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Prevalence and predictors of occupational stress among quarry workers in rural Rajasthan, India

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Abstract

Purpose – Despite increasing recognition of the importance of mental health at the workplace, there is very little evidence and limited research information on the issue of the poor mental health of the workers, especially miners. The purpose of this paper is to assess the relationship between stress faced by quarry workers in consonance with their socio-demographic characteristics and their working conditions.

Design/methodology/approach – This study was a cross-sectional study of quarry workers with comparison groups in the Karauli district of Rajasthan, a state located in north-western India. The study was conducted during the period May-September 2014, as part of a doctoral program. The study sample comprised a total of 218 quarry workers along with a comparison group of 203 non-miners. The level of occupational stress was assessed by using a General Health Questionnaire consisting of 12 questions.

Findings – This study found that the comparison group was at a low risk of psychological stress as compared to the mine workers. The independent risk factors for occupational stress among workers were illiteracy, gender (female), married, divorced/separated, and suffering from some occupational health problem.

Social implications – This study concluded that mine workers are at a high level of stress, which underscores the need for urgent interventions from the government to address the issue. This is especially important as mine workers make significant contributions to the national income.

Originality/value – This paper fulfills an identified need to study the mental health status of quarry workers, thereby helping fill a persistent gap in Indian research on this issue.

Keywords India, Occupational stress, Occupational hazards, Quarry workers

Paper type Research paper

Introduction

Stress at work is associated with significant economic and human costs, as it leads to an increase in increasing absenteeism, decrease in job satisfaction, and deterioration in the health of workers (Leka and Jain, 2010). Occupational stress is a known health risk for a range of psychological, behavioral, and medical disorders and diseases (Quick and Henderson, 2016). There is a tendency to neglect the physical environmental factors despite the fact that such factors can influence the worker not only physically, but also psycho-socially (Levi, 1984). Contemporary research on stress in the work environment typically focuses on psychosocial factors that affect job performance, strain and employee health, and does not address the issues of work-related stress and the physical work environment in which the work is performed (Vischer, 2007).

Research suggests that the characteristics of the physical environment of the workplace do have a marked and measureable impact upon a worker's well-being and behavior (Hassard and Cox, 2017). Apart from the working environment, mental stress is also most heavily concentrated among workers with lower income, lower education, fewer skills, and less prestigious jobs than their peers (NIOSH, 1988). Certain population sub-groups are at higher risk of mental disorders because of their greater exposure and vulnerability to unfavorable social, economic, and environmental circumstances (WHO, 2014).

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Quarry workers constitute such a vulnerable group that suffers from a poor socio-economic condition (Mathur, 2015) and is constantly exposed to potentially dangerous environments (Pule, 2011). Quarry workers in India face many different kinds of abuse to their socio-economic status, and physical health, apart from the risk of exploitation by third persons like doctors and mine contractors (Ahmad, 2015), which may adversely affect their mental health. However, despite the miners being prone to such vulnerability, there is very limited research information on mental health issues concerning miners (McLean, 2011), and in fact, no such research is available at all in India.

The state of Rajasthan is producing about 90 percent of the sandstone in India (IBM, 2015), with over 2.5 million mine workers engaged in this task (Dutt, 2005). A majority of these mines are in the unorganized sector (NIMH, 2011). All the people who work in mines have a high potential of exposure to various physical, chemical, mechanical, biological and psychosocial risks (Pule, 2011). Irrespective of whether mining is done over the ground or below the sub-surface, extreme physical work conditions, stemming from, for example, temperature and humidity, lead to stress (Szabo *et al.*, 1983). However, mining, if undertaken in the organized sector, ensures safe and healthy working conditions (Sishodiya and Guha, 2013). On the other hand, working conditions in stone quarries, which are largely of an unorganized nature, are poor due to non-compliance with health and safety standards (NIMH, 2011). Thus, mining in India represents a highly exploitative situation, with all kinds of violations of the law and breach of human rights (Dutt, 2005).

