Research

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Abstract

Introduction: work-related stress is a major public and occupational health problem worldwide. Work-related stress is increasing in low-income countries as a result of globalization and changing working conditions. In Ethiopia, little attention has been paid to this issue in the hotel industry and limited research has been done on hotel employees. This study aimed to determine the prevalence of work-related stress and its associated factors among hotel industry employees in Gondar City, north-western Ethiopia. *Methods:* an institution-based cross-sectional study was conducted among hotel industry employees in Gondar City, from June 9th to July 11th, 2022. Forty-one (41) hotels with 729 research participants were chosen using the cluster sampling technique. Face-to-face interview with a standardized structured questionnaire was used. Bivariate and multivariable logistic regression analyses were calculated to measure the association between work-related stress and independent variables. Adjusted odds ratios (AOR) with 95%CI or p-value < 0.05 was used to explain a statistically significant association. *Results:* the overall prevalence of work-related stress was 43.3% with 95% CI (39.6, 47.04%). Factors such as non-star hotels [AOR: 2.19, 95%CI (1.48, 3.24)], two-star hotels [AOR: 3.10, 95%CI (1.23, 7.81)], work experience < 2.5 years [AOR: 1.62, 95%CI (1.11, 2.37)], low job control [AOR: 5.17, 95%CI (3.32, 8.07)], high role conflict [AOR: 3.33, 95%CI (2.22, 5.00)], high job ambiguity [AOR: 1.77, 95%CI (1.20, 2.63)] and lack of social support [AOR: 1.54, 95%CI (1.04, 2.29)] were significantly associated with work-related stress. *Conclusion:* the prevalence of work-related stress was substantially higher among hotel employees. Hotel level/category, inadequate work experience, low job control, high role conflict, high role ambiguity, and a lack of social support were all significantly associated with exposure to work-related stress. Hotel owners and trade unions should work together to design stress management mechanisms and provide job descriptions that clearly describe responsibilities for minimizing identified problems.

Introduction

Work-related stress (WRS) is described as a state of emotional, cognitive, behavioral, and physiological responses to harmful and noxious features of labor content, work organization, and work environment in hotel industries [1]. Work-related stress is a complicated phenomenon that occurs when a variety of psychosocial risk factors coexist and interact [2]. It is the second most commonly reported work-related health problem after musculoskeletal disorders [3]. Globally, the United States and Canada have the highest daily stress account, with more than half (57%) of workers experiencing high levels of stress at work, and nearly 7 in 10 workers have lifelong stress, while in Western Europe, it has decreased to 39% from 46% in 2019. Whether stress is severe, moderate, or mild, it affects employees and puts them at risk of burnout and lost productivity [4]. Work-related stress is becoming increasingly common due to external factors such as technological developments and changes in the country's economy that can lead to unemployment and so on [5].

Work-related stress is now widely recognized as a global issue affecting all occupations and all workers in both developed and developing countries. It can hurt employee productivity, job performance, and customer service, as well as increase hostility, withdrawal, costly turnover, and health care costs [6,7]. According to Gallup's state of the global workplace report, 43% of workers suffer stress daily globally [4] and yearly billions of dollars on direct and indirect expenditures associated with work-related stress [7]. In 2019, approximately 83% of U.S. workers suffered from work-related stress, causing 120,000 deaths and up to $300 billion in lost productivity annually, and one million workers miss work every day [8]. Work-related stress has long been a concern in customer-oriented sectors, particularly in the

hotel industry. A higher prevalence of stress at work has been reported in previous studies among hotel employees in various countries, including such as in India (93.33%) [9], Malaysia (76.6%) [10], USA (63.2%) [11], and Ghana (85.2%) (29). Work-related stress has significant consequences for both employers and employees. For hotel employees, physical and psychological consequences such as headaches, irritability and difficulty concentrating, intestinal problems, sleep disturbances, depression, tiredness, and anxiousness [12] lead to a decrease in performance levels [13,14]. In addition, WRS also leads to negative consequences for the organization among hotel employees leading to high absenteeism, low morale, poor motivation, high turnover rates, and increased customer complaints [12,15]. All of these issues have a detrimental influence on service delivery and affect customer satisfaction, both of which are critical for hotels in today's competitive environment [16].

Different literature showed that the main factors associated with work-related stress were age, sex, extended working hours, the lack of control, workload, role clarity, interpersonal relations, and lack of support in the hotel industries [12,15-19]. Employee stress is also a big issue in the hotel industry, and is costly to employers and employees. It has been demonstrated that WRS influences performance at all levels and can have a negative impact on service delivery. The following are the reasons for undertaking this study: 1) various studies have been conducted on the magnitude and factors of work-related stress among hotel employees in developed nations (15). However, in developing countries, especially Ethiopia, there is scarcity of evidence on work-related stress among hotel employees; 2) Gondar is a popular tourist destination in Northern Ethiopia because of its historical palaces and churches. In fact, the number of local and international tourists visiting the city is steadily rising. Thus, the mental health of the hotel employees is crucial for improving guest's

satisfaction on service as they always expected to be presentable; 3) however, in Ethiopia, lack of up-to-date and reliable figures on WRS makes it difficult to develop prevention and control strategies to improve working conditions and environments for employees in the hotel industry.

