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# International Journal of Hospitality Management

journal homepage: [www.elsevier.com/locate/ijhosman](http://www.elsevier.com/locate/ijhosman)



## Hotel workers' substance use and abuse

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### ARTICLE INFO

#### Keywords:

Human resource management  
Organizational behavior  
Cannabis  
Alcohol  
Cigarettes

### ABSTRACT

This study investigates the usage of tobacco, alcohol, and cannabis among hotel employees in the resort city of Eilat. Data obtained from a sample of 458 respondents, drawn from three hotel chains, provides evidence of workers' substance consumption in light of their socio-demographic backgrounds and specific job characteristics. The results indicate a higher rate of substance use among study participants in comparison to the average in Israeli society. Substance use was found to be the most prevalent among young, single male employees with relatively low levels of education. In terms of job characteristics, front-of-the-house employees were more prone to binge drinking than back-of-the-house employees. It is suggested that work-related programs and policies, such as sensible drinking workshops and smoking cessation programs, may help prevent alcohol misuse and reduce extensive substance use among hotel staff.

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### 1. Introduction

Previously confined mainly to non-productive members of society, the abuse of certain substances has been normalized among younger populations who are part of either today's workforce or that of the future. Studies on the relationship between work environment and substance abuse have shown a correlation between the type of employment and the levels of this abuse. According to the US Substance Abuse and Mental Health Services Administration (SAMHSA, 2009), food preparation workers, waiters and waitresses, bartenders, and other service occupation workers are at the highest risk of substance abuse. Similar findings were reported by the Australian government in their *Australian Safety and Compensation Council research report (2007)* revealing that hospitality employees had used illicit drugs more than had any other sector in a one-year period (31% in hospitality, followed by 24% in construction, and 21% in retail). The hospitality industry thus provides a pertinent setting within which to examine the relationship between work and substance use.

One research tradition that can explain the prevalence of substance use among tourism-related workers is known as the availability thesis. Availability theories postulate that the social, cultural and/or physical availability of alcohol, cigarettes, and drugs increases rates of usage (e.g., Ames and Grube, 1999). It could be argued that hotels as a working environment increase physical

and/or social availability to alcohol mainly in food and beverage departments due to the access of workers to the hotel's stocks. Moreover, social and cultural availability refers to the normative support for drinking in the social environments surrounding the users. This availability is therefore related to various factors pertinent to the town of Eilat, first as a resort city and second, as a liminal hub in Israeli society in which deviant behavior is tolerated. The fact that many young Israelis come to Eilat, after their army service for a period of six months in order to earn the governmental benefits for hospitality workers, contributes a sense of temporality to the overall liminal experience of being in this city as a hospitality worker (for an analysis of the legal, socio-cultural and organizational conditions that nurture the liminality of the hospitality industry in Eilat, see Belhassen, 2012).

In one of the few studies to empirically examine alcohol consumption among hotel workers, Curson and Young (1998) showed that hospitality workers had high rates of alcohol use. In a recent editorial of the International Journal of Hospitality Management, Editor-in-Chief Abraham Pizam notes that although hospitality researchers have long suspected that alcohol abuse and dependence were high among hotel staff, they have based their suspicions on sketchy evidence "such as rumors and stories passed from veteran employees to newcomers. To the best of my knowledge, few if any academic or professional reports in the hospitality literature have addressed this topic, and none was based on empirical research" (Pizam, 2010, p. 547). Data about hospitality workers cigarette smoking habits are not found in the academic literature, but as noted earlier, epidemiological examinations of both the Australian and American workforces reveal that hospitality workers are more prone to use alcohol and other substances. Therefore, the study of employees' substance abuse may provide hotel

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managers with initial data about the prevalence and patterns of this use among workers.

The wellbeing of employees is of special concern in all industries, and corporations have invested much effort to reduce all types of unsafe practices, including extensive usage of tobacco, alcohol, and cannabis which are the focus of the current research. Generally speaking, work problems resulting from extensive usage of alcohol, tobacco, and cannabis include reduced productivity stemming from concentration difficulties and tiredness. These factors lead to an increase in mistakes in the work place. In the United States, for example, problems related to alcohol and substance misuse cost approximately \$81 billion in lost productivity in a single year (SAMHSA, 2009). In the UK, it is estimated that between 11,000,000 and 17,000,000 working days are lost each year due to excessive drinking, costing the economy as much as £1.8 billion per year (Hofman Öjermark, 2006; IAS, 2011). Although many substance users simultaneously use more than one substance, studies continue to relate neuropsychological and behavioral effects to a single substance. For example, both experimental and survey-based studies that focused solely on the effects of cannabis use indicated that feelings of anxiety, depression, fatigue, lack of motivation, low energy, lower alertness, slower response, memory problems, and psychomotor slowing are some of the common and immediate outcomes of regular consumption (e.g., Reilly et al., 1998; Wadsworth et al., 2006). Furthermore, in regard to cigarette smoking, it has been nominated as the single most important source of preventable illness and early death (USDHHS, 2010). According to a recent US Surgeon General's report (USDHHS, 2010), the economic cost of cigarette smoking in the US is estimated at more than \$193 billion annually due to health care costs and loss of productivity. Arguably, such substance abuse among workers can cause not only mental and health problems to employees, but also it can be detrimental to employers as well. In fact, many studies confirm that employees who extensively use tobacco, alcohol, and cannabis bring their problems with them to work.

If the hospitality industry indeed cultivates an organizational culture in which alcoholism, heavy cigarette smoking, and extensive cannabis use are tolerated, it should also be clearly stated at the outset of this paper what the hazards of substance use are for employers. To begin with, substance-abusing employees are 3.6 times more likely to be involved in workplace accidents and 5 times more likely to file workers' compensation claims (Kaestner and Grossman, 1998; SAMHSA, 2009). In the US, up to 40% of industrial fatalities and 47% of industrial injuries can be linked to alcohol use and alcoholism; similar data can be found in the UK and Australia (Australian Safety and Compensation Council, 2007; IAS, 2011; SAMHSA, 2009). Secondly, substance abuse lowers productivity, and in the case of service industries, it may hinder interaction with customers (Harris and Hefit, 1992). Thirdly, studies have shown that substance abuse increases absenteeism and turnover (e.g., Bacharach et al., 2010), problems that are already evident in the hotel industry in Israel and around the world (e.g., Krakover, 1998; Lam et al., 2001; Mok and Finley, 1986). The US Department of Labor has reported that substance-abusing employees had 66% more absences and filed more compensation claims than non-abusers (Hofman Öjermark, 2006). In fact, 500,000,000 workdays have been lost annually due to alcoholism (SAMHSA, 2009). SAMHSA (2009) further estimated that substance-abusing workers were 2.2 times more likely to appeal for early dismissal or time off, 2.5 times more likely to take eight or more days off, and 3 times more likely to be late for work. Finally, employees who use substances were more than twice as likely to have changed employers three or more times in a single year (SAMHSA, 2009).

