

Original Research Article

Assessment of occupational stress, mizāj dimagh and their association among the workers of MSMEs: Bengaluru

Mohd Azhar^{1*}, Arish Mohammad Khan Sherwani², Sania Khan³, Mir Manzoor⁴

¹Department of Tahaffuzi Wa Samaji Tib (Preventive and Social Medicine), Eram Unani Medical college and Hospital, Kursi Road, Lucknow, Uttar Pradesh, India

²Department of Tahaffuzi Wa Samaji Tib (Preventive and Social Medicine), National Institute of Unani Medicine, Bengaluru, Karnataka, India

³Department of Ilmul Advia, Ajmal Khan Tibbiya Collage, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

⁴Medical Officer, Jammu and Kashmir Government Health Services, Kashmir, Jammu and Kashmir, India

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*Correspondence:

Dr. Mohd Azhar,

E-mail: Azhar.ak503@gmail.com

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ABSTRACT

Background: Occupational stress may lead to physical and mental disorders, which come at a great cost to the person, the economy, and society. As a result of globalization and changes in the nature of employment, people in countries that are developing must cope with rising levels of occupational stress. In a developing country like India, the contribution of MSMEs is highly inevitable. Objective was to study occupational stress and mizaj e dimagh among the workers of MSMEs.

Methods: A cross-sectional study was conducted among 350 workers from various MSMEs in Kottegepalya, Bengaluru. Enterprises were included based on owner consent and cooperation. Data collection involved face-to-face interviews using a structured questionnaire that included socio-demographic information and occupational stress responses. Mizaj-e-dimagh was assessed using Unani parameters derived from classical texts, based on the evaluation of istidlal-e-ahwal-e-dimagh (manifestations of brain condition). Statistical analysis involved simple proportions.

Results: The prevalence of occupational stress among workers was 78.57%. Of these, 46% experienced mild stress. Emotional responses were the most common (28.57%). Regarding temperament, 34% of workers exhibited a bilious (harr yabis) mizaj-e-dimagh, while the highest stress levels (95%) were observed in workers with melancholic (barid yabis) temperament. Occupational stress was significantly associated with age, marital status, and education level.

Conclusions: The study highlighted a high prevalence of occupational stress among MSME workers, with temperament playing a notable role. Targeted interventions are necessary to address and manage stress in this sector.

Keywords: Occupational stress, Micro, small and medium enterprises, Mizaj dimagh

INTRODUCTION

Ongoing stress that is connected to the workplace is referred to as occupational stress/ work related stress.¹ Around 500 million people worldwide suffer from mental illness. Around 10% to 12% of Indians have a mental illness, which can be brought on by stress, depression, anxiety, or other factors.² Workers in emerging

economies are dealing with more occupational stress as a result of globalization and changes in the nature of employment.³ When a person is in a state of mental health, they are aware of their own abilities, are able to handle the demands of everyday life, are productive at work, and give back to their community.⁴ Various emotional, cognitive, behavioral, and physiological responses to unfavorable and unpleasant aspects of one's

profession, organization, and surroundings make up occupational stress. This condition is marked by high degrees of arousal and discomfort, as well as helplessness.⁵

The term “stressors” refers to a number of workplace factors that have an adverse impact on a worker’s physical or mental health, including: job uncertainty, poor control over workload, lack of appreciation for work completed, job insecurity, fear of job cuts, intimidation, lack of respect from upper management, racism, ageism, insufficient wages, demands of the job, inadequate ventilation and temperature, poor lighting, being required to work overtime or shifts, and the possibility of an accident.¹

Stress (a part of psychiatric disorder) are dealt comprehensively under the heading of “amraz e nafsaniya” where physician defined different symptoms of psychic faulty and their distortion due to involvement of abnormal production of humor especially “sauda” and “safra”.⁶ Unani physician stated personality characters and correlated with mizāj (1) damvi mizāj (sanguine temperament) (2) safravi mizāj (choleric temperament) (3) balghami mizāj (phlegmatic temperament) (4) saudavi mizāj (melancholic temperament). They also described that melancholic temperament is more prone to stress.⁷⁻⁹ Directly, there is no Unani terminology prescribed in ancient literature about stress, but Rāzi described the initial stage of malankhuliya that represents stress like symptoms from worry apprehension and sadness along with the appearance of irrational thoughts.¹⁰

Hippocrates defined melancholia, often known as “black bile”, as a condition characterized by “aversion to food, hopelessness, lack of sleep, irritation, and unrest”. Greek doctors therefore proposed the first biochemical definition of any mental ailment in picking the name of the condition.⁷

