

Title: Impact of COVID-19 on Women's Psychological Well-Being: General Health, Anxiety, and Stress in Larestan, Iran

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Abstract

Background :Global health crises like pandemics profoundly affect mental well-being, with women experiencing heightened challenges due to increased social and economic pressures. The COVID-19 outbreak amplified feelings of anxiety, depression, and stress among women, prompting a detailed scientific exploration. This research investigates the relationship between overall health and psychological strain among women attending healthcare centers in Larestan, Iran.

Materials and Methods: In 2021, a cross-sectional study involved 417 women who completed assessments measuring depression, anxiety, and stress (DASS-21) alongside a general health evaluation (GHQ-28). Data analysis utilized statistical techniques such as ANOVA ($p < 0.05$), chi-square tests, and t-tests, processed via SPSS-25 software.

Results: Findings revealed that 41% of participants experienced typical levels of depression, while 18% reported intense anxiety, and 31% faced significant to extreme stress. The average GHQ-28 score was 47.68 (SD = 12.07), indicating compromised mental health. Strong associations emerged between GHQ-28 scores and stress ($r = 0.65$), anxiety ($r = 0.69$), and depression ($r = 0.64$), all statistically significant ($p < 0.001$).

Discussion: The psychological toll of the epidemic is reflected in elevated levels of stress and anxiety, which are probably made worse by the pressure of caregiving and financial hardship. In line with reports of pandemic-related anxiety worldwide, strong GHQ-DASS correlations revealed entwined mental and physical health issues.

Conclusion: The COVID-19 outbreak markedly affected women's psychological well-being, underscoring the necessity for specialized mental health programs within healthcare facilities. Policymakers should prioritize accessible mental health support during global crises.

Keywords: COVID-19, Depression, Anxiety, Stress, Psychological, Women, Mental Health

Introduction:

Pandemics, as worldwide emergencies, significantly alter numerous aspects of human existence, with mental well-being emerging as a key area of concern. Women, often more susceptible due to their extensive social and family duties, caregiving obligations, and distinct physical and emotional traits, encounter intensified psychological difficulties during such crises.. These factors collectively increase their risk for conditions such as depression and anxiety(1, 2). If not addressed, these conditions can profoundly impair individuals by diminishing their quality of life, straining personal connections, and increasing their predisposition to physical ailments. Moreover, persistent stress linked to these psychological states can compromise immune function, further intensifying their vulnerabilities. (2).

Studies underscore the substantial effect of pandemics on women's psychological health, driven largely by disruptions in everyday routines, including heightened societal and financial burdens, limitations on physical and social interactions, and changes in sleep and dietary habits. (3, 4). For instance, during the SARS epidemic, women faced heightened stress and depressive symptoms due to limited social interactions, mandatory isolation, evolving family dynamics, and greater demands from domestic and caregiving tasks. (5). Similarly, the Zika pandemic has raised severe mental health concerns among pregnant women, driven by fear of the potential adverse effects of the virus on the fetus. This anxiety not only impacts mothers' mental health but also influences their decisions regarding pregnancy and medical care. (6).

Historical pandemics such as the Spanish Flu and SARS have revealed similar patterns. Women, particularly pregnant women, were more vulnerable to depression and anxiety due to societal pressures, physical limitations, and changing gender roles.(7, 8)Evidence also suggests women are more likely to experience post-traumatic stress disorder (PTSD) during such events; a SARS-era study, for instance, found women more predisposed to PTSD than men.(9). Additionally, during the H1N1 pandemic, pregnant women and young mothers faced an elevated risk of anxiety and depressive disorders.(10).

The COVID-19 pandemic, as the latest global health crisis, has caused rapid increases in infections and deaths worldwide, including Iran, where its spread was confirmed on February 29, 2020(11, 12). This pandemic has significantly disrupted economies, politics, and societies globally, leading to increased mental health challenges across various population groups, including women, healthcare workers, children, students, and families.(13, 14). Psychological challenges, including anxiety, stress, and depression, have surged during this period. For example, research on patients admitted for COVID-19-related respiratory issues revealed markedly higher anxiety and depression levels compared to those with other respiratory conditions like pneumonia.(15).