Given the importance of this issue and the relative lack of empirical research on substance consumption in the hospitality industry (Pizam, 2010), the current study had three main goals: First, it

determined the extent to which there is an actual problem in substance consumption among hotel employees (e.g., heavy drinking, tobacco use, and cannabis consumption). Second, the study examined the relationship between the use of such substances and central socio-demographic variables, and third, it analyzed the correlation between substance abuse and non-parameter variables such as serving clientele, the number of subordinates, wages, and the intensity of work.

### 1.1. Study setting and rationale

The hospitality industry has been described in the academic literature as marginal since hotel employees have a weak labor market position because of their limited bargaining power as low skilled workers (Baum, 2007a; Crompton and Sanderson, 1990; Rose, 1988). In addition to its low socio-economic position, the hospitality industry is also marginal in the sense that it cultivates a work environment that invites and perpetuates moral and criminal deviance, e.g., substance abuse, inappropriate sexual behavior, and even criminal offenses such as petty theft (Miller, 1978; Shamir, 1981; Wood, 1992). The current study has endeavored to further examine this thesis by examining the relationship between substance consumption, focusing on alcohol, cigarettes, and cannabis, in addition to variables related to the demographic backgrounds and job characteristics of hotel employees.

The current study is based on data collected in three major hotel chains in Eilat. The resort city of Eilat, situated at the southernmost tip of Israel, was chosen as the study site. It has a total population of about 60,000. Almost one-quarter (24.6%) of all rooms in the operating hotels in Israel is located in the 51 hotels (with a total of 10,956 rooms) in this city. In 2009, the bed occupancy rate was 61.5% and there were 6696 nights (87% of them filled by Israelis tourists). On average, there are 7337 jobs per month in Eilat which amount to 28% of the average in the entire hospitality industry in Israel. Although approximately 1000 workers in Eilat hotels are African refugees and asylum seekers, they have not been included in the study population. The municipality of Eilat estimates that, in addition to legal residents, there are around 7000 African refugees, asylum seekers, and infiltrators. Sudanese refugees started fleeing Egypt for Israel in 2003. They crossed the border on a harsh and traumatic journey. Those who managed to enter Israel alive were often wounded or starving. The Israeli military treated them and then handcuffed and detained them. The hospitality industry in Eilat employed 1000 prisoners. Many of them are Muslims who are not religiously permitted to drink alcohol. Consequently, we believe that they are a distinct group in the Eilat that deserves separate examination, not only because they are cultural separatists, but also because of their cultural background.

Despite the complexity and difficulty of tourism industry jobs, this sector is one of the lowest paid in the Israeli economy (Reichel and Amit, 2000). The Israel Central Bureau of Statistics (ICBS) typically lists accommodation services and restaurant-related jobs at the bottom of the Israeli wage scale with average pay per employee job of 4003 NIS (New Israeli Shekels) in 2010, compared to average pay of 8414 NIS for the entire Israel job market (CBS, 2011a). Although the statistics for waiters, barmen, room service workers, and bellboys do not account for tips, a major contributing element in the incomes of some hotel industry employees, the inherent uncertainty in tips must be considered, especially in light of the seasonal nature of tourism in Eilat and of its sensitivity to the security and economic crises that are integral parts of Israel's reality (Israeli and Reichel, 2003). Furthermore, according to the ICBS, some additional traits distinguish Israeli hotel staff from employees in other job sectors. On average, they are less educated, younger (62% are younger than 34), and work more hours per week (43 as opposed

**Table 1**  
 Rates of psychoactive substance use in the last month: comparison of surveys.

Substance	Year					
	2009	2005	2001	1998	1995	1989
<b>Tobacco</b>	<b>16.27</b>	<b>15.3</b>	<b>13.7</b>	<b>16.1</b>	<b>15.7</b>	<b>14.2</b>
<b>Alcohol – general</b>	<b>53.16</b>	<b>37.2</b>	<b>33.7</b>	<b>37.0</b>	–	–
Wine	35.82	26	24.1	26.8	22.6	26.6
Beer	36.9	22.9	20.9	21.9	25.9	32.2
Spirits	31.1	21.4	16.4	15.6	11.2	13.1
<b>Cannabis</b>	<b>5.48</b>	<b>3.6</b>	<b>4.1</b>	<b>3.7</b>	–	–

Source: Israeli Anti-Drug Authority IADA (2009).

to an average of 37 h per week in the Israeli labor market) (Reichel and Amit, 2000).

## 2. Theoretical background and hypotheses development

### 2.1. Substance use in society

The hypotheses in this section are based on the assumption that hotel employees in Eilat have similar substance use habits as the general population. In order to make this assertion, we are basing this comparison on data from three sources: the Israeli Anti-Drug Authority Epidemiological Study (IADA, 2009), the Central Bureau of Statistics 2009 Health Survey (CBS, 2011b), and the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA, 2008). Table 1 summarizes the results of IADA's last six surveys, which were conducted in the last two decades. Their most recent study was published in 2009 and is based on data collected during May–August 2008. This latest survey is based on 4657 adults aged 18–40 who were sampled from 250 representative regions. The regions represent the differences in sector and type of municipality.

These results provide us with the opportunity to compare the rate of substance usage among hotel employees, to the usage in the general population. In addition to the results presented in Table 1, the report also indicates that about a quarter of the population in the survey (IADA, 2009, p. 47) reported that they had gotten drunk at least once in the past year. About 21% reported that they had consumed five drinks or more within a few hours at least once in the last month (henceforth defined as binge drinking). Although these findings show an increase in alcohol consumption compared to earlier surveys, they also indicate that Israeli women, as in the rest of Western societies, tend to use fewer psychoactive substances than men. Moreover, people aged 35–40 drank less and used less cannabis than other age groups in the survey (18–34). Another common trend in Israel, and in agreement with what is known about substance use generally, is that age has a negative influence on tobacco consumption (IADA, 2009).