Therefore, the objective of this study was to determine the prevalence of work-related stress and its associated factors among hotel employees in Gondar city, Ethiopia to fill a gap in the literature by including additional variables and also aid stakeholders (Ministry of Health and Ministry of labor and skill) in partnership with other stakeholders in designing interventions to reduce work-related stress among hotel employees.

Methods

Study design and period: a cross-sectional study design was conducted at hotel industries in Gondar city, Northwest Ethiopia from June 9 to July 11, 2022.

Study setting: Gondar city is located in the northern part of Ethiopia in Amhara National Administration Regional State, at a distance of 727 km from Addis Ababa, the capital city of Ethiopia, and 180 km from the regional capital city Bahir Dar [20]. According to the Gondar city administration, Gondar city comprises six sub-cities (Fasil, Jantekel, Arada, Zobel, Maraki, and Azezo). According to Gondar urban area population projections in 2022, the population of Gondar City is estimated to be 395,000 [21]. Gondar is one of the popular historic tourist distinction routes of Ethiopia since it hosted legendary world heritage buildings (castles, palaces, and churches), the colorful religious festivals like Ethiopian Epiphany. The city's hotel industry is now advancing as a result of the rising number of guests and time for the city's general growth. The Gondar city administration culture and tourism office documented 146 hotels and 2112 hotel employees [22].

Population: all employees employed in the hotel industry in Gondar city were considered as the source population and the study population consisted of all hotel employees who worked in the randomly selected hotels in sub-cities of Gondar city and had worked at least 6 months before the study were included in the study [23]. Employees in the hotel industry who were on critical sickness, maternity leave, or annual leave days and less than 18 years old were excluded from the study throughout the data-collecting period. The two-step multi-stage with cluster sampling technique was applied to select the study participants.

Variables of the study: the variables were: sociodemographic factors, work related factors, behavioral factors and work related stress (Figure 1).

Operational definition

Work-related stress was measured by eight items with 5-point Likert scales ranging from 1 (never) to 5 (very often). A hotel employee who scored = 26 on the American institute workplace stress scale was categorized as having work-related stress [20,24]. (Cronbach´s α = 0.74).

Good job satisfaction was defined when a hotel employee responded 32 and above, whereas respondents who respond <32 were classified as unsatisfied [25]. (Cronbach's α = 0.83).

Cigarette smoking was defined as smoking at least one stick of cigarette per day [26].

Alcohol drinking was the consumption of any kind of alcohol (beer, whisky, local araki, gin) by hotel employees at least two times per week [26].

Poor working condition was defined as when the sum of the participants' scores is less than ten [27]. (Cronbach's α = 0.7036).

Current chewers were part of hotel employees who chewed 'khat' within 30 days before the onset of the study [28].

The poor physical environment was considered when the sum of the participants' scores is less than nine [27] (Cronbach´s α = 0.74).

Hotel employees are working in a reception room, food preparation, cooking, distribution, service cleaner, cashier, and others, except manager and security.

Temporary employee: employees who had no permanent contract or recognition letter as permanent employees from the organization [29].

Sleeping disturbance was defined as the presence of sleeping problems when the worker was working in the hotel industry in the last fifteen days [30].

Data sources and measurement

Data collection tool: the primary data was collected from study participants via face-to-face interviews using an interviewer-administered structured questionnaire developed from previous studies. The workplace stress scale (WSS) was used to measure work-related stress developed by the Marlin Company and the American Institute of Stress, USA [24], which is now used in a variety of occupations. The WSS consists of eight items that describe how often a respondent feels about their job. Three of the eight items (items 6, 7, and 8) were scored reversed. The scale is set up in a five-point Likert response form, with responses ranging from 1 (never) to 5 (very often). Cronbach's α reliability coefficient was calculated and stated to assess the reliability of the workplace stress scale (0.74), and the reliability of the main independent variables was greater than 0.7 and its validation was ensured by subject experts. The Job Content Questionnaire (JCQ) [31], and the National Institute for Occupational Safety and Health (NIOSH) generic questionnaires [32] were used which questioned factors that generate work-related stress such as role conflict (8 items), role ambiguity (6 items), psychological demand (9 items), job control (17 items), physical environment (6 items), workload (7 items) and

social support (12 items). We calculated the mean and median scores for those factors. These instruments were used in previous studies conducted among different occupations in Ethiopia [20,27,29,33].

Data quality control: a one-day training session on study objectives, questionnaire content, and ethical considerations was provided for data collectors and supervisors. The questionnaire was pre-tested on its 5% of the total sample size as concerns a similar population in Bahir Dar city. Supervisors closely monitored the data collection process daily. Finally, the recorded data were checked for completeness before entering the data into the software.

