Original Article   **Open Access**

Assessing the mental health of working women at the Faculty of Medicine, Mashhad University of Medical Sciences, Iran

Marjan Rasoulian Kasrineh[1]; Mostafa Sohrabifar[1]; Fatemeh Moharreri[2]; Ehsan Gholampour Kargar[3]; Hamed Ghazavi[4,5]; Samaneh Talebi[6]; Zahra Mohammadpour[3]; *Seyyed Mohammad Tabatabaei[1,7]

[1]*Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.*

[2]*Department of Psychiatry, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.*

[3]*Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.*

[4]*Neuroscience Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.*

[5]*Department of Neuroscience, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.*

[6]*Center for Healthcare Data Modeling, Department of Biostatistics and Epidemiology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*

[7]*Applied Biomedical Research Center, Basic Sciences Research Institute, Mashhad University of Medical Sciences, Mashhad, Iran.*

Abstract

Introduction: The mental well-being of working women in stressful work environments, such as medical schools, is of great importance because of their work importance and major responsibilities. Work pressures and work-life imbalance could lead to psychological disorders, such as anxiety, depression, and insomnia. This study aimed to assess the mental health of working women at the Faculty of Medicine, Mashhad University of Medical Sciences, Iran.

Materials and Methods: This descriptive cross-sectional study was conducted on 145 female employees in 2024. General Health Questionnaire-28 (GHQ-28) was used to assess the mental health. The data were analyzed using descriptive and analytical statistical methods.

Results: Fifty-one percent of participants scored above the cutoff point on the GHQ-28, indicating probable psychological problems. Anxiety and insomnia were the most prevalent disorders in individuals suspected of having psychological problems. None of the demographic variables showed significant associations with mental health ($P > 0.05$). However, the analysis of the relationship between demographic variables and subscales showed that education level was associated with somatic symptoms, anxiety, and insomnia. Additionally, work experience level and older age were associated with increased anxiety and insomnia ($P < 0.05$).

Conclusion: Psychological disorders are prevalent among working women at the faculty of medicine; work and social pressures had effects independent of personal characteristics. Implementing support programs (such as counseling services, stress management workshops, and flexible work arrangements) are recommended to improve the mental health of participants.

Keywords: Mental health, Occupational stress, Working women

*Corresponding Author:
Department of Medical Informatics, Mashhad University of Medical Sciences, Mashhad, Iran.
moh.taba@gmail.com

Introduction

Mental health, as a core component of public health, plays a key role in quality of life, especially in stressful work environments such as medical schools (1,2). Due to various personal and work challenges, female employees are at an increased risk of psychological disorders (such as anxiety, depression, and job burnout) in stressful work environments (3). Studies have shown that stressful work environments, work-life imbalance, and gender inequality are among the most important factors affecting the mental health of working women in medical schools (4). Occupational stress and work-life imbalance are two key factors leading to psychological disorders in female employees. These disorders are particularly exacerbated in medical schools due to high work pressure and complex environments (5).

Moreover, according to the recent findings, have working women are more susceptible to psychological disorders. Stress and anxiety resulting from interacting with patients and being in high-risk environments impose significant psychological pressures on this group of employees (6). In addition, studies conducted during the COVID-19 pandemic have shown that female healthcare workers are at a remarkable increased risk of depression and anxiety (7). Female employees in medical schools face unique challenges that affect their mental well-being. These challenges include gender inequality, limited access to leadership opportunities, and pressures resulting from work-life imbalance. These factors decrease job satisfaction, increase stress and anxiety, and even employee attrition among women (8,9). Women in academic positions (especially in medical schools) were at an increased risk of stress and psychological pressures due to multiple responsibilities (10-12).

Considering these challenges, improving the mental health of women working in medical schools can enhance their quality of life and lead to improvements in the quality of education and health care services. So, effective strategies include providing psychological support programs, improving working conditions, and achieving a better work-life balance (13,14). This study aimed to assess the mental health of working women at the Faculty of Medicine, Mashhad University of Medical Sciences, Iran, as well as to identify the factors that influence it.

