

# **Workplace alcohol drinking and alcohol management among outsourced physical workers in Taiwan**

## **Abstract**

Outsourcing work has grown rapidly around the world but outsourced workers are often neglected in formal occupational health regulations. This study was designed to examine the social context of alcohol drinking behaviors at work among outsourced workers. In-depth interviews to 22 outsourced workers, subcontractors and worksite supervisors were conducted. It was found that precarious employment conditions were related with workplace drinking among outsourced workers due to poor supervision and economic stress of the workers. Types of alcohol management policies varied and the extent to which they were implemented depended on the enterprise scale of outsourcers, their cost concerns, as well as the attitude of worksite supervisors and subcontractors toward alcohol drinking in the workplace. This study described how workers' drinking behaviors were affected by these contextual factors at work which have implications for researchers and regulators who wish to improve occupational safety and health among outsourced workers.

## **Introduction**

Outsourcing or subcontracting of work has gained growing popularity in Western countries since the 1980s (Mayhew & Quinlan, 1999). However, such practices have been commonplace in countries where labor market regulations are less stringent. Around the world, there has been a growing trend for employers of all sizes to rely on contract or temporary workers (Gochfeld & Mohr, 2007). Outsourcing has been found to be related with poorer self-reported health, sickness absence and injuries (Azari-rad H, 2003; Nenonen, 2011; Quinlan & Bohle, 2008). A latest study found that outsourced workers have a higher risk of work-related diseases and a higher absenteeism rate than parent firm workers (Min et al., 2013). It has also been suggested that labor contractors often skimp on providing outsourced workers' compensation coverage and safety training, but empirical study was lacking (Gochfeld & Mohr, 2007), and health and safety services for outsourced workers were limited (Salazar, Takaro, Gochfeld, & Barnhart, 2003). However, few study of outsourcing has focus on substance abuse to date. In certain occupational groups such as construction or physical workers where workplace alcohol drinking is a concern, such a practice could undermine workplace regulations concerning alcohol. It was found that alcohol and drug use was generally perceived to be difficult areas to enforce control and the large group of outsourced workers were not covered by alcohol and substance abuse policies in the United Kingdom (Gyi, Haslam, & Gibb, 1998). Another problem concerning outsourced workers' health was that health and safety data of outsourced workers were severely lacking (Gochfeld & Mohr, 2007; Gyi et al., 1998), which suggested an underestimation of their health problems with official quantitative data (Glazner et al., 1998).

Alcohol use in the workplace has been an important occupational safety issue (Stallones & Kraus, 1993; Webb et al., 1994). Heavy alcohol drinking was estimated to affect 6.2% full-time working adults in the U.S. and 7-8% in Canada, while 22% of Canadian employees drink alcohol at work (Marchand, 2008). Workplace alcohol drinking was associated with occupational injury and led to economic losses (Ramchand, Pomeroy, & Arkes, 2009). According to a nationwide survey of the working population conducted by the Council of Labour Affairs of Taiwan in 2007, 9.4% of Taiwanese male were problem drinkers, 6% drank caffeinated alcohol regularly and among them, 60% drank at work (Cheng, Cheng, Huang, & Chen, 2012). The statistics suggested a worrying situation of workplace alcohol management regardless of government regulations. According to the Taiwanese Occupational Safety and Health Act article 25 to 27, the outsourcer and subcontractors assume joint liabilities for occupational accident compensation and indemnity. The outsourcer shall inform the subcontractors of the work environment, hazardous elements, and measures required by this Act and related safety and health regulations. Outsourcers shall institute measures to prevent occupational accidents, including consultative organization establishment, worksite coordination and supervision personnel appointment, worksite inspections, safety and health education. Employers are assumed the responsibility to keep workers who are drunk or in the danger of being drunk off high work according to Protective Measure Standard for Working at Heights. There were no safety standards concerning workplace alcohol use to all the other workers. Furthermore, the real situation of workplace alcohol management was never studied.

