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Psychological Disorders and Quality of Life among Medical Residents before, during and after the COVID-19 Pandemic: A Systematic Review

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Abstract

Background: The COVID-19 pandemic has posed a significant threat to both the physical and mental health of individuals, adversely affecting their quality of life (QoL) by causing various psychological issues. This study aims to review the updated estimates of the prevalence of psychological problems and QoL status among Iranian medical residents before, during, and after the COVID-19 pandemic, as well as to discuss the factors influencing these conditions.

Materials and Methods: In this systematic review, a search of online databases (Medline, Scopus, Web of Science, ERIC, CIVILICA, and Google Scholar) was conducted with no time limit up to March 2024. The quality of the information was evaluated using the STROBE tool.

Results: Nine relevant studies were selected. Medical residents exhibited a high prevalence of severe to extremely severe depression (23%), severe to extremely severe anxiety (24.9%), and severe to extremely severe stress (33.8%) during the COVID-19 pandemic. Anxiety symptoms increased from 8% pre-COVID-19 to 24.9% during the pandemic, while depression rates rose from 19% to 23%. A statistically significant relationship was observed between anxiety and factors such as gender, field of study, number of patient visits, and city of study ($p < 0.05$). Symptoms of depression were more prevalent among female residents, singles, obstetrics and gynecology residents, non-native residents, and those in direct contact with COVID-19 patients ($p < 0.05$). High levels of stress were more common in female residents and those in surgery and anesthesia compared to non-surgical fields ($p < 0.05$). Additionally, female residents reported a lower quality of life during the COVID-19 pandemic ($p < 0.05$).

Conclusion: Based on the results, medical residents were at high risk of developing anxiety, stress, and depression during the COVID-19 pandemic. Additionally, the quality of life was lower among female residents during this period.

Key Words: Anxiety, COVID-19, Medical Residents, Psychological Disorders, Quality of Life.

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1- INTRODUCTION

The COVID-19 pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), began with an outbreak in Wuhan, China, in December 2019. It spread to other areas of Asia and then worldwide in early 2020. The World Health Organization (WHO) declared the outbreak a public health emergency of international concern (PHEIC) on January 30, 2020, and announced that it had become a pandemic on March 11, 2020 (1-5).

COVID-19 vaccines were developed rapidly and deployed to the general public in December 2020, available through government and international programs such as COVAX to provide vaccine equity (1-5). Treatments included novel antiviral drugs and symptom control. Common mitigation measures during the public health emergency were travel restrictions, lockdowns, business restrictions and closures, workplace hazard controls, mask mandates, quarantines, testing systems, and contact tracing of the infected (6-8). The WHO ended the Public Health Emergency of International Concern (PHEIC) for COVID-19 on May 5, 2023 (9).

The disease has continued to circulate, but as of 2024, experts are uncertain whether it is still classified as a pandemic (10-12). The definitions of pandemics and their conclusions are not well defined, and whether one has ended varies according to the definition used (9, 12). As of July 2, 2024, COVID-19 has caused 7,051,600 confirmed deaths (13). The COVID-19 pandemic ranks as the fifth deadliest pandemic or epidemic in history (14-16). The pathogenic nature of this virus, its rapid spread, and its mortality rate have significantly impacted the mental health of individuals across different levels of society, including patients, healthcare workers, families, and children at risk (17-19). Healthcare workers on the front lines of treatment and care faced numerous challenges, including issues related to protective equipment and caring for patients in isolation. They also had a higher probability of contracting the disease and potentially transmitting it to their families. Such high levels of mental pressure and demanding tasks have led to mental health problems, fatigue, and burnout among these individuals (20-22). A review study conducted in 2020 on COVID-19 and mental health issues indicated that the most common psychological reactions to the pandemic were symptoms of anxiety and depression (23). A study in Iran investigated the psychological effects of this pandemic on nurses and concluded that COVID-19 has resulted in numerous psychological disorders among nurses, with the most significant being depression, reduced concentration, and lack of motivation (24).

Medical residency is one of the most challenging periods in a doctor's professional life, requiring significant mental and physical energy. Medical residents are frontline healthcare workers involved in the diagnosis and treatment of diseases (25, 26). They face increased responsibilities, heavy workloads, sleep deprivation, and physical fatigue (27). A study found that long working hours, the vast amount of professional information to manage, family-work interference, exhausting emergencies, and limited control over their work place medical residents at high risk for mental disorders and job burnout (25).

