Journal of Fundamentals of Mental Health

Mashhad University of Medical Sciences

Psychiatry and Behavioral Sciences Research Center

Original Article **Open Access**

Chronic fatigue syndrome in healthcare professionals: Insights from a psychiatric hospital

Zanireh Salimi[1]; Ali Nezhadebrahim[2]; Saeed Akhlaghi[3]; *Seyed Mohammad Saeid Sahaf [4]

[1]*Associate professor of psychiatry, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.*
[2]*Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.*
[3]*Department of Biostatistics, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran. Social Determinants of Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*.
[4]*Neuroscience Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*.
Department of Neuroscience, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Abstract

Introduction: Chronic Fatigue Syndrome (CFS) threatens individuals' mental health and quality of life. This study was conducted to investigate the prevalence of chronic fatigue syndrome among the healthcare professionals of a psychiatric hospital.

Materials and Methods: This cross-sectional study utilized an electronic questionnaire to assess CFS from healthcare professionals at Ibn-e-Sina Psychiatric Hospital in Mashhad, Iran in 2023. A total of 278 participants were selected through convenience sampling. Data were analyzed using Chi-square and independent sample t-tests with SPSS-26.

Results: Among all the individuals included in the study, 75 out of 190 (39.5%) had CFS. The mean age was 35.62 ± 7.9 years and the mean professional history of the participants was 9.34 ± 7.6 years. 17 healthcare professionals had a positive history of psychiatric disorders. 164 participants were married, and 141 had no children. 181 participants were employed. Only three individuals (1.1%) had a history of substance abuse, and a significant association was found between substance abuse and chronic fatigue (P= 0.025). Additionally, a significant association was found between those with a history of psychiatric medication use and chronic fatigue (P= 0.001), indicating that chronic fatigue was higher in individuals with a history of psychiatric medication use.

Conclusion: Our study sheds light on the often-overlooked chronic fatigue issue among healthcare professionals. The significant associations we found with substance abuse and psychiatric medication use underscore the complexity of this condition.

Keywords: Chronic fatigue syndrome, Epidemiology, Healthcare professionals

Please cite this paper as:
Salimi Z, Nezhadebrahim A, Akhlaghi S, Sahaf SMS. Chronic fatigue syndrome in healthcare professionals: Insights from a psychiatric hospital. Journal of Fundamentals of Mental Health 2025 Jan-Feb; 27(1): 35-41.
DOI: 10.22038/JFMH.2024.83064.3173

***Corresponding Author:**
Neuroscience Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.
saeidsahaf@gmail.com
Received: Sep. 24, 2024
Accepted: Nov. 25, 2024

Introduction

Chronic Fatigue Syndrome (CFS) is a debilitating illness characterized by severe, persistent fatigue that doesn't improve with rest, along with symptoms like sleep disturbances, memory and concentration difficulties, dizziness, nausea, and pain. A key feature of CFS is the worsening of symptoms after even minor physical or mental activity, which can last from hours to months. The hallmark symptom is a worsening of the condition, which begins hours to days after even minor physical or mental activity. This can last from hours or days to several months (1,2). CFS is one of the common complaints in the field of primary care, the general population, and workplace situations. It is recognized as a debilitating and persistent symptom in specific groups of patients, such as those with cancer, rheumatoid arthritis, diabetes, multiple sclerosis, and Parkinson's disease (3).

Most individuals suffering from chronic fatigue do not show any signs of physical illness, and often, this disorder is caused by psychological factors. Chronic fatigue is one of the issues that, in addition to the general population and primary care, is frequently mentioned in occupational and workplace settings. It is shown that most patients who meet the diagnostic criteria for CFS and related syndromes also receive psychiatric diagnostic criteria, particularly for anxiety and depression. The presence of psychiatric comorbidities, particularly anxiety and depression, can significantly exacerbate the severity of CFS symptoms, creating a vicious cycle of worsening fatigue and diminished quality of life. This overlap underscores the substantial psychological burden associated with CFS, revealing a complex interplay between physical symptoms and mental health that complicates diagnosis, management, and treatment outcomes. As a result, our study underscores the urgent need for integrated care approaches—incorporating cognitive-behavioral therapy, psychosocial support, and multidisciplinary interventions—to address both the debilitating fatigue and the psychological distress that often accompany CFS, offering a more comprehensive treatment strategy for affected individuals (4-8).

