REVIEW ARTICLE

IMPACT OF COVID-19 UPON THE MENTAL HEALTH OF HEALTHCARE WORKERS AND STUDENTS IN PAKISTAN: REVIEW ARTICLE

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ABSTRACT

OBJECTIVE

The pandemic COVID-19 affected all sections of society globally, including healthcare workers (HCWs). The various studies showed the direct association of COVID with the mental health of healthcare workers and healthcare students in Pakistan.

METHOD

Cross-sectional studies of 12 articles selected out of which, 09 articles from Pakistan included. These articles were published in various journals of good impact factor. The two psychometric tools and questionnaires were used to assess the prevalence. The participants included healthcare workers, students, and graduates.

RESULTS

Of the studies included, 64.3% HCWs graduates followed by 44.9% nurses, 44.5% doctors and 35.7% students. Female HCWs, frontline HCWs, nurses, young staff were more likely to suffer from varying issues of mental health.

CONCLUSION

During the pandemic, a considerable number of HCWs struggled through various mental health issues. The findings call for a workable psychological intervention model especially designed for HCWs.

KEYWORDS

COVID, Healthcare, Mental health, Doctors, Nurses, Students

INTRODUCTION

The pandemic COVID, also known as coronavirus, affected all the sections of society. In December 2019, COVID was first reported in the Wuhan, China and in the spread of viral transmission, human-to-human had a significant role through droplets and contact.[1] In Pakistan, the first case of COVID was reported in early 2020 and according to Pakistan's Ministry of Information, 1,531,273 confirmed cases while 30,381 people died in Pakistan due to COVID-19. The most affected province was Sindh, with 577,897 COVID cases followed by 507,455 in Punjab province.[1] The World Health Organization (WHO) estimates that there have been around 532,201,219 reported cases and 6,305,358 deaths happened due to the pandemic.[2]

Among the frontline healthcare workers (HCWs) were medical doctors, nursing staff, staff working in hospitals, healthcare graduates and students.[3] HCWs are supposed to be psychologically resilient, emotionally intelligent, and well-trained professionals.[3]

One of the biggest fears was little known about coronavirus and nothing mentioned about the protocols or guidelines.[4] As a result, there was a great fear of losing loved ones[4] and the HCWs tend to protect others from their own self, resulting in isolating themselves from their family and disruption in daily routine.[5] Other factors included long working hours, limited resources, dubious infrastructure, and difficulty in getting personal protective equipment (PPE).[5]

In the past, during pandemics, HCWs struggled through mental health issues in the form of anxiety, depression, and post-traumatic stress disorder (PTSD).[6,7] In 2003, the prevalence of severe acute respiratory syndrome (SARs) and Middle East respiratory syndrome (MERS), 18-57% HCWs were affected with varying degrees of psychiatric problems.[8]

In a review of literature study, the prevalence of psychiatric issues ranged from 22% to 62.14%[9] while according to the studies conducted in the five medical colleges of Pakistan including Sheikh Zayed Medical College Rahim Yar Khan, the prevalence of mental health issues estimated at 48.1% and 48.6% respectively.[10] Among the reasons shown were fear of the infecting loved ones (88.8%), fear of having coronavirus (80.4%), enhanced working hours (64.25%), insecurity (62.2%), non-availability of PPE (61.9%), and lack of awareness among people (46.3%).[10] The most affected HCWs were frontline healthcare workers, females, and younger medical staff.[11]

The novel coronavirus started spreading in the late 2020s and within a short span, it affected the population across the globe. The need is to find the management guidelines for HCWs,

especially as a crisis intervention in the form of Psychological First Aid (PFA)[12] and Psychological Crisis Intervention Model (PCIM)[13] in the form of online interventions, catharsis, and supportive psychotherapy.[13]

OBJECTIVE

The Covid-19 significantly affected healthcare systems around the world at large and affected the mental health in particular. The objective was to narrate the psychological impact of the "Coronavirus (COVID-19) pandemic" on the mental health of healthcare workers and students across Pakistan. This review helped to aid in the development of guidelines and psychological interventions that can enhance healthcare workers' productivity, quality work, quality of life and decision-making abilities towards patient treatment during the pandemic.

METHOD

The material and method included research articles published from January 2020 till March 2022. In the review article, a total of 12 articles were selected following a cross-sectional study design to analyze the impact of various psychological variables.

The search of literature was conducted in variant modes of databases like "PubMed (MEDLINE)," "google scholars" and "Web of Science" database. The retrieval of data was done through using the following search terms ("medical staff" OR "healthcare" OR "healthcare professionals" OR "Physicians") AND ("coronavirus" OR "COVID-19") AND ("anxiety" OR "depression" OR "insomnia" OR "psychological" OR "mental health" OR "Stress") our search engines.