If medical residents cannot effectively adapt to the challenges they face, they may experience despair, burnout, and psychiatric disorders (25, 28). These conditions not only harm their mental health but also lead to consequences such as difficulties in communicating with colleagues and patients, heightened sensitivity in interpersonal relationships, and an increase in medical errors (29).

Further research has shown that anxiety caused by COVID-19 contributes to job burnout and a decrease in academic self-efficacy among students (30-32). Additionally, depression and substance abuse are more prevalent among medical students and residents, which may further diminish their quality of life (33, 34). Studies indicate that, in addition to mental health, quality of life (QoL) is also affected by the COVID-19 pandemic. Quality of life encompasses physical health, psychological well-being, social relationships, and environmental factors, all of which influence an individual's overall quality of life (35).

After the COVID-19 pandemic, the World Health Organization (WHO) considers it necessary to take immediate action to improve the mental health of individuals in the community and reduce psychological problems among at-risk populations. As mentioned, healthcare workers on the front lines of treatment are at a higher risk of experiencing depression and anxiety compared to others (36-38). Although significant attention has been given to identifying individuals infected with COVID-19, the mental health assessment of those at risk, particularly medical residents in our country, has been largely overlooked, with few studies available on this matter (39-41).

The importance of mental health during the pandemic necessitates the identification of psychological disorders, their causes, and the examination of the QoL among at-risk populations. With appropriate psychological solutions and interventions, it is possible to improve mental health and, consequently, the QoL of these individuals. Therefore, up-to-date evidence is crucial regarding the mental health status of medical residents during the COVID-19 pandemic (17, 19, 23, 35). This study aimed to review updated estimates of the prevalence of psychological problems (e.g., anxiety, stress, and depression) and quality of life (QoL) status among medical residents before, during, and after the COVID-19 pandemic while discussing the associated factors.

2- MATERIALS AND METHODS

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist was utilized as a template for this review (42).

2-1. Eligibility criteria

The Participants, Interventions, Comparators, and Outcomes (PICO) framework was used to formulate the review objective and inclusion criteria.

2-1-1. Participants: Medical residents.

2-1-2. Interventions: The included studies were non-interventional; therefore, no intervention group existed.

2-1-3. Comparisons: Comparison of mental health outcomes and QoL among medical residents before and during the COVID-19 pandemic.

2-1-4. Outcomes: Psychological disorders and QoL status.

2-2. Included studies

a) Studies conducted among medical residents;

b) Cross-sectional, cohort, or case-control studies;

c) Studies reporting outcomes related to psychological disorders or QoL;

d) Studies conducted during the COVID-19 pandemic or prior to it; and

e) Published in English or Persian up to March 2024.

2-3. Exclusion criteria

The exclusion criteria included abstracts without the full article, articles not written in English or Persian, review articles, systematic reviews and meta-analyses,

letters to the editor, editorials, short reports, commentaries, and case reports.

2-4. Study selection

A database search was conducted to identify suitable studies. The abstracts of the studies were screened to identify eligible studies, full-text articles were obtained and assessed, and a final list of eligible studies was compiled. This process was carried out independently and in duplicate by two reviewers, with any disagreements resolved by a third reviewer. References were organized and managed using EndNote software (version X8).

2-5. Information sources

A systematic search of electronic databases, including Medline (via PubMed), Scopus, Web of Science, ERIC, CIVILICA, and the Google Scholar search engine, was conducted to identify studies that provided outcomes related to psychological disorders or quality of life (QoL) and their influencing factors up to March 2024. The assessment was performed independently by two reviewers, and any discrepancies were resolved through consensus, with a third investigator consulted as necessary.

2-6. Search strategy

The search terms were combined using appropriate Boolean operators and included subject heading terms with the following keywords used alone or in combination:

Medical resident OR Medical postgraduate

Medical AND Iran OR Iranian

Mental disorder OR Mental health OR Affective disorder OR Mood disorder OR Depressive disorder OR Depression OR Anxiety OR Stress OR Psychological well-being OR Quality of life (QoL)

AND COVID-19 OR Coronavirus Disease 2019 OR Pandemic OR 2019-nCoV OR SARS-CoV-2 OR COV-19.

2-7. Data collection process

A data collection form was designed and implemented by two independent authors. The data collected from the selected studies included the authors' names, date of the survey, study type, target population, settings, sample size, assessment timing, and main findings.