The exact incidence and prevalence of CFS are unknown. Preliminary epidemiological studies in the United States indicate that the prevalence rate is between 2.2% and 2.5% in the general population. Additionally, in Japan, the prevalence is 1.5% in the general population (9). Other studies showed that the prevalence of CFS varies from 0.4% to 2.5% in the general population of the United Kingdom (10). Another study investigating the prevalence of CFS among healthcare professionals at a public hospital found that 68.3% of male and 73.1% of female emergency healthcare professionals exhibited symptoms of CFS (11). Additionally, more than half of the nurses and healthcare workers at a research hospital in Turkey reported experiencing CFS (12).

Studies assessing CFS in Iran have shown that the epidemiological rate of chronic fatigue among nurses in Bushehr is 17.5%. Additionally, the prevalence of CFS among female nurses working in women's hospitals, specifically in educational and medical hospitals in Ahvaz and Tehran, was 3.7% (9). However, certain demographic groups are affected more significantly: 1) Women are approximately three times more likely to be affected than men (13). 2) The onset typically occurs between 10 to 19 and 30 to 39 years. The average age of onset is 33 years, but CFS can also occur in individuals between 2 and 77 years (14). An infectious episode close to the onset of CFS has been found in about 80% of patients. Additionally, in prospective studies, 5% to 13% of individuals infected with certain pathogens developed CFS in the following months. Cases have occurred both sporadically and in clusters (13-15). Considering the high prevalence of CFS in primary care, the general population, and particularly among the workforce, it is essential to acknowledge its impact on various aspects of personal and social life. Hospital healthcare workers are identified as a high-risk group for developing CFS due to the considerable responsibilities they bear within the medical team. Additionally, the stressful working conditions, sensitive activities, and the expectations placed upon them by patients and their attendants create an environment conducive to the onset of this disorder.

Therefore, this research aimed to investigate the prevalence of CFS among the healthcare workers at Ibn-e-Sina Hospital in Mashhad in 2023.

Materials and Methods

In this descriptive study, 278 healthcare workers from Ibn-e-Sina Psychiatric Hospital

in Mashhad, Iran, were selected in 2023 through convenience sampling and utilizing an electronic questionnaire. According to Li et al. (16), given the 13% prevalence of chronic fatigue among the nurses in the study, a sample size of 200 provides an accuracy of 0.066 with a 95% confidence level.

The inclusion criterion was that individuals should be Ibn-e-Sina Hospital staff members in 2023. The exclusion criteria comprised individuals with chronic diseases (such as chronic hepatitis, chronic anemia, hypothyroidism, neuromuscular disease, sleep apnea syndrome, or malignancy), serious psychiatric conditions, or those taking psychiatric medications, atorvastatin, or antihypertensive medications; those employed in another job simultaneously; or those unwilling to cooperate.

To address the concern about controlling for "serious psychiatric conditions," participants were directly asked about their psychiatric history in the demographic information section, including specific conditions such as schizophrenia, bipolar disorder, neurodevelopmental disorders, and dissociative disorders. If participants had any other form of psychiatric history (e.g., obsessive-compulsive disorder, major depressive disorder, anxiety), they were considered to have a positive psychiatric history. After informing all healthcare workers at Ibn-e-Sina Hospital about the study and its significance, the questionnaire was distributed to those who provided individual consent.

Research instruments

A) Demographic Checklist: It included demographic variables such as age, gender, marital status, number of children, contract type, and monthly income.

B) Fatigue Scale: Chalder et al. developed a brief 14-item tool that assesses both physical and mental symptoms of fatigue. This self-assessment questionnaire uses a 4-point scale, where participants rate each item from "0" (much less than usual) to "3" (far more than usual). The tool is divided into two specific factors: eight questions assess physical fatigue (items 1 to 8), and six questions assess mental fatigue (items 9 to 14). They reported that the internal consistency coefficient was 0.89 for the entire scale, 0.85 for physical fatigue, and 0.82 for mental fatigue. They also reported a validity coefficient with a sensitivity of 75.5% and a specificity of 74.5% using a cut-off point 22 and a clinical interview in a medical care setting (17). Homayooni et al. validated the content and confirmed good content validity. They reported reliability coefficients of 0.91 (18). We used Chi-square tests and independent samples t-tests, and SPSS version 26 for data analysis.