Sample size: the sample size was computed by using single population proportions formula, based on the following assumption: a 95% confidence interval ($Z\alpha/2=1.96$), the proportion (P) of stress among waiters was 34.4% in Ghana was used [19], the margin of error (d) =5%. After accounting for design effect 2 and adding a 5% non-response rate, the final sample size was 729 participants. The two-step multi-stage with cluster sampling technique was applied to select the study participants. Gondar city has 146 hotels that form a unity of clusters, with 2,112 hotel employees serving customers. From the six sub-cities in Gondar city, 3 sub-cities were selected by lottery method, namely Fasil, Maraki, and Azezo. After selecting three sub-cities, the cluster sampling technique was used as follows: simple random sampling was used to select 50% of the hotels in each sub-city considered as a cluster, which are 15 hotels in Fasil with 373 employees, 15 hotels in Maraki with 287 employees and 11 hotels in Azezo with 68 employees. Because 728 employees were included in the study, they were assigned 50% of the hotels in each selected sub-city.

Data analysis: when the data has been collected, it was coded and entered into Epi-Data Manager version 4.6 and exported to Stata version 14.00 for analysis. Descriptive statistics (frequency,

percentage, median, and interquartile range (IQR)) were generated for relevant variables. Logistic regression was used to assess the relationship between outcome variables WRS and independent variables. All variables with a bivariate outcome p-value less than 0.2 were entered into a multivariable logistic regression model. The Hosmer-Lemeshow goodness-of-fit test was performed to check the adequacy of the binary logistic statistical model, i.e. H. 0.50. Multicollinearity was checked using the variance inflation factor (VIF) <1.53) that is used to control for confounding factors. As a result, Multicollinearity was not an issue. Finally, a significant association was declared at P < 0.05 and adjusted odds ratio (AOR) with a 95% confidence level in the multivariable logistic regression model.

Ethical consideration: the University of Gondar evaluates the study protocol based on Helsinki principles and approved it as ethically sound research with letter Ref No/IPH/2129/2014. The official letter was submitted to hotel managers for getting permission and then written informed consent was obtained from each study participant after being informed in detail about the objective, purpose, benefits, and risks of the study. Privacy and confidentiality of information given by each respondent were kept properly, and personal identifiers were removed.

Data availability statement: the data sets used and/or analyzed during the current study are available from the corresponding author and attached as a supplementary file.

Results

Participants

A total of 686 participants participated in the study, with a response rate of 94.2%. The reasons for non-response rate, respondents did not respond or complete the questionnaire due to time constraints due to employment, lack of motivation, and unwillingness to participate in this study.

Descriptive analysis

Socio-demographic characteristics of respondents

A majority of the respondents, 522 (76.09%) were female, 451 (65.74%) were single, and almost all 682 (99.42%) were Orthodox Christians. About half of the respondents, 344 (50.15%), were between the ages of 25-29, with a median age of 26 ((IQR: 24 - 28) years old. Regarding the education level of the respondents, 259 (37.76%) of the respondents had a secondary school education, followed by 246 (35.86%) who had a tertiary education, and nearly half, 353 (51.46%) of the respondents were permanent employees at their current hotel industry. Most of the respondents were 163 (23.76%) waiters/waitresses, 125 (18.22%) housekeepers, followed by 83 (12.10%) receptionists, with almost half of the respondents 333 (48.54%) working in three-star hotels and 308 (44.9%) in non-star hotels. Aside from that, about half of the respondents 352 (51.31%) earned 1100 ETB per month with a median of 1000 (IQR: 1000-1500) ETB, and 351 (51.17%) of the respondents, indicated that they had work experience under 2.5 years (Table 1, Figure 2).

Behavioral and health-related characteristics of respondents

As shown in Table 1, 449 (65.45%) of the respondents drank alcohol and almost all 671 (97.96%) and 679 (98.98%) hotel employees were non-khat users and non-smokers, respectively. Only 84 (12.24%) hotel employees had sleeping disturbances in the past fifteen days. In this study, 43 (6.27%) of participants reported being harassed in the following ways: insult, stare, unfair treatment, shove, wink, lock away, pinch, touch-sensitive body parts, unwanted physical contact, fondling, and undermining. In addition, 68 (9.91%) of the participants reported having had a health problem in the past fifteen days, such as headache 24 (3.53%), typhoid/typhoid fever 10 (1.47%), abdominal pain 8 (1, 18%), common cold 8 (1.18%) and others (tonsil, kidney pain/stones, amebiasis, giardia, leg pain, blood pressure, and heart attack) (Table 1).