2-8. Risk of bias in individual studies

The risk of bias was assessed using the standard STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines (43). STROBE is a valuable tool for evaluating the quality of observational studies. This checklist contains 22 items, each scored based on its relevance to the current study. The maximum score for the checklist was 30, while the minimum score was 15.0.

2-9. Synthesis of results

Due to differences in the included studies, target populations, sample sizes, assessment tools, and substantial heterogeneity in aims and outcomes, a meta-analysis was not performed. The studies were summarized narratively, providing an overview of their methods and main findings.

3- RESULTS

Finally, nine relevant studies, comprising 1,549 individuals, were systematically selected (**Figure 1**). All included studies demonstrated acceptable methodological quality according to the STROBE checklist. Research investigating the mental health assessment of Iranian residents across the COVID-19 pandemic timeline remains notably limited (**Table 1**). Prior to the pandemic, three studies explored distinct psychological dimensions: one assessed quality of life (QoL) status (46), another investigated anxiety symptoms (47), a third examined depression symptoms (33), and a single study focused on stress level evaluations

during the pre-COVID-19 period (48). The primary characteristics of the selected studies are comprehensively summarized in **Table 2** and the following:

1. A cross-sectional study aimed to investigate the levels of depression and the factors affecting depression among residents working at Ali Ibn Abi Talib and Khatam Al Anbia hospitals in Zahedan, Iran, in 2021. The results indicated that the mean depression score of the residents was 17.52, reflecting moderate depression. A significant relationship was found between being single ($p = 0.011$), having direct contact with COVID-19 patients ($p = 0.003$), and experiencing depression. The findings of this study highlighted a high prevalence of depression among residents during the COVID-19 pandemic, with elevated rates particularly evident among female and single residents, obstetrics and gynecology residents, non-native residents, and those in direct contact with COVID-19 patients (41).

2. A cross-sectional study was conducted on 140 medical residents to investigate the QoL of residents in Kashan during the COVID-19 pandemic in 2021. The results indicated that psychological health had a statistically significant relationship with marital status, underlying conditions, participation in sports or arts activities, and year of residency ($p < 0.001$). Physical health also showed a statistically significant relationship with age, marital status, underlying diseases, sports or arts activities, and year of residency ($p < 0.001$). Female residents reported lower QoL scores. Residents in pathology, neurology, and infectious diseases had higher QoL, while those in psychiatry scored higher in the psychological health dimension (44).

3. A cross-sectional study aimed to investigate the prevalence of depression, anxiety, and stress among medical residents at Tehran University of Medical Sciences in 2020. The results indicated that 23% of residents experienced severe to extremely severe depression, 24.9% had severe to extremely severe anxiety, and 33.8% reported severe to extremely severe stress. The prevalence of depression, anxiety, and stress among residents was higher than that reported in some other countries and universities (39).

4. A cross-sectional study aimed to determine the levels of anxiety and depression in clinical residents working in the COVID-19 ward of Afzalipour Hospital in Kerman in 2020. The results indicated a statistically significant association between the total score on the Corona Disease Anxiety Scale (CDAS) ($p= 0.041$), the Hospital Anxiety and Depression Scale (HADS) anxiety score ($p= 0.033$), and gender. A statistically significant association was also found between HADS anxiety scores ($p = 0.045$), HADS depression scores ($p = 0.030$), and a history of psychiatric disorders (40).

5. A cross-sectional study aimed to assess the effects of depression on medical students and residents at Shiraz University of Medical Sciences and their views on euthanasia in 2019. The results indicated that positive attitudes toward euthanasia were associated with depression and its severity ($p < 0.001$). The prevalence of depression among medical students and residents was 47.8% (45).

6. A cross-sectional descriptive-analytical study aimed to determine the quality of life, job satisfaction, and sleep hygiene patterns of medical residents from various specialties in teaching centers affiliated with Shahid Beheshti University of Medical Sciences in Tehran, Iran, before and after the beginning of their residency period in 2018. The results indicated that quality of life ($p < 0.001$), job satisfaction ($p < 0.001$), and sleep hygiene patterns ($p<0.001$) significantly decreased among medical residents six months after starting the residency program. Furthermore, having more than 15 shifts per month was

significantly associated with decreased quality of life in medical residents (p=0.01) (46).