The prevalence of mental health problems varies across occupations and there is limited empirical evidence about industry-related differences (Hilton *et al.*, 2008). The studies that have been conducted in this area pinpoint poor working conditions as a cause for mental ill health (Paul and Maiti, 2008; Li *et al.*, 2001). Mine workers are, therefore, relatively more likely to experience some degree of stress than others due to the high incidence of injuries and deaths resulting from mining accidents as well as other health issues (Maiden and Terblanche, 2006). There is also evidence that mental distress among miners has been associated with injury (Zheng *et al.*, 2010), persistent pain (Demyttenaere *et al.*, 2008; Jacobsen *et al.*, 2013) and ergonomic hazards (Ronald *et al.*, 2001).

As mentioned earlier, a literature search shows that there are no studies in India on the prevalence of psychological stress among mine and quarry workers in India. Thus, the current study was designed to provide a valuable addition to the epidemiology of mental stress among mine workers. Consequently, we planned to ascertain the prevalence of psychological stress among mine workers and to assess its socio-demographic correlates in the Karauli district of Rajasthan, India. The study focused on establishing an association between socio-economic and work-related characteristics on occupational stress among quarry workers. We also tried to identify the factors associated with mental stress. This study was envisioned to highlight the importance of research in the area of occupational and mental health, which is a highly neglected issue in our country.

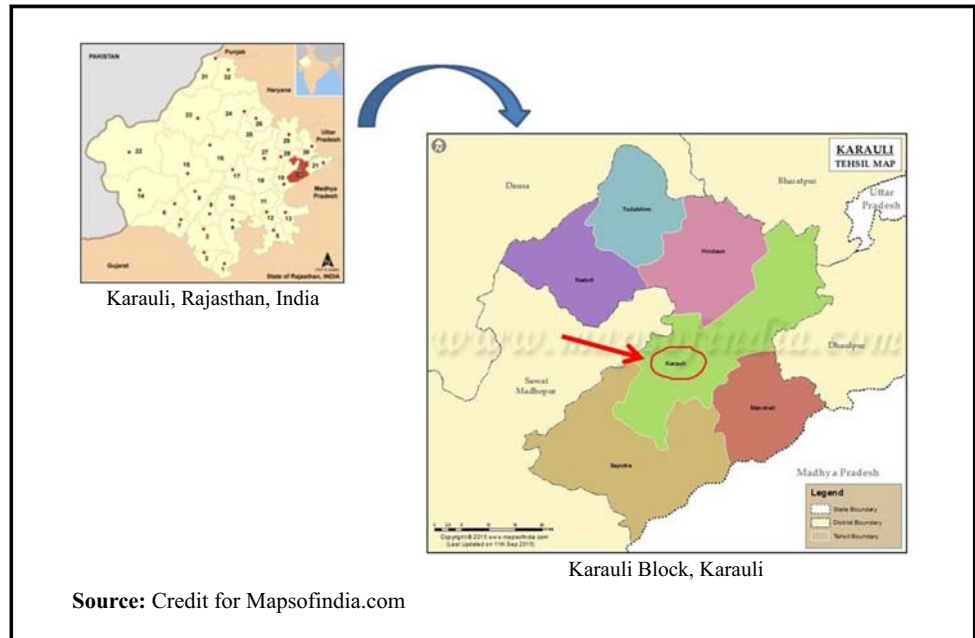
Methods

A cross-sectional study with a comparison group was conducted on sandstone mine workers living in the Karauli block of Karauli district (Figure 1) in the state of Rajasthan (India) during May to September 2014, which was part of a PhD program. Ethical approval was obtained from the Institutional Ethical Review Committee of International Institute of Population Sciences, Mumbai.

Study setting

The study was conducted in the Karauli block as a non-governmental organization working for the betterment of mining and stone workers reported that 80 percent of the mining operation is concentrated in the Karauli block of Karauli district in Rajasthan. The study area had 212 villages and a rural population of 266,168, according to the 2011 Census. This block has 19,642 people under the category of main other workers in the Primary Census Abstract, 2011. This category includes employment like mining and quarrying, manufacturing, processing, servicing and repairs, construction, and trade and commerce (GOI, 2011). Villages with less than 25 people under this category were removed to avoid inconvenience in the selection of at least 20 miners in villages. After that, ten villages were chosen using probability proportional to size to maintain heterogeneity in the sample/data.