Materials and Methods

This descriptive cross-sectional study was conducted on all working women at the Faculty of Medicine, Mashhad University of Medical Sciences, Iran, in 2024. Given the finite population of working women at the Faculty of Medicine (N=145), a census approach was applied. All eligible employees were invited to participate, eliminating the need for sample size calculation or sampling techniques which ensured 100% representation of the target population.

The inclusion criteria included being employed at the Faculty of Medicine at the time of data collection (2024), and providing informed consent. The exclusion criteria included incomplete questionnaires (> 20% missing responses).

Research instruments

A) The demographic information checklist: It included details such as marital status, age, education level, employment status, work experience, and number of children.

B) General Health Questionnaire-28 (GHQ-28): This questionnaire includes 4 main subscales (7 question for each subscale): somatic symptoms, anxiety and insomnia, social dysfunction, and depressive symptoms), which scored on a Likert scale (0 to 3), with a total score ranging from 0 to 84 (15). A cutoff score of 23 was established to identify individuals at risk for psychological disorders, and a score of 7 was considered for each subscale. The validity and reliability of the questionnaire have been confirmed in previous studies. The internal consistency coefficient for the total questionnaire was 0.7, and the test-retest reliability over a 1-week interval was 0.9 (16). The questionnaires were completed by the participants, and the data were reviewed by the research team and entered into SPSS software version 27. Data analysis was performed using the measures of central tendency and dispersion. The Chi-square test was used to determine the relationship between demographic variables and mental health.

Results

This study assessed the mental health of working women at the Faculty of Medicine, Mashhad University of Medical Sciences, Iran. Out of a total of 145 participants, 102 (70.3%) were married, and 43 (29.7%) were single. In terms of education level, 49 (33.8%) had basic

education, and 96 (66.2%) had higher education. Fifty-nine (40.7%) were under 35 years, and 86 (59.3%) were 35 years or older. In terms of employment status, 94 (64.8%) had fixed-term contracts, and 51 (35.2%) had indefinite contracts. Additionally, 63 (43.4%) had less than 10 years of work experience, and 82 (56.6%) had 10 years or more. Finally, 74 (51%) had children, and 71 (49%) were childless.

The total score of participants on the GHQ-28 ranged from 4 to 83. Seventy-one participants (49%) scored below 23, while 74 participants (51%) scored 23 or higher, indicating that more than half of the participants are at risk for psychological disorders. The mean scores of participants on the overall scale of general health and its subscales, categorized by healthy individuals and those suspected of having disorders, are shown in Table 1. Healthy individuals had a mean score of 14.5 ± 4.9 on the overall scale of general health, while this value for individuals suspected of having disorders was 36.9 ± 12.1. In the subscales, anxiety and insomnia had the highest mean score (11.7 ± 4.1), and depressive symptoms had the lowest mean score (5.9 ± 5.1). These findings indicate that anxiety and insomnia are among the most common psychological disorders among women working.

Table 1. Mean scores of overall scales and its subscales, categorized by healthy and suspected individuals

Scale	Healthy individuals (n = 71)	Suspected individuals (n = 74)	Total (N = 145)
Total score	14.5 ± 4.9	36.9 ± 12.1	25.9 ± 14.6
Somatic symptoms	4.8 ± 2.5	10.6 ± 4.1	7.8 ± 4.5
Anxiety and insomnia	3.5 ± 2.4	11.7 ± 4.1	7.7 ± 5.3
Social dysfunction	5.1 ± 1.8	8.6 ± 3.2	6.9 ± 3.2
Depressive symptoms	5.1 ± 1.1	5.9 ± 5.1	4.5 ± 3.6

According to Table 2, no significant relationship was found between demographic variables (marital status, education level, age, employment status, number of children, and work experience) and mental health (*P*> 0.05).

