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Sickness Absenteeism and Associated Factors among Auto Plant Employees in Tehran, Iran

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ABSTRACT

Sickness absenteeism is a major problem among organizations and healthcare units, causing loss of work-hours and reduced productivity in workplaces. Previous studies have shown that several factors are associated with sickness absenteeism, including social conditions, workplace/organizational conditions, and employees' characteristics. Other studies have shown that psychological disorders, such as depression and anxiety, as well as musculoskeletal disorders are the main causes of medical absenteeism. The present study was designed to investigate sickness absenteeism in the employees of an auto plant in order to evaluate the occupational health of the employees based on the basic indicators of absenteeism. An institutional-based cross-sectional study was organized in 2016 to evaluate the intensity of sickness absenteeism and its associated factors among auto plant employees in Tehran, Iran. Stratified sampling and simple random sampling techniques were used to select the participants. Data was collected from questionnaires, medical records, and employees' attendance system. Multivariable analyses were employed to investigate the effect of the explanatory variables on the dependent variable. The frequency of medical absenteeism among employees was 11.3%. According to the results, 26.8% of medical absenteeism was more than 15 days. Smoking and workplace groups were significantly associated with sickness absenteeism. Our study found that smoking and working in the Trunk 1 Department of the auto plant were significant risk factors for sickness absence among employees. In general, absenteeism is a complex and multifactorial phenomenon in real need of evaluation to identify and control its effective factors.

KEYWORDS: *Occupational health, Absenteeism, Iran*

INTRODUCTION

Sickness absenteeism is the main concern of organizations and health care units, which leads to the loss of work-hours, reduced productivity, and disagreements in workplaces [1-2]. International Labor Organization (ILO) has reported that more than 317 million work-related accidents and diseases occur each year, and most of them cause employees to stay away from work for 4 working days, which results in loss of labor time in either developing or developed countries [3].

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Some studies have shown that several factors are associated with sickness absenteeism, including social conditions (insurance and social security, economic fluctuations, etc.), workplace and organizational conditions (policies regarding employees, size, and type of organization), and employees' characteristics (gender, age, education, marital status, years of employment, number of children, smoking, work hours, and job satisfaction) [4-6]. Some studies have shown that psychological disorders, such as depression and anxiety, and musculoskeletal disorders, such as

back, neck, and shoulder pain are the main causes of medical absenteeism [7]. In general, long-term absences are associated with medical problems in many cases [8]. In the past, medical absenteeism has been regarded as a political, economic, and social problem; this view has changed over time, so medical absenteeism is known nowadays as a general health status indicator.

Short-term absenteeism (<7 days) not only shows the poor health status but also is a strong predictor for mid-term (7-30 days) and long-term (>30 days) absenteeism. Based on existing studies, among those with more than 15 days of sickness absenteeism in a year, there is a high risk for early permanent job leave due to medical reasons. Medical absences also require special attention due to the effects on economic efficiency, costs of social insurances, and direct medical costs as the result of long-term disability [9-11].

The present study was designed to investigate sickness absenteeism among the employees of an auto plant in Iran in order to assess the occupational health of the employees based on the basic indicators of absenteeism. The results can be used to control risk factors in the workplace in order to improve the employees' health and reduce direct and indirect costs of the illness.

MATERIALS AND METHODS

Study area, design, and period: We conducted an institutional-based cross-sectional study in 2016 to evaluate the intensity of sickness absenteeism and associated factors among the employees of an auto plant in Tehran, Iran.

Participants and data collection: a total number of 1110 employees were included in the study. The participants' characteristics, including age, marital status, employment status, smoking, work experience, military status, task group, and workplace were examined using a questionnaire, and additional information was obtained from the records of periodic checkup. Data on the employees' absenteeism was collected from the employees' attendance system of the factory.

Sampling procedure: Stratified sampling and simple random sampling techniques were used to select the participants. The employees were stratified into three departments, namely Trunk 1, Trunk 2, and Finance Department. The 1110 participants were allocated proportionally to each department. The participants were selected from the factory's list of employees using simple random sampling.

Data management and statistical analysis: Data collected from the questionnaires, medical records, and employees' attendance system were analyzed by SPSS version 20. Frequency distribution, mean, standard deviation, and percentage were calculated for most of the variables.

All independent variables were fitted separately into the bivariate logistic model to evaluate the degree of association with sickness absenteeism. Then, those variables with a p-value < 0.005 were exported to the multivariable logistic regression model to control confounders.