Figure 1 Study area



Study size and sampling

The sample size for the study was determined by using the formula Z^2pq/d^2 (Charan and Biswas, 2013) (p' is the proportion of miners to total workers in Karauli block, Z is the type 1 error at 5 percent, and d' is the absolute error). Therefore, based on sample size calculations ($p = 0.15$, $Z = 1.96$, $d = 0.05$), the requisite random and representative sample size was 196 miners. However, interviews were conducted for 218 miners, including 5 women. The group comprised 203 (including 167 male and 36 female) workers, who lived in or close to the mine workers' residences and in similar socio-economic conditions, who were considered as the comparison group. This group was comparable to the mine workers in terms of most of the variables except with regard to the risk of exposure to mine workers.

Survey instrument

Data were collected by using a semi-structured schedule covering the socio-demographic and occupational profile of workers including gender, age, height, weight, marital status, religion, caste, income and educational levels, debt households and occupational aspects (such as the age of starting work, number of work years, awareness of risks involved in the job, and substance use). Moreover, the questionnaire included some self-reported health information such as occupational injuries and diagnosis of any occupational diseases. Occupational stress was measured by using General Health Questionnaire (GHQ), which is widely used in occupational research (Sriram *et al.*, 1989). The GHQ was originally developed in the UK by the British scholar Goldberg (Goldberg and Williams, 1988) to screen for minor psychiatric disorders in community and non-psychiatric clinical settings. The present study has used the English version of the GHQ-12 and internal consistency was assessed by using Cronbach's α . The internal reliability of the present study was found to be 0.74. Scoring of the GHQ-12 was done by using the bi-modal method developed by Goldberg (1979). Therefore, based on the response options, items were scored as 0, 0, 1, or 1. This scoring method allowed for the total scores to range from 0 to 12. The scoring method has been applied to different populations to explore the characteristics of mental disorders among the populations in previous studies (Liang *et al.*, 2016).

We use a GHQ cut-off score of ≥ 2 for performing the binary logistic regression analyses to identify predictors of high occupational stress. In a prior study undertaken in India, this cut-off had a sensitivity of 68.75 percent, a specificity of 73.14 percent, and an accuracy of 71 percent for identifying mental disorders (Endsley *et al.*, 2017).

Data analysis

Data were entered by using Epi Info, and were thereafter further cleaned and statistically analyzed by using the SPSS V.20. Descriptive and inferential statistics were used for the analysis. Significant predictors for psychological distress in the bivariate analysis were entered into the regression model. The odds ratios and their 95 percent CI were calculated. A $p \leq 0.05$ was considered to be statistically significant.

Results

Table I shows that the mine workers were comparable with the comparison group in terms of most of the socio-demographic characteristics except caste and awareness of the risk involved in the job. The average ages of the mine workers and those in the comparison group were 41.09 (SD 11.05) and 41.30 (SD 15.51), respectively. However, the figures for the average body mass index of both were 19.45 (SD 2.39) and 20.29 (SD 3.60), respectively. Most of the mine workers were male (98 percent) as against a corresponding figure of 82 percent for the comparison group. This study shows that 68 percent of the mine workers were either illiterate or had studied up to the primary level, as compared to a corresponding figure of 55 percent for the comparison group. More than half of the mine workers belonged to the Scheduled Castes and were married (90 percent), with the corresponding figures being 15 and 74 percent for the comparison group. The monthly household incomes of 50 percent of the mine workers were less than 4,000 as compared to 28 percent such workers in the comparison group.

It was also found that 43 percent of the mine workers had started their jobs at an age below 15 years as compared to 33 percent such workers in the comparison group. The duration of work for more than half of the mine workers was more than 20 years, while the proportion of workers aged 11-20 years was 36 percent. The corresponding figures for workers in the comparison group were 37 and 25 percent. Almost all the mine workers were aware of the risks involved in the particular job as compared to only 63 percent of their counterparts in the comparison group, who knew of such risks. The proportions of mine workers reporting at least one injury and occupational health problem were 70 and 18 percent, as compared to 47 and 8 percent such workers, respectively, in the comparison group. Around 86 percent of the mine workers were found to be currently indulging in substance abuse as compared to a corresponding figure of 69 percent in the comparison group. About 90 percent of the miners had also taken loans, while the corresponding figure in the comparison group was much lower at 66 percent (Table I).