In the 1970s, 'employee assistance programs (EAPs) were designed to provide treatments and support for the employees with alcohol drinking problems through an individual approach and such as early identification, counseling, referral to specialty treatment, and/or behavioral interventions (Merrick, Volpe-Vartanian, Horgan, & McCann, 2007). However, workplace alcohol drinking has been found to be influenced by work-related. Ames et al. found that drinking in the workplace and the overall drinking patterns of an individual can be unrelated. In other words, workplace environmental factors encourage alcohol drinking or protect people from drinking, regardless of their original drinking patterns (Ames, Grube, & Moore, 2000). Some contextual factors were associated with workplace substance abuse, such as supervisor enforcement, and workplace substance-use norms (Frone & Brown, 2010; Frone & Trinidad, 2012). A better understanding in social dynamics and causal pathways concerning alcohol drinking at work will shed light on intervention policies. Workers' alcohol drinking behaviors in the workplace are determined by contextual factors including workplace culture, governmental policy, economic conditions, employment condition, and employer characteristics. To understand how the practice of outsourcing undermine regulatory powers of existing occupational health policies, we performed in-depth interview to outsourced workers, subcontractors and supervisors employed by outsourcers to find out how outsourcing itself influenced workplace alcohol drinking. The objectives of this study are (1) to describe current alcohol management condition and measures in outsourced workplace; (2) to find out the contextual factors associated with workplace alcohol drinking.

An analytical framework was established to guide the interview and analytical process (Fig.1). In the practice of outsourcing, the contract chain can be multiple-layered. Take construction work as an example, it is usually outsourced by large organizations (outsourcers), to contractors who then subcontract specialized tasks to smaller suppliers (Gyi et al., 1998). For simplicity, we identified 3 major roles in outsourcing practice in this study: outsourcers (property owners and prime contractors who mainly do planning and management undertakings rather than skilled undertakings), subcontractors (the contractors at the lowest tier of contract chain who directly hire skilled workers), and employed workers. Outsourcers' characteristic and on-site alcohol management policy affect outsourced workers' drinking behavior. On the other hand, workers are directly employed by subcontractors and hence their drinking behaviors are influenced by their employer's characteristic and alcohol management policy, as well as employment relationship including payment and contract type as well. Finally, outsourcer- and subcontractor-related factors are inevitably affected by macro-social factors including drinking culture and general alcohol policies. This role-oriented model holds advantages over previous models, especially for policy makers, because specific interventions and policies could be designed and responsibility laid to each of the roles.

## **Methods**

Outsourcing was popular traditionally in the construction and agricultural industry (Gochfeld & Mohr, 2007). In this study, we focused on outsourced physical workers related to construction industry. Study participants must be older than 18 years old, who has been outsourced physical worker for more than 1 year. They must have either seen other outsourced workers drinking alcohol in the workplace or drunk in the workplace themselves. Subcontractors and construction site supervisors were included as well. The interviewees were recruited by convenient sampling and snow-ball sampling, start with informers introduced by researchers' friends. Purposive sampling was adopted as the analysis progress in order to maximize variation (Miles & Huberman, 1994). The sampling procedure continued until saturation. The participants were 16 male outsourced physical laborers, 3 construction worksite supervisors and 3 subcontractors. Data were gathered by semi-structured face-to-face interview by one interviewer at the interviewee's worksite or house and public space. The interviews were tape-recorded to facilitate further analysis. Demographic data, including age, ethnicity, education, income, and marital status were gathered. Their work history, employment characteristics were also collected. Using open questions, the interviewer explored 4 main aspects: workplace drinking behavior, drinking norm, and knowledge and attitude to workplace alcohol management policy. The interviews took 32 to 76 minutes, averagely 48 minutes. The interviews took place between September, 2013 and June, 2014.

Multiple examinations of the interview records according to procedures recommended by Miles and Huberman were adopted (Miles & Huberman, 1994). First, narratives corresponding to each of the 4 interview aspects were sorted and transferred to a topical file. Second, themes identified within each topic were developed in more detail. In the third reading, two

complementary strategies were used to reveal the role of CAB to workers: a “consensus” view across interviewees and a “variability” perspective across responses for a given topic.