Table 2. Analysis of the relationship between demographic variables and mental health

Variable		Healthy individuals (frequency, %)	Suspected individuals (frequency, %)	P
Marital status	Single	21 (48.8)	22 (51.2)	0.984
	Married	50 (49)	52 (51)	
Education level	Basic	20 (40.8)	29 (59.2)	0.161
	Higher	51 (53.1)	45 (46.9)	
Age	Under 35 years	25 (49)	26 (51)	0.293
	35 years or more	46 (48.9)	48 (51.1)	
Employment status	Fixed-term contract	25 (49)	26 (51)	0.992
	Indefinite contract	46 (48.9)	48 (51.1)	
Number of children	No children	37 (52.1)	34 (47.9)	0.458
	Have children	34 (45.9)	40 (54.1)	
Work experience	Less than 10 years	34 (54)	29 (46)	0.291
	10 years or more	37 (45.1)	45 (54.9)	

Our analysis revealed a significant relationship between education level and somatic symptoms (*P*= 0.026), indicating that individuals with basic education are more prone to somatic symptoms resulting from stress.

In terms of anxiety and insomnia, education level (*P*= 0.026), age (*P*= 0.045), and work experience (*P*= 0.026) showed significant relationships, suggesting that individuals with basic education are more vulnerable to anxiety and insomnia due to limited access to supportive resources. About social dysfunction and depressive symptoms, none of the demographic variables showed a significant relationship (*P*> 0.05).

Discussion

This study assessed the mental health of working women at the Faculty of Medicine, Mashhad University of Medical Sciences, Iran. The results showed that 51% of participants scored 23 or higher on the GHQ-28, indicating a high risk of psychological disorders in this population. Anxiety and insomnia had highest

prevalence, while depressive symptoms showed the lowest prevalence. Additionally, basic education was significantly associated with somatic symptoms, anxiety, and insomnia.

The present study showed that anxiety and insomnia are among the most common psychological disorders among working women at the faculty of medicine. This may be due to occupational stress and work-life imbalance. Medical environments (especially medical schools) are often associated with heavy workloads, significant responsibilities, and high expectations, which can lead to increased stress and anxiety levels. In addition, basic education had a significant relationship with somatic symptoms, anxiety, and insomnia. This may indicate that individuals with lower education are more prone to psychological disorders due to limited access to supportive resources or limited knowledge of stress management. This highlights the need for training and support programs for this group of working women.

Consistent with our findings, Villwock et al. showed that many medical students and staff in the USA also experience job burnout and related issues such as anxiety (17). Pacheco et al. showed that medical students in Brazil suffered from psychological disorders (such as depression and anxiety), which were particularly prevalent among female students facing professional and social challenges (18). Also, Jena et al. showed that women working in medical schools (particularly in lower-level positions) experience mental health disorders more frequently than men. This indicates that women face higher workloads and unreasonable expectations while having fewer opportunities for advancement (19).

Similarly, Travers and Cooper showed that in the UK, women working in educational and health care environments experience more occupational stress, anxiety, and depression. This study emphasized gender differences in the experience of occupational stress, indicating that women face more challenges in maintaining a work-life balance due to familial responsibilities and employment discrimination (20). It is worth noting that our study assessed the mental health of working women in a medical school in Iran, while Pacheco et al.'s study assessed the mental health of medical students in Brazil. This difference in the study population may lead to different results. For instance, the stressful work environment and

psychological stress in educational settings in Iran may differ from those in Brazil (18). However, Fawzy and Hamed showed that in Egypt, medical students (particularly female students) experience high levels of stress, anxiety, and depression, which is consistent with the results of the present study (21).