Table II shows the prevalence of psychological distress among mine workers and the comparison group. More than one-third (36 percent) of the male mine workers reported psychological distress as compared to 14 percent of their counterparts in the comparison group. Overall, the prevalence of psychological distress was significantly higher among mine workers (66 percent) than among members of the comparison group (34). For instance, the prevalence of psychological distress among mine workers was higher among the illiterate workers (48 percent), SCs (40 percent), Other Backward Castes (OBCs) (41 percent), married workers (38 percent), and those with low monthly household incomes (44 percent).

The logistic regression analysis (Table III) shows that members of the comparison group were at a lower risk of stress as compared to the mine workers (AOR 0.428 (95 percent CI 0.211; 0.867)). The independent risk factors for psychological stress among workers were seen among the "female" sex (AOR 4.19 (95 percent CI 1.465; 11.983)), those with primary level of education (AOR 0.448 (95 percent CI 0.228; 0.882)); "married" workers (AOR 9.953 (95 percent CI 2.103; 47.112)), those with a marital status of "divorced/separated" (AOR 13.564 (95 percent CI 2.131; 86.341)), and those suffering from occupational health problems (AOR = 3.238 (95 percent CI = 1.63 to 6.434)).

Discussion

From the above findings, it is thus apparent that mining is a high-risk occupation and is characterized by an increasing number of accidents and incidents of ill health, leading to severe

Table 1 Socio-demographic profile of mine workers and comparison groups

	Mine workers (N = 218)	Comparison groups (N = 203)	Test of significance
Age years (mean, SD)	41.09 (11.05)	41.30 (15.51)	$F = 0.026, p = 0.873$
Mean BMI scores (mean, SD)	19.45 (2.39)	20.29 (3.60)	$F = 8.074, p = 0.005$
Sex, % (n)			
Male	97.70 (213)	82.30 (167)	$\chi^2 = 28.509, p = 0.000$
Female	2.30 (5)	17.70 (26)	
Education, % (n)			
Illiterate	43.60 (95)	38.40 (78)	$\chi^2 = 8.035, p = 0.018$
Primary	24.30 (53)	16.70 (34)	
High school and more	32.10 (70)	44.80 (91)	
Caste category, % (n)			
SC	53.20 (116)	15.30 (31)	$\chi^2 = 82.815, p = 0.000$
ST	10.60 (23)	6.90 (14)	
OBC	33.50 (73)	62.10 (126)	
General	2.80 (6)	15.80 (32)	
Marital status, % (n)			
Single	5.50 (12)	15.30 (31)	$\chi^2 = 20.043, p = 0.000$
Married	90.80 (198)	74.40 (151)	
Divorced/separated	3.70 (8)	10.30 (21)	
Household size, % (n)			
< 5	39.40 (86)	53.70 (109)	$\chi^2 = 8.579, p = 0.002$
≥ 5	60.60 (132)	46.30 (94)	
Monthly household income in , % (n)			
< 4,000	51.80 (113)	28.10 (57)	$\chi^2 = 38.151, p = 0.000$
4,001-7,000	30.30 (66)	28.10 (57)	
7,001+	17.90 (39)	43.80 (89)	
Age at start job, % (n)			
Less than 15	43.10 (94)	33.00 (67)	$\chi^2 = 17.736, p = 0.000$
16-30	54.10 (118)	53.70 (109)	
30+	2.80 (6)	13.30 (27)	
Duration of work, % (n)			
< 5 years	3.20 (7)	19.20 (39)	$\chi^2 = 44.465, p = 0.000$
6-10 years	7.30 (16)	18.20 (37)	
11-20 years	35.80 (78)	25.10 (51)	
20+ years	53.70 (117)	37.40 (76)	
Awareness of risk in job, % (n)			
No	3.70 (8)	36.90 (75)	$\chi^2 = 73.537, p = 0.000$
Yes	96.30 (210)	63.10 (128)	
Any injury in life time, % (n)			
No	29.40 (64)	53.20 (108)	$\chi^2 = 24.733, p = 0.000$
Yes	70.60 (154)	46.80 (95)	
Any health problem, % (n)			
No	81.70 (178)	91.60 (186)	$\chi^2 = 8.933, p = 0.003$
Yes	18.30 (40)	8.40 (17)	
Any musculoskeletal disorder ^a , % (n)			
No	18.8 (41)	43.8 (89)	$\chi^2 = 30.86, p = 0.000$
Yes	81.2 (177)	56.2 (114)	
Substance use, % (n)			
Never	10.60 (23)	27.10 (55)	$\chi^2 = 19.136, p = 0.000$
Currently	85.80 (187)	69.50 (141)	
Ever	3.70 (8)	3.40 (7)	
Borrow loan, % (n)			
No	10.10 (22)	34.00 (69)	$\chi^2 = 35.434, p = 0.000$
Yes	89.90 (196)	66.00 (134)	