Given the complex effects of pandemics on women's mental health, identifying those at risk of psychological disorders and introducing suitable interventions to bolster their well-being is essential.(16). Maintaining mental health during crises is essential as individuals, including patients, healthcare workers, and family members, face stressors directly linked to the pandemic.(17, 18). Evidence highlights the importance of studying women's mental health during such events, pinpointing risk and protective factors, and crafting effective strategies for prevention and support to lessen the psychological toll of these crises.(18).

Given these vulnerabilities, it is essential to investigate the emotional effects of pandemics on women to identify potential risk elements, develop preventive strategies, and create targeted support measures. This research aimed to explore the relationship between overall health and the presence of depression, anxiety, and stress in women utilizing healthcare services amid the COVID-19 outbreak. By addressing this urgent issue, our goal is to provide research-supported recommendations for policymakers and mental health professionals to mitigate the psychological impacts of such crises.

Materials and Methods:

This study was designed as a descriptive-analytical inquiry with a cross-sectional framework and was conducted throughout 2021. It involved women who attended health facilities connected to the Larestan Faculty of Medical Sciences. The process began by assembling a detailed directory of these centers, with each facility's name inscribed on a separate piece of paper. These were then sealed in individual envelopes, and ten were picked at random. The research team visited these designated sites, employing a practical sampling approach while ensuring alignment with specific entry and exclusion standards.

To calculate the required number of participants, a statistical method based on the mean sample size was utilized. With a confidence level set at 95% and a margin of error of 0.09 standard deviation, the study aimed to recruit approximately 475 women. Eligibility required a voluntary agreement to participate, the ability to read and write, and possession of a digital device—such as a smartphone, tablet, or laptop—to access the online survey. Women were excluded if they submitted partially completed forms, opted out during the study, had a background of severe or persistent mental health issues, or had endured significant emotional turmoil in the preceding six months, such as the loss of a family member, marital changes, or a diagnosis of a terminal condition.

Data collection relied on three tools: one to gather personal background details, another to assess overall well-being, and a third to measure emotional strain. Personal details included participants' age, educational background, and marital status.

Research Design:

The investigation followed a cross-sectional, descriptive-analytical model and took place in 2021.

Study Context:

The focus was on women utilizing healthcare services at centers affiliated with the Larestan Faculty of Medical Sciences.

Timing and Location:

The fieldwork occurred in 2021 within health facilities governed by the Larestan Faculty of Medical Sciences.

Participants:

The study group consisted of women who visited the chosen health centers during the research period.

Sample Size Determination:

A mean-based calculation method was applied, factoring in a 95% confidence interval and a 0.09 standard deviation error margin, targeting a total of 475 participants.

Selection Procedure:

A complete inventory of health centers linked to the Larestan Faculty of Medical Sciences was first created, with each center's name noted on individual slips of paper. These slips were placed into envelopes, and ten were randomly selected. Researchers then visited these locations, using an accessible sampling technique while adhering to predefined participation criteria.

Eligibility Requirements:

- Willingness to take part voluntarily
- Basic proficiency in reading and writing
- Ownership of a device (e.g., smartphone, tablet, or computer) to complete the digital survey

Exclusion Conditions:

- Failure to fully complete the survey
- Choosing to leave the study before completion
- History of acute or ongoing psychiatric disorders
- Recent significant emotional distress within the past six months (e.g., bereavement, divorce, marriage, or severe illness)

Assessment Tools:

Three instruments were employed:

- Personal Information Form: This recorded details such as age, education level, and marital status.
- Well-being Evaluation Tool (GHQ): Developed by Goldberg in 1978

(19). This instrument features 28 questions grouped into four categories, each containing eight items. Participants rated each question on a four-point scale, with scores ranging from 0 to 3 based on a Likert-style system. The total score was calculated by adding the results from all four categories, where lower scores indicate better well-being and higher scores suggest greater impairment. The categories cover physical complaints (items 1-7), anxiety and sleep disturbances (items 8-14), social challenges (items 15-21), and depressive tendencies (items 22-28), with a maximum possible score of 84. Its reliability was validated by Ebrahimi et al.. with a consistency coefficient of 0.88(20).