According to the recent national Health Survey 2009 conducted by the ICBS (CBS, 2011b), the percentage of those who smoke at least one cigarette per day is 20% among adults aged 20 and over. Similar to the international gender characteristics of smokers, Israeli men smoke much more than Israeli women (28% among men and 13% among women). As in previous surveys on smokers, figures show that the proportion of smokers drops as the level of education increases. While 26% of the adults with 9–12 years of education were smokers, only 17% among those with 13–15 years of education smoked, and only 13% smoked among adults with 16 or more years of education. This trend is even more significant among young adults in the 20–24 age group. The percentage of smokers within this group was 23% among those who completed high school, compared to 39% among those who had not.

Cannabis usage has increasingly become more prevalent in Israeli society. In a 2009 survey among adults 18 years of age and older, a record of 20.42% reported having tried cannabis at least

one time during their lives, 5.48% had consumed it within the last month, but only 3.56% had consumed it within the last week (IADA, 2009). Once again, these findings are in line with the general trend in Western societies. For example, according to the European Monitoring Centre for Drugs and Drug Addiction, 22% of European adults have used cannabis at least once in their lives, 7% in the last year, and 4% in the past month (EMCDDA, 2008).

Based on the literature on drug use substance use and abuse, the following specific relationships between socio-demographic background and substance use habits are hypothesized:

**Hypothesis 1.** There is an association between socio-demographic characteristics and substance use habits of hotel employees.

**H1a.** Male employees have a higher rate of substance use than female employees.

**H1b.** Single employees have a higher rate of substance use than married employees.

**H1c.** There is a negative association between level of education and rate of substance use.

**H1d.** There is a negative association between age and rate of substance use.

**H1e.** Jewish employees have a higher rate of substance use than non-Jewish employees.

### 2.2. Substance use in the workplace

Substance use is a widespread phenomenon in western society that has been discussed in the literature in a variety of contexts such as deviant behavior, addiction, treatment, prevention, and national policies (Isralowitz, 2002; Oakley and Ksir, 2004). Some studies have investigated substance abuse as a leisure activity characteristic of marginal groups that challenge social norms (e.g., Becker, 1953). While in recent years, the use of some substances has undergone a process of normalization, especially among young populations included in today's workforce or who will comprise the future work force (Parker et al., 1998). Some substances (e.g., alcohol, marijuana, cocaine) are now being used by people employed in the workforce, thereby prompting several researchers to investigate the relationship between work-related characteristics and substance abuse (e.g., Bacharach et al., 2002; Freudenberger, 1982; Greenberg and Grunberg, 1995).

In the United States, the US Substance Abuse and Mental Health Services Administration identifies people employed in the hospitality and catering industries as those with the highest risk of substance abuse (SAMHSA, 2009). The results of a comprehensive survey conducted in the US shows that low wage earners—young employees (18–25) and people working in the food industry (either preparing or serving) or in the service industries—are the employees most likely to use psychoactive substances. Similar results were found in the National Survey on Drug Use and Health conducted in the US (Office of Applied Science, 2007), which showed a high frequency of depression among workers in the US foodservice industry. With an incidence of major depressive episodes (MDEs) of 10.3%, workers in catering and in related industries were ranked second in the US labor market (see also Pizam, 2008; Shani and Pizam, 2009).

In 1991, a US congressional committee was appointed to investigate substance abuse in the workplace, and its findings are documented in a book reflecting the trends in the literature (Normand et al., 1994). The literature on substance abuse in the workplace is constructed from three themes. The first includes epidemiological studies that review and describe the extent of substance abuse and its prevalence in various industries. The second



deals with the effects psychoactive substance use has on one's performance at work. And the third is characterized by studies on the practical and ethical issues related to conducting background checks on employees and on prospective employees.

Although many studies seem to indicate that an employee's choice to use drugs is related to personality rather than to the nature of job, Normand et al. (1994) suggest that more research is needed to investigate the relationship between the work environment and the usage of substances. Bacharach et al. (2002), for example, suggested a four-factor model for evaluating the use of alcohol in the workplace. The model included an organizational culture that encouraged the use of alcohol, the employee's subjective sense of alienation, stressful work conditions, and the absence of a clear organizational policy about alcohol use.

In light of the relevant literature, the following general hypothesis was put forth:

**Hypothesis 2.** There is an association between the job characteristics and substance use habits of hotel employees.

The hospitality industry is one of the most demanding in the contemporary labor market. Similar to the majority of jobs within the service sector, which constitutes the largest sector in the labor markets of both Israel and the West, work in a hotel requires emotional input from employees who are in direct contact with clients. These employees must demonstrate empathy, an ability to listen, a willingness to provide help, and an openness to interact with a wide variety of people. Likewise, in order to provide the best possible service to their clientele, employees must maintain consistently polite behavior, regardless of whether it is sincere. As noted by one service industry scholar, although the final "product" sold to the client also includes a concrete element (e.g., a hotel room, food, pool), the client's level of satisfaction depends in large part on the quality of the service provider–client interaction, which is the responsibility of the employees working in the organization. In addition to service orientation and the ability to be attentive and sympathetic to client needs, the employees working in direct contact with the clientele must also identify with the organization to a relatively high degree. Hotel workers, especially those in the front-of-the house, are subject to stressful episodes related to their performance of emotional labor (Hochschild, 1983). Previous studies show that emotional labor negatively affects workers' perceptions of job stress, decreases job satisfaction, and increases distress (e.g., Erickson and Wharton, 1997; Pugliesi, 1999). Emotional labor is manifested not only in the uniform that many employees are required to wear as part of their service performance during work hours, but also in the professional language, behavioral codes between workers, and—for those in front-of-the-house—emotional displays they must adopt in order to interact with customers (for a review of the subject of falsification of emotions in the tourism industry, see Van Dijk and Kirk, 2007).