Note: ^aEither the neck, hand, shoulder, upper back, lower back, thigh, knee or ankle

Source: Primary survey

Table II Prevalence of stress with socio-demographic variables of the study population

	Mine workers	Comparison group	Total	Test of significance
<i>Sex, % (n)</i>				
Male	36.2 (77)	13.8 (23)	26.3 (100)	$\chi^2 = 15.872, p = 0.000$
Female	80.0 (4)	52.8 (19)	56.1 (23)	
<i>Education, % (n)</i>				
Illiterate	48.4 (46)	33.3 (26)	41.6 (72)	$\chi^2 = 22.671, p = 0.000$
Primary	32.1 (17)	11.8 (4)	24.1 (21)	
High school and more	25.7 (18)	13.2 (12)	18.6 (30)	
<i>Caste category, % (n)</i>				
SC	39.7 (46)	29.0 (9)	37.4 (55)	$\chi^2 = 17.627, p = 0.001$
ST	13.0 (3)	14.3 (2)	13.5 (5)	
OBC	41.1 (30)	23.8 (30)	30.2 (60)	
General	33.3 (2)	3.1 (1)	7.9 (3)	
<i>Marital status, % (n)</i>				
Single	8.3 (1)	3.2 (1)	4.7 (2)	$\chi^2 = 22.122, p = 0.000$
Married	37.9 (75)	19.9 (30)	30.1 (105)	
Divorced/separated	62.5 (5)	52.4 (11)	55.2 (16)	
<i>Household size, % (n)</i>				
< 5	40.7 (35)	19.3 (21)	28.7 (56)	$\chi^2 = 0.044, p = 0.460$
≥ 5	34.8 (46)	22.3 (21)	29.6 (67)	
<i>Monthly household income in INR, % (n)</i>				
< 4,000	44.2 (50)	26.3 (15)	38.2 (65)	$\chi^2 = 13.614, p = 0.001$
4,001-7,000	31.8 (21)	22.8 (13)	27.6 (34)	
7,001+	25.6 (10)	15.7 (14)	18.8 (24)	
<i>Age at start job, % (n)</i>				
Less than 15	41.5 (39)	14.9 (10)	30.4 (49)	$\chi^2 = 0.621, p = 0.733$
16-30	32.2 (38)	22.9 (25)	27.8 (63)	
30+	66.7 (4)	25.9 (7)	33.3 (11)	
<i>Duration of work, % (n)</i>				
< 5	28.6 (2)	17.9 (7)	19.6 (9)	$\chi^2 = 4.462, p = 0.216$
6-10	37.5 (6)	24.3 (9)	28.3 (15)	
11-20	25.6 (20)	27.5 (14)	26.4 (34)	
20+	45.3 (53)	15.8 (12)	33.7 (65)	
<i>Awareness of risk in job, % (n)</i>				
No	37.5 (3)	25.3 (19)	26.5 (22)	$\chi^2 = 0.367, p = 0.322$
Yes	37.1 (78)	18.0 (23)	29.9 (101)	
<i>Any injury in lifetime, % (n)</i>				
No	25.0 (16)	19.4 (21)	21.5 (37)	$\chi^2 = 8.347, p = 0.002$
Yes	42.2 (65)	22.1 (21)	34.5 (86)	
<i>Any health problem, % (n)</i>				
No	31.5 (56)	19.9 (37)	25.5 (93)	$\chi^2 = 17.478, p = 0.000$
Yes	62.5 (25)	29.4 (5)	52.6 (30)	
<i>MSDs, % (n)</i>				
No	22.0 (9)	15.7 (14)	17.7 (23)	$\chi^2 = 12.077, p = 0.000$
Yes	40.7 (72)	24.6 (28)	34.4 (100)	
<i>Substance use, % (n)</i>				
Never	39.1 (9)	29.1 (16)	32.1 (25)	$\chi^2 = 5.023, p = 0.081$
Currently	36.4 (68)	15.6 (22)	27.4 (90)	
Ever	50.0 (4)	57.1 (4)	53.3 (8)	
<i>Borrow loan, % (n)</i>				
No	27.3 (6)	15.9 (11)	18.7 (17)	$\chi^2 = 6.230, p = 0.008$
Yes	38.3 (75)	23.1 (31)	32.1 (106)	