Over the past 50 years, the micro, small, and medium enterprises sector has grown to be a very active and dynamic component of the Indian economy. The developing country like India, the contribution of MSME is highly inevitable.¹¹

METHODS

From March 2020 to February 2021, year-long cross-sectional research was conducted in selected micro, small and medium enterprise (MSME) workers of Kottegepalya, a locality on the periphery of Bengaluru city, Karnataka, India. The criteria used to select the enterprises were: 1) convenience in terms of efficient traffic; and nearest to the centre of our study; 2) there were approximately more than 100 enterprises in this area, and an average of 20 workers were working in these enterprises that were determined to be logistically viable and statistically adequate; and, 3) the enterprise owners granting permission on pre-specified dates. A total of 30

enterprises were studied. Total 417 workers (men and women) working as, machine operators, helpers, cutters, welders, fitters, packers, supervisors, designers, technical staff, clerks, and managers. Except for pregnant and lactating women, all workers between 20-50 years of both genders who had provided consent for research participation were included. Using the formula $Z^2P(1-p)/d^2$, the sample size was determined with a 95% confidence interval while accounting for the prevalence of stress (p) of 26% and the relative precision (d) of 5%. The estimated sample size was 295; this was increased to 350 after correction. The institutional ethics committee gave its approval. The workers gave their signed, informed permission. A face-to-face interview with employees was conducted to gather data during their free time at work (during and after breaks), using a structured questionnaire which consists of socio-demographic data, occupational stress responses. Each employee’s interview lasted 15 minutes on average. Workers’ socio-demographic data was collected using a modified Kuppaswamy scale.¹² The questionnaire/schedule was based on the World Health Organization’s health series No.6 for protecting workers and raising awareness of stress at work, as well as stress and coping strategies advised by the NIMHANS.^{3,13} The questionnaire was validated by the experts of preventive and social medicine of the institute. Occupational stress was assessed by using occupational stress responses, which had 25 close-ended questions categorized as 4 domains: behavioral response, cognitive response, emotional response, and physiological response. Each was answered with a ‘yes’ or ‘no’. Each observation of a question, if answered ‘yes’, was also as ‘one’ and ‘no’ for ‘zero’. There was no occupational stress if the score was 0-10%, mild occupational stress if it was 11-33%, moderate occupational stress if it was 36-66%, and severe occupational stress if it was 67-100%. Unani parameters for the assessment of brain quotients capacity and risk factors (asbab wa alamaat) were structured with the help of statements and criteria of ancient health personnel. These criteria were included, parameters of mizaj of brain of workers by istidlal-ahwale-dimagh (manifests of condition).

The scores assigned to continuous variables, as well as their averages, standard deviation, minimum, and maximum values, as well as ratios to categorical variables, were used in a descriptive analysis. To examine the relationships between participant characteristics and mizaj e dimagh with the occupational stress chi-square test was used. For all of the analyses, a 5% level of significance was used.

RESULTS

The prevalence of occupational stress was 78.57% as shown in Table 1, and the maximum number of workers, 161 (46%), had experienced a mild level of occupational stress as shown in Figure 1. In the present study, the maximum number of workers 100 (28.57%) experienced an emotional type of stress response, followed by 66

(18.86%) workers who had experienced more than one response to occupational stress, as shown in Table 2.

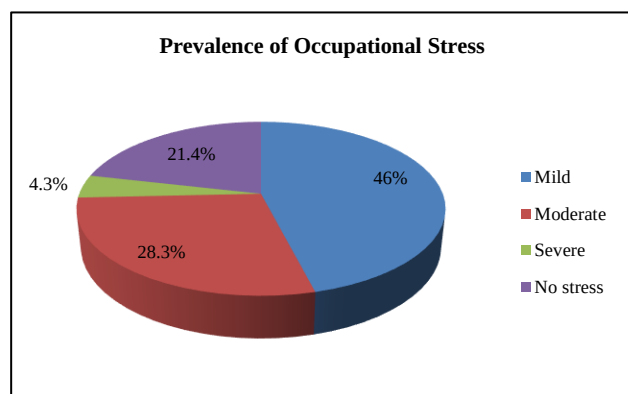


Figure 1: Distribution of occupational stress according to its severity among MSME workers.

Table 1: Prevalence of occupational stress among workers.