## Results

Table 1 summarized the characteristics of interviewees. Six informers introduced 17 interviewees and interviewees in each group were acquainted with other interviewees in the same group. The rest 5 interviewees were collected independently. Four construction sites were visited and 10 interviewees were accomplished, and the rest interviewees took place in public place, interviewees’ offices and houses. The 16 outsourced physical laborers included 2 painters, 2 odd-job workers, 4 formworkers, 3 fire protection technicians, 4 welders and one ironworker (Table 1). They aged between 33 to 70 years old. Three of them were retired (48, 66, and 70 years old) and one of them no more do outsourced work. All the interviewed outsourced workers have worked in dozens to more than 100 worksites, depending on their job longevity. These worksite include building construction sites (most common), technological plants, electricity plants, and railway or road construction sites. The 3 worksite supervisors worked for 7 to 23 years for construction companies, and one of them was a plasterer before this job. The 3 subcontractors subcontract plumbing and electricity, carpentry and welding works. All of them worked with their employees and were at the lowest-tier of the subcontract chain (they do not subcontract work to others). In the interviewees’ job career, some of them has changed job position between worksite supervisors, subcontractors and outsourced employees, and some of them changed jobs several times. These experiences from different job positions and occupational groups provided abundant material for our analysis.

The most popular alcoholic beverages were caffeinated alcoholic beverage (CAB) (10% alcohol) and beer (5% alcohol). White wine (10% alcohol) was gaining popularity in summer days. The interviewed workers drank at their workplace currently or before. They carried the alcohol with them while working high, or they drank with other workers during rest time. The drinking amount ranged from one can of beer to several bottles of caffeinated alcohol (600ml per bottle). Their drinking behaviors adjust with difference management level, as described below. The interviewed subcontractors drank alcohol with their workers in the workplace regularly or occasionally. Worksite supervisors drank with workers and subcontractors occasionally and socially.

In the following section, we first identified 4 levels of current workplace alcohol management conditions, and existing role-specific workplace alcohol management measures. Four aspects of contextual factors were analyzed: outsourcer characteristics, subcontractor characteristics, employment conditions, and upstream macro-social factors.

### *Alcohol management level*

All interviewees except one (odd-job worker) knew that “principally” it is not allowed to drink alcohol in the workplace, but workplace alcohol drinking was very common in their experience. According to the extent to which the outsourcers and subcontractors implement alcohol management measures, 4 levels of workplace alcohol management perceived by outsourced workers were recognized, namely (1)total prohibition, alcohol is not allowed to bring in or drink at the workplace; (2)discouragement: if found drinking alcohol, some measures will be taken such as punishment or exhortation; (3)laissez-faire: there is no monitoring and no action taken if workers drink alcohol; (4)Encouragement: alcohol is provided by the outsourcer or subcontractor free or charged.

### *Alcohol management measures*

Considering the triangular relationship between the outsourcer, subcontractor and worker, we divided alcohol management measures into 3 categories:

1. Outsourcer and worker: monitoring, work inhibition, alcohol availability control

Worksite supervisors and safety inspectors implemented alcohol management policies made by their employer, mainly the prime contractor. The supervisors or inspectors monitored workers’ alcohol drinking behavior and detected drunkenness by their eyes and noses. Alcohol breathalyzer test was performed in a few technological plants and workers who drank alcohol were not allowed to work there for that day or forever. The persistent presence of outsourcer-employed safety inspectors in the worksite with a clear alcohol prohibition declaration effectively prevented workers from drinking alcohol. The following description came from an interviewee who was a heavy drinker when he worked for a public transportation project outsourced by city government:

*The safety inspector just stood beside me when I was working, although I craved alcohol, I just couldn’t drink in front of him (Case no 7, ironworker)*

Outsourcers controlled alcohol availability in the worksite. In cases with strictest alcohol management policy, the supervisor or inspector kept anyone with alcohol from entering their worksite. They also drove vendors away from the neighborhood. On the contrary, some outsourcers let vendors sold alcohol, cigarettes and other beverages by the worksite and received commissions, especially those vendors whom they were acquainted with. Some vendors sold alcoholic drinks in soft drink bottles to evade government safety inspection.

*The construction company collaborate with certain retailers, sometimes their relatives, and they sold alcohol in soft drink plastic bottles in the worksite for a higher price than outside (case no 16, painter)*

Construction site supervisors sometimes drank with outsourced workers and subcontractors to socialize with them. This also gave workers a message that drinking was allowed in the workplace.