7. A cross-sectional descriptive study aimed to investigate the anxiety rates among Iranian medical residents from the first to the fourth year of their studies in Isfahan, Gilan, Zahedan, Sanandaj, and Kashan during 2010-2011. The results indicated that more than 92% of the residents who participated in the study did not exhibit anxiety. Only 5.5% of medical residents presented with mild symptoms of anxiety, and none displayed symptoms of severe anxiety. A statistically significant relationship was observed between anxiety and sex, field of study, and the city of residence ($p < 0.05$). Additionally, a positive and significant relationship was found between the number of patient visits and the anxiety score. The anxiety rates among medical students in this study revealed very low levels of anxiety in medical residents compared to findings from previous studies (47).

8. A cross-sectional study aimed to determine the relationship between depression and life events in medical residents of Tehran, Shahid Beheshti University, and Iran Medical Sciences in 2003. The results indicated that the mean score on the Beck Depression Inventory (BDI) was 5.77 (SD = 5.74), while the mean score on the Hamilton Depression Inventory (HDI) was 5.21 (SD = 4.38). Specifically, 19% of participants met the criteria for depression based on the BDI score, and 24.5% based on the HDI score. Male residents were more affected by career and financial issues, whereas female residents were more impacted by personal events and issues related to their spouses and parents ($p < 0.05$) (33).

9. A cross-sectional study aimed to assess the stress levels in medical specialists and residents at Shaheed Beheshti University of Medical Sciences in 1999. The results indicated that the prevalence of stress, ranging from mild to severe, among medical residents was 75.5%. The level of stress in surgical and anesthesia residents was significantly higher compared to those in non-surgical fields ($p = 0.059$). Additionally, stress levels were higher in female subjects than in males ($p = 0.057$) (48).

Table-1: Summary of Psychological Disorders and Quality of Life among Medical Residents before and during the COVID-19 Pandemic.

Before the COVID-19, Reference	Sub-group	During the COVID-19, Reference	Sub-group
Stress Level (48)	75.5% (Mild to Severe)	Depression Symptoms (39, 41, 45)	23% Severe to Extremely Severe Depression
Quality of Life (QoL) (46)	Before the Residency Period: 87.15 ± 11.47 (Range: 0-100)		17.52%
	After 6 Months of Residency: 64.15 ± 9.65 (Range: 0-100)		47.8%
		Anxiety Symptoms (39)	24.9% Severe to Extremely Severe Anxiety
Anxiety Symptoms (47)	8%	Stress Level (39)	33.8% Severe to Extremely Severe Stress
Depression Symptoms (33)	19% Based on BDI Score and 24.5% Based on HDI Score		

QoL: Quality of life, HDI: Hamilton Depression Inventory, BDI: Beck Depression Inventory.