Results

Table 1 presents the demographic variables and their relationship with CFS. Chi-square analysis indicated no significant differences in CFS based on gender, marital Status, number of children, contract type, or monthly income among the healthcare professionals.

Table 1. Demographic variables of the participants

Variable		Number (%)	Chronic fatigue		P
			Yes	No	
Gender	Female	139 (50%)	66 (47.5%)	73 (52.5%)	0.183
	Male	139 (50%)	55 (39.6%)	84 (60.4%)	
Marital status	Single	89 (32%)	41 (46.1%)	48 (53.9%)	0.694
	Married	164 (59%)	67 (40.9%)	97 (59.1%)	
	Divorced	19 (6.8%)	10 (52.6%)	9 (47.4%)	
	Widowed	6 (2.2%)	3 (50%)	3 (50%)	
Number of children	No	141 (50.7%)	63 (44.7%)	78 (55.3%)	0.151
	One	47 (16.9%)	24 (51.1%)	23 (48.9%)	
	Two	62 (22.3%)	27 (43.5%)	35 (56.5%)	
	≥ 3	28 (10.1%)	7 (25%)	21 (75%)	
Contract type	Permanent	181 (65.1%)	85 (47%)	96 (53%)	0.113
	Temporary	97 (34.9%)	36 (37.1%)	61 (62.9%)	
Monthly income (Rial)	30 to 50 million	26 (9.4%)	9 (34.6%)	17 (65.4%)	0.071
	50 to 100 million	92 (33.1%)	33 (35.9%)	59 (64.1%)	
	Above 100 million	160 (57.6%)	79 (49.4%)	81 (50.6%)	

Table 2 shows the differences among all participants in terms of age and work history concerning chronic fatigue. The independent samples t-test indicated no significant difference in the participants' mean age and work history between those with and without chronic fatigue.

Table 3 shows the medical history of all participants concerning chronic fatigue. Among the participants, 17 individuals had a history of psychiatric disorders. Specifically, six people (2.2%) had generalized anxiety disorder, one person (0.4%) had panic disorder, five people (1.5%) had depression, and one person (0.4%) had attention-deficit hyperactivity disorder. One person (0.4%) had obsessive-compulsive disorder. Information for 3 participants was not included.

Table 2. Age and professional history differences regarding chronic fatigue syndrome

Variable	Chronic fatigue		P
	Yes	No	
	Mean ± SD	Mean ± SD	
Age	34.83 ± 7.03	36.22 ± 8.49	0.135
Professional history	9.02 ± 6.62	9.59 ± 8.33	0.532