Organizational and Job-related characteristics of respondents

As can be depicted from Table 2, based on their working time, 407 (59.33%) of the participants worked less than or equal to 48 hours per week. Also, 381 (55.54%) hotel workers said their job involves shift work, with 245 (64.3%) of them working rotating shifts. Among hotel employees, 390 (56.85%) had daily face-to-face contact with customers, while 296 (43.15%) of them had very little or no face-to-face contact with customers. Concerning work-related problems, more than half of the respondents, 366 (53.35%) and 384 (55.98%) experienced excessive workload and high psychological stress, respectively. Regarding role conflict and role ambiguity, 367 (53.5%) and 419 (61.08%) hotel employees reported having a high level of role conflict and role ambiguity in their job, respectively. On the other hand, almost half of 341 (49.71%) of the hotel workers had poor social support at work and 346 (50.44%) of them were dissatisfied with their current job. In addition, the majority of participants, 447 (65.16%) had no training in general occupational health and safety and less than a quarter of the 123 (17.93%) participants worked in a poor physical work environment (Table 2).

Outcome data

The overall prevalence of work-related stress among hotel employees at hotel industries in

Gondar city was found to be 43.3% with 95% CI (39.6, 47.04%). Among those who have work-related stress 55 (18.5%) were males and 242 (81.5) were females. Additionally, the prevalence was higher among hotel employees experiencing low job control, poor working condition, lack of social support, and high role conflict with prevalence of 57.5, 56.1, 54, and 53.7% respectively (Figure 3).

Main results

Bivariate and multivariable logistic regression analysis

In the bivariate logistic regression analysis, all variables were analyzed to identify a suitable independent variable for the multivariable logistic regression analysis. Variables with P-values less than 0.2 in the bivariate logistic regression analysis were included in the final model. Hence, sex, educational status, job type, monthly net income, hotel level, work experience, and from organizational and job-related characteristics (working conditions. psychological demand, job control, role conflict, role ambiguity, physical environment, social support, job satisfaction, and safety training were fitted and selected for the multivariable logistic regression model. The multivariable logistic regression analysis revealed that hotel level/category, inadequate work experience, low job control, high role conflict, high role ambiguity, and poor social support were significantly associated with work-related stress.

The finding from this study shows that employees employed in non-star and two-star hotels twice [AOR: 2.19, 95%CI (1.48, 3.24)] and three times [AOR: 3.10, 95% CI (1.23, 7.81)] are more likely to develop WRS than those working in three-star hotels. Additionally, hotel workers with less than two and a half years of work experience were about 1.62 times more likely to have work-related stress than workers with more than two and a half years of work experience [AOR: 1.62, 95%CI (1.11, 2.37)]. Moreover, the chances of developing WRS were 5.17 times higher among employees unable

to control jobs compared to their counterparts [AOR: 5.17, 95%CI (3.32, 8.07)]. Similarly, employees performing their high-role conflict tasks were 3.33 times more likely to have WRS than those performing their low-role conflict tasks [AOR: 3.33, 95% CI (2.22, 5.00)]. Employees who worked in high-ambiguity jobs were 1.77 times more likely to experience WRS than those who worked in low-ambiguity jobs [AOR: 1.77, 95% CI (1.20, 2.63)]. This study also revealed that employees who had poor social support were about 1.54 times the probability of getting WRS as compared with those who had good social support from a supervisor or boss, coworkers, relatives, and family [AOR: 1.54, 95%CI (1.04, 2.29)] (Table 3).

Discussion

Work-related stress is widely recognized as a major health problem for workers worldwide. However, studies on work-related stress in African countries, particularly among hotel employees, are scarce. In this study, the overall prevalence of work-related stress among hotel workers was found to be 43.3% with a 95% CI (39.6, 47.04%). Hotel level/category, insufficient work experience, low job control, high role conflict, high role ambiguity, and poor social support were significantly associated with work-related stress.

Employees experience high levels of WRS when employees work takes up so much time that they have less time for their daily lives. For this reason, work-related stress can negatively affect employee motivation, job satisfaction, and loyalty. As a result, they are less motivated to strive for creativity and good performance, resulting in lower worker productivity [13,34]. The high prevalence of work-related stress among hotel employees can be attributed to unfavorable working conditions such as shift and antisocial working hours, dynamic interaction with customers, low pay, and a lack of coping strategies. In addition, our results may have been influenced by excessive workload and hours, and

low job satisfaction, which have been shown to increase stress levels. Thus, this study could contribute to a better understanding of WRS in this industry and reduce stress levels in the workplace, which is not only beneficial for successful service delivery and customer satisfaction but also has the potential to reduce organizations' usual expenses for covering employees' health problems caused by stress. The current study finding was consistent with previous studies conducted in different work environments in Addis Ababa public health care facilities (46.8%) [35], among vehicle repair workers in Hawassa (41.6%) [36], among shoe factory employees in Dukem, Ethiopia (40.4%) [27]. This similarity could be due to similarities in local characteristics such as socioeconomic status, the standard of living, and the measurement tools used.