- Physical Complaints Category: Scores of 0-9 reflect robust physical health despite psychosomatic issues, 10-15 suggest moderate well-being, and 16-21 indicate pronounced psychosomatic symptoms.
- Anxiety and Sleep Category: Scores of 0-9 signify a calm and controlled state, 10-15 imply occasional anxiety, and 16-21 point to intense anxiety in various contexts.
- Social Challenges Category: Scores of 0-9 denote strong interpersonal and workplace functioning, 10-15 reflect moderate social health, and 16-21 indicate persistent relational or work-related struggles.
- Depression Category: Scores of 0-9 suggest vitality and positivity in daily life, 10-15 indicate occasional low mood, and 16-21 signal a probable depressive state.
- Total Score Interpretation: A range of 0-21 reflects excellent mental well-being, 22-42 suggests some areas of concern, 43-63 indicates repeated mental health difficulties, and 64-84 points to a severe condition.

Emotional Strain Assessment (DASS-21): This tool consists of 21 questions divided into three sets of seven, each targeting a distinct emotional domain. Scores are derived by summing responses within each set, with ratings from 0 (not relevant to me) to 3 (highly relevant). As a condensed version of a 42-item original, each set's score is doubled, and severity is evaluated using established thresholds (Table 1). Its suitability for Iranian contexts was confirmed by Afzali et al., with reliability scores of 0.81 for depression, 0.73 for anxiety, and 0.81 for stress (21).

The tools were hosted on Google Forms, and access links were shared with qualifying participants via SMS and WhatsApp. The collected data were organized and encoded by the research team and then analyzed using SPSS software (version 25). Statistical methods included independent t-tests, chi-square analyses, and variance tests, adjusted for data normality, with a significance threshold of 5%. The DASS-21 measures three emotional dimensions: depression (items 3, 5, 10, 13, 16, 17, 21), anxiety

(items 2, 4, 9, 15, 19, 20), and stress (items 1, 6, 8, 11, 12, 14, 18), drawing from validated frameworks.(22)

Table 1: Severity of each subscale of the DASS questionnaire

Severity	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Medium	14-20	10-14	19-25
Severe	21-27	15-19	26-32
Very Severe	28	20	33

Results:

Out of 475 women invited to join the study, 417 submitted fully completed surveys, achieving a participation rate of 87.78%. The average age among these respondents was 34.90 years, with a standard deviation of 7.75 years, ranging from a 16-year-old girl as the youngest to a 57-year-old woman as the oldest. A considerable number of participants held advanced educational qualifications, and 78.2% were in marital relationships. These background details are summarized in Table 2, presented below.

Table 2: Overview of Participants' Background Characteristics

Variables	Descriptive statistics
Age (year), Mean±SD*	34.90±7.75
Education level, n (%)	
High school	35 (8.4)
Diploma	99 (23.7)
Bachelor's degree	214 (51.4)
Master's degree	69 (16.5)
Marital status, n (%)	
Single	91 (21.8)
Married	326 (78.2)

* Standard Deviation

Evaluation of the DASS-21 responses revealed that around 41% of the women maintained emotional equilibrium in terms of depression, while the rest exhibited varying degrees of depressive symptoms, ranging from slight to profoundly intense. On the anxiety measure, approximately 18% experienced extremely elevated levels of unease, and on the stress dimension, 31% reported strain ranging from considerable to exceptionally high. These findings are detailed in Table 4. Further statistical exploration using ANOVA indicated no substantial link between age and the emotional domains of depression ($P = 0.750$), anxiety ($P = 0.541$), or stress ($P = 0.418$). Additionally, chi-square analyses showed no notable associations between educational attainment or marital status and these psychological indicators.

Table 3: Distribution of Emotional Distress Levels Across DASS-21 Domains

Severity	Subscale		
	Depression	Anxiety	Stress
Normal	171 (41.0)	178 (42.7)	158 (37.9)
Mild	63 (15.1)	40 (9.6)	62 (14.8)
Medium	83 (19.9)	84 (20.1)	68 (16.3)
Severe	33 (7.9)	40 (9.6)	77 (18.5)
Very Severe	67 (16.1)	75 (18.0)	52 (12.5)

The GHQ-28 yielded an overall average score of 47.68 (SD = 12.07), pointing to repeated disruptions in the mental well-being of the participants. Specifically, 20.4% of the women reported bodily discomforts, 33.3% faced challenges with sleep and anxiety, while a mere 4.6% encountered persistent difficulties in social or occupational interactions. In stark contrast, 67.4% showed signs of depressive tendencies. These patterns are outlined in Table 4 below.