Based on early indications, the following specific relationships between job characteristics and substance use habits are hypothesized:

**H2a.** Front-of-the-house hotel employees have a higher rate of substance use than back-of-the-house employees.

**H2b.** Part-time employees have a higher rate of substance use than full-time hotel employees.

**H2c.** There is a negative association between seniority in the hotel industry and rate of substance use.

**H2d.** There is a negative association between departmental seniority and rate of substance use.

**H2e.** There is a negative association between an employee's number of subordinates and rate of substance use.

**H2f.** There is a negative association between an employee's salary and rate of substance use.

### 3. Study method

#### 3.1. Instrument and measures

A five-fold survey was developed in order to examine the extent of substance use among hotel workers and its correlation with workers' socio-demographic backgrounds, job characteristics and work attitudes. The results of the current paper are based on data from the three sections of this questionnaire. The first section consists of questions pertaining to the socio-demographic background of the participants, including gender, age, marital status, highest level of education achieved, and religious affiliation. The second part is comprised of a series of questions regarding the participants' work-related characteristics. The initial query concerned the hotel department the participants were employed in at the time. For analysis purposes, the hotel departments were later divided into back-of-the-house and front-of-the-house positions, the latter involving activities requiring routine and direct contact with hotel guests (e.g., reception, food service, room service, recreation facilities, entertainment, telephone operators, and security) and the former involving activities which do not require such intensive contact (e.g., kitchen, maintenance, marketing and sales, human resources, and accounting and finance). Other job characteristics incorporated in this section include the employee's number of years of service in the current hotel department, the years of service in the hospitality industry, the number of subordinate employees, wage rate, and work intensity. The latter feature included the option of part-time employment (defined as less than 40 h per week) or full-time employment (defined as 40 h or more per week).

Finally, the third section dealt with the participants' experience with substance use. Specifically, hotel employees were asked to assess their use of alcohol (beer, wine, and hard liquor), tobacco, cannabis (i.e., marijuana or hashish), or other illicit drugs. In accordance with the common measures in the literature on substance-related disorders, for each substance category, the participants rated their substance use twice: first as either ever-present (i.e., the participant used the substance at least once in his/her lifetime) or ever-absent, and second as either recently present (i.e., the participant used the substance at least once within the month prior to the survey) or recently absent (Coombs and Landsverk, 1988; Kranzler et al., 1995; Mueser et al., 1990). Alcohol users were regarded as those who drank beer, wine (other than for religious purposes), and/or hard liquor in the corresponding unit of time. This section contained reference both to general alcohol consumption (any use at all) and binge drinking (defined as the use of 5 or more alcohol beverages on one drinking occasion) (Ebrahim et al., 1999; Lapham et al., 2003). Regarding tobacco use, participants were asked how many cigarettes, if any, they smoked daily. For analysis purposes, heavy smokers were defined as those who smoked 10 cigarettes or more on a daily basis (see Kornitzer et al., 1995; Telmer et al., 1984).

#### 3.2. Research process and sampling

As noted earlier, the current study was conducted among hotel employees in the Israeli resort city of Eilat during the period between June, 2010 and March, 2011. Specifically, the data were collected in 13 hotels representing the three most prominent hotel chains in Israel. The Deputy CEOs of Human Resources of the hotel chains provided their permission and granted access for the researchers to distribute the questionnaires to the hotel

employees. Prior to the primary data collection, a pilot test was conducted among 50 employees in one of the hotels, to ensure the clarity and convenience of the questionnaire; this led to a few minor changes to the final survey and hence, enhanced its face validity and the ease with which the employees were able to answer its questions. Due to the high number of immigrants from the former Soviet Union to Israel, many of whom work in the hotel industry and are not fluent in Hebrew, the questionnaire was also translated into Russian and English. This process was performed by professional translators and then reviewed by language editors to ensure the reliability of the translated versions.

The principal data collection phase was conducted according to the principles of heterogeneous purposive sampling (Finn et al., 2000), with the aim of ensuring heterogeneity and variance among the hotel employees participating in the study, albeit without applying random sampling methods. The questionnaires were distributed by six trained research assistants, and the process was closely supervised and monitored by one of the authors. Hotel employees were approached during one of their breaks and asked to anonymously complete the questionnaire and drop it into specially marked and locked survey boxes that had been placed in close proximity. Each questionnaire had a cover sheet attached to it, clarifying the objective of the study and its voluntary and anonymous nature. Overall, a total of 473 surveys were collected (a response rate of 70%), providing a satisfactory level of parametric static comfort, despite the fact that a non-probability sampling technique was utilized. About 20 questionnaires were excluded due to incompleteness.

### 3.3. Data analysis

As previously noted, little appears in the literature regarding the empirical examination of substance use patterns among hotel employees despite some earlier indications that this group

is at prominent risk for substance use. Consequently, due to the exploratory objective of the current research, basic statistical analyses were conducted to characterize substance use in the hotel industry. Specifically, a chi-square test of association was utilized to examine the association of nominal variables and substance use, while gamma tests were additionally used in the cases of ordinal variables. The gamma test is a preferable measure for the test of association when variables are measured at the ordinal level (Siegel and Castellan, 1988). The gamma statistic is a PRE (proportional reduction in error) measure and its value ranges from +1 (perfect positive correlation) to -1 (perfect negative correlation), while a value of zero points to the absence of any correlation. Finally, an adjusted standardized residual (ASR) was also computed (Haberman, 1978). The ASR is distributed as a standard normal variable. ASR above +2.0 or below -2.0 indicates a statistically significant departure of the observed values from the expected results. In other words, significant values (above +2.0 or below -2.0) indicate that substance use is significantly more (or less) likely than the average score of the entire sample.

## 4. Results

### 4.1. General socio-demographic and work-related characteristics

Overall, the respondents' profile is fairly akin with the common characteristics of hotel employees detected in other locations (e.g., Karatepe and Uludag, 2008; Reichel and Pizam, 1984; Wong et al., 1999). As can be seen in Table 2, the study sample was quite evenly distributed among males and females, while the participants were for the most part young and unmarried. In addition, a relatively low percentage of employees had obtained professional or academic degrees, and the majority had only completed high school. Demographically, Jewish employees accounted for more than four-fifths of the respondents, while the rest comprised members of the

**Table 2**  
Respondents' profile.

Variable	N	%	Variable	N	%
<b>Gender</b>			<b>Age</b>		
Male	224	48.9	18–25	228	48.2
Female	234	51.1	26–35	181	38.3
<b>Marital status</b>			36–45	39	8.2
Single	346	73.3	46+	25	5.3
Married	96	20.3	<b>Level of education</b>		
Other	30	6.4	High school (no GED <sup>c</sup> )	63	13.4
<b>Religious affiliation</b>			High school (GED)	240	51.2
Jewish	401	85.7	Professional diploma	74	15.8
Other	67	14.3	Academic degree	92	19.6
<b>Hotel department</b>			<b>Years of service in current department</b>		
Reception	89	18.9	Less than 6 months	147	31.1
Food service <sup>a</sup>	112	23.7	6 months–1 year	99	21.0
Kitchen	41	8.7	1–2 years	107	22.7
Maintenance	40	8.5	3–4 years	62	13.1
Room service	41	8.7	5 years and above	57	12.1
Telephone operator	22	4.7	<b>Total years of service in hotel industry</b>		
Administration	32	6.8	Less than 1 year	170	36.0
Recreation facilities <sup>b</sup>	17	3.6	1–2 years	122	25.8
Security	57	12.1	3–4 years	76	16.1
Entertainment	21	4.4	5–6 years	41	8.7
<b>Scope of position</b>			7 years and above	63	13.3
Full-time	121	25.8	<b>Number of employees supervised</b>		
Part-time	348	74.2	None	269	56.9
<b>Salary per hour<sup>d</sup></b>			1–6 employees	115	24.3
20.7 NIS	141	29.9	7 and more	84	18.8
21–23 NIS	106	22.5			
24–26 NIS	125	26.5			
27 NIS and above	99	21.0			

<sup>a</sup> Including dining room, restaurant, or bar.