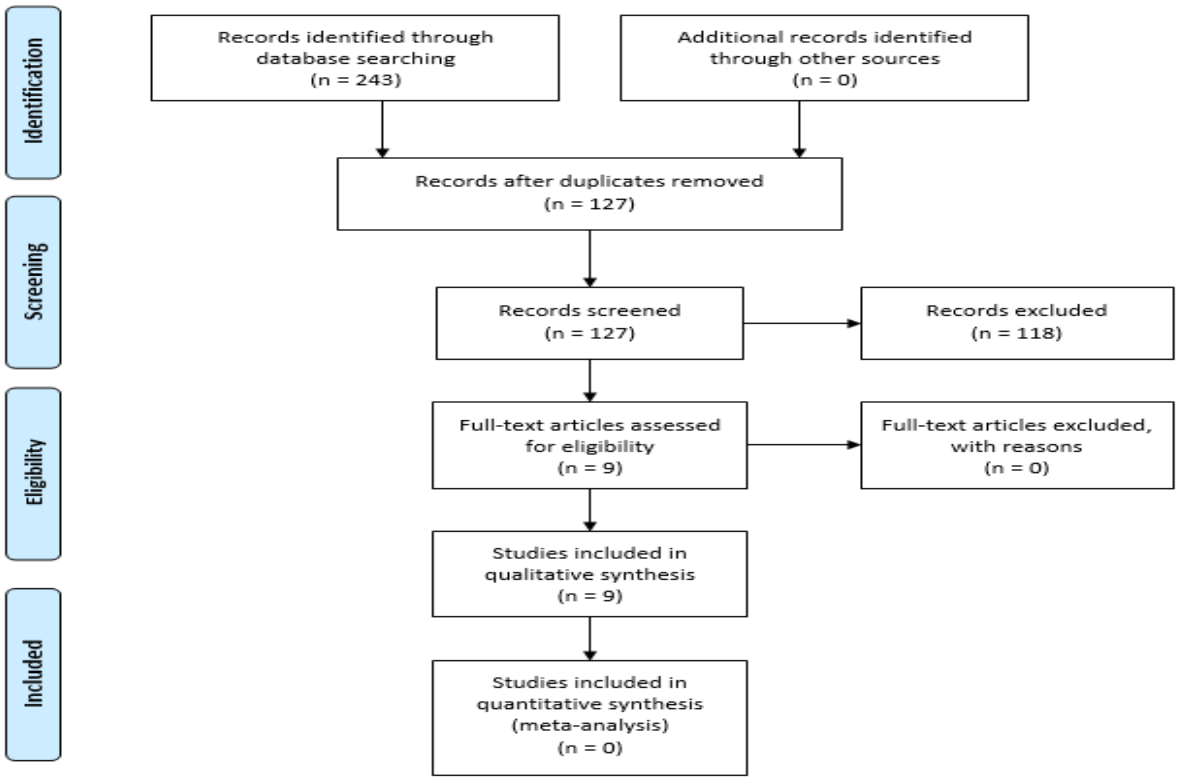

Fig.1: PRISMA Flowchart.

Table-2: General Characteristics of Included Studies (n = 9).

Authors, Date of survey, Reference	Study type	Setting	Target population	Sample size	Assessment timing	Main findings
Ziaei et al., 2021, 41	cross-sectional study	Ali Ibn Abi Talib and Khatam al-Anbia Hospitals in Zahedan	Medical residents	80	During COVID-19	The mean depression score of the residents was 17.52, indicating moderate depression among them.
Sepehrmanesh et al., 2021, 44	cross-sectional study	Hospitals affiliated with Kashan University of Medical Sciences	Medical residents	140	During COVID-19	The psychological health dimensions had a statistically significant relationship with marital status, underlying diseases, participation in sports or arts activities, and year of residency ($p< 0.001$).
Farhangi et al., 2020, 39	cross-sectional study	Tehran University of Medical Sciences	Medical residents	152	During COVID-19	23% of residents experienced severe to extremely severe depression, 24.9% had severe to extremely severe anxiety, and 33.8% reported severe to extremely severe stress.
Mayel et al., 2020, 40	cross-sectional study	COVID-19 Center at Afzalipour Hospital in Kerman	Medical residents	50	During COVID-19	There was a statistically significant association between the total CDAS score ($p = 0.041$), HADS anxiety score ($p = 0.033$), and gender.
Razeghian Jahromi et al., 2019, 45	cross-sectional study	Hospitals affiliated with Shiraz University of Medical Sciences	Interns and medical residents	200	During COVID-19	The prevalence of depression among medical students and residents was 47.8%.
Khorvash et al., 2010-11, 47	cross-sectional study	Isfahan, Gilan, Zahedan, Sanandaj, and Kashan	Medical residents	370	Pre-COVID-19	The anxiety rate among medical students in this study, compared to previous findings, revealed

		Universities of Medical Sciences				very low anxiety levels in medical residents (8%).
Banihashem et al., 2018, 46	cross-sectional study	Shahid Beheshti University of Medical Sciences	Medical residents	162	Pre-COVID-19	The QoL, job satisfaction, and sleep hygiene patterns significantly decreased in medical residents six months after starting the residency program.
Bahrinian et al., 1999, 48	cross-sectional study	Shaheed Beheshti University of Medical Sciences	Medical specialists and residents	162	Pre-COVID-19	The level of stress among medical residents ranged from mild to severe, with a prevalence of 75.5%.
Mohsenifar et al., 2003, 33	cross-sectional study	Tehran, Shahid Beheshti, and Iran Universities of Medical Sciences	Medical residents	233	Pre-COVID-19	19% of medical residents experienced depression based on the BDI score, while 24.5% were identified as having depression based on the HDI score.

CDAS: Corona Disease Anxiety Scale, HADS: Hospital Anxiety and Depression Scale, HDI: Hamilton Depression Inventory, BDI: Beck Depression Inventory, QoL: Quality of life.