Occupational stress	No. of workers	%
Yes	275	78.57
No	75	21.43
Total	350	100

Among the workers mostly were males (75.1%), married (65.4%), Hindu (86.2%) and the majority had primary to high school educations (51.1%). The average age of the participants was 34.5 years, with 39.4% of them falling into the 20 to 29 age range. The majority of participants had an income of 10002-29972 rupees per month (56.6%). Occupational stress was significantly ($p < 0.05$)

associated with age, marital status, and education of workers. Among all the sociodemographic factors, we found that age was the most important predictor of occupational stress as shown in Table 3.

Table 2: Distribution of occupational stress according to its response among MSME workers.

Dimensions of occupational stress	No. of workers	%
Behavioral	21	6
Cognitive	74	21.14
Emotional	100	28.57
Physiological	73	20.86
More than one	66	18.86
Without any dimension	16	4.571
Total	350	100

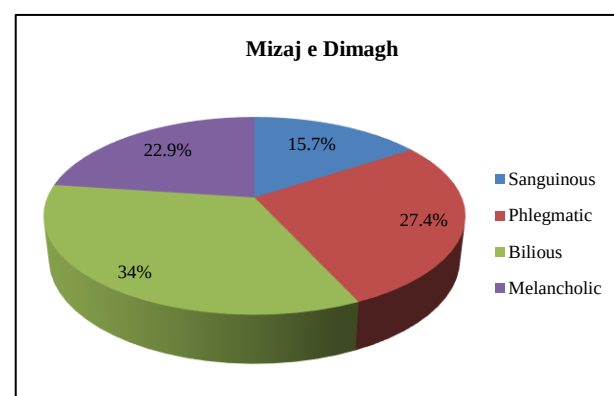


Figure 2: Distribution of MSME workers according to mizaj e dimagh.

Table 3: Distribution of workers based on socio demographic factor and stressors and their association with occupational stress.

Variables name	Category	Occupational stress (%)		Total (%)	P value
		Yes 275 (78.57)	No 75 (21.43)	350 (100)	
Gender	Male	211 (80.23)	52 (19.77)	263 (100)	0.189
	Female	64 (73.56)	23 (26.44)	87 (100)	
Age	20-29	94 (68.12)	44 (31.88)	138 (100)	<0.0001
	30-39	62 (76.54)	19 (23.46)	81 (100)	
	40-49	79 (88.76)	10 (11.23)	89 (100)	
	50	40 (95.23)	2 (4.76)	42 (100)	
Religion	Hindu	242 (80.13)	60 (19.87)	302 (100)	0.155
	Muslim	26 (66.67)	13 (33.33)	39 (100)	
	Christian	7 (77.78)	2 (22.22)	9 (100)	
Marital status	Married	189 (82.53)	40 (17.47)	229 (100)	0.013
	Unmarried	86 (71.07)	35 (28.93)	121 (100)	
Income	≤10001	101 (80.8)	24 (19.2)	125 (100)	0.42
	10002-29972	151 (76.26)	47 (23.74)	198 (100)	
	>29972	23 (85.18)	4 (14.81)	27 (100)	
Education of workers	Illiterate	51 (87.93)	7 (12.06)	58 (100)	0.002
	Primary to high school	144 (80.44)	35 (19.55)	179 (100)	
	Intermediate to postgraduate	80 (70.79)	33 (29.20)	113 (100)	

Table 4: Association between mizaj e dimagh and occupational stress among MSME workers.

Mizaj e dimagh	Occupational stress		Total	P value
	Yes	No		
Sanguineous	32 (58.18)	23 (41.81)	55 (100)	<0.0001
Phlegmatic	70 (72.91)	26 (27.08)	96 (100)	
Bilious	97 (81.51)	22 (18.49)	119 (100)	
Melancholic	76 (95)	4 (5)	80 (100)	
Total	275 (78.57)	75 (21.43)	350 (100)	

Distribution of mizaje dimagh showed that 119 (34%) workers had bilious (Harr Yabis) followed by 96 (27.4%) phlegmatic (Barid ratb), 80 (22.9%) melancholic (Barid Yabis) and 55 (15.7%) had Sanguinous (Harr ratb) mizaje dimagh as shown in Figure 2. Occupational stress was found maximum in 95% workers with melancholic (Barid Yabis), followed by 81.51% bilious (Harr Yabis), 72.91% Phlegmatic (Barid Ratb) and 58.18% sanguinous (Harr Ratb) Mizaje Dimagh as shown in Table 4. This trend showed strongly significant ($p < 0.0001$) relationship.