2. Subcontractor and worker: monitoring, exhortation, work cessation, availability control, financial punishment

Subcontractors who worked with his workers monitored their employees' behavior and the extent of drunkenness better than those who didn't, for example, those subcontractors who hired dozens of workers and subcontracted several projects at the same time. They could exhort his employees not to drink too much, ask them to cease working temporarily until he is considered able to work, or terminate their employment contract. Subcontractors also played a crucial role as controlling alcohol availability. Some subcontractors, especially formworkers, "collaborated" with specific retailer who followed the work team to worksites and sold them alcohol, beverages and other substances. Some subcontractors bought alcohol for his workers, or gave money to his workers and let them chose beverages they like without interference. Other subcontractors provide soft drinks and water for free and discourage his workers to drink alcohol. However, one of the interviewed subcontractors tried to provide soft drinks of higher price to his outsourced workers, but he found that they still prefer caffeinated alcohol. Most of the time subcontractors do not fine their workers for alcohol drinking unless they were fined by their outsourcers and the cost will be transferred to the worker.

3. Outsourcer and subcontractor: financial punishment

Outsourcers carried the risk of being punished if workers were found to drink alcohol at the worksite by safety inspectors of the government, they usually transfer the cost to the subcontractor. However, this situation seldom happens because outsourcers often stop workers from working during government inspections to avoid punishment. Some outsourcers made agreements with subcontractors and fine subcontractors for workers' drinking behavior. Once alcohol-related workplace injuries happened, outsourcers claimed that the responsibility belongs to subcontractor and the worker. They seldom submit beneficiary claims to insurance company to avoid formal records and a rising premium.

*Contextual factors*

The alcohol management measures above were not always implemented and we analyzed how it was influenced by characteristics of outsourcer and subcontractor as well as payment and contract types. These factors were further influenced by macro-social factors.

### 1. Characteristics of outsourcer

Larger, public or high-end projects implemented alcohol management measures better; on the contrary, individual property owner exerted minimal alcohol management. The examples of total alcohol inhibition workplace were private or public industrial zone development projects and public transportation projects. The reasons included that larger project owners employed full-time safety inspectors, government inspectors visited these worksites more often, and the owners value their reputations so high that they tried hard to avoid any workplace injury. Large prime contractors bid for public projects and their safety records are to be examined so they also applied strict alcohol management policy. Generally speaking, technological industry had stricter alcohol management policy than construction industry. Some technological plant managers perform alcohol breathalyzer tests to outsourced workers. Safety inspectors in a few technological plants fine outsourced workers directly or fine subcontractors, while in construction sites it rarely happens. To hire outsourced workers who don't drink alcohol or to adopt stricter alcohol management measures increased costs, but outsourcers could claim doing so as to give customers impressions of high-end products. Furthermore, larger project owners often set up vending areas, and the management of products sold in the worksite decided alcohol availability. Small outsourcers would not intervene with what outsourced workers bought from outside of the worksite. Distant interpersonal relationship between worksite supervisor and numerous workers in a large project also helped alcohol management measures implementation since the interpersonal pressure was lower.

### 2. Characteristics of subcontractor

Drinking behavior of subcontractors influenced workplace alcohol availability. If the subcontractor himself drinks alcohol, since he was expected to provide his workers beverages, he often offered them the same alcohol he drank. In our study, many subcontractors are skilled workers themselves, so they developed CAB drinking behavior when they worked with other skilled workers. In Taiwan, popular CAB products sold in 600ml bottles were commonly shared by physical workers and subcontractors at the worksite. However, even if the subcontractor himself didn't drink alcohol, he might still offer his workers alcohol "because they like it". Those who had closer relationship with employees are more prone to provide CABs.

