

A CROSS-SECTIONAL STUDY FOR THE ASSESSMENT OF PSYCHOLOGICAL IMPACT OF COVID-19 PANDEMIC ON PAKISTANI HEALTHCARE WORKERS

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ABSTRACT

The COVID-19 pandemic placed substantial psychological demands on healthcare workers, particularly in resource-limited settings such as Pakistan. We conducted a cross-sectional online survey between 2020 and 2021 to assess levels of depression, anxiety, and stress among healthcare workers across multiple provinces of Pakistan. A total of 100 participants, including physicians, nurses, and pharmacists, were enrolled. Mental health outcomes were measured using PHQ-9, GAD-7, and DASS-21 standardized assessment tools. We found that more than half of the participants reported severe levels of anxiety and stress, while over one-third experienced moderate to severe depressive symptoms. Female healthcare workers and those directly involved in patient care demonstrated significantly higher psychological distress scores. Fear of transmitting COVID-19 to family members emerged as the most frequently reported significant stressor, followed by increased workload and shortages of protective equipment. Our findings highlight the psychological vulnerability of Pakistani healthcare workers during public health emergencies and emphasize the need for targeted mental health interventions, including counseling services, workload management strategies, and institutional support programs to improve resilience during future crises.

Keywords: Cross-sectional study, Assessment, Psychological impact, Covid-19 pandemic, Pakistani healthcare workers.

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INTRODUCTION

Healthcare delivery in Pakistan relies heavily on a workforce that operates under persistent structural constraints, including limited human resources, uneven provincial healthcare capacity, and high patient-to-provider ratios [1]. During periods of systemic stress, these conditions can intensify occupational strain and increase vulnerability to psychological disturbances among healthcare professionals. Understanding how such pressures affect mental well-being is essential for sustaining workforce performance and patient care quality [2-4].

The emergence of COVID-19 introduced additional demands that altered routine clinical practice. Healthcare workers were required to function within environments characterized by prolonged duty hours, evolving clinical protocols, and heightened exposure risk, often without consistent access to

protective resources. Beyond the clinical setting, many professionals faced social withdrawal, disruption of family life, and persistent concern regarding infection transmission within households—factors that may have compounded psychological burden, particularly in societies where family interconnectedness is central [5].

Psychological responses to prolonged health emergencies frequently include anxiety-related symptoms, mood disturbances, sleep disruption, and stress-related exhaustion. International research conducted during COVID-19 documented these outcomes among healthcare workers; however, the intensity and distribution of psychological distress have been shown to vary according to healthcare infrastructure, cultural expectations, and institutional support systems [6]. As such, findings from high-income or well-resourced settings may

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not fully represent experiences in lower- and middle-income countries. Within Pakistan, empirical evidence examining the mental health status of healthcare workers during COVID-19 remains comparatively scarce; particularly studies incorporate large samples across multiple professional categories and regions. The absence of localized data limits the development of effective, context-sensitive mental health interventions tailored to the needs of healthcare professionals [7-9]. Accordingly, this study was designed to evaluate levels of anxiety, depression, and stress among healthcare workers in Pakistan during the COVID-19 period and to examine factors associated with increased psychological distress. By focusing on a multi-provincial sample, the study aims to contribute evidence that can inform institutional policies and preparedness strategies for future public health emergencies [10-12].

METHODOLOGY

The cross-sectional study design was engaged. This study was approved out between 2020 and 2021 using online questionnaires. Doctors, nurses, pharmacists, and other healthcare workers from diverse provinces of Pakistan, with most participants coming from Punjab and Sindh? Their mental health was tartan using well-known tools [13, 14].

PHQ-9 to observe signs of depression; **GAD-7** to assess anxiety; **DASS-21** to assess depression, anxiety, and stress together.

Participants together voluntarily after giving consent. They communal details like age, gender, profession, and working hours. Researchers used simple information (like percentages and averages) and advanced tests (such as Chi-squared, Mann-Whitney, and Kruskal-Wallis) to discover links between personal details and mental health scores.

