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Effect of COVID-19 pandemic on mental health of the health care workers

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The attack of COVID-19 has been a threat to the public health rendering it a global war by the humans against a deadly virus and the soldiers of this battle are the frontline healthcare workers. They are most vulnerable to infection and other adverse effects which have profound emotional impact on them. These factors can result in different types of psychological pressure that trigger feelings of loneliness, helplessness, stress, irritability, fatigue, despair, sleep disturbance, anxiety and fear of contagion. The current study is to find the effect of COVID-19 pandemic on the mental health of the healthcare workers. Relevant scientific articles were procured from Google scholar database through purposive sampling technique. Total size of the participants was 6868, belonging to the age group 18 to 60 years. It was observed that 50%, 46%, 37%, 30%, 21%, 19%, 6%, 2%, 1%, 1%, 1% and 1% of the total sample had symptoms of insomnia/poor sleep quality, anxiety, depression, somatisation, stress/distress, social dysfunction, low professional identity, burnout effect, obsessive-compulsive symptoms, phobic symptoms, fear of COVID-19 and worry, respectively. The healthcare workers treating COVID-19 patients especially are at high risk of developing various psycho-pathological symptoms that may adversely affect their mental well-being and productivity. Hence, psycho-education, psychosocial support, adequate counselling facilities, social interactions and reasonable resting facilities for the medical professional maybe adapted for the mental well-being of the healthcare workers.

Keywords: Counselling, Frontline workers, Psycho-pathology, SARS-Cov-2

SARS-CoV-2 or popularly known as COVID-19 is an enveloped RNA virus which belongs to the β-coronaviruses (β-CoV)[1]. The outer protein covering of this virus has spikes and it resembles a crown shape[2]. The peptide aggregates can easily be digested by alcohol based products[3,4]. The attack of this novel coronavirus has created a serious threat to the global public health. Public health emergencies may affect the health, safety and well-being of both individuals (causing insecurity, confusion, emotional isolation and stigma) and communities (owing to economic loss, work and school closures, inadequate resources for medical response and deficient distribution of necessities)[5].

COVID-19 pandemic is a kind of global war by the humans against a deadly virus and the soldiers of this battle are the doctors and paramedic staff, who are fighting from the frontline of this war[6]. Worldwide the health care systems stretched beyond its limit[7] due to the exponential increase in the number of cases of COVID-19. Besides the biological context due to wide and long-lasting changes in the daily life the psychological resilience of the individuals may be affected. Previous records confirm that epidemics and contamination outbreaks of diseases have been followed by drastic individual and social psychosocial impacts, which eventually become more pervasive than the epidemic itself. During the severe acute respiratory syndrome (SARS) outbreak in 2003, 18 to 57% of health care professionals experienced serious emotional problems and psychiatric symptoms during and after the event. In 2015, during the Middle East respiratory syndrome (MERS) outbreak dysphoria and stress was observable among health professionals. They were also shown to be at a higher risk of developing post-traumatic stress disorder (PTSD), which persisted even after a period of absence from work[8].

While the world's attention is focused on the physical wellbeing of the general population, the mental wellbeing, especially that of the health care workers has received less attention[7]. However, as per the definition of the World Health Organization (2020)[9], mental health is essential to our overall well-being and as important as physical health. When we feel mentally well, we can work productively, enjoy our free time, and contribute actively to our communities, both physical and mental

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well-being are essential to maintain good health. So, to enhance the productivity of the healthcare personnel in this moment of global crisis, utmost care should be taken for their physical as well as their mental well-being.