The present study showed that demographic factors (such as marital status and number of children) had no significant relationship with mental health. Consistent with these findings, Jackson et al. showed that in the USA, psychological disorders (such as job burnout and anxiety) among medical students were less dependent on personal factors and were more influenced by environmental factors and occupational stress (22). Our study used GHQ-28 to assess mental health, while many similar studies (such as the study by Frajerman et al. in Europe) used various other tools, such as the Maslach Burnout Inventory. This difference in measurement tools may lead to minor differences in results. However, the overall results suggest that the mental health of health care professionals and medical students worldwide is similarly affected by work environment conditions (23). In addition, we studied working women in a medical school in Iran, while some similar studies have been conducted in the USA and Europe (23,24). Cultural and social differences between these countries may lead to significant differences in results. For instance, in Western societies, greater awareness of mental health issues and access to supportive services may reduce the prevalence of some psychological disorders, while in developing countries, cultural and economic barriers may limit access to such services.

In the UK, de la Torre et al. found a higher prevalence of depression in individuals aged 45-59 compared to those aged 16-29, with the ratio being 1.75 times greater in women (25). In contrast, in the present study, the prevalence of depression is slightly higher in the younger age group. Overall, our findings are highly consistent with the findings of many international studies regarding the mental health of women working in medical environments. However, cultural, social, and methodological differences between studies may lead to minor differences in results. This indicates that further international comparative studies are necessary to gain a more comprehensive understanding of the factors

influencing the mental health of women working in medical environments.This study has several limitations. First, due to focusing on a single medical school, we had a limited sample size. Second, the use of self-reported questionnaires may be subject to bias. Third, due to the cross-sectional design of the study, the causal relationship between variables was not assessed. It is recommended that future studies be conducted with larger sample sizes and a longitudinal design.To gain a more comprehensive understanding of the factors affecting the mental health of women working in medical environments, it is suggested that longitudinal studies be conducted to assess causal relationships between demographic factors and mental health, organizational factors (such as work culture, psychological support, and work-life balance) be included in future studies, and international comparative studies be conducted to better understand the impact of culture and environment on mental health.

Conclusion

Psychological disorders are prevalent among working women at the Faculty of Medicine; Mashhad University of Medical Sciences. Work and social pressures had effects independent of personal characteristics. Implementing support programs (such as counseling services, stress management workshops, and flexible work arrangements) is recommended to improve the mental health of participants.

Acknowledgments

Conflict of Interest

Funding

Ethical Considerations

Code of Ethics
IR.MUMS.IRH.REC.1402.213

Authors' Contributions
M.R.K: Conceptualization, methodology, investigation, data curation, formal analysis, writing- original draft, and project administration. M.S: Methodology, validation, formal analysis, writing- review, and editing. F.M: Investigation, resources, data curation, writing- review, and editing. E.G.K: Formal analysis, visualization, writing-review, and editing. H.G: Methodology, software, validation, writing- review, and editing. S.T: Investigation, resources, and data curation. Z.M: Investigation, project administration, and supervision. S.M.T: Conceptualization, supervision, funding acquisition, and writing- review and editing.

References

1. Hammoudi Halat D, Soltani A, Dalli R, Alsarraj L, Malki A. Understanding and fostering mental health and well-being among university faculty: A narrative review. J Clin Med 2023; 12(13): 4425.
2. 2. Rasoulian Kasrine M, Sarraf-Razavi M, Mahmudimanesh M, Taheri Soodejani M, Talaei A, Boujmehrani H, et al. [Evaluating the reliability and validity of a questionnaire to measure the technology acceptance of virtual reality among patients with mental disorders]. Horizon of medical education development 2023; 14(2): 13-21. (Persian)
3. Ornek OK, Esin MN. Effects of a work-related stress model based mental health promotion program on job stress, stress reactions and coping profiles of women workers: A control groups study. BMC Public Health 2020; 20: 1-14.
4. Helitzer DL, Newbill SL, Cardinali G, Morahan PS, Chang S, Magrane D. Narratives of participants in national career development programs for women in academic medicine: Identifying the opportunities for strategic investment. J Womens Health (Larchmt) 2016; 25(4): 360-70.
5. Zaheer A, Islam JU, Darakhshan N. Occupational stress and work-life balance: A study of female faculties of central universities in Delhi, India. Journal of human resource management 2016;4(1): 1-5.

6. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open 2020; 3(3): e203976.