Inclusion Criteria

The studies revolved around observational and experimental designs were included that aided to assess the psychological effects on health care workers and students during the COVID-19 pandemic. The study designs were quantitative and qualitative in nature.

Exclusion Criteria

The studies related to other pandemics/epidemics (SARS, MERS, H1N1, H5N1, Zika, Ebola, West Nile Fever) will be excluded.

LITERATURE REVIEW

In the literature review, we selected 12 articles out of which, 09 articles published in Pakistan while, two were from India and one was from China included. These articles were published in 2020-2022 in various journals of good impact factor. In the articles, the study designs were cross sectional in nature. Participants included healthcare workers, healthcare students, and graduates.

The literature review highlighted various themes revolving around assessing the effect of COVID-19 upon the mental health of HCWs which cannot be well explained in a single literature review. So, broadly, single themes selected for the literature review.

Perceived Mental Health Issues & Impact of COVID-19

The perceived mental health issues and impact of COVID-19 is broadly subdivided into three sub-themes or characteristics:

1. Predictors of Psychological Distress Among Healthcare Workers & Students

Among HCWs, more females responded compared to males[13] while in other studies from Pakistan and India, more males (53%) responded compared to females (46%).[14] A study from Pakistan showed approximately 90% participants aged between 18-50 years of age[14,15] while one study estimated 54.6% participants were single and 45.4% were married.[14]

Among the HCWs, a considerable number of physicians (44.5%) participated in the two studies from Pakistan.[12,13] Among other professions of HCWs, nurses (44.9%), pharmacists (7.6%), dentists, physiotherapists, laboratory technicians participated.[14,15,16]

Female gender, younger age and presence of symptoms had significant association with mental health issues.[14] The female HCWs were twice more affected compared to males.[14,15] Female population was linked with more anxiety symptoms as also described in the studies from India, Iran and China.[16,17,18,19] Studies showed that females were 1.6 times more likely to have mental health issues because of hormonal changes.[20,21]

The younger age HCWs (18-34 years) were experiencing three times more anxiety compared to aged 50 years and above [14] while, >50 years of age respondents had a higher level of depression compared to younger age HCWs.[15] A study from India found lesser anxiety with the advancing age probably because of having senior titles and more engagement in supervisory roles.[16]

2. Fear of infection and transmitting to family members

The HCWs reported two responses, i.e., 'fear' and 'guilt;' fearful about one's own safety and in addition, their family members might not be safe because of themselves and guilt of potentially carrying the virus to their family members.[14,15] However, the study from Pakistan did not show any significant difference between HCWs (53.5%) and NHCWs (54.7%).[15] Although, there was an enhanced susceptibility of carrying more infection among HCWs especially frontline HCWs.[13]

A study from Pakistan described no significant difference found between HCWs and NHCWs regarding perception of severity and likelihood of causing COVID-19.[15] About 3/4 respondents reported that their families might get sick if they do not take preventive measures (75% HCWs & 71% NHCWs).[15] Furthermore, participants perceived the symptoms of COVID-19 lethal (46% HCWs & 38% NHCWs) on the other hand, found optimism if they could survive of COVID-19 (70% HCWs & 66% NHCWs).[15]

Table 1
Sociodemographic Characteristics of the Participants[14,15,16]

Gender	Male	48.65%
	Female	51.35%
Age	18-50 Years	92%
	>50 Years	8%
Marital Status	Single	54.6%
	Married	45.4%
Type of HCWs	Physicians	44.5%
	Nurses	44.9%
	Pharmacists	7.6%
HCWs Trainees	Students	35.7%
Students/Graduates)	Graduates	64.3%

Table 2 showed a study of Pakistan found significant difference between frontline HCWs and backend HCWs.[15] The frontline HCWs were perceived more susceptibility towards COVID-19 compared to backend HCWs (83% frontline HCWs, 70% backend HCWs, p-value 0.006).[14] On the contrary, backend HCWS perceived more severity compared to frontline HCWs (p-value=0.045)[1]

Table 2
Perceived Severity of COVID-19 Among HCWs & NHCWs[15]