Even so, the finding of this study was slightly higher than the studies conducted among hotel employees in Malmo, Sweden (39%) [37]. The possible explanation for the observed difference could be local context variation, including different perceptions and cultures such as dietary habits, individual coping strategies, differences in sample size and measurement tools, or Karasek's Demand/Control/Support Model was used to assess stressful behavior among hotel employees. Karasek's Job Demand-Control-Support model is a leading theoretical model stating that the worst work-related stress responses are to be expected in jobs characterized by high work demands, low control, and low workplace support [38]. In cultures that value hospitality, Sweden's refusal to feed houseguests feels rude and wrong. Independence is also a strong cultural value, rather than generosity, and feeding someone else's child can be interpreted as criticism of the family's ability to care for their children. For another reason, higher socioeconomic status, developed countries allowed early access to health facilities and safety training. On the contrary, it was lower than studies conducted in different countries with similar populations like India

(93.33%) [9], Malaysia (76.6%) [10], and Ghana (85.2%) (29). The reason for this discrepancy could be explained by differences in the sample size, the study setting, and the difference in the method used, the Occupational Stress Index, the Perceived Stress Scale (PSS), the Health and Safety Management Standards Indicator Tool, and in adopting of proper coping strategies. The finding of this study was also lower than other studies conducted among hotel employees in South Nevada, USA (63.2%) [11] and in Uttarakhand, India (77.70%) [39]. The disparity of the finding might be due to differences in sample size, sampling techniques (multi-stage random sampling was used in Nevada), and hotel level/categories. In factor analysis in this study, several factors could be associated as the cause of work-related stress among hotel employees. The finding from this study showed that the likelihood of developing WRS was higher among employees who worked in non-star and two-star hotels.

The possible explanation for this result could be a non-conducive work environment (less stylish and uncomfortable), poor management style, poor wages, and salaries, poor opportunities for advancement, education, and poor care for staff. As a result, employees can find it harder to stay mentally healthy and become stressed. In contrast, employees working in two-star hotels were significantly more stressed than a one-star hotel, as the majority of respondents had less than two and a half years of work experience and experienced heavy workloads. Previous studies revealed that respondents with less work experience and a heavy workload were more stressed than their counterparts [29,40]. Also, excessive workload is one of the causes and manifestations of WRS and emotional depletion in employees [41]. The study result showed that the participants with less than two and half years of work experience were significantly associated with WRS. This finding was in line with other studies conducted in Hawassa and Dukem, Ethiopia [27,29]. This could be because the work environment in the hotel involves daily

interactions with guests, stressful situations are constantly changing and new ones are being added, making it impossible for some staff to adapt even after many years of service rather than new staff and those staff who have been in the hotel for more than two and a half years were on duty were able to get used to the working environment. Moreover, the current study showed that low job control was statistically significant with work-related stress. The study participants who could not control their work had a greater risk of developing WRS than their counterparts. This finding was agreeing with the studies done among hotel employees in different countries like England [17], India [16], Ghana [12], and in Hong Kong [42]. A possible reason could be a lack of control over work demands, a lack of autonomy, and an excess of oversight, affecting employee well-being. In addition, a lack of time, a lack of engagement in decision-making, a lack of influence over performance goals, and a failure to consider staff ideals/suggestions can all be potential causes of WRS in workplace control issues [12].

Additionally, this study indicated that role conflict was statistically significant with WRS. Role conflict contributes more than 50% to work-related stress. This finding is supported by other studies conducted in Greece [43], South Korea [18], India [44], and England [17]. This might be due to the fact that WRS can occur when an employee in an industry is uninformed about their job. Even if the job descriptions are well defined, different and fluctuating expectations of consumers and hotel management can expose employees to conflicting requests, leading to a stressful situation [14]. Similarly, role ambiguity was significantly associated with WRS among hotel employees and it contributes to more than 30% of work-related stress. This finding was consistent with the studies conducted in Taiwan [15], Egypt [45], and Turkey [46]. A possible reason could be that employees in hotels only have a complex, imprecise and ambiguous understanding of roles and tasks, which leads to emotional exhaustion and thus stress on the job [47]. In the absence of a written procedure, employees were often reluctant to respond to numerous customer complaints, eventually leading to employees feeling insecure in dealing with their customers. This ambiguity causes him or her to be unable to function properly, which can lead to work-related stress. However, if he or she is clear about everything related to work, stress can be relieved [17].

In the present study, the results also showed that poor social support for employees was a significant determinant of work-related stress. Study participants with a lack of social support suffered from work-related stress more often than those with high social support. This finding was similar to the studies done in Malmo, Sweden [37], in Anhui Province, China [48], and in Bahir Dar, Ethiopia [33]. Evidence from previous studies has already found the protective effect of social support on the mental disorders of hotel employees. Receiving a high level of social support from their managers and peers in the hospitality industry, employees in the hospitality industry can manage stress and maintain job satisfaction. As a result, they are deeply committed to their work and have little intention of leaving [49]. A plausible explanation for this could be the fact that poor social support is a predictive factor for mental health disorders such as stress, thus amplifying the negative impact on their daily work-related activities, mental state, and employees' quality of life. So, creating a supportive environment will have a correspondingly positive impact on stress reduction, leading to more satisfying outcomes. It also helps retain employees with more experience and accomplishments.