Source: Primary survey

Table III Predictors of occupational stress among the workers from logistic regression

	<i>Adjusted odds ratio (95% CI)</i>
Age	1.019 (0.986; 1.053)
BMI	0.966 (0.884; 1.057)
Sex	
Male [®]	Ref
Female	4.19* (1.465; 11.983)
<i>Education</i>	
Illiterate [®]	Ref
Primary	0.448* (0.228; 0.882)
High school and more	0.638 (0.334; 1.216)
<i>Caste category</i>	
SC [®]	Ref
ST	0.38 (0.131; 1.104)
OBC	1.311 (0.734; 2.341)
General	0.329 (0.083; 1.312)
<i>Marital status</i>	
Single [®]	Ref
Married	9.953* (2.103; 47.112)
Divorced/Separated	13.564* (2.131; 86.341)
<i>Household size</i>	
< 5 [®]	Ref
≥ 5	1.1 (0.648; 1.87)
<i>Monthly household income in INR</i>	
< 4,000 [®]	Ref
4,001-7,000	0.936 (0.517; 1.693)
7,001+	0.614 (0.311; 1.21)
<i>Age at start of the job</i>	
Less than 15 [®]	Ref
16-30	0.919 (0.519-1.628)
30+	0.498 (0.127; 1.948)
<i>Duration of work</i>	
< 5 [®]	Ref
6-10	1.584 (0.473; 5.301)
11-20	0.645 (0.203; 2.047)
20+	0.636 (0.16; 2.531)
<i>Risks in the job</i>	
No [®]	Ref
Yes	0.907 (0.427; 1.927)
<i>Any injury in lifetime</i>	
No [®]	Ref
Yes	1.735 (0.993; 3.032)
<i>Any health problem</i>	
No [®]	Ref
Yes	3.238** (1.63; 6.434)
<i>MSDs</i>	
No [®]	Ref
Yes	1.359 (0.725; 2.548)
<i>Substance use</i>	
Never [®]	Ref
Currently	0.658 (0.325; 1.332)
Ever	0.944 (0.229; 3.898)
<i>Borrow loan</i>	
No [®]	Ref
Yes	1.582 (0.77; 3.25)
<i>Working status</i>	
Miner [®]	Ref
Comparison group	0.428* (0.211; 0.867)

Notes: [®]Reference group. *,**Significant at 5 and 1 percent levels, respectively

Source: Primary survey

mental health problems among the workers (Li, 2013). Despite these risk factors, there are limited studies in India that assess factors causing psychological stress among the mine workers. This study was a community-based, cross-sectional study undertaken among a rural population of the Karauli district in the state of Rajasthan (India) and tried to investigate the prevalence of psychological stress among mine workers as compared to a comparison group.

Notwithstanding the small sample size of female workers, the analysis shows that female workers are at greater risk of suffering from poor mental health. Past studies have shown that women are more vulnerable than men to mental health problems (Murthy *et al.*, 2001). The reason for the prevalence of higher stress among female workers may be because most of the female workers interviewed were widowed, and it is well-known that condition of widowed women remains deplorable in the Indian society (Trivedi *et al.*, 2009).