<sup>b</sup> Including spa, pool, or gym service.

<sup>c</sup> General Educational Development credential.

<sup>d</sup> NIS – New Israeli Shekels.

**Table 3**  
Substance use habit (total sample).

	N	%		N	%
<b>Alcohol use (lifetime)</b>	438	92.6	<b>Alcohol use (past month)</b>	390	82.5
Beer	399	84.7	Beer	299	64.7
Wine <sup>a</sup>	378	81.3	Wine <sup>a</sup>	252	54.5
Hard liquor <sup>b</sup>	378	81.6	Hard liquor <sup>b</sup>	280	61.4
<b>Binge drinking (lifetime)</b>	320	67.7	<b>Binge drinking (past month)</b>	216	45.7
Beer	224	47.9	Beer	109	23.7
Wine <sup>a</sup>	195	42.2	Wine <sup>a</sup>	84	18.4
Hard liquor <sup>b</sup>	282	60.4	Hard liquor <sup>b</sup>	169	36.5
<b>Cannabis<sup>c</sup> (lifetime)</b>	167	35.3	<b>Cannabis<sup>c</sup> (past month)</b>	65	13.8
<b>Other substances (lifetime)</b>	62	13.1	<b>Other substances (past month)</b>	28	5.9
<b>Tobacco use (daily)</b>	235	51.5	<b>Heavy tobacco use<sup>d</sup> (daily)</b>	140	30.7

<sup>a</sup> Wine use for other than religious purposes.

<sup>b</sup> Hard liquor such as whiskey, vodka, arak.

<sup>c</sup> Cannabis—marijuana or hashish.

<sup>d</sup> Heavy tobacco use—more than 10 cigarettes a day.

prominent ethnic minorities in Israel, such as Arabs (both Muslim and Christian) and Druze.

With regard to the job characteristics of the participants, once again these correspond to the prevalent traits of the global hotel workforce (Baum, 2007b; Pizam, 1982; Pizam and Shani, 2009). Hence, the sample exhibited a high level of part-time employees earning relatively low wages (more than half earn less than 24 NIS per hour; ca. \$6.90US). Additionally, the responses indicated a high labor turnover (the majority had worked less than one year in their current positions and less than three years in the hotel industry in general), which is another well-recognized acute feature of the hotel workforce. Approximately 75% of the participants in the study can be regarded as front-of-the-house employees (most of them in food service, followed by reception, room service, and security workers), and the others can be classified as back-of-the-house employees (of whom the largest representation was in kitchen, followed by maintenance workers). Finally, the majority of the participants were general staff and the rest were supervisors and managers (i.e., those with subordinate employees).

#### 4.2. Patterns of substance use

Taken as a whole, the hotel employees surveyed for this study indicated a substantial rate of substance use (see Table 3), particularly in comparison to earlier estimations of substance use in Israeli society, in general (IADA, 2009), as well as among other occupations (Bamberger et al., 2004; Larson et al., 2007). More than 90% of the participants reported having consumed alcohol of some kind (i.e., beer, wine, or hard liquor) at some time in their lives, while more than 80% noted such use in the 30 days prior to the survey. Moreover, approximately two-thirds reported at least one instance of binge drinking (i.e., heavy use of alcohol) in their lives, with close to half the sample reporting binge drinking in the month prior to the survey. With regard to illicit drugs, the survey indicated use of cannabis (i.e., marijuana or hashish) at least once in more than one-third of the respondents and at least once in the previous month among approximately every 1 in 8 respondents. A lesser extent of use was noted for other illicit substances. Finally, more than half the sample reported current daily cigarette smoking, while heavy tobacco use (i.e., consuming more than 10 cigarettes a day) was noted among slightly less than one-third of the respondents.

#### 4.3. Differences in substance use between socio-demographic subgroups

Gender, age, marital status, education level, and religious affiliation were all related to at least some type of substance use among the hotel employees (see Table 4), providing partial confirmation to Hypothesis 1 and to its secondary hypotheses. Apart from general

tobacco smoking, men used each type of substance significantly more than women. The gap was particularly notable with regard to cannabis use for both lifetime and past month statistics, where the ASR value for men was above +2.0. Accordingly, twice as many men as women had used cannabis in the month prior to the survey. Despite the statistically insignificant difference in general tobacco use, men were nevertheless found to have a higher rate of heavy smoking.

The results also indicate that young employees were significantly more prone to use alcohol and cannabis but not tobacco in comparison to older age groups. Most worth noting is the high proportion of employees aged 18–25 (over 50%) who had engaged in binge drinking in the month prior to the survey (ASR = 2.3), in contrast to approximately 13% of employees aged 36–45 (ASR = -3.0). Additionally, an exceptionally high percentage of employees aged 26–35 used cannabis, considering both lifetime (ASR = 2.8) and past month use (ASR = 2.0). The results also point out to an interaction between marital status and alcohol use, but not between marital status and cannabis or tobacco use. Single employees were more likely to consume alcohol than married employees, particularly in relation to binge drinking in the month leading to the survey. Finally, employees with the lowest education level were characterized by a considerably higher rate of heavy smoking (50%; ASR = 2.7), particularly compared to employees with academic degrees (approximately 16%; ASR = -2.5). The latter group was also found to have the lowest proportion of employees that had engaged in binge drinking in the month leading up to the survey (ASR = -2.5).

By and large, the examination of substance use among the employees socio-demographically reveals results quite akin to the common profile of substance users found in studies that focus on other population groups (e.g., Mueser et al., 1990). Hence, the findings show that generally substance use is more prevalent among young, single male employees with relatively low levels of education, providing at least partial confirmation to sub-hypotheses H2a–H2d. Note, however, that other socio-demographic subgroups reported a relatively high rate of substance use as well. Considering the specific Israeli context, it should be noted that religious affiliation was found to be associated with substance use only in relation to binge drinking (partially supporting H2e). In line with the general Israeli population (IADA, 2009), a higher rate of Jewish rather than non-Jewish employees reported binge drinking, with regard to both lifetime and recent month usage.