Privacy was valued, and all information was kept confidential [15].

RESULTS

A total of 1,094 healthcare workers participated in the study, with physicians forming the largest professional group, followed by nurses and pharmacists. Female participants accounted for approximately two-thirds of the sample, and most respondents were between 20 and 39 years of age. Participants were drawn from multiple provinces, with representation primarily from Punjab and Sindh (**Table 1**).

Assessment using standardized screening tools indicated substantial psychological distress among respondents. Severe levels of anxiety and stress were more prevalent than depressive symptoms, as measured by the DASS-21 scale. While a minority of participants fell within the normal range across domains, moderate to severe categories accounted for the majority of responses (**Table 2**).

Analysis of subgroup patterns showed that female healthcare workers and those involved in direct patient care exhibited higher psychological distress scores across anxiety, depression, and stress measures. These trends were consistent across assessment tools, suggesting a stable pattern of vulnerability within these groups.

When participants identified sources contributing to psychological strain, concern regarding transmission of infection to family members was the most frequently reported factor, exceeding workplace-related stressors such as workload intensity and availability of protective equipment. Social isolation and uncertainty related to clinical guidelines were reported less frequently but remained notable contributors (**Table 3**).

Table1: Demographic characteristics of study participants.

Demographic variable		Frequency (n)
Profession	Physicians	44
	Nurses	48
	Pharmacists	8
Gender	Male	29
	Female	71
Age group	20-29 years	40
	30-39years	51
	50+ years	9
Province	Punjab	53
	Sindh	34
	KPK	11
	Balochistan	2

Table 2: DASS-21 questionnaire structure for the severity of psychological distress.

Severity Level	Anxiety (%)	Depression (%)	Stress (%)
Normal	14.3%	27.7%	9.9%
Mild	5.0%	13.3%	15.0%
Moderate	21.7%	22.5%	22.5%
Severe/ Extremely Severe	59.0%	36.5%	52.6%

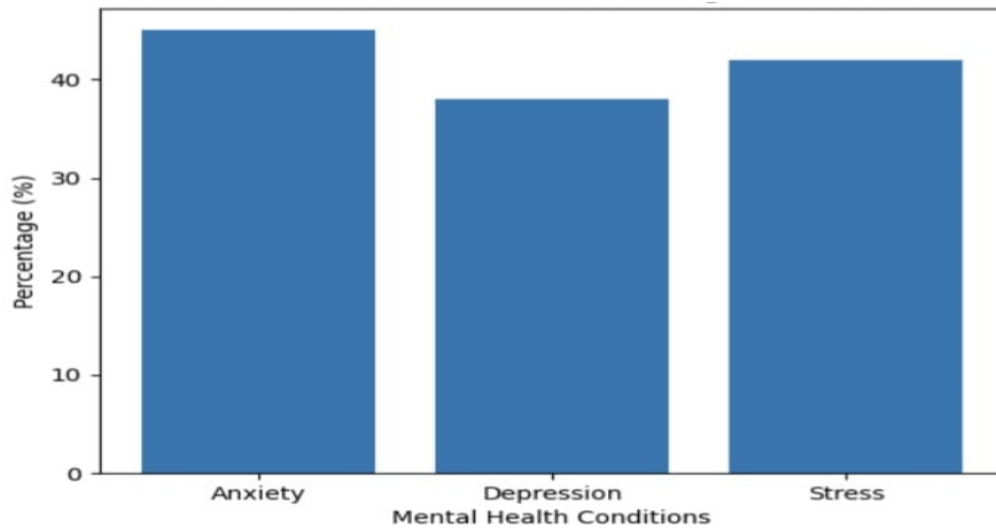


Figure 1: Extremely severe mental health impact of COVID-19.

Table 3: The frequency of stressor factors impacted the mental well-being of the staff during the pandemic peak.