4- DISCUSSION

This systematic review aimed to study the updated estimates of the prevalence of psychological problems (e.g., anxiety, stress, and depression) and quality of life (QoL) status among Iranian medical residents before and during the COVID-19 pandemic and discuss the affecting factors. The results showed that medical residents experienced a high prevalence of mental health disorders (e.g., stress, depression, and anxiety) during the COVID-19 pandemic. Additionally, residents in pathology, neurology, and infectious diseases reported higher quality of life, while female residents experienced lower

The spread of COVID-19, characterized by its rapid transmission, precipitated a global health emergency within months of its initial outbreak. This infectious disease generated profound concerns about the physical health of individuals across all age groups—children, adults, and the elderly—while simultaneously triggering various psychological disorders (49-51).

Psychological manifestations, including fear, anxiety, depression, and widespread social unrest, impacted not only the population directly exposed to the virus but also permeated the entire societal landscape during the pandemic period (52-54). Following COVID-19's extensive transmission and significant mortality rates, healthcare workers emerged as a particularly vulnerable population, experiencing heightened risks of psychological disorders and anxiety due to their direct frontline engagement with the disease. Given these circumstances, maintaining the mental health of medical personnel in direct patient contact became imperative. Equally critical was the need to obtain comprehensive, current information regarding patient statistics, psychological disorder prevalence, and underlying causative factors (20).

Medical residents, positioned at the critical intersection of disease diagnosis and treatment, represent a key demographic within the medical workforce. Consequently, conducting thorough mental health assessments for this group of learners is essential for advancing medical education and supporting the broader healthcare system of the country (25, 26).

Based on the results, medical residents demonstrated a high prevalence of severe to extremely severe psychological symptoms during the COVID-19 pandemic, with 24.9% experiencing severe to extremely severe anxiety, 23% showing severe to extremely severe depression, and 33.8% reporting severe to extremely severe stress. The pandemic significantly impacted their mental health, with anxiety

symptoms escalating from 8% pre-COVID-19 to 24.9%, depression increasing from 19% to 23%, and stress levels transforming from 75.5% (mild to severe) to 33.8% (severe to extremely severe). These findings underscore the substantial psychological challenges faced by medical residents during this unprecedented global health crisis, revealing the profound mental health implications of the pandemic on healthcare professionals in training.

The results of this comprehensive review revealed that medical residents encountered substantial psychological challenges during the COVID-19 pandemic, with a notable escalation in the intensity of psychological disorders such as anxiety, depression, and stress. At the pandemic's onset, the disease's unknown characteristics and absence of specific treatment protocols generated widespread anxiety across all societal segments (55). Medical staff and medical science students experienced the most direct exposure to the virus, with significant implications for their personal and familial environments (56). A targeted survey demonstrated that medical students with direct patient contact experienced markedly higher levels of psychological distress and anxiety compared to their non-medical and dental counterparts (57). This heightened psychological vulnerability underscores the unique mental health challenges faced by healthcare professionals during unprecedented global health emergencies.

Another study documented significant anxiety symptoms among medical students during the COVID-19 pandemic (58). Research findings revealed that anxiety levels exceeding normal thresholds can compromise the body's immune system, consequently increasing susceptibility to coronavirus infection (59). Multiple studies have demonstrated that elevated anxiety substantially impacts individuals' quality of life (QoL), with the pandemic further exacerbating mental health challenges and overall life satisfaction (60, 61). Historical evidence from previous disease outbreaks, such as SARS and Ebola, substantiates that healthcare workers frequently experience psychological disorders including anxiety, fear, and stress, which can profoundly disrupt their quality of life and professional functioning (62, 63).

A study by Korkmaz et al. (2020) on healthcare workers in COVID-19 outpatient clinics and emergency departments confirmed that increased anxiety levels negatively impact workers' quality of life (QoL) (64). Similarly, research by Hedari Shams et al. (2020) on specialized polyclinic outpatients demonstrated a significant negative correlation between QoL and anxiety (65).

A comprehensive study conducted in China involving over 7,111 students during the COVID-19 pandemic revealed that approximately 24.9% experienced anxiety, with 9% reporting severe anxiety symptoms. Primary anxiety triggers among students included:

- Concerns about COVID-19's impact on education
- Uncertainty regarding future job prospects
- Reduction of social connections
- Infection of relatives and acquaintances with COVID-19 (66, 67).

The low QoL among students potentially represents a critical risk factor for deviating from higher education development goals and strategies (68), underscoring the importance of implementing interventions to improve students' quality of life (69).

In this review, female residents were found to have lower QoL. Notably, residents in pathology, neurology, and infectious diseases demonstrated higher overall QoL, while psychiatry residents scored higher

specifically in the psychological health dimension.