Table 3. Medical history of participants regarding chronic fatigue syndrome

Variable		Number (%)	Chronic Fatigue		P
			Yes	No	
Psychiatric disorder	Present	17 (6.1%)	10 (58.8%)	7 (41.2%)	0.191
	Absent	261 (93.9%)	111 (42.5%)	150 (57.5%)	
Psychiatric medication	Present	26 (9.4%)	19 (73.1%)	7 (26.9%)	0.001
	Absent	252 (90.6%)	102 (40.5%)	150 (59.5%)	
Hypertention	Present	24 (8.6%)	11 (45.8%)	13 (54.2%)	0.812
	Absent	254 (91.4%)	110 (43.3%)	144 (56.7%)	
Cardiovascular disease	Present	5 (1.8%)	2 (40.0%)	3 (60.0%)	0.872
	Absent	273 (98.2%)	119 (43.6%)	154 (56.4%)	
Hepatitis	Present	1 (0.003%)	1 (100.0%)	0 (0%)	0.196
	Absent	277 (99.997%)	120 (43.3%)	157 (56.7%)	
Anemia	Present	23 (8.3%)	12 (52.2%)	11 (47.8%)	0.385
	Absent	255 (91.7%)	109 (47.2%)	146 (57.3%)	
Untreated hypothyroidism	Present	13 (4.7%)	8 (61.5%)	5 (38.5%)	
	Absent	265 (95.3%)	113 (42.6%)	152 (57.4%)	
Obstructive Sleep Apnea (OSA)	Present	6 (2.2%)	3 (50.0%)	3 (50.0%)	0.747
	Absent	272 (97.8%)	118 (43.4%)	154 (56.6%)	
Cancer	Present	0 (0%)	0 (0%)	0 (0%)	
	Absent	278 (100%)	121 (43.5%)	157 (56.5%)	
Neuromuscular disease	Present	13 (4.7%)	5 (38.5%)	8 (61.5%)	0.705
	Absent	265 (95.3%)	116 (43.8%)	149 (56.2%)	
Substance Use Disorder (SUD)	Present	3 (1.9%)	3 (100%)	0 (0%)	0.025
	Absent	275 (98.92%)	118 (42.9%)	157 (57.1%)	

The results show that although a higher percentage of individuals with psychiatric disorders (58.8%) reported chronic fatigue compared to those without such a history (42.5%), the Chi-square test showed this association was not significant (P= 0.191). In contrast, a significant association was found with psychiatric medication use, where 73.1% of users had chronic fatigue compared to 40.5% of non-users (P= 0.001). Other conditions, including hypertention medication use, statin use, hepatitis, anemia, untreated hypothyroidism, obstructive sleep apnea, neuromuscular disease, and cancer, showed no significant links to chronic fatigue. Notably, 100% of individuals with a history of substance abuse reported chronic fatigue, highlighting a significant association (P= 0.025).

Discussion

We concluded that 43.52% of the total sample in our study had CFS. In conjunction with other studies, the reported percentage of CFS is relatively high. This discrepancy in prevalence rates may be due to differences in the healthcare environments, population characteristics, or methodological approaches, including variations in diagnostic criteria, sample sizes, and data collection techniques (19). The relatively high percentage observed in our study could reflect specific work conditions that healthcare workers face in our setting, highlighting the potential impact of occupational factors on CFS development. In a study, the prevalence of CFS among female nurses working in women's hospitals, specifically in educational and medical hospitals in Ahvaz and Tehran, was 3.7% (9). These differences may suggest that external factors, such as work demands and physical activity levels, play a significant role in the development of CFS, particularly when compounded by stressors related to healthcare environments (20).

Also, our study showed no significant differences between the chronic fatigue and non-fatigue groups across various parameters, except for psychiatric medical history. This finding is incongruent with some studies. For instance, Kara et al. assessed CFS among 183 healthcare workers, reporting that more than half of the participants experienced fatigue. They found that income level and working more than 8 hours per day significantly impacted CFS (12). Additionally, nurses experiencing acute and chronic fatigue reported poorer physical performance (4). In addition to these incongruent findings, Skorpen and colleagues, who examined thyroid hormone levels in patients with CFS compared to a healthy control group, found no statistically significant differences (21). Similarly, our study also did not find a statistically significant difference in the history of untreated hypothyroidism between the two groups.

This suggests that thyroid dysfunction may not be a central factor in the pathophysiology of CFS, at least in the population studied. However, this does not rule out the possibility of other biochemical or hormonal imbalances that may contribute to fatigue and require more targeted investigations, such as examining cortisol levels, immune function, or neuroinflammatory markers (20,22,23).

The lack of significant differences between the groups with or without chronic fatigue across most parameters suggests that these factors may not be strong predictors or contributors to chronic fatigue in this population. The one exception was psychiatric medical history, which indicates a potential link between mental health issues and chronic fatigue, warranting further exploration. This finding is consistent with existing literature showing that anxiety and depression are highly prevalent in CFS patients, and their presence can exacerbate the severity of fatigue (24). The overlap of psychiatric comorbidities complicates the clinical presentation of CFS, as the psychological burden could amplify both physical symptoms and cognitive dysfunctions, such as memory impairment and reduced concentration (25). This suggests that an integrated approach that addresses CFS psychological and physical aspects could improve management outcomes.