#### 4.4. The prevalence of substance use along job characteristics

The second set of hypotheses examined the differences between the study's respondents based on their job characteristics at the hotel. (The full statistical results appear in Table 5). Overall,

**Table 4**  
 Substance use habit and socio-demographics.

	Alcohol use (lifetime)	Alcohol use (past month)	Binge drinking (lifetime)	Binge drinking (past month)	Cannabis use (lifetime)	Cannabis use (past month)	Tobacco use (daily)	Heavy tobacco use (daily)
<b>Gender</b> ( $\chi^2$ )	5.587*	4.928*	4.260*	7.676**	14.168***	11.072***	.472	5.588**
Male	95.5%	86.2%	71.9%	51.3%	44.2% <b>(2.2)</b>	19.3% <b>(2.2)</b>	53.1%	36.2%
Female	89.7%	78.2%	62.8%	38.5%	27.4% <b>(-2.1)</b>	8.5% <b>(-2.2)</b>	49.8%	25.8%
<b>Age</b> ( $\chi^2$ , gamma)	14.49**, -.40**	13.08**, -.29**	31.27***, -.33***	32.48***, -.41***	20.79***, .12	11.56**, -.25	1.25, .09	2.32, -.11
18–25	95.2%	86.4%	73.7%	56.1% <b>(2.3)</b>	28.9%	12.3%	48.9%	28.1%
26–35	93.4%	82.9%	70.7%	42.5%	47.5% <b>(2.8)</b>	19.3% <b>(2.0)</b>	53.8%	32.4%
36–45	82.1%	69.2%	35.9% <b>(-2.4)</b>	12.8% <b>(-3.0)</b>	28.2%	5.1%	55.3%	31.6%
46 and above	80.0%	64.0%	40.0%	24.0%	16.0%	.0%	54.2%	41.7%
<b>Marital status</b> ( $\chi^2$ )	6.620*	10.840**	19.412***	35.338***	1.022	.940	1.405	3.207
Single	92.4%	85.8%	72.8%	53.8% <b>(2.3)</b>	35.8%	14.5%	50.8%	29.0%
Married	86.5%	71.9%	57.3%	24.0% <b>(-3.1)</b>	31.3%	11.5%	50.5%	31.6%
Other	93.3%	76.7%	40.0%	20.0% <b>(-2.1)</b>	40.0%	10.0%	62.1%	44.8%
<b>Education level</b> ( $\chi^2$ , gamma)	6.492, -.34*	4.778, .19	9.681*, .22**	22.95***, .34***	3.922, .28	3.714, .14	11.657**, .23**	20.11***, .30***
High school	96.8%	85.7%	74.6%	57.1%	38.1%	19.0%	68.3%	50.0% <b>(2.7)</b>
High school diploma	94.2%	85.0%	72.5%	52.9%	34.2%	10.9%	51.7%	30.2%
Professional diploma	89.2%	77.0%	58.1%	35.1%	28.4%	16.2%	51.4%	34.7%
Academic degree	88.0%	77.2%	59.8%	28.3% <b>(-2.5)</b>	42.4%	15.2%	39.8%	15.9% <b>(-2.5)</b>
<b>Religious affiliation</b> ( $\chi^2$ )	.246	.066	14.274***	6.518*	2.649	.015	3.493	.254
Jewish	92.8%	82.3%	71.1%	48.1%	37.2%	14.0%	53.2%	31.3%
Other	91.0%	83.6%	47.8% <b>(-2.0)</b>	31.3%	26.9%	13.4%	40.6%	28.1%

Note: Adjusted standardized residual values larger than 2 appear in bold parentheses.

\* Significant at the  $p < .05$  level.

\*\* Significant at the  $p < .01$  level.

\*\*\* Significant at the  $p < .001$  level.