Operational definitions:

Auto plant
A Factory that produces cars in Tehran, Iran

Sickness absenteeism
Employee's absence from their normal duty for the reason due to medical problems

Permanent employee
Any contract of employment between employee and employer for an indefinite period

Temporary employee
Any employment contract between employee and employer for a definite period

Gross absence rate (GAR)
Total absence days from work (for authorized and unauthorized reasons)

Sickness absence rate (SAR)
Absence days from work because of medical problems

Unauthorized absence rate (UAR)
Days of unauthorized absence from work

Absence frequency rate (AFR)
Number of absences from work for the total number of employees at a specific time

Ethical consideration: The study protocol was approved by the Ethics Committee of Tehran University of Medical Sciences. An informed written consent was obtained from the participants. They were informed that their participation was voluntary and they could withdraw from the study at any time without consequences. They were also assured that their information would be kept confidential using rigid coding measures.

RESULT

Socio-demographic characteristic: a total number of 1110 employees completed the questionnaire and were included in the study as participants. The mean age (standard deviation) of the employees was 36.24 (4.29). Their mean served years (standard deviation) was 11.6 (4.02) and 90.3 % of them were married.

Workplace characteristic: The majority, of the responders (62.1%) were temporary employees. Among the employees, 47% worked in the Trunk 1 Department and 72.1 % of them

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worked as the operational labor force. More details on the employees' demographic and occupational characteristics can be found in Table 1.

Frequency of sickness absenteeism: The frequency of sickness absenteeism among employees was 11.3%. Total number of medical absenteeism among the employees was 257 and 26.8% of medical absenteeism was more than 15 days (Table 2). The values of SAR, UAR and AFR indices were calculated to be 0.95, 0.12, and 0.1 respectively.

Factors associated with sickness absenteeism: Table 3 presents the frequency of all the independent variables among the workers with and without sickness absence. As the table suggests, only smoking and workplace groups were significantly associated with sickness absenteeism. Table 4 shows the factors that remained statistically significant in the bivariate and multivariable logistic regression analyses. The independent predictors of sickness absenteeism in the multivariate analysis were smoking (AOR=1.86, p-value=0.004) and workplace (AOR=0.373, p-value<0.001) groups.

DISCUSSION

Absenteeism is a complex phenomenon and is known as a major problem in different countries [12]. Statistically different outcomes have been reported in different studies for absenteeism among employees. In a study by Pouryaghoub *et al.* on a governmental organization in Tehran, 70 persons from 527 participants (13.28%) had a history of absence during the study period [13]. In the study by Mohebi *et al*. in an industrial plant, 79% of the employees' absences were less than a week. They suggested that most of this was due to psychological problems, which can effectively be mitigated through psychological counseling and decreasing job stress among employees [14]. The values of SAR, UAR, and AFR indices in the population under were 0.35%, 0.52%, and 0.69, respectively [14]. These values were different from ours. The methodological diversity and different definitions regarding "absenteeism" have led to different results, indicating the complexity of the problem in organizations.

In a meta-analysis performed by Duijts *et al.* in 2007, the results of 20 prospective studies showed that sickness absence of more than three days is more frequent in single employees [15]. In our study sickness absence was also more frequent in single employees, but the difference was not statistically significant (p-value=0.18). In addition, Zaballa *et al.* showed that absence in permanent employees is less than temporary workers [16]. The findings of this study are in contrast with the results of some studies, which have shown that the prevalence of medical absenteeism is higher in permanent employees [17, 18]. In our study, the difference between these two groups was not significant. It seems that differences in methodology, characteristics of the studied industry, and sample size are the causes of the conflicting results in these studies. In our study, age was not significantly related to sickness absences. The relation between age and medical absence is very different in various studies. It is often stated that older employees often have higher absenteeism.

Table 1. Employees' Demographic and occupational characteristics of study population

Variables		**N(%)**
Marital status	Single	107 (9.7%)
	Married	999 (90.3%)
	Missing	4
Employment status	Temporary	688 (62.1%)
	Permanent	420 (37.9%)
	Missing	2
Smoking	No	861 (78.7%)
	Yes	233(21.3%)
	Missing	16
Task group	Operational	780 (72.1%)
	Supervisor	119 (11%)
	Official	183 (16.9%)
	Missing	28
Workplace group	Trunk 1	530 (47.7%)
	Trunk 2	397 (35.8%)
	Finance	183 (16.5%)
	Missing	0
		mean (SD)
Age (yr)		36.24 (4.29)
Working years (yr)		11.6 (4.02)
Children		1.14 (0.83)

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Table 2. Frequency of "number of absence days" due to medical problems among employees

Medical absence	
Range: 1-31 days	**N (%)**
1-3 days	59 (23)
4-7 days	61 (23.7)
8-14 days	68 (26.5)
≥15 days	69 (26.8)