The primary/frontline care workers include the nurses, nurse technicians and medical doctors who are in direct contact with the patients and their body fluids and they are most vulnerable to infection. During the pandemics as an attempt to contain the contagion of the disease, the world faces a shutdown or slowdown and the individuals are encouraged to maintain social distancing. However, the essential service providers, especially the healthcare workers, even in these situations have to do the reverse. Due to the massive demand for healthcare during the pandemics the healthcare workers have to work long hours and many shifts, often with few and precarious infrastructure, including shortage of Personal Protection Equipment (PPE) kits throughout the shifts, elevated death rates[5,6] and also with the need of wearing Personal Protection Equipment (PPE) that may cause physical discomfort and difficulty in breathing[8]. Further it has been evidenced that often the physicians, nurses and other paramedics are assaulted in India during the COVID-19 Pandemic. Multiple instances have been reported in the media that the healthcare workers have been assaulted and attacked by the patients as well as their relatives. Many young healthcare workers were evicted by their landlords, physically attacked by the mobs while they tried to track the spread of the coronavirus disease in particular communities. Another shameful incident was reported about the Police attack on a doctor while he was heading home from an urgent transfer[6].

The World Health Organization (2020)[10] and Presti *et al*. (2020)[11] aptly observed that the COVID-19 pandemic has peculiar characteristics that push the human mind, including those of doctors and nurses, into the uncertainty zone given the speculations on the mode and rate of virus transmission, highly infectious nature and rapid spread of the disease and difficulties in making previsions of pandemic end, absence of specific therapies and vaccine, high infection rate of COVID-19 in health personnel and moral injury. Healthcare personnel might not feel well-equipped in treating patients and may feel overwhelmed by the discrepancy between patient needs and ventilators available during the peaks. Stressors are also linked to continuous and unannounced organizational changes, with respect to work spaces and colleagues to ensure that the hospital is able to handle the sudden surge in the number of people in need of hospitalization or intensive care. Moreover, the healthcare workers often have to witness that the patients admitted to the hospital lose contact with their families for two to three weeks or even die alone. In addition the healthcare workers are unable to seek solace from their families, relatives and friends as they isolate themselves from them due to the fear of contamination and so may experience emotional isolation from their families and social lives[12]. All these have profound emotional impact on the healthcare personnel.

These factors can result in different types of psychological pressure, which may trigger feelings of loneliness, helplessness, series of dysphoric emotional states such as stress, irritability, physical and mental fatigue and despair, sleep disturbance, anxiety and fear of contagion. The work overload, together with the various psychological stress make the healthcare workers vulnerable to psychological suffering and increase the chances of developing psychiatric disorders[8,13-15].

In the present investigation an attempt has been made to study the effect of COVID-19 pandemic on the mental health of the healthcare workers.

Methodology

The methodology of Ghosh & Ghosh (2020) has been followed in the present study. The relevant scientific articles were procured from the Google scholar database.

Sample

10 empirical papers were selected for analysis in the present investigation following the criteria mentioned below:

Inclusion Criteria

Scientific research articles, which are in the English language and are based on the psychometric investigations of the mental health of the Health Care Workers (HCW), were included. 09 full-length papers and 01 letter to the Editor have been included.

Exclusion Criteria

Scientific articles in other languages, abstracts, review articles and studies that do not infer the percentage of the sample, having the symptoms of mental illness have been excluded from the present study.

Sampling technique

The appropriate papers were selected through the purposive sampling technique.

Method

The results of the 10 scientific research articles have been re-analyzed to infer the effect of COVID-19

Pandemic on the mental health of the health care workers, who are functioning as the frontline fighters playing a crucial role in protecting the mankind from the deadly Corona Virus.

Delimitation of the study

The study is delimited to study the effect of COVID-19 Pandemic on mental health of the Health Care Workers only.

Results and Discussion

The 10 scientific articles have been analyzed exhaustively and represented in (Table 1).

Six (60%), two (20%) one (10%) and one (10%) appropriate studies have been obtained from Asia, Europe, North America and South America, respectively. Further investigation shows that the studies were conducted on the healthcare workers working in three, two, one and thirteen countries of Asia, Europe, North America and South America, respectively. The healthcare workers include the physicians, dentists, dermatologists, spine surgeons (neurosurgeons and orthopaedics), nurses, technicians, non-medical/non-frontline healthcare workers (working in the healthcare set-up who does not come in direct contact with the patients). In few studies such as Gupta *et al*. (2020)[19] comparisons of these cohorts has been done with those working in non-essential services.