DISCUSSION

In the current study, 78.57% of workers were found to have occupational stress, which was higher than in other studies and could be because of differences in study setting and the use of different tools. A study done on industrial workers in Bengaluru in 2015 and 2017 shows the prevalence of stress at 18% and 26%, respectively.^{2,14} It shows that stress levels are increasing year by year. According to the most recent survey (2020) of 1,908 Indian workers, 70% of them reported experiencing stress at least once during the working week on a regular basis.¹⁵

The present study was the first of its kind to report occupational stress on the basis of stress responses such as behavioral, cognitive, emotional, and physiological, and the majority of the workers (28.57%) experienced an emotional type of response.

In this study, the gender ratio was 75.1% male and 24.9% female. According to the annual report (2019-20) of the ministry of MSMEs, male and female worker distribution all over India in urban areas was 81.58% and 18.42% respectively.¹⁶ In the present study, male and female workers had 80.23% and 24.9% of occupational stress, respectively. A research done by Davidson et al discovered that female managers face greater pressure than their male counterparts, and Antoniou et al discovered that female educators have much higher levels of occupational stress than their male counterparts.^{17,18} Our result was supported by a study done by Rajram et al which showed female workers experienced a lower level of stress than males.¹⁴ In ancient Unani literature, it is clearly mentioned that melancholia (a psychological disorder) is more common in men than in women, less common in adults, and uncommon in children. Middle

aged and elderly people are more prone to melancholia.¹⁹⁻

²¹ Concerning a correlation between age and occupational stress, it has been observed that the ability to tolerate work-related and organizational stress increases with age. Ben-Bakr et al. discovered that workers under the age of 30 reported greater levels of stress, while those between the ages of 31 and 40 suffered the most from workplace stress.²²

Contrary to earlier research, younger employees in the current study reported lower levels of stress than their older counterparts. This difference may be attributable to younger employees' greater adaptability to change and organizational climate, as well as their capacity to pick up new skills and techniques more quickly than older employees in an economy that is transitioning. In our study, the older age group of 50-year-olds had a maximum level of stress of 95.23% ($p < 0.05$) as shown in Table 2, which coincides with relation to the research done by Rajaram et al.¹⁴

In this study, 65.4% of workers were married, out of which 82.53% had occupational stress, and out of 121 unmarried workers, 71.07% had occupational stress. Our study showed married workers had greater occupational stress than unmarried workers. It may be due to extra family burdens and responsibilities that interfere with their work. In contrast with our study, a study done by Rajaram found that unmarried workers had some higher stress, at 26.2%, than married workers, at 25.9%.¹⁴

The maximum numbers of workers (56.6%) were in the 10002-29972 Rs/month income group. Most workers (92.7%) had less than 30,000 rupees in monthly salaries. According to Rajaram et al, compared to participants with an average monthly salary of more than 30000, those with an income of less than 20,000 were 4.25 times more likely to experience stress. There was a statistically significant relationship between income and work-related stress. After controlling for additional confounders, however, this relationship was determined to be non-significant. Similarly, Martinez et al discovered that income and regular physical exercise were inversely associated to stress in a study of electric utility workers.²³ In contrast with previous studies, the present study showed the higher income group had higher occupational stress. The group of workers who had >29972 Rs/month

income experienced 85.18% occupational stress, although they were less in number.

Our study showed accordance with the Unani concept which stated that nafsiyati amraaz is associated with the melancholic temperament of dimagh.

The survey was conducted in a single geographical area; hence the result cannot be generalized. A large sample size is recommended for a more accurate evaluation of the findings.

CONCLUSION

The prevalence of occupational stress was 78.57%, out of which 46% had mild and 28.3% had moderate occupational stress. A majority of the workers, 28.57%, had an emotional response to occupational stress. Workers' attitudes, sentiments, and emotions about enterprises have a significant impact on their performance and behavior. As a result, enterprises must pay greater attention to understanding the work environment, increasing job satisfaction, and thereby minimizing workplace stress. Irrespective of any gender, the prevalence of occupational stress increased after marriage. It was shown that work stress was highly related to age. Occupational stress was more prevalent among workers with saudavi mizaj of dimagh. When there is an imbalance between the work expended and the reward gained, unpleasant sentiments may be produced as a stress reaction.

Recommendations

Our findings suggested that an urgent response is needed to slow the increasing trend of occupational stress. Further study is recommended to explore the causative factors and type of response associated with occupational stress. A good and reliable instrument to measure occupational stress should be developed for further studies.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of National Institute of Unani Medicine, Kottegepalaya, Bengaluru, karnatka

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