*Workers worked slowly and passively if caffeinated alcohol was not provide; as a matter of fact, they asked for it. If I refused, they thought I'm a mean person. They worked for me and were paid with fixed daily wages, I should compensate them (with alcohol). Some generous*

*employers provided their workers caffeinated alcohol, betel nuts and cigarettes (case no.5, subcontractor, carpenter).*

*“My boss is stingy, he gave us water and seldom bought us beverages...I saw other workers’ boss, he brought CAB to them at 10 AM and 3 PM. He is so generous”. (no. 13, fire protection technician)*

A poor knowledge of alcohol-related injury and health consequences hampered the subcontractors’ motivation to manage his workers’ alcohol drinking behavior. The most commonly encountered rationales for allowing workers to drink alcohol were that workers were alcohol tolerant and alcohol attenuates withdrawal symptoms, and alcohol improved work efficiency. One of our interviewed outsourced workers who were diagnosed with alcohol dependence and alcohol-related psychosis said:

*“(When I worked high), drinking alcohol reduced fear and I walked steadier (case no.21, welder).*

### 3. Payment and contract types

Outsourced workers in our study were paid on a daily/piece basis and they expected to go home with their full daily wage. Hence, subcontractors were often expected to provide workers quenching beverages, lunches, and even popular substance which workers were in fond of. These workers were therefore exposed to a great availability of alcohol at the worksite if the subcontractor chose to provide them alcohol. Some workers drank AED as gaining petty advantages even if they were not especially in fond of it.

*“Alcohol was brought by our employer, workers felt like gaining petty advantages. If the employer didn’t buy alcohol, we asked for it” (case 19, odd-job worker, retired.)*

Employers have a lowest control over drinking behaviors with piece-rated outsourced workers since the workers decide their own work pace without regular schedule of work and rest. They drink with a very high frequency. On the contrary, workers paid with daily basis were asked by their employers to work as much as possible in the day, so they were not allowed to spend too much time drinking.

Most of the outsourced physical workers are temporarily employed without formal contracts. They get their wage (on daily/piece basis) by month or by day according to work consistency with their employers. Employers control workers’ drinking behavior better if they pay workers by month because monetary punishment can be performed. As to workers paid by day, employers terminate their work without pay if they drink and behave inappropriately in the workplace. These workers may work at other workplaces where drinking is poorly managed or



remain unemployed. On the other hand, many temporary workers obtain labor insurance and national health insurance through labor union rather than an employer. Since the cost of insurance premium was not imposed on their employers, temporary workers' alcohol-related injury and health problems were severely neglected. Temporary outsourced workers were minimally protected by safety inspection because they worked from one place to another frequently. Safety inspectors seldom visit these short-term worksites, and they are not included in the list of labor force hence seldom received safety education.

#### 4. Macro-social factors

Three macro-social factors were noted to influence alcohol drinking problem among outsourced workers. First, the interviewees have noticed a growing average age of workers and a shortage of physical laborers, which they thought to be secondary to higher academic achievement and unwillingness to do physical work among younger people. Hence the outsourcers and subcontractors were reluctant to annoy the already scarce skilled physical workers with strict regulations. One interviewee reported that he ever worked 350 days a year because there were so many works to do and his employer asked for his favor.

Second, a spill-over effect was noted since drunk driving breathalyzer test was performed during road check and legal breathing alcohol level lowered (now 0.15mg/dL) since 2001 in Taiwan, with a maximal fine of NTD 90,000 and driver's license suspension. Outsourced workers avoided drinking alcohol in the afternoon so they wouldn't be caught drunk driving.

Third, drinking cultures in Taiwanese society hampered alcohol management. All our interviewees attributed alcohol drinking behavior and related health consequence to individual responsibility. When asked what the government can do to promote occupational safety and health concerning workplace alcohol use, the interviewees were puzzled or held a passive attitude. It was culturally taken as a personal issue rather than a public issue, so management measures and regulations were difficult to implement formally. Some workers insisted that they can control the drinking amount according to work situations by themselves. Some interviewees were annoyed while talking about alcohol management policies and they felt segregated from policy makers.

*“Let staffs of Department of Labor work with us for 3 years, they will know what's the reality and their theory (policies) won't work”. (case no.16, painter)*

On the contrary, some workers and subcontractors agreed that alcohol should be managed in the workplace and they proposed that reward should be designed besides punishments. It is noteworthy that they are willing to give up workplace drinking for monetary reward or a better wage.