Table 4: Breakdown of GHQ-28 Well-being Categories

GHQ dimensions	Grade Level		
	Normal	Relative or moderate health	Having health problems
Somatic	112 (26.9)	220 (52.7)	85 (20.4)
Anxiety and insomnia	138 (33.1)	140 (33.6)	139 (33.3)
Social dysfunction	297 (71.2)	101 (24.2)	19 (4.6)
Depression	59 (14.1)	77 (18.5)	281 (67.4)

Pearson's correlation analysis uncovered a strong connection ($P < 0.001$) between the total GHQ-28 score and the emotional distress measures of anxiety, depression, and stress. Notably, a one-unit increase in the GHQ-28 average corresponded to a 0.690-unit rise in anxiety levels. A comparable association was evident with depression, marked by a correlation coefficient of 0.640. Across all evaluated aspects, a direct and statistically robust relationship emerged between the GHQ-28 subscale scores and the DASS-21 indicators of emotional strain, as detailed in Table 5.

Table 5: Pearson Correlation Between GHQ-28 Categories and DASS-21 Scores

DASS dimensions	GHQ overall score	Somatic score	Anxiety-insomnia score	Social dysfunction score	Depression score
Anxiety	0.690	0.580	0.737	0.370	0.635
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Depression	0.640	0.452	0.681	0.493	0.779
P-value	<0.001	<0.001	<0.001	<0.001	<0.001
Stress	0.650	0.502	0.724	0.421	0.660
P-value	<0.001	<0.001	<0.001	<0.001	<0.001

Discussion:

This study explored the association between overall health and the degrees of depression, anxiety, and stress experienced by women attending health centers during the COVID-19 outbreak. Our results indicated that 41% of the participants exhibited normal depression levels, whereas 18% reported extremely severe anxiety, and 31% experienced stress ranging from severe to very severe. In a study conducted by Shankey and Mishra (2020) among an Indian cohort, they observed that 25% of individuals displayed moderate to severe depression, 28% had anxiety, and 18.6% faced stress, underscoring the urgent need to bolster mental health support systems. (23). Similarly, a systematic review by Salari et al. (2020) found prevalence rates of 31.9% for anxiety and 33.7% for depression across multiple studies. Although our study—focused solely on women visiting healthcare centers—did not reveal a statistically significant relationship between demographic characteristics and psychological distress, some studies conducted on both genders have shown mixed results. For instance, Montano et al. did not find significant differences between women's and men's distress levels, a discrepancy that may be attributed to cultural variations in gender roles and caregiving responsibilities. (24). In contrast to some prior research, our study did not establish a statistically significant relationship between demographic characteristics (age, education, and marital status) and psychological distress.

For example, Montano et al. (2020) found no substantial differences between men's and women's psychological distress levels during the pandemic, a discrepancy that may be attributed to cultural and social variations in caregiving responsibilities. (25). Kamal and Othman's research identified female gender as a key independent factor contributing to elevated depression, anxiety, and stress levels. (26).

A trend supported by Alamri et al. (2020), who noted greater distress among women, younger individuals, and those single or unemployed (27). Additionally, another study by Mustafa Kamal and Othman (2020) reinforced the role of the female sex in predicting elevated psychological distress. (26). However, in our research, where most participants were married, no meaningful connections emerged between demographic factors and emotional distress, diverging from these earlier findings. (27). Our average well-being score of 47.68 indicated that 20.4% of women experienced physical ailments alongside prevalent sleep and anxiety issues. A robust, statistically significant link ($P < 0.001$) was evident between overall wellness and emotional challenges, though no such associations appeared with demographic variables. Comparatively, Varma et al. (2021) found that younger age groups are more susceptible to emotional turmoil, with disrupted sleep, reduced adaptability, youth, and isolation intensifying the relationships between stress, depression, and anxiety. (28). Consistent with their work, we noted sleep difficulties among participants, with the strong association between insomnia and anxiety likely stemming from ongoing tension due to pandemic uncertainties. Such sleep disturbances amplify emotional struggles, creating a harmful cycle that diminishes overall health. The heightened prevalence of anxiety and stress in our sample underscores the profound psychological impact of the COVID-19 outbreak on women, potentially exacerbated by disrupted routines, financial pressures, and increased caregiving responsibilities. Furthermore, our finding that women with lower wellness scores reported greater emotional distress corroborates prior evidence of a reciprocal relationship between physical and mental health (Yang et al., 2020). A notable constraint of this study is its exclusive focus on women at health centers, limiting gender comparisons, coupled with a sample size that may not fully represent broader trends. The lack of demographic correlations suggests the need for context-specific interpretations of these psychological patterns.