Limitation: one of the study's limitations was that the study's design made it impossible to show a clear temporal relationship between significantly associated factors and work-related stress. The discussion was also based on general work-environment-related stress, as original articles on work-related stress in hotels were scarce.

Conclusion

The prevalence of work-related stress was substantially high among hotel employees in Gondar City. The burden of work-related stress is exacerbated by hotel level/category, inadequate work experience, low job control, high role conflict, high role ambiguity, and lack of social support. Hotel owners and trade unions should jointly design a stress-coping mechanism and provide clearly stated job descriptions with responsibilities to minimize the identified problems.

What is known about this topic

- *Work-related stress has been an important subject of study in recent years as it has been recognized its role in the mental and physical health of employees and in the overall effectiveness of the organization;*
- *Several studies have shown that the hotel industry in particular is a potentially stressful work environment due to employees' constant interaction with the public and the necessity to handle several tasks at once. Also, time pressure and extraordinary conditions can occur sometimes, which can lead to significant work-related stress for hotel employees;*
- *In fact, psychosocial risks and work-related stress are among the greatest concerns in occupational safety and health, which appear to have a significant impact on the health of individuals and economies.*

What this study adds

- *Work-related stress is associated with hotel level/category, inadequate work experience, low job control, high role conflict, high role ambiguity, and lack of social support;*

- *The prevalence of work-related stress was higher among hotel employees experiencing low job control, poor working condition, lack of social support, and high role conflict;*
- *Also, the study was conducted in a popular tourist destination in northern Ethiopia for its historic palaces and churches to fill a gap in the literature by including additional variables to improve understanding of the reliable figure of WRS and associated factors among hotel employees.*

Competing interests

The authors declare no competing interests.

Authors' contributions

Beletu Kinfe Bekele, Dawit Getachew Yenealem, Bikes Destaw Bitew, and Gosa Mankelkl Kebede worked on this study from start to finish, including design, data collection, data cleansing and coding, data analysis and interpretation, and drafting and revision of the manuscript. All the authors have read and approved the final manuscript.

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Tables and figures

Table 1: socio-demographic, behavioral and health-related characteristics of respondents working in Hotel industries in Gondar city, Northwest Ethiopia, June 2022 (n=686)

Table 2: organizational and Job-related characteristics of respondents who worked at Hotel industries in Gondar city, Northwest Ethiopia, June 2022 (n=686)

Table 3: bivariate and multivariable logistic regression analysis of factors associated with WRS among hotel employees in Gondar city, Northwest Ethiopia, June 2022 (n=686)

Figure 1: conceptual framework shows the relationship between the subgroup of independent factors and work-related stress among hotel employees in Gondar city, Northwest Ethiopia, 2022 (9, 25, 27, 30, 35-37)

Figure 2: distribution of Participants by job type who was employed at hotel industries in Gondar city, Northwest Ethiopia, June 2022

Figure 3: prevalence of work-related stress (WRS) of participants by job type who worked at hotel industries in Gondar city, Northwest Ethiopia, June 2022

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Table 1: socio-demographic, behavioral and health-related characteristics of respondents working in Hotel industries in Gondar city, Northwest Ethiopia, June 2022 (n=686)

Characteristics	Categories	Number	Percent (%)
Sex	Male	164	23.91
	Female	522	76.09
Age	<20	15	2.19
	20-24	219	31.92
	25-29	344	50.15
	>=30	108	15.74
Marital status	Single	451	65.74
	Married	211	30.76
	Divorced	20	2.92
	Widowed	4	0.58
Educational status	No formal education	38	5.54
	Primary school (1 – 8)	143	20.85
	Secondary school (9 – 12)	259	37.76
	Tertiary	246	35.86
Religion	Orthodox Christians	682	99.42
	Muslim	3	0.44
	Protestant	1	0.15
Net monthly income (ETB)	≤1100	352	51.31
	1101-1700	174	25.36
	>1700	160	23.32
Type of employment	Permanent	353	51.46
	Contract/Temporary	333	48.54
Hotel level/category	None	308	44.9
	One star	18	2.62
	Two stars	27	3.94
	Three stars	333	48.54
work experience in the year	<2.5	351	51.17
	≥2.5	335	48.83
Alcohol drinking	Yes	449	65.45
	No	240	34.55
khat chewing	User	14	2.04
	Non-user	671	97.96
Smoking cigarette	Smoker	7	1.02
	Non-smoker	679	98.98
Have a sleeping disturbance	Yes	84	12.24
	No	602	87.76
Did you have a health problem	Yes	68	9.91
	No	618	90.09
Did you have harassment	Yes	43	6.27
	No	643	93.73

Table 2: organizational and Job-related characteristics of respondents who worked at Hotel industries in Gondar city, Northwest Ethiopia, June 2022 (n=686)

Characteristics	Categories	Number	Percent (%)
Work hours per week	≤48 hours	407	59.33
	>48 hours	279	40.67
Shift work	Yes	381	55.54
	No	305	44.46
Type of work shift	Fixed shift	136	35.7
	Rotating shift	245	64.3
Experienced dealing with high-demand customers	Yes	523	76.24
	No	163	23.76
Handle complaints from guests without the help of other supervisors	Yes	536	78.13
	No	150	21.87
Daily base face-to-face contact with customers	Yes	390	56.85
	No	296	43.15
Deduct from your salary if the materials are broken or lost in your work shift	Yes	303	44.17
	No	383	55.83
Working condition	Poor	264	38.48
	Good	422	61.52
Psychological demands	Low	302	44.02
	High	384	55.98
Job control	Unable to control	329	47.96
	Able to control	357	52.04
Social support	Low	341	49.71
	High	345	50.29
Role conflict	No	319	46.5
	Yes	367	53.5
Role Ambiguity	No	267	38.92
	Yes	419	61.08
Workload	Low	320	46.65
	High	366	53.35
Safety training	Yes	239	34.84
	No	447	65.16
Physical environment	Poor	123	17.93
	Good	563	82.07
Job satisfaction	Unsatisfied	346	50.44
	Satisfied	340	49.56

Table 3: bivariate and multivariable logistic regression analysis of factors associated with WRS among hotel employees in Gondar city, Northwest Ethiopia, June 2022 (n=686)

Variables		Work-related stress		COR with 95% CI	AOR with 95% CI
		Yes	No		
Sex	Male	55	109	1.0	1.0
	Female	242	280	1.71 (1.19,2.47) **	1.14 (0.68, 1.92)
Education	No formal	22	16	1.97 (0.99, 3.95)	0.83 (0.32, 2.11)
	Primary school	63	80	1.13 (0.75, 1.72)	0.59 (0.33, 1.06)
	Secondary school	111	148	1.08 (0.76, 1.53)	0.77 (0.47, 1.25)
	Tertiary	101	145	1.0	1.0
Job type	Receptionist	33	50	1.03 (0.48, 2.22)	0.93 (0.37, 2.31)
	Waiter/Waitress	60	103	0.91 (0.45, 1.84)	1.06 (0.44, 2.52)
	Bar Attendant	12	29	0.65 (0.26, 1.62)	0.48 (0.16, 1.49)
	Housekeeper	71	54	2.05 (1.00, 4.22)	1.55 (0.57, 4.20)
	Washing/Laundry	36	31	1.81(0.82, 4.00)	1.47 (0.53, 4.08)
	Kitchen	53	57	1.45 (0.70, 3.02)	1.17 (0.46, 3.00)
	Other	16	40	0.63 (0.27, 1.47)	0.66 (0.22, 1.95)
	Cashier	16	25	1.0	1.0
Hotel level	Non-star	159	149	2.00(1. 45, 2.74) ***	2.19(1.48, 3.24) ***
	One star	5	13	0.72 (0.25, 2.07)	0.91(0.22,3.73)
	Two stars	17	10	3.18 (1.41, 7.17) **	3.10 (1.23, 7.81) *
	Three stars	116	217	1.0	1.0
Monthly income	≤1100	161	191	1.61(1.09, 2.37) *	0.73 (0.35, 1.53)
	1101-1700	81	93	1.66 (1.07, 2.59) *	1.29 (0.72, 2.32)
	>1700	55	105	1.0	1.0
Work experience	<2.5 years	167	184	1.43 (1.06, 1.94) *	1.62(1.11, 2.37) *
	≥2.5 years	130	205	1.0	1.0
Working condition	Poor	148	116	2.34(1.71, 3.20) ***	1.41(0.93, 2.13)
	Good	149	273	1.0	1.0
Psychological demand	Low	148	154	1.0	1.0
	High	149	235	0.66 (0.49, 0.90) **	0.95 (0.63, 1.44)
Job control	Unable to control	189	140	3.11(2.27, 4.26) ***	5.17(3.32, 8.07) ***
	Able to control	108	249	1.0	1.0
Role conflict	No	100	219	1.0	1.0
	Yes	197	170	2.54(1.86, 3.47) ***	3.33(2.22, 5.00) ***
Role Ambiguity	Low	83	184	1.0	1.0
	High	214	205	2.31(1.68, 3.19) ***	1.77 (1.20, 2.63) **
Safety training	Yes	94	145	1.0	1.0
	No	203	244	0.78 (0.57, 1.07)	0.64(0.43, 1.01)
Physical Env't	Poor	62	61	1.42 (0.96, 2.10) *	1.32(0.80, 2.16)
	Good	235	328	1.0	1.0
Social support	Low	183	156	2.40(1.76, 3.27) ***	1.54(1.04, 2.29) *
	High	114	233	1.0	1.0
Job satisfaction	Unsatisfied	189	157	2.59(1.89, 3.53) ***	1.26 (0.83, 1.90)
	Satisfied	108	232	1.0	1.0