Third, there were often several subcontractor teams working in the same site, and collaboration and coordination were imperative. Many supervisors and subcontractors drank alcohol with outsourced workers to establish a closer relationship, which gave the message that workplace alcohol drinking was allowed. Workplace coordination and efficiency was taken more important than alcohol management. Supervisors, inspectors and workers avoided head on conflicts on alcohol in a subtle way:

*“Some inspectors check if we brought alcohol with us at the entrance...we wrapped canned beer with newspapers so it wouldn’t be too obvious. We respect them and they respect us. They actually knew what’s inside.” (case no.11, odd-job worker)*

## **Discussion**

As to our knowledge, this is the first study concerning the relationship between outsourcing and workplace alcohol drinking. Different alcohol management measures were taken by subcontractors and outsourcers. Alcohol drinking behaviors among outsourced workers were influenced by multiple contextual factors, including the characteristics of outsourcers and subcontractors, payment and contract style, as well as macro-social factors. The combination of these factors contributed to a wide range of alcohol management strictness and drinking behavior.

There has been a debate if the association was a result of workers’ characteristic (such as age, experience, personality, etc.), intrinsic job hazards, or outsourcing itself (employment characteristics) (Gochfeld & Mohr, 2007). In this study, we have found several characteristics of outsourcing which causes workplace alcohol drinking.

Larger and public project outsourcers often implement alcohol management polices better. Previous studies were inconsistent in the relationship between project size and risk management and injury rate, (M. Loosemore, 2007, Azari-rad H, 2003). Hinze et al. proposed that in small firms the injury rate increases with size, but this rate decreases with size once the size is sufficiently large to warrant implementation of a formalized safety program (Hinze, 2003). The reason behind the relationship between entrepreneur size and alcohol management was also unclear. One study suggested that larger contractors employed more personnel in occupational medicine, industrial hygiene, industrial safety, and training than small contractors (Gochfeld & Mohr, 2007). Previous study showed that health surveillance to the temporary and mobile work force workers involves a potentially great cost and seldom exists (Gyi et al., 1998). In our study, the cost of health and safety training both caused greater economic burden to smaller outsourcers, but cost is not their only concern. Entrepreneur reputations and safety records were important to outsourcers as well and are protective to outsourced workers.

Subcontractors’ alcohol drinking behavior and attitude influenced the alcohol management measures they took, which in turn influenced outsourced workers’ drinking behavior. The

association between characteristics of subcontractor with workplace drinking was scarce, but there have been increasing evidences of the health effect of employment contract and payment types which they made with their employees. Quantitative studies found that temporary work was associated with poor mental health and higher mortality (Artazcoz, Benach, Borrell, & Cortes, 2005; Kim, Muntaner, Khang, Paek, & Cho, 2006; Kivimaki et al., 2003). One study also found payment system to be the most significant factor of outsourced worker injury (Mayhew & Quinlan, 1999). A few qualitative studies reported the relationship between precarious employment and alcohol drinking. Farm workers in South Africa were paid with alcohol in the years of colonial settlement and caused tremendous alcohol problem in the group (London, 1999). Latino women working in cantineras in southern United States drink alcohol to maximize profits (Fernandez-Esquer, 2003). Our results showed that temporary contract and piece-rated pay were unfavorable to workplace drinking control. The mechanism of how contract and payment types influenced workplace alcohol drinking was suggested in our study.

One of the reasons that temporary outsourced workers drink alcohol was that they lived unstable lives and took every resource including beverages provided during work. This seemed to support the “economic/reward pressures” factor according to Quinlan’s 3-factor model, which included the pressures of dependency and insecurity of their precarious employment characteristics (Quinlan & Bohle, 2008). But we further noticed that this economic pressure interacts with other contextual factors, i.e. the subcontractor’s own attitude toward alcohol. The economic pressures could even be a protective factor if the subcontractor provides beverages other than alcohol. Monthly-paid wage and a longer contract also give the employer more control over outsourced workers’ behavior.