	HCWs N=507	NHCWs N=899	p Value
I might affect if no prevention is opted	Agree: 75.3% (382) Disagree 16.0% (81)	Agree: 70.7% (636) Disagree: 14.3% (129)	0.506
My family might affect if no prevention is opted	Agree: 76.7% (389) Disagree 16.6% (84)	Agree: 71.4% (642) Disagree: 14.8% (133)	0.539
I might affect if any of my family members affected	Agree: 69.3% (350) Disagree 15.6% (79)	Agree: 66.1% (594) Disagree: 15.5% (139)	0.559
	HCWs N=507	**NHCWs N=899**	**p Value**
I might affect if no prevention is opted	Agree: 82.9% (179) Disagree: 9.2% (20)	Agree: 69.8% (203) Disagree: 21% (61)	0.003
My family might affect if no prevention is opted	Agree: 83.8% (181) Disagree: 11.6% (25)	Agree: 71.5% (208) Disagree: 20.3% (59)	0.006
I might affect if any of my family members affected	Agree: 73.5% (158) Disagree: 12.5% (27)	Agree: 66.3% (192) Disagree: 3.4% (10)	0.138

Table 3 showed significant differences between students and graduates about perceived severity and susceptibility towards COVID-19.[15] The HCWs graduates (80% graduates vs 66% students, p-value 0.008) perceived themselves to be more susceptible to COVID than students.[14] On the contrary, fewer graduates perceived COVID as severe compared to students (53% students vs 42% graduates, p-value 0.040).[15]

1. Mental Health Issues among Healthcare Workers & Students

In figuring out psychological distress among HCWs, variant psychometric assessment tools were used, i.e., Hospital Anxiety and Depressions Scale (HADS), Depression Anxiety Stress Scale (DASS), PHQ (Patient Health Questionnaire), Generalized Anxiety Disorder (GAD-7) and self-developed questionnaires.[14,15,16]

Table 3
Perceived Severity of COVID-19 Among Students & Graduates[15]

	HCW Students (n = 181)	HCW Graduates (n = 326)	P- Value
I might affect if no prevention is opted	Agree: 66.3.9% (120)	Agree: 80.4% (262)	0.011
My family might affect if no prevention is opted	Agree: 66.8% (121)	Agree: 82.2% (268)	0.008
I might affect if any of my family members affected	Agree: 65.6% (118)	Agree: 71.4% (232)	0.637

In an online cross-sectional study conducted in Karachi, Pakistan, three quarters of HCWs and NHCWs considered themselves vulnerable to COVID-19.[14] In another study of Pakistan, many HCWs were significantly affected in managing their mental health issues.[14]

Table 4 stated that a significantly considerable number of HCWs (54%) passed through psychological distress in the form of depression and anxiety.[14,15] A study from India showed a considerable number of HCWs went through variant psychiatric issues, i.e., depression (47.3%), anxiety neurosis (29.0%), sleeping difficulties (32.3%).[16] The studies from Pakistan and India[14,15] showed lesser psychological distress among HCWs compared to the study from China.[18]

Table 4
Prevalence of Mental Health Issues Among Healthcare Workers (HCWs)[14]

Depression Severity	Minimal	42.6%
	Mild	45.4%
	Moderate	6.4%
	Moderately Severe	4.6%
	Severe	1.0%
Anxiety Severity	Minimal	15.2%
	Mild	51.5%
	Moderate	24.7%
	Severe	8.7%

A study from Singapore reported 14.5% participants found symptoms of anxiety, 8.9% depression and 6.6% psychological stress.[22] Similarly, another study of Singapore found anxiety 15.7%, depression and 10.6% psychological distress.[23] In contrast to the studies of Pakistan, India and China, the prevalence of psychiatric disorders in Singapore were found to be less prevalent during COVID- 19.[14,15,16,18,22,23] This could be due to better preparedness after Singapore SARS experience.[15] This phenomenon is termed Post-traumatic Growth (PTG).[24]

Table 5
Prevalence of Depression & Anxiety Among Healthcare Students & Graduates[15]

Variables	HCW Students N = 181	HCW Graduates N = 326	p- Value
Anxiety (HADS-A >6)	103 (56.9)	169 (51.8)	0.273
Depression (HADS-D >8)	113 (62.4)	159 (48.8)	0.003

Table 5 showed 62% depression among students and 49% among healthcare graduates (p-value: 0.003)[15] while a similar finding was observed in the studies conducted in five medical colleges of Pakistan, I.e., 48.1% and 48.6% depression and anxiety disorders.[10] A study from Iran showed more depression among healthcare students than graduates.[25,26]

1. Adoption of Precautionary Measures

Significant difference found between HCWs and NHCWs regarding adoption of precautionary measures, i.e., wearing face masks (94% HCWs vs 91% NHCWs, p-value: 0.012), refraining from visiting outside (77 HCWs vs 66% NHCWs, p-value: 0.001), refraining from going to hospitals (60% HCWs vs 81% NHCWs, p-value: 0.001) and refraining to outside (55% HCWs vs 66% NHCWs, p-value: 0.001).[15]