7. Lu W, Wang H, Lin Y, Li L. Psychological status of medical workforce during the COVID-19 pandemic: A cross-sectional study. Psychiatry Res 2020; 288: 112936.

8. Keshmiri F. Exploring workplace mental health: Educator perspectives and factors in the medical education system–a mixed method study. BMC Med Educ 2024; 24(1): 127.

9. Tabatabaei SM, Meshkat Z, Boskabadi M, Moharari F, Nazari S, Mohamadpour Z, et al. [Investigating social vitality and its influencing factors among women working at Faculty of Medicine in Mashhad University of Medical Sciences]. Navid No 2025; 27: 23-33. (Persian)

10. Bates C, Gordon L, Travis E, Chatterjee A, Chaudron L, Fivush B, et al. Striving for gender equity in academic medicine careers: A call to action. Acad Med 2016; 91(8): 1050-2.

11. Chesak SS, Salinas M, Abraham H, Harris CE, Carey EC, Khalsa T, et al. Experiences of gender inequity among women physicians across career stages: findings from participant focus groups. Womens Health Rep (New Rochelle) 2022; 3(1): 359-68.

12. Shen MR, Tzioumis E, Andersen E, Wouk K, McCall R, Li W, et al. Impact of mentoring on academic career success for women in medicine: A systematic review. Acad Med 2022; 97(3): 444-58.

13. Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. Brain Behav Immun 2020; 87: 11-7.

14. Marck CH, Ayton D, Steward T, Koay H-F, Wiley JF, Taiaroa G, et al. The workplace culture, mental health and wellbeing of early-and mid-career health academics: a cross-sectional analysis. BMC Public Health 2024; 24(1): 1122.

15. Sterling M. General health questionnaire–28 (GHQ-28). J Physiother 2011; 57(4): 259.

16. Moreta-Herrera R, Dominguez-Lara S, Vaca-Quintana D, Zambrano-Estrella J, Gavilanes-Gómez D, Ruperti-Lucero E, et al. Psychometric properties of the General Health Questionnaire (GHQ-28) in Ecuadorian college students. Psihologijske teme 2021; 30(3): 573-90.

17. Villwock JA, Sobin LB, Koester LA, Harris TM. Impostor syndrome and burnout among American medical students: A pilot study. Int J Med Educ 2016; 7: 364.

18. Pacheco JP, Giacomin HT, Tam WW, Ribeiro TB, Arab C, Bezerra IM, et al. Mental health problems among medical students in Brazil: a systematic review and meta-analysis. Braz J Psychiatry 2017; 39: 369-78.

19. Jena AB, Khullar D, Ho O, Olenski AR, Blumenthal DM. Sex differences in academic rank in US medical schools in 2014. JAMA 2015; 314(11): 1149-58.

20. Travers CJ, Cooper CL. Mental health, job satisfaction and occupational stress among UK teachers. Managerial, occupational and organizational stress research. Oxfordshire: Routledge; 2024: 291-308.

21. Fawzy M, Hamed SA. Prevalence of psychological stress, depression and anxiety among medical students in Egypt. Psychiatry Res 2017; 255: 186-94.

22. Jackson ER, Shanafelt TD, Hasan O, Satele DV, Dyrbye LN. Burnout and alcohol abuse/dependence among US medical students. Acad Med 2016; 91(9): 1251-6.

23. Frajerman A, Morvan Y, Krebs M-O, Gorwood P, Chaumette B. Burnout in medical students before residency: A systematic review and meta-analysis. Eur Psychiatry 2019; 55: 36-42.

24. Hill MR, Goicochea S, Merlo LJ. In their own words: Stressors facing medical students in the millennial generation. Med Educ Online 2018; 23(1): 1530558.

25. de la Torre JA, Vilagut G, Ronaldson A, Dregan A, Ricci-Cabello I, Hatch SL, et al. Prevalence and age patterns of depression in the United Kingdom. A population-based study. J Affect Disord 2021; 279: 164-72.