However, while sufficient for detecting some associations, the sample size may have been too small to detect subtle effects, particularly in subgroups or less prevalent conditions. Furthermore, while we controlled for a range of demographic and clinical factors, other potentially confounding variables, such as lifestyle factors, sleep quality, occupational stress, and comorbid health conditions, were not fully accounted for in this study, which may have influenced the results and masked meaningful associations. Longitudinal studies are needed to determine the directionality of these relationships and better understand the role of psychosocial and occupational factors in the development of CFS. Moreover, future research should focus on investigating biomarkers and neurobiological mechanisms that may contribute to the pathophysiology of CFS. This could help elucidate the complex interaction between physical and mental health components and lead to the development of more targeted and effective treatment interventions.

Conclusion

In conclusion, our study highlights chronic fatigue as a significant issue often overlooked in clinical settings, with notable associations between chronic fatigue and substance abuse as well as psychiatric medication use. Despite these findings, the lack of significant differences between groups with or without chronic fatigue across most parameters

suggests that other factors may not be strong predictors of chronic fatigue. The exception is psychiatric history, which shows a potential link and warrants further investigation. Future research with larger samples and more controlled conditions is needed to better understand the predictors and contributors to chronic fatigue.

Acknowledgments

We thank the Ibn-e-Sina Hospital healthcare workers and institutions for their invaluable contributions.

Conflict of Interests

The authors declare no conflict of interest.

Funding

The authors declare no financial support.

Ethical Considerations

This study was conducted in accordance with ethical guidelines, with approval from the Mashhad University of Medical Sciences Ethics Committee. All participants participated after completing a written consent form and ensuring compliance with ethical standards, including the confidentiality of results.

Code of Ethics

IR.MUMS.MEDICAL.REC.1401.577

Authors' Contributions

Z.S: Conceptualized and led the project as the principal investigator, providing the foundational idea and overall guidance. A.N: Conducted the procedures of the study, including data collection and implementation of the research. S.A: Designed and refined the methodologies used in the study, ensuring their scientific rigor and appropriateness. S.M.S.S: Authored the manuscript, synthesizing the findings and presenting the research outcomes.