Studies by Wang et al. (2020) revealed that during the COVID-19 outbreak, the general population experienced mild to severe symptoms of stress, anxiety, and depression across multiple studies (70, 71). A subsequent investigation of physicians and nurses at a hospital in Wuhan, China, during the pandemic's spread, documented alarming rates of psychological distress among medical care workers: 50.4% reported depression symptoms, 44.6% experienced anxiety, and 34% suffered from insomnia (72).

Two comprehensive systematic reviews compared mental health findings before and during the COVID-19 pandemic. The first review, which analyzed 65 studies published up to January 2021, detected a modest increase in mental health symptoms during early 2020, with a standardized mean difference (SMD) of 0.11 (95% confidence interval: 0.04 to 0.17) (73). A second systematic review, encompassing 43 studies and searching literature up to March 2021, reported a more pronounced deterioration in combined depression and anxiety symptoms during the pandemic's early stages, with a standardized mean difference (SMD) of 0.39 (95% credible interval: 0.03 to 0.76) (74). These systematic reviews provide robust evidence of the pandemic's significant psychological impact, demonstrating a clear escalation in mental health symptoms across diverse populations during the initial COVID-19 outbreak.

Based on the current results, a statistically significant relationship was identified between psychological disorders (anxiety, depression, and stress) and multiple factors including gender, field of study, number of patient visits, non-native residency status, marital status, and direct contact with COVID-19 patients ($p<0.05$). The spread of pandemic diseases like COVID-19 at the community level generates psychological disorders among community members and substantially impacts the quality of life across various population segments. Medical residents play a crucial role in patient care within teaching hospitals. Throughout their training period, they consistently confront challenging conditions characterized by sleep deprivation, high job stress, and extensive responsibilities. These demanding circumstances can adversely influence their mood, behavior, social relationships, quality of life, learning capacity, decision-making processes, and patient care quality (75, 76). If medical assistants fail to develop effective coping strategies and psychological resilience to address these challenges, they become vulnerable to experiencing profound despair, professional burnout, and significant psychiatric tension (25, 28).

In such challenging circumstances, the impact extends beyond the resident's individual mental health, manifesting in critical professional consequences such as impaired communication with colleagues and patients, heightened interpersonal relationship sensitivity, and an increased likelihood of medical errors (29).

Consequently, it is imperative to comprehensively identify psychological disorders, their prevalence, and underlying causes among medical residents. By developing appropriate psychological interventions and targeted support strategies, healthcare systems can effectively improve mental health within the work environment and indirectly safeguard the physical well-being of medical assistants (77-81). This comprehensive assessment can be achieved by systematically examining key demographic and professional variables, including gender, marital status, field of study, number of patient visits, and direct contact with infectious patients.

5- CONCLUSION

The rapid spread of COVID-19 precipitated a global health emergency within months. This infectious disease generated profound concerns about physical health and diverse psychological disorders. Understanding the prevalence of psychological disorders and identifying vulnerable populations across societal levels is crucial for maintaining mental health through targeted psychological solutions and techniques.

Medical assistant training inherently involves substantial physical and mental energy expenditure. During a pandemic, medical residents simultaneously manage the disease's clinical challenges and its profound psychological consequences. Their frontline engagement exposes them to multifaceted psychological vulnerabilities. When medical residents cannot effectively develop resilience and coping strategies, they become susceptible to despair, professional burnout, and significant psychiatric disorders.

The present study revealed alarming psychological health metrics among Iranian medical residents during the COVID-19 pandemic:

- Severe to extremely severe depression: 23%
- Severe to extremely severe anxiety: 24.9%
- Severe to extremely severe stress: 33.8%.

Notable findings include:

- Increased anxiety and depression symptoms compared to pre-pandemic periods
- Compromised quality of life (QoL)
- Significantly lower QoL among female residents.

Recognizing the critical importance of residents' psychological health, implementing comprehensive psychological support strategies and targeted interventions is essential to maintain and enhance their mental well-being and overall quality of life.

6- AUTHORS' CONTRIBUTIONS

Study conception or design: HL, SD; Data analyzing and draft manuscript preparation: SS, MM, and ND; Critical revision of the paper: HL, and SD; Supervision of the research: HL; Final approval of the version to be published: HL, SS, MM, ND, and SD.

7- CONFLICT OF INTEREST: None.

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