Table 3. Comparison of independent variables frequency among workers with/without sickness absence

Variables		**Total N=1110**	**Without sickness absence N=985(88.7%)**	**With sickness absence N=125(11.3%)**	**P-Value**
			Number (%)		
Marital status	single	107 (9.7%)	91(85.0%)	16(15.0%)	0.18
	married	999 (90.3%)	892(89.3%)	107(10.7%)	
Employment status	Temporary	688 (62.1%)	602(87.5%)	86(12.5%)	0.10
	Permanent	420 (37.9%)	381(90.7%)	39(9.3%)	
Smoking	No	861 (78.7%)	781(90.7%)	80(9.3%)	**<0.001**
	Yes	233(21.3%)	190(81.5%)	43(18.5%)	
Task group	operational	780 (72.1%)	688(88.2%)	92(11.8%)	0.10
	supervisor	119 (11.0%)	104(87.4%)	15(12.6%)	
	official	183 (16.9%)	171(93.4%)	12(6.6%)	
Workplace group	Trunk 1	530 (47.7%)	441(83.2%)	89(16.8%)	**<0.001**
	Trunk 2	397 (35.8%)	373(94%)	24(6.0%)	
	Finance	183 (16.5%)	171(93.4)	12(6.6)	
			mean (SD)		
Age (yr)		36.24(4.30)	36.25(4.24)	36.19(4.73)	0.90
Working years (yr)		11.60(4.03)	11.64(3.98)	11.27(4.39)	0.38

Table 4. Factors associated with sickness absenteeism among employees

Variable		Sickness absenteeism		Adjusted OR	P-value
		Yes	NO		
Smoking	Yes	43 (18.5%)	190 (81.5%)	1.86	<0.004
	NO	80 (9.3%)	781 (90.7%)	1	
Workplace group	Trunk 1	89 (16.8%)	441 (83.2%)	1	<0.001
	Trunk 2, Finance	36 (6.2%)	544 (93.8%)	0.373	

Some have suggested that there is more commitment to the presence in the workplace with increasing age. In contrast, Drago and Wooden showed that younger employees often experience multiple jobs; therefore, they will be less committed to the work environment. The studies by Barham [19], and Begum and Leaker [20] found a negative correlation between age and absenteeism, while Lusinyan and Bonato [21] showed a positive correlation between these two variables. The results of the study by Mohebi *et al*. demonstrated that the age group of less than 20 years had the highest absence rate index. Given the low prevalence of most diseases in this age, they attributed the event of this problem to the lower experience in this group as a contributing factor [14, 22]. Many studies have shown that short-term periods of medical absenteeism are higher in younger people and long-term periods of medical absence are higher in the older employees [9, 23]. The different results of studies may arise from different cultures, environments, and conditions.

Our study showed that smoking is a predictive variable of medical absenteeism. In this regard, Christensen *et al*., Sindelar *et al*., and Pouryaghoub *et al.* found similar results [13, 24, 25]. The financial consequences of smoking are important for the industry. Several other studies also have shown that smoking employees have experienced more absenteeism, injuries, and accidents than non-smoking staff. Smoking employees have lower productivity due to waste of time and losing working time [26, 27].

According to this study, the workplace group variable was able to predict medical absence,

so that the employees in Trunk 1 had more absence compared with the employees in Trunk 2 and Finance Department. In fact, it seems that employees, who work under better conditions and faced with fewer risks, have less absence than those working under poor conditions. The results of Barmby, Ercolani, and Treble (2002) showed that occupational conditions could affect absenteeism. As such, those employees with more responsibility at work had fewer absences in general. Steers and Rhodes (1978) stated that the nature of the job may lead to more presence or absence in the workplace [28, 29]. In the present study, the employees in Trunk 1 were at greater risk in their workplace because of more pollution and older buildings. This has increased the rate of absenteeism in this group.

In similar studies, sickness absence was defined as being absent at the time of the interview or during the last weeks, which clearly underestimates the annual prevalence of sickness absence. However, we used the employees' attendance system, so a wider time span was assessed and recall bias was minimized.

As a limitation of our study, we did not evaluate job satisfaction among the employees. Similar studies have shown that job dissatisfaction almost doubles the occurrence of sickness absence [30].

CONCLUSION

Our study found that smoking and working in the Trunk 1 Department of the auto plant were significant risk factors for sickness absence among the employees. In general, the findings of this study showed that absenteeism is a complex and multifactorial phenomenon and it should be assessed in terms of other to recognize the affective factors and control them.

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