Total number of sample of all the 10 empirical papers is 6868, belonging to the age range from <18 years to >60 years. Gender-wise distribution of the sample shows that 2102 (31%) and 4642 (69%) are male and female, respectively, as represented in (Fig. 1). In the study done by Salopek-Žiha *et al*. (2020)[23] the number/percentage of the male and female have not been specified. So the same was not reported in the present paper. In the studies conducted by Lai *et al*. (2020)[17], Zhang *et al*. (2020)[18], Jahrami *et al*. (2020)[22], Maciaszek *et al*. (2020)[24] and Prasad *et al*. (2020)[25] the number/percentage of female are more than the male. The samples of these studies include nurses who are mostly female by gender, therefore the percentage of female are more in these studies. Whereas, in the studies conducted by Gupta *et al*. (2020)[19] and Guiroy *et al*. (2020)[26] the number of male are more than their female counterparts. Mulla *et al*.[20] (2020) and Sil *et al*. (2020)[21] attempted to include a balanced percentage of male and female in their respective studies.

Figure 2 displays the educational qualification wise distribution of the sample. Educational qualifications of the samples have been mentioned only by Lai *et al*. (2020)[17] and Zhang *et al*. (2020)[18], so in this investigation the distribution of the sample according to their educational qualifications have been reported in respect to the two aforementioned studies only. In these two studies it was found that 3%, 52%, 35% and 10% of 3679 number of sample received education at Junior High School & lower, Senior High School & Higher, Undergraduate and Postgraduate levels, respectively.

Lai *et al*. (2020)[17], Sil *et al*. (2020)[21] and Guiroy *et al*. (2020)[26] have distributed their respective samples on the basis of the work experience. In the present study the distribution of the sample with respect to their work experience has been done in reference to the three above-mentioned studies only. The Figure 3 shows that 50%, 29%, 17% and 4% of 1502 number of sample have the work experience as junior/ PG trainee, intermediate, senior/ senior residents and consultants, respectively.

Lai *et al*. (2020)[17], Zhang *et al*. (2020)[18], Jahrami *et al*. (2020)[22] and Maciaszek *et al*. (2020)[24] have described their respective samples according to the marital status. In the current investigation only the above four studies have been considered to distribute the sample with respect to their marital status. Observing the Figure 4, it may be reported that 77% of 5735 number of participants are either married or divorced or are widowed, whereas 23% of 5735 number of sample are unmarried/single.

The 10 scientific research articles have been studied thoroughly and percentage of the total sample, having various symptoms of mental illness, have been computed and represented in (Fig. 5).

Analyzing the Figure 5 it may be inferred that worldwide a significant percentage of the healthcare workers, who are providing COVID-19 services, are found to have various symptoms of mental illness[17-26]. It has been observed that 50%, 46%, 37%, 30%, 21%, 19%, 6%, 2%, 1%, 1%, 1% and 1% of the total sample of 6868 have symptoms insomnia/poor sleep quality, anxiety, depression, somatisation, stress/distress, social dysfunction, low professional identity, burnout effect, obsessive-compulsive symptoms, phobic symptoms, fear of COVID-19 and worry, respectively.

The studies found that the frontline healthcare workers, comprising mostly the doctors, nurses and technicians who directly deal with the patients tend to have the risk factors of developing the symptoms of depression (including severe depression), anxiety, insomnia/poor sleep quality and distress[17,18,22,24-26] as compared to their non-medical healthcare counterparts. Guiroy *et al*. (2020)[26] conducted a study on 204 spine surgeons from thirteen countries in Latin America reported that the neuro- spine surgeons tend to suffer