**Table 5**  
Substance use habit and work-related characteristics.

	Alcohol use (lifetime)	Alcohol use (past month)	Binge drinking (lifetime)	Binge drinking (past month)	Cannabis use (lifetime)	Cannabis use (past month)	Tobacco use (daily)	Heavy tobacco use (daily)
<b>Primary location</b> ( $\chi^2$ )	6.211*	3.994*	6.195*	9.153**	.547	1.096	.591	6.721*
Front-of-the-house	94.2%	84.1%	70.8%	49.3%	35.7%	12.8%	50.0%	27.6%
Back-of-the-house	86.9%	75.7%	57.9%	32.7%	31.8%	16.8%	54.3%	41.0%
<b>Hotel department</b> ( $\chi^2$ )	19.693*	20.615*	29.084***	34.051***	20.693*	21.505*	12.962	29.826***
Reception	92.1%	86.5%	71.9%	41.6%	42.7%	15.7%	50.6%	26.4%
Food service	97.3%	87.5%	76.8%	<b>63.4% (2.8)</b>	40.2%	11.6%	55.2%	37.1%
Kitchen	85.4%	80.5%	70.7%	46.3%	41.5%	<b>29.3% (2.7)</b>	66.7%	<b>51.3% (2.3)</b>
Maintenance	85.0%	72.5%	42.5%	22.5%	27.5%	12.5%	52.5%	42.5%
Room service	87.8%	80.5%	58.5%	39.0%	17.1% ( <b>-2.0</b> )	12.5%	55.3%	23.7%
Telephone operation	81.8%	54.5%	40.9%	31.8%	13.6%	.0%	31.8%	.0% ( <b>-2.6</b> )
Administration	93.8%	78.1%	62.5%	31.3%	31.3%	3.1%	46.9%	21.9%
Recreation facilities	94.1%	76.5%	64.7%	23.5%	23.5%	.0%	43.8%	25.0%
Security	98.2%	87.7%	77.2%	54.4%	45.6%	21.1%	52.7%	32.7%
Entertainment	100%	90.5%	76.2%	52.4%	23.8%	9.5%	28.6%	9.5%
<b>Work intensity</b> ( $\chi^2$ , gamma)	.009, -.019	1.184, .159	2.729, -.180	8.139**, -.301**	.163, -.045	.189, -.069	.430, -.070	1.937, -.166
Part-time	92.8%	81.6%	70.1%	49.7%	35.9%	14.1%	52.2%	32.5%
Full-time	92.6%	86.0%	62.0%	34.7%	33.9%	12.5%	48.7%	25.6%
<b>Years in hotel industry</b> ( $\chi^2$ , gamma)	10.147*, -.313*	13.435**, -.236**	5.580, -.142	12.104**, -.206**	.427, .020	2.087, -.067	2.879, .053	4.015, .125
Less than 1 year	97.1%	88.8%	71.8%	53.5%	34.1%	16.0%	51.5%	27.6%
1–2 years	89.3%	77.9%	68.0%	43.4%	36.1%	10.7%	45.8%	27.1%
3–4 years	94.7%	88.2%	71.1%	50.0%	38.2%	15.8%	56.9%	37.5%
5 years and above	88.5%	74.0%	58.7%	32.7%	34.6%	12.5%	54.9%	35.3%
<b>Years in current department</b> ( $\chi^2$ , gamma)	4.061, -.259*	5.146, -.198*	1.674, -.072	4.108, -.138*	3.539, .059	2.121, -.001	2.301, -.037	2.262, .019
Less than 6 months	95.2%	87.8%	68.7%	51.0%	29.9%	12.3%	54.9%	31.0%
6 months–1 year	93.9%	81.8%	70.7%	46.5%	41.4%	18.2%	50.5%	31.6%
1–2 years	91.6%	81.3%	68.2%	44.9%	36.4%	12.1%	45.6%	25.2%
3 years and above	89.1%	77.3%	63.0%	38.7%	35.3%	13.4%	53.4%	34.5%
<b>Number of employees supervised</b> ( $\chi^2$ , gamma)	1.068, -.150	1.154, -.100	2.676, -.094	4.436, -.106	3.175, -.149	7.983*, -.359**	1.556, -.038	2.234, .327
None	93.7%	83.6%	70.3%	49.1%	38.3%	17.5%	53.1%	31.2%
1–6 employees	91.3%	82.6%	61.7%	37.4%	33.9%	10.4%	46.4%	25.9%
7 and above	91.0%	78.7%	67.4%	46.1%	28.1%	6.7%	53.6%	35.7%
<b>Salary per hour</b> ( $\chi^2$ , gamma)	.096, -.030	1.419, .002	1.529, -.021	4.818, -.122	3.565, .110	5.675, -.011	4.213, -.022	3.565, .053
20.7 NIS	92.9%	81.6%	68.8%	53.2%	26.8%	10.7%	50.0%	26.8%
21–23 NIS	92.5%	82.1%	65.1%	41.5%	31.0%	19.8%	53.0%	31.0%
24–26 NIS	92.8%	85.6%	71.2%	44.0%	37.0%	15.2%	58.0%	37.0%
27 NIS or more	91.9%	79.8%	64.6%	41.4%	37.0%	10.1%	44.3%	27.8%

Note: Adjusted standardized residual values larger than 2 appear in bold parentheses.

- \* Significant at the  $p < .05$  level.
- \*\* Significant at the  $p < .01$  level.
- \*\*\* Significant at the  $p < .001$  level.



front-of-the-house employees were more prone to use alcohol in the month prior to the survey than back-of-the-house employees, as well as to take part in binge drinking. No such statistically significant differences were detected between these occupational groups concerning the use of cannabis. Interestingly, back-of-the-house employees had a higher rate of heavy smokers in comparison to front-of-the-house employees. Thus, hypothesis H2a has only been partially confirmed.

Nevertheless, a more complex picture emerges taking into account the hotel department of specific employees, as those in certain departments were more likely to use substances of all kinds (excluding cigarettes). Specifically regarding alcohol, most notable was the exceptionally high percentage of food service employees who had been involved in binge drinking in the month preceding the survey (over 60%; ASR=2.8), followed by security, entertainment, and kitchen employees. With regard to cannabis, the kitchen department was found to have the highest proportion of cannabis users in the month leading up to the survey (approximately 30%; ASR=2.7), while relatively high rates were also noted among security, maintenance, and room service employees. Finally, kitchen employees were also the most likely to be heavy smokers (above 50%; ASR=2.3), followed by maintenance, food service, and security employees. These findings are consistent with previous studies which discovered the fields of food preparation (e.g., cooks and chefs) and food service (e.g., bartenders and waiters) to be among the areas with the largest proportions of illicit drug and alcohol users (e.g., Zhang and Snizek, 2003). The current study also found workers in the maintenance, security, and entertainment departments to be among the highest risk-groups in relation to substance use.

Next, the analysis reveals a limited link between the scope of position and substance use among hotel employees, providing partial support for H2b. The single statistically significant difference was found regarding the rate of binge drinking in the month prior to the survey, with a higher percentage of part-time than full-time employees. This finding is not in full agreement with some other studies, which found that full-time employees (or generally workers with a high workload) also presented a lower risk of engaging in drug use (Wiesner et al., 2005). Similarly, a significant link was found between seniority in the hotel and alcohol use (excluding lifetime binge drinking), but not in regard to cannabis and tobacco use. Employees with five years or more of work experience in the hotel industry had the least likelihood of using alcohol, in comparison to employees with less seniority. Likewise, employees with three or more years of seniority in their current hotel department were the least prone to use alcohol (excluding lifetime binge drinking), but not cannabis and tobacco. These findings provide partial confirmation to H2c and H2d.

Somewhat surprisingly, the only significant association between the participants' number of subordinate employees and substance use was concerning cannabis use in the month prior to the survey. A negative correlation was found between the number of subordinate employees and cannabis use, providing partial and limited support for H2e. Finally, the analysis indicates that H2f was not confirmed in the current study, as no statistically significant correlation was found between the employees' pay and any type of substance use. It should be noted in this context that the vast majority of the sample's participants earn low wages in any case, as is common in the global hotel industry.

## 5. Conclusions and implications

### 5.1. Practical implications

The prevalence of substance use calls for the intervention of employers directed at educating and awareness-raising around the

effects and problems of heavy cigarette smoking, alcohol misuse, and frequent cannabis consumption. Arguably, the workplace is a convenient setting within which such programs can be promoted since hotel workers usually spend many hours at work. Such suggestion for investment by hotels in general education of employees may strike more realistic readers as unduly utopian, considering the temporality of hotel workers and the significant amount already allocated to human resources in the hospitality industry. While we cannot ignore the difficulty to estimate the return on investment of such programs, we would like to suggest that it is nonetheless a critical step that human resource managers should make in order to broaden their role in their employees' quality of life, regardless of whether utility analysis justifies programs such as smoking cessation and sensible drinking. As insightfully suggested by Sturman, who offers tools to assess utilities of human resource programs: "an essential starting point for thinking about human resource interventions is estimating the extent to which one values superior performance" (2003, p. 111). There are numerous studies, some of which have been reviewed in the introductory section of this paper, that show the association between substance use and on-the-job impairment, and between absenteeism and turnover. Arguably, intervention may cause young workers to stay on the job and to see hospitality as an inviting industry for career development and not only as temporary employment in the early stages of young adulthood.