In our study, the workers who had acquired education up to the primary level were less likely to face stress. A prior study conducted in India also found that illiteracy was significantly associated with mental disorder (Pothen *et al.*, 2003). Another similar finding was observed in a study done in Chile (Araya *et al.*, 2003) and Japan (Kaneko and Motohashi, 2007), wherein lower levels of education were seen to be associated with common mental disorders.

Bivariate analysis showed that borrowing of loans and occupational stress were associated with each other ($p < 0.05$). The poor are more likely to be stressed and this association was mediated through debt. The higher the debts of workers, the greater was the likelihood of their suffering from some form of mental disorder (Jenkins *et al.*, 2008; Kuruvilla and Jacob, 2007). Individuals with unmet loan payments also exhibited suicidal thoughts and were more likely to suffer from depression as compared to those without such financial problems (Turunen and Hiilamo, 2014). The reason for the prevalence of a higher degree of stress among debt quarry workers could be that they had mostly taken loans from mine contractors on high interest rates. The cause of higher debt among quarry workers could be medical costs and expenses. This, in turn, forced them to work in mines even when they wanted to switch jobs.

Our regression results showed that the health problems faced by the mine workers were three times more likely to be due to stress. This finding has been confirmed by other studies (Basn *et al.*, 2010; Kortum *et al.*, 2011; Tola *et al.*, 2015; and Shen *et al.*, 2014). Generally physical health is inextricably linked to mental health, and physical illness may also cause psychiatric symptoms (Osborn, 2001).

The study also shows an association between MSDs and occupational stress. This finding is confirmed by Leclerc *et al.* (1999), Baek *et al.* (2015), and Bongers *et al.* (1993), all of whom reported an association between psychological stress and MSDs. When adjusted for demographic and occupational variables in the bivariate logistic regression model, the findings suggest that occupational stress is less likely to be experienced by members of the comparison groups as compared to the mine workers. Another study reported that miners did not face greater job stress but indicated the prevalence of significantly more efficient strains, including anxiety, depression, irritation, and psychosomatic complaints among mine workers than among some other blue-collar jobs (Althouse and Hurrell, 1977). One study shows that underground coal miners faced a substantial amount of strain and also had greater health problem (Althouse and Hurrell, 1977). One of the reasons for stress among miners may stem from their fear of contracting diseases during the course of their work. For instance, miners in Karauli were aware of diseases caused by the inhalation of dust (Ahmad, 2017), and were afraid of falling prey to this disease, especially as they had seen many villagers and their ancestors working in mines dying of diseases contracted because of their work. Another reason for stress among miners was the loss of social support when they fall ill. At such times, both family members and neighbors distance themselves from the miners who contract the disease.

The existence of high levels of stress among the working group signifies an alarming situation that needs to be addressed immediately and must be considered as a public health issue. The best way to deal with such stress is by adopting strategies for tackling psychosocial hazards and risks by conducting an occupational health practice with a multi-pronged approach, which involves preventing occupational and other work-related diseases, as well as occupational injuries; improving working conditions and work organization; and incorporating psychosocial risks into

risk-assessment and management measures. Other important steps would involve implementation of collective preventive measures by adapting the work organization and working conditions; increasing the coping ability of workers; building social support systems for workers within the workplace; and assessing the needs of the organization while taking into consideration organizational, individual and individual-organizational interactions when evaluating the workers' health requirements (Forastieri, 2013). Our study also has some limitations. Although the sample size was calculated by using a scientific formula, the results in terms of the gender of participants show that the sample size may be inadequate. A study with a larger sample size might have been able to provide a more accurate estimate of the study variables. In addition, the prevalence of occupational morbidity is based on self-reported ailments, which are subject to the knowledge and awareness of particular morbidity among the workers, and may differ from morbidity prevalence based on clinical test data.

Conclusion

All the mine workers are exposed to different forms of workplace stress in varying degrees, with most of them being personal factors like occupational health and the compulsion to take a loan. Therefore, there is a need for implementing appropriate occupational health and safety measures for mine workers in order to address the preventable risk factors and to reduce the dangerous occurrences of psychosocial hazards among mine workers, which would help in improving the working environment, productivity, and health of workers. Last but not the least, a debt mechanism needs to be put in place, which would help user in an easy loan process to enable the mine workers to repay their loans without being a subject to undue stresses.

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Further reading

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