Table 1 — Interpretation of the results of the scientific research articles

Author/s	Location of the Study	Duration of the Study	Category of the Health Care Workers	Gender	Age Range in Years	Education level	Work experience	Marital status	Sample size	Psychometric Scales used	Number of the participants having various symptoms of Mental illness	Inference drawn from the studies
(I) Lai *et al.* (2020)[17]	Wuhan, other areas inside & outside Hubei province, China.	January 29-February 3, 2020 (05 Days)	Physician = 493 (39.2%)	Male= 293 (23.3%)	18-25= 198 (15.8%) 26-30= 407 (32.4%)	≤ Undergraduate = 953 (75.8%)	Junior= 699 (55.6%) Intermediate= 378 (30.1%)	Unmarried = 418 (33.3%)	1257	Patient Health Questionnaire-9 items (PHQ-9)	Depression= 634 (50.4%)	(i) Female health-care workers having intermediate technical title experienced severe depression, anxiety and distress[17]. (ii) Working in the frontline created a risk factor; affecting the mental health[17]. (iii) Health care workers in Wuhan experienced severe symptoms of depression, anxiety, insomnia and distress than those outside Wuhan and outside Hubei province[17].
			Nurse= 764 (60.8%)	Female= 964 (76.7%)	31-40= 406 (32.3%) >40= 246 (19.5%)	≥ Postgraduate= 304 (24.2%)	Senior= 180 (14.3%)	Married= 839 (66.7%)* *+ includes divorced and widowed		Generalized Anxiety Disorder Scale- 7 items (GAD-7)	Anxiety= 561 (44.6%)	
										Insomnia Severity Index -7 items (ISI)	Insomnia= 427 (34.0%)	
										Impact of Event Scale- Revised- 22 items (IES-R)	Distress= 899 (71.5%)	
(II) Zhang *et al.* (2020)[18]	China	February 19-March 6, 2020 (16 Days)	Medical Health Workers= 927 (42.5%)	Male= 781 (35.8%)	< 18= 11(0.5%) 18-60= 2101(96.3 %)	Junior High School& lower (≤ 9 years)= 120 (5.5%)	n/a	Single= 392 (18%)	2182	Insomnia Severity Index- 7 items (ISI)	Insomnia= 740 (33.9%)	(i) Medical health workers had high prevalence rates of severe insomnia, anxiety, depression, somatisation and obsessive-compulsive symptoms during COVID-19[18]. (ii) They also had the risk factors to develop these symptoms than the nonmedical health care workers[18].
										Generalized Anxiety Disorder- 2 items (GAD-2)	Anxiety= 227 (10.4%)	
			Non-medical Health Workers= 1255 (57.5%)	Female= 1401 (64.2%)	>60= 70(3.2%)	Senior High School & higher (> 9 years)= 1920 (88%)		Married= 1790 (82%)		Patient Health Questionnaire- 2 items (PHQ-2)	Depression= 231 (10.6%)	
										Symptom Check List-90 items- revised (SCL-90-R)	Somatization Symptoms= 20 (0.9%)	
											Obsessive-compulsive symptoms= 76 (3.5%)	
											Phobic symptoms= 63 (2.9%)	
						Bachelor Degree= 310 (74.7%)				Nursing Professional Identity Questionnaire (NPIQ)	Professional Identity= 381 (17.46%)	
				Female= 372 (89.6%)	≥ 24= 51 (12.3%)	Master Degree= 72 (17.3%)						
(III) Gupta *et al.* (2020)[19]	Kurukshetra, Haryana, India	April 9- April 11, 2020 (03 Days)	Doctors, Nurses & Technicians= 123 (42.27%)	Male= 187 (64.26%)	< 35= 224 (76.98%)	n/a	n/a	n/a	291	National Stressful Events Survey Acute Stress Disorder Short Scale -7items (NSESSS)	Acute Stress Reaction= 04 (1.37%)	(i) High prevalence of an Acute stress reaction, GAD and depressive symptoms in the Indian population during COVID-19 pandemic[19]. (ii) Psychological problems are more common in the younger age group (<35 years) and in female[19]. (iii) Symptoms of severe depression and anxiety is noticeable in health care workers as well as others who are not paying essential services[19].
			Non-medical frontline workers= 63 (21.64%)	Female= 104 (35.74%)	≥ 35= 67 (23.02%)					Generalized Anxiety Disorder Scale-7 items (GAