupations had a higher prevalence of excessive drinking than those employed in professional and related occupations (Barnes & Brown, 2013; Larson, Eyerman, Foster, & Gfroerer, 2007; Substance Abuse and Mental Health Services, 1999). Conversely, other research finds

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alcohol use increases with occupational grade (Berggren & Nystedt, 2006) with managerial workers, particularly women, at increased risk of problem alcohol use when compared to non-managerial workers (Moore, Grunberg, & Greenberg, 2003).

Differences in excessive drinking across occupations may be a result of variation in exposure to distinct work-related risk factors including work stress and workplace social milieu.

Work stress

Job strain has been proposed as one model of how work stress may affect alcohol use. Under job strain theory (Karasek & Theorell, 1990), jobs are categorized along two dimensions: job demand and job autonomy. High demand, low autonomy jobs are posited to contribute to work-related stress inducing some workers to self-medicate by increasing their alcohol consumption. However, the evidence supporting job strain theory of excessive drinking among workers is contradictory (see Kouvonen et al., 2005 for a review). When examined separately, job demand and job autonomy have been found to relate to alcohol use. Physically and psychologically demanding occupations have been found to contribute to drinking risk (Crum, Muntaner, Eaton, & Anthony, 1995; Frone, 2008). Worker's inability to make autonomous decisions has also been linked to increased alcohol misuse (Hemmingsson and Lundberg, 1998; Hingson, Mangione, & Barrett, 1981).

Workplace social milieu

Social dimensions of workplace risk factors for excessive drinking documented in the literature include job alienation. In particular, alienating job conditions where workers lack contact with others or are not supported or helped has been associated with misuse of alcohol (Hemmingsson & Lundberg, 1998; Yang, Yang, & Kawachi, 2001).

Prior studies on occupational attributes and excessive drinking have tended to focus on specific theoretical mechanisms even though, when considered across studies, the occupational environment appears to affect alcohol consumption through multiple pathways including job strain and job alienation. Yet, few studies have examined these potential workplace risk factors simultaneously (Gimeno, Amick, Barrientos-Gutierrez, & Mangione, 2009). Additionally, many prior studies focus on young, male workers, and use non-representative U.S. samples, making inferences to female or older workers challenging. Our study used a U.S. representative sample of mid-career men and women. Further, to complement theory-driven with data-driven explanations of drinking variation across occupational attributes, we exploited the richness of O*Net, a nationally representative occupation-level database, and combined information from more than 100 occupational attributes into distinct work-related constructs. We found that physical demand-, job autonomy-, and social engagement-related workplace descriptors (i.e. those posited by job strain and job alienation theories) explained the majority of the variation in attributes across occupations. We then tested the association of these constructs with three measures of alcohol use – number of drinking days in the past month, usual number of drinks on drinking days, and number of occasions workers consumed 6 or more drinks. We hypothesized that participants employed in occupations with either high physical demands or low autonomy would have higher levels of excessive drinking. Consistent with job strain theory, we also hypothesized that the combination of higher physical demand and lower job autonomy would be associated with excessive drinking. Per job alienation theory, we hypothesized workers with lower levels of social engagement at work would report higher levels of alcohol misuse. Gender stratified models were then

estimated to determine whether the associations between occupational attributes and alcohol consumption patterns varied systematically by the sex of the worker. Differences in the associations between occupational attributes and alcohol use and the implications for research on social inequality across occupational groups are discussed.

Methods

Data and participants

This study used data from the 2006 wave of the National Longitudinal Survey of Youth 1979 (NLSY79) cohort (US Department of Labor, 2006). The NLSY79 is collected by the Bureau of Labor Statistics (BLS) and is a nationally representative sample of 12,686 youths first sampled in 1979 when they were 14–21 years old (US Department of Labor, 2006). Participants were 41–49 years old in 2006. Of the 22 interviews administered between 1979 and 2006, the average number of completed interviews for respondents was 21 (US Department of Labor, 2006). In the 2006 wave, 7654 employed and non-employed individuals responded, for a retention rate of 76.8% after adjusting for oversamples of military and disadvantaged respondents the NLSY79 dropped from interviewing prior to 2006. Reasons for non-interview in 2006 included refusal (60.3%), unable to locate (13.5%), deceased (19.7%), other (2.4%), and difficult cases (4.0%). Refusals tended to be female rather than male (70.0% vs. 52.5%) and non-Hispanic, non-African American (69.5%) rather than Hispanic (52.7%) or African American (47.9%) (US Department of Labor, 2006). A subsample of 6500 employed persons was retained for analysis. Individuals were considered employed if they had a valid census code for the occupation of their main job.

Individuals' three digit census code for occupation in the 2006 NLSY79 was used to link respondents to occupational attribute data in the 2006 O*NET v.14.0, the Department of Labor's Occupational Information Network database, using a standardized occupation codes (SOC) crosswalk (About O*NET, 2010). O*NET collects data in six content areas: worker characteristics, worker requirements, experience requirements, occupational requirements, workforce characteristics, and occupation-specific information (O*NET Content Model, 2010). O*Net data on occupational attributes have been collected since 2001 using a two-stage design (O*NET Data Collection, 2010). The design first randomly samples businesses expected to employ workers in target occupations and then randomly samples workers in those occupations within those businesses to provide a nationally representative sample of occupational information (O*NET Data Collection, 2010). Because the O*NET data collection program includes several hundred rating scales comprising four questionnaires, to reduce burden on respondents, sampled workers are randomly assigned one of four questionnaires (O*NET Data Collection, 2010). From the O*Net content model, we focus on "occupational requirements" as these data represent job-oriented information on in the areas of generalized work activities, detailed work activities, organizational context, and work context that can be analyzed across occupations (O*NET Content Model, 2010). The occupational requirements data, which includes 119 occupational attributes for nearly 1000 U.S. occupations, were used to represent occupation-level proxies for 2006 NLSY79 survey respondents' workplace environment. O*Net respondents endorsed Likert scale responses about the importance of each of the occupational requirements items for their current job (O*Net Questionnaires, 2010). For a recent review of articles using O*Net data when individual-level survey data contains job codes and health outcomes see Cifuentes, Boyer, Lombardi, and Punnett (2010).

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