This study found that general alcohol policy, sociodemographic characteristics, and drinking culture all influenced workplace alcohol management. There are many other alcohol policies, in addition to workplace alcohol policies, that affect workplace alcohol drinking through availability, responsibilities, penalties, etc. (DeJong & Hingson, 1998). Previous study showed that any type of drug test will favorably impact injury performance, including random tests, tests for reasonable cause, post-accident tests, and follow-up testing (Hinze, 2003). In our study, even road alcohol testing decreased workplace drinking. Researchers have recognized different alcohol drinking culture in societies and identified the role of modes of social control of drinking and definitions concerning the nature of drinking-related problems and the means of their handling as important dimensions for alcohol drinking behavior (Room & Makela, 2000). The culture of self-moderation attenuates employers’ and outsourcers’ responsibility of workplace management.

This role-oriented analysis gives policy implications to workplace alcohol management by specific roles and their interactions. Our study showed that only when all the roles in outsourcing relationship, including outsourcers and subcontractors, stuck to a consistent alcohol management goal would protective regulations being realized, and this could be a difficult task in pyramid subcontracting. Alcohol management policy implementation was substantially

weakened by dissonance between multiple parties in the subcontract chain. Quinlan et al. proposed the “disorganization” factor and suggested that organizational supervision, information flow and workers’ organization were weakened in outsourcing (Quinlan & Bohle, 2008). These problems also happened in typical workplaces but happened far more easily in outsourcing. Outsourcers don’t employ subcontractors and rely on their specialized skill, so inherently outsourcers can only negotiate with them or make agreements in the outsourcing contract rather than give subcontractors and workers orders as their supervisors. At the same time, subcontractors control their workers’ behavior to a lesser extent than employers can do in a typical employment relationship because they worked at places managed by outsourcers. For example, a study of outsourced drivers found that outsourcers controlled a significant part of health and safety of the outsourced workers, and consequently it was difficult for employers to satisfy the requirements established by health and safety legislation with respect to securing a safe and healthy workplace (Hasle, 2007). On the other hand, regulatory failure, including difficulty of ensuring minimum labor standards, allocating employer responsibility, and monitoring and enforcing laws, was found in our study (Quinlan & Bohle, 2008). National regulations were imposed indirectly and it easily failed when the outsourcer did not or could not influence the subcontractor. It was also found that the relationship of host managers maintained from the contract employees working on site was very distant to escape potentially expensive legal liabilities associated with being declared the employer of contract employees (Rebitzer, 1995).

According to the characteristics of outsourcer and subcontractors which influenced workplace alcohol drinking among outsourced workers, outsourcers and subcontractors must be addressed simultaneously and specifically in policy making. Subcontractors should be educated with workplace alcohol use consequences and be targeted to change unhealthy substance-use behaviors. Small-scale workplaces should be visited by inspectors as well. Worksite vending areas should be routinely inspected and well-regulated with products sold in there. The outsourcers should be made responsible for outsourced workers’ safety and health by laws. According to the Council Directive 2001/23/EC of March 2001 on the approximation of the laws of the Member States of European Union relating to the safeguarding of employees' rights in the event of transfers of undertakings, rights acquired by employees with the former employer are to be safeguarded when they are transferred to the outsourcer (The council of the European Union, 2011). In the United States, the Occupational Safety and Health Administration requires outsourcers to be responsible for ensuring that subcontractors provide for worker health and safety (Gochfeld & Mohr, 2007). Alcohol management policies should be clearly incorporated into the outsourcing contract, and outsourcers and subcontractors should work out a consensus about workplace alcohol management.

These contextual factors delineated by our study affect not only workplace drinking behavior but also safety measures adoption, safety and health training and other health behaviors among outsourced workers. More studies are needed and actions being taken to protect the

increasing population of outsourced workers. There are several limitations of this study. First, the interview could be confounded by social desirability bias, so the interviewees might under-report the alcohol drinking problem at their workplace, and on-site managers were likely to exaggerate alcohol management measures (Glazner et al., 1998). Second, work conditions which interact with employment conditions were not discussed, but we have restricted our study population (physical workers) to those who have similar work conditions.

## Conclusion

Workplace alcohol management measures were inconsistently implemented in outsourcing workplaces. Contextual factors including outsourcer's economic scale, subcontractor's attitude and knowledge of alcohol consequences, employment characteristics, and sociocultural factors all influence workplace drinking among outsourced workers. Workplace alcohol policies should be made to address these contextual factors specifically.

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