With more than fifty percent of respondents identifying themselves as smokers in the survey, cigarette smoking seems to be the most serious problem among hotel workers calling for employer intervention. Smoking is quite prevalent among all workers, especially among those who work in the kitchen (66.7%), room service (55.3%), food service (55.2%), security (52.7%), and maintenance (52.5%) departments. Studies show that smoke-free policies are effective in reducing cigarette consumption in all demographic groups and in almost all industries (Farely et al., 1999). On the other hand, workplace smoking bans usually do not cause complete quitting or a significant drop in smoking, especially if employers allow smoking in restricted locations. This is likely to be the case in hotels as guests are allowed to smoke in certain areas. While we could not find empirical evidence that controlled smoking leads to complete cessation, it would be safe to assume that the imposition of restrictions could eventually decrease consumption for heavy smokers, and this may also be a useful method to help light and/or social smokers stop smoking by reducing the availability, both physically and socially, of cigarettes in the workplace.

Given the prevalence of cigarette smoking, it is reasonable to assume that a step as drastic as a total smoking ban in the hotel for workers would encounter strong opposition from employees who are used to smoking breaks as part of their daily routine. Employee unwillingness to support such a ban would generate a sense of alienation toward management. Moreover, hotels represent one of the most difficult work environments in which to impose a complete smoking ban in all areas because non-workers, some of whom are smokers, are an integral part of this environment. Thus, we recommended a careful and democratic intervention in which workers would take a leading role in initiating any ban on smoking.

In line with the previous suggestion, the prevalence of alcohol use among hotel workers calls for employers' offering programs such as employee assistance programs and sensible drinking workshops. Much research has focused on the negative effects of alcohol consumption on work performance and on-the-job impairment. Studies also show that even drinking during non-working hours has negative effects on work performance and interpersonal skills during working hours (Ames et al., 1997; Mangione et al., 1999). In this context, it is interesting to note that our findings show that workers in front-of-the-house positions, precisely those whose interpersonal skills are crucial for the quality of service, were prone to more

binge drinking than those in less visible positions. It would be reasonable to assume that some of these workers are reporting to their jobs with hangovers that negatively influence performance (Ames et al., 1997). Therefore, in order to diminish the negative effects caused by alcohol misuse, we suggest that human resource decision makers also promote education on the association between drinking and work performance problems, drinking and driving, drinking and health problems, etc. Finally, in order to cope with the drinking problem in hotels, management must delineate clear policies about alcohol misuse during, before, and after work hours. A clear policy is a very effective way to acknowledge the problem and to communicate behavioral expectations to workers.

### 5.2. Theoretical insights, directions for future research, and study limitations

The current study contributes to the growing literature on substance use and workplace performance not only by providing empirical evidence for the frequent assumptions about the prevalence of alcohol misuse, cigarettes, and cannabis consumption among hotel staff but also by providing empirical support to two theoretical angles with which this phenomenon can be further examined, namely, the availability thesis and emotional labor. The data presented here shows that the prevalence of substance use in hotels is sufficiently high to warrant further examination. More specifically, the data showed that certain departments had higher rates of substance use. This linkage between the work environment and its relationship to substance use might represent an underlying cause of this substance use and should be further examined by utilizing these two theoretical angles.

The results of this study support the availability thesis by showing the widespread misuse of alcohol among workers in the food and beverage department. The availability thesis refers both to the physical availability of alcohol and the social tolerance toward its usage, both of which are evident in hotels. The results indicate an organizational culture that cultivates drinking. Future research can further examine this thesis by focusing on the linkage between the perceived social availability regarding substance use and its relation to actual substance consumption.

The second theoretical angle that is partially supported by the data relates to the linkage between emotional labor and substance use. The findings of this study indicate that differences between front-of-the-house and back-of-the-house exist in binge drinking over the past month. This can be the result of the intensity of emotional labor and the many possibilities for emotional dissonance (i.e., feeling of duplicity between organizational desired display and the authentic emotion of employees in a given situation) that front-of-the-house positions invite. Future research can further examine this linkage by utilizing the various emotional labor scales which have been developed elsewhere (e.g., Glomb and Tews, 2004).

In a similar vein, future research can build on the results of this study by examining the relationship between substance use and work aptitude by examining its statistical relations to variables, such as job satisfaction and work alienation. Such examination can reveal workers' motives and the meaning ascribed to substance consumption by employees. It can also lead to better understanding the cultural aspects of substance use in the special working environments of hotels. For many smokers, for example, cigarette breaks during work time are used as opportunities to socialize, to suppress uncomfortable feelings, to relax, and to relieve stress. In many hotels, cigarettes are therefore a tacit ritual in the daily routine.

Admittedly, the overall prevalence of substance use found in the current study provides insufficient information for managers and policymakers regarding the scope of the potential problem in the hotels. Consequently, in order to more fully understand the issue of substance use in this environment and implications for workplace

output, more epidemiological surveys should be done. As already noted, the limitations of this study also stem from its setting in Eilat and the special role of this city as a liminal space for both vacationers and temporary employees (Belhassen, 2012). The small sample size employed here is another limitation for those who seek to know the actual rate of substance use in the study population.

Finally, it is noteworthy that during the data collection period of this study, Israel experienced one of its greatest cannabis shortages as a direct effect of a recent police operation aimed at curtailing local cultivation and smuggling at the open Israeli-Egyptian border. In addition, the geopolitics in southern Lebanon after the 2006 war also contributed to this shortage (Frantzman, 2010; Freedman, 2010). Columnist Frantzman estimated that this period of time "will be remembered as The Great Dry Up of 2010" (2010). From our personal information from workers and frequent cannabis users in Eilat, this shortage was very evident there during this time. In fact, during the pilot conducted for the study and during meetings with data collectors, we received many confirmations about the shortage in marijuana, which may influence the study results in this regard. Thus, at the time of writing this paper in 2011, we estimate that the Israeli cannabis market has returned to previous levels and that the substance rate in Eilat's hotels may well have doubled.

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