Similarly, a significant difference was found between frontline and backend HCWs regarding adoption of precautionary measures, i.e., washing hands (100% frontline HCWs vs 97% backend HCWs, p-value: 0.009), refraining from going to hospitals (45% frontline HCWs vs 72% backend NHCWs, p-value: 0.001) and refraining to go outside (37% frontline HCWs vs 66% back end NHCWs, p-value: 0.001).[15]

On the other hand, a significant difference was found among healthcare students and graduates, i.e., washing hands (96% students vs 99% graduates, p-value: 0.001), refraining from going to hospitals (80% students vs 50% graduates, p-value: 0.001) and avoiding going out (87% students vs 73% graduates, p-value: 0.003).[15]

DISCUSSION

The review literature showed that female gender, younger age, nurses and frontline HCWs were at a higher risk of psychological morbidity during COVID-19. Three quarters of both HCWS and NHCWS considered themselves more susceptible to COVID-19. HCW graduates along with their families were found to become more susceptible of COVID compared to HCW students. The severity of psychological distress was found to be more prevalent among HCW graduates compared to students.

The studies from India, Iran and China showed the twice more prevalence of psychological morbidity among female population compared to males.[16,17,18,19] It was probably because of the pivotal role of females in the family structure of subcontinent.[20,21] The Canadian and US studies also showed that the females were 1.6-fold higher prevalence of depression and anxiety compared to males probably because of socioeconomic factors, abuse, diet, education, culture and biological sex differences.[20] In many conditions, females suffer of the depressive-related illness, i.e., premenstrual dysphoric disorder, postpartum depression, postmenopausal depression, and anxiety might contribute to increased prevalence of depression among females because of the ovarian hormones' release.[27]

In the current literature review, younger age populations were three times more likely affected compared to advancing age during COVID-19. A study from Canada and US also showed that the prevalence among males and females were found to be same before puberty, 1.6-fold more among female compared to males after puberty and with advancing age, the difference of prevalence started shrinking and found to have equal prevalence after 65 years of age.[28,29,30] Although, the studies from Pakistan and India showed more depression with the advancing age population.[12,13,14] A study from India showed enhanced psychological morbidity among single HCWS compared to married HCWS during COVID-19.[16]

In the current literature review study, significant differences were found regarding adoption of precautionary measures, i.e., wearing facial masks, washing hands, refraining from outside including workplace between HCWS and NHCWS and on the other hand, between HCW students and graduates.[15] In a study from India, lack of PPE access among frontline HCWS lead towards greater psychological morbidity in the form of psychological distress, insomnia and PTSD.[16]

The pandemic COVID-19 affected all sections of society across the globe, especially HCWS. The need of the hour is to chalk down effective management guidelines based upon the model of Psychological First Aid (PFA)[12] and Psychological Crisis Intervention Model (PCIM).[13] Singapore showed itself as a resilient nation (15.6%)[22,23] in managing COVID-19 effectively compared to Pakistan and India (>50%).[14,15,16] This could be due to better preparedness after Singapore SARS experience. The phenomenon is termed Posttraumatic Growth (PTG).[24]

LIMITATIONS

The limitations of the study were:

- Study design, cross-sectional and convenience sampling, lacked empirical association and generalizability. Cross-sectional study design only gave the snapshot picture. The need is to utilize the data already collected and to examine association in prospective follow-up studies.
- Data collection in a single setting, self-administered questionnaire or through online interviews without checking the medical records may cause response or recall bias. As a result, various variables, e.g., medical, gynecological, surgical, psychiatric, and substance use history might miss out.
- Lack of retrospective data to determine the impact of already predisposed individuals on psychological morbidity during pandemic COVID-19.
- Nothing mentioned or lack of the availability of any record from hospital administration which stated any significant measures taken to improve mental health resiliency among HCWs.

CONCLUSION

Significant impact of COVID-19 upon the mental health of HCWS, NHCWS, students and graduates. Three quarters of both HCWS and NHCWS struggled through mental health issues. The HCWS, females, younger age, were more affected. Follow-up cohort studies with large sample size will point towards new determinants. The onus of responsibility is upon administration and state to formulate the workable intervention model based on Psychological First Aid (PFA) and Psychological Crisis Intervention Model (PCIM).

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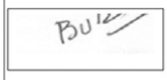
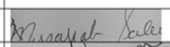
1	Dr. Ali Burhan Mustafa	First Author	Plan, write up and make it final	
2	Dr. Musarrat Saleem,	Second Author	Proof reading, review article, conclusion [Grab your reader's	
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