IR.MUMS.REC.1399.201

References

1. Raijmakers RPH, van der Meer JWM. [Chronic fatigue syndrome: source of controversy]. Ned Tijdschr Geneeskd 2020; 164: D5611. (Dutch)
2. Alme TN, Andreasson A, Asprusten TT, Bakken AK, Beadsworth MB, Boye B, et al. Chronic fatigue syndromes: Real illnesses that people can recover from. Scand J Prim Health Care 2023; 41(4): 372-6.
3. Park JW, Park BJ, Lee JS, Lee EJ, Ahn YC, Son CG. Systematic review of fatigue severity in ME/CFS patients: insights from randomized controlled trials. J Transl Med 2024; 22(1): 529.
4. Sagherian K, Clinton ME, Abu-Saad Huijer H, Geiger-Brown J. Fatigue, work schedules, and perceived performance in bedside care nurses. Workplace Health Saf 2017; 65(7): 304-12.
5. Dartey AF, Tackie V, Lotse CW, Lily D, Sagbo FM. Experiences of nurses and midwives with indecorously structured duty rosters at selected health facilities in Ho, Volta region of Ghana: A qualitative study. SAGE Open Nurs 2024; 10: 23779608241275323.
6. Wright A, Fisher PL, Baker N, O'Rourke L, Cherry MG. Perfectionism, depression and anxiety in chronic fatigue syndrome: A systematic review. J Psychosom Res 2021; 140: 110322.
7. Schellekens MP, Wolvers MD, Schroevers MJ, Bootsma TI, Cramer AO, van der Lee ML. Exploring the interconnectedness of fatigue, depression, anxiety and potential risk and protective factors in cancer patients: A network approach. J Behav Med 2020; 43: 553-63.
8. Vo HLT, Elias S, Hardy TA. Cognitive behavioural therapy for fatigue in patients with multiple sclerosis: A systematic review and meta-analysis. Mult Scler Relat Disord 2024; 91: 105908.
9. Sayady M, Reishehry EP, Golestane SM. [Epidemiological study of chronic fatigue syndrome in nurses of Bushehr city]. Journal of educational psychology 2013; 3(4): 19-29. (Persian)
10. Van Houdenhove B, Luyten P. Customizing treatment of chronic fatigue syndrome and fibromyalgia: The role of perpetuating factors. Psychosomatics 2008; 49(6): 470-7.
11. Bulut A, Bulut A. The prevalence of chronic fatigue syndrome in emergency healthcare professionals and the associated factors. Int J Caring Sci 2018; 11(2): 868.
12. Kara IH, Demir D, Erdem Ö, Sayin GT, Yildiz N, Yaman H. Chronic fatigue syndrome among nurses and healthcare workers in a research hospital in Turkey. Soc Behav Pers 2008; 36(5): 585-90.
13. Bateman L, Bested AC, Bonilla HF, Chheda BV, Chu L, Curtin JM, et al. Myalgic encephalomyelitis/chronic fatigue syndrome: Essentials of diagnosis and management. Mayo Clin Proc 2021; 96(11): 2861-78.
14. Rowe PC, Underhill RA, Friedman KJ, Gurwitt A, Medow MS, Schwartz MS, et al. Myalgic encephalomyelitis/chronic fatigue syndrome diagnosis and management in young people: A primer. Front Pediatr 2017; 5: 121.
15. Pheby DFH, Friedman KJ, Murovska M, Zalewski P. Turning a corner in ME/CFS research. Medicina (Kaunas) 2021; 57(10): 1012.
16. Li M, Shu Q, Huang H, Bo W, Wang L, Wu H. Associations of occupational stress, workplace violence, and organizational support on chronic fatigue syndrome among nurses. J Adv Nurs 2020; 76(5): 1151-61.
17. Chalder T, Berelowitz G, Pawlikowska T, Watts L, Wessely S, Wright D, et al. Development of a fatigue scale. J Psychosom Res 1993; 37(2): 147-53.

18. Homayooni A, Hashemi Sheikh Shabani E, Naami A, Beshlideh K. [The relationship between organizational mobbing with chronic fatigue and workplace cognitive failures]. Iran occupational health journal 2015; 12(2): 1-12. (Persian)
19. Haffke M, Freitag H, Rudolf G, Seifert M, Doehner W, Scherbakov N, et al. Endothelial dysfunction and altered endothelial biomarkers in patients with post-COVID-19 syndrome and chronic fatigue syndrome (ME/CFS). J Transl Med 2022; 20(1): 138.
20. Balinas C, Eaton-Fitch N, Maksoud R, Staines D, Marshall-Gradisnik S. Impact of life stressors on myalgic encephalomyelitis/chronic fatigue syndrome symptoms: An Australian longitudinal study. Int J Environ Res Public Health 2021; 18(20): 10614.
21. Skorpen E, Pasca NB, Reitan SK, Groven N. Exploring levels of TSH and FT4 in patients with chronic fatigue syndrome (CFS), fibromyalgia (FM) and healthy controls did not reveal any associations between fatigue score and level of thyroid hormones. Nord J Psychiatry 2024; 78(5): 376-81.
22. VanElzakker MB, Brumfield SA, Lara Mejia PS. Neuroinflammation and cytokines in myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS): A critical review of research methods. Front Neurol 2019; 9: 1033.
23. Roerink ME, Roerink SH, Skoluda N, van der Schaaf ME, Hermus AR, van der Meer JW, et al. Hair and salivary cortisol in a cohort of women with chronic fatigue syndrome. Horm Behav 2018; 103: 1-6.
24. Wright A, Fisher PL, Baker N, O'Rourke L, Cherry MG. Perfectionism, depression and anxiety in chronic fatigue syndrome: A systematic review. J Psychosom Res 2021; 140: 110322.
25. Aoun Sebaiti M, Hainselin M, Gounden Y, Sirbu CA, Sekulic S, Lorusso L, et al. Systematic review and meta-analysis of cognitive impairment in myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). Sci Rep 2022; 12(1): 2157.