Stressor factor	Frequency of report (%)
Fear of infected family members	96.8%
Shortage of personal protective equipment	82.5%
Increased workload and physical exhaustion	74.0%
Social isolation and stigma from community	41.2%
Lack of definitive treatment/guidelines	35.6%

DISCUSSION

The present study examined psychological outcomes among healthcare workers in Pakistan during the COVID-19 period and identified a high prevalence of anxiety, depression, and stress across professional groups. The findings suggest that psychological distress was not limited to a single subgroup but was widespread, with particularly elevated scores observed among female participants and those directly involved in patient care [16]. These patterns indicate that occupational exposure combined with personal vulnerability factors contributed to mental health burden during the study timeframe [17].

One notable observation was the predominance of anxiety and stress symptoms compared to depressive symptoms. This imbalance may reflect the sustained uncertainty faced by healthcare workers, including unpredictable working conditions, continuous exposure risk, and concern for family safety. Unlike short-term stress reactions, prolonged anxiety may accumulate when individuals are repeatedly exposed to perceived threats without adequate recovery time or institutional support. The high proportion of severe anxiety and stress scores in this study supports this interpretation [18].

Gender-based differences were also evident, with female healthcare workers reporting greater psychological distress. This finding may be influenced by multiple intersecting factors, such as increased caregiving responsibilities outside the workplace, heightened emotional labor within

clinical roles, and limited opportunities for rest during extended work schedules. While previous studies have reported similar trends, the current results reinforce the need to consider gender-sensitive mental health interventions within healthcare settings in Pakistan.

Fear related to transmitting infection to family members emerged as the most frequently reported stressor. This concern surpassed work-related factors such as workload intensity and equipment shortages, suggesting that emotional strain extended beyond the hospital environment. The overlap between professional responsibilities and family obligations may have intensified psychological pressure, particularly in a cultural context where multigenerational households are common. This highlights the importance of addressing both workplace safety and family-centered risk perceptions when designing support programs [19, 20].

The findings also indicate that psychological distress among healthcare workers is closely linked to systemic conditions rather than individual coping capacity alone. Limited protective resources, extended duty hours, and unclear clinical guidelines during the early phases of the pandemic likely amplified stress responses. Addressing these structural contributors may be more effective than relying solely on individual-level coping strategies or resilience training. Several limitations should be acknowledged [21]. The cross-sectional design restricts causal interpretation, and the use of self-

reported measures may introduce response bias. Additionally, data were collected online, which may have excluded healthcare workers with limited internet access. Despite these limitations, the large sample size and inclusion of multiple professional categories strengthen the relevance of the findings. Overall, this study emphasizes that protecting the mental health of healthcare workers requires sustained institutional commitment. Integrating psychological support services, ensuring adequate resource availability, and implementing workload management policies may reduce distress during future public health emergencies. Without addressing these factors, healthcare systems may remain vulnerable to workforce burnout and reduced quality of care during prolonged crises.

CONCLUSION

The findings of this study indicate that psychological strain among healthcare workers in Pakistan during the COVID-19 period was substantial and unevenly distributed. Elevated anxiety and stress were more prominent than depressive symptoms, with higher levels consistently observed among female staff and personnel engaged in direct patient care. Concern about exposing family members to infection emerged as the dominant pressure, underscoring

how professional risk extended beyond clinical settings into personal and household domains. These results should be interpreted with caution. The cross-sectional design limits the ability to determine temporal relationships, and reliance on self-reported data collected through an online survey may have influenced response patterns. From a health-system perspective, the evidence supports the integration of mental health protections into routine healthcare planning in Pakistan. Provincial health departments and hospital administrations should prioritize on-site psychological screening, confidential counseling services, and duty-schedule regulation for healthcare workers during crisis periods. Embedding these measures within emergency preparedness frameworks may reduce psychological vulnerability and help sustain workforce capacity during future public health disruptions.

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