COR=crudes odds ratio, AOR=adjusted odds ratio; CI-confidence interval, Hosmer and Lemeshow test = 0.50 (i.e., P>0.05) and variance inflation factor was <10; as test result that multicollinearity was not a concern Statistically significant at *P< 0.05; **P<0.01; ***P <0.001
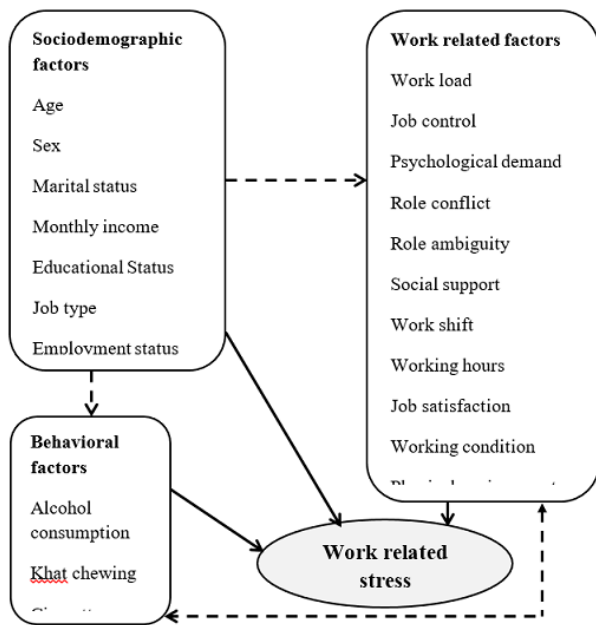
Figure 1: conceptual framework shows the relationship between the subgroup of independent factors and work-related stress among hotel employees in Gondar city, Northwest Ethiopia, 2022 (9, 25, 27, 30, 35-37)
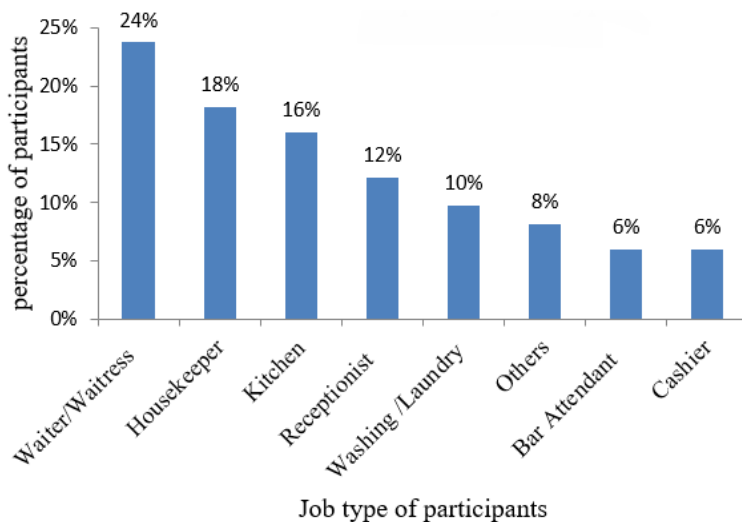

Figure 2: distribution of Participants by job type who was employed at hotel industries in Gondar city, Northwest Ethiopia, June 2022
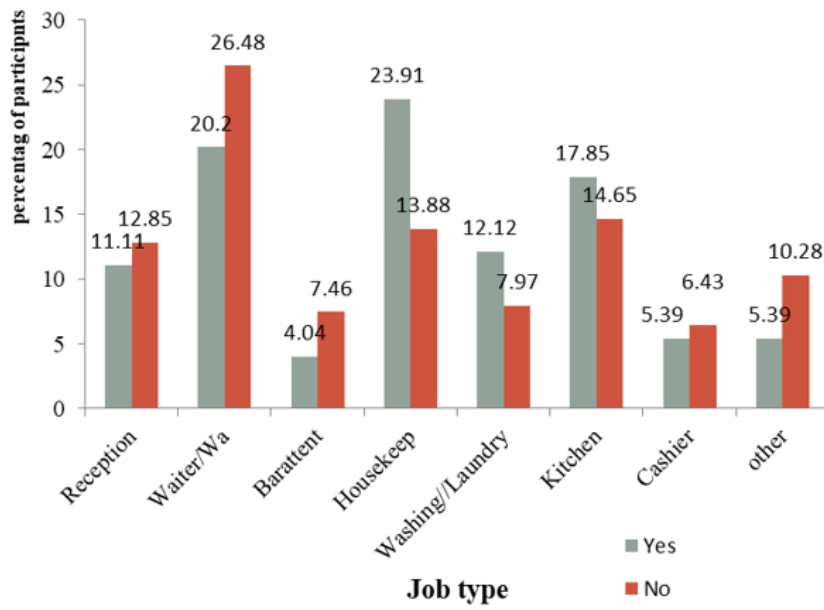
Figure 3: prevalence of work-related stress (WRS) of participants by job type who worked at hotel industries in Gondar city, Northwest Ethiopia, June 2022