Conclusion:

This study casts a spotlight on the significant toll that global disruptions, such as pandemics, take on women's psychological well-being, showing that a large share of women attending health facilities faced heightened levels of anxiety, stress, and depressive symptoms. A meaningful connection was uncovered between overall wellness and these emotional struggles, with those registering higher wellness scores also noting increased psychological distress. By concentrating on women during the COVID-19 outbreak, this work highlights their particular vulnerability to mental health difficulties. The application of trusted tools, such as the GHQ-28 and DASS-21, reinforces the trustworthiness of the results, laying a strong numerical groundwork. Carrying out this research amid a pandemic offers timely understanding, stressing the critical demand for personalized mental health assistance. The pronounced link between general wellness and emotional difficulties, like anxiety and depression, points to essential areas for targeted action, providing a detailed lens on the psychological hardships women encounter during turbulent times.

These findings underline the pressing need to focus on women's mental wellness, especially in the face of worldwide emergencies. Pinpointing those at risk of psychological issues across diverse societal segments is key to preserving and boosting mental resilience through effective strategies and methods. Leaders and mental health specialists should craft and implement specific measures to avert and ease the emotional consequences of such events. Moreover, enhancing community awareness of anxiety, stress, and depression while promoting practical coping skills could uplift women's psychological health and diminish the adverse effects of global crises. Integrating mental health priorities into

emergency planning and public health systems may reduce the lasting emotional burden on at-risk groups, cultivating greater strength for future trials.

Though this study offers valuable perspectives on women's mental health during the COVID-19 crisis, its reach is tempered by certain drawbacks. Its one-time, cross-sectional nature captures only a momentary glimpse, hindering the ability to determine causal ties. Additionally, the sample was limited to women using healthcare services in a single locale, which may not mirror the wider female populace. Differences in economic circumstances, cultural backgrounds, and access to care might affect how widely these results apply to other regions or communities.

Even with these limits on broader relevance, the study's core ideas and primary findings—such as the tie between wellness and emotional distress—provide a stepping stone for similar investigations elsewhere. A key aim was to evaluate the local setting and the social-cultural factors shaping women's mental health in Larestan, deepening insight into its specific challenges and supporting more customized healthcare approaches. This work builds a firm foundation for exploring how general and psychological health intertwine during crises. It emphasizes the importance of weaving mental health support into everyday care settings, particularly for groups like women who are more exposed to risk. Moving forward, studies with a long-term focus and wider participant diversity are advised to enhance applicability and investigate the persistent psychological impacts of global upheavals.

Limitation:

This investigation faces certain limitations. Its snapshot methodology captures only a single instance in time, which restricts the ability to determine causal links. Consequently, the outcomes may not be widely applicable to all individuals. Furthermore, the reliance on participants' self-provided answers opens the door to potential biases, such as a tendency to give socially acceptable responses, which might affect the precision of the findings.

Ethical Considerations:

This research was carried out with formal endorsement from the Ethics Committee of Larestan Medical University, identified by the ethics code IR.LARUMS.REC.1399.015. All participants completed the survey voluntarily, without any obligation.

Suggestions:

1. Health systems should implement targeted mental health programs specifically aimed at women during crises. These interventions could include counseling, stress management workshops, and psychoeducation to mitigate anxiety, depression, and stress.
2. Strengthening community networks and peer support systems could help women cope with increased caregiving burdens and isolation during pandemics, thereby reducing their mental health risks.
3. Mental health screenings and services should be integrated into routine healthcare visits, especially during global health emergencies, to identify and support at-risk women early.
4. Increasing awareness of mental health, reducing stigma, and promoting healthy coping mechanisms through public campaigns would empower women to seek help when needed.
5. Additional long-term studies are encouraged to explore the enduring emotional impacts of worldwide emergencies on women while also identifying further elements that either increase vulnerability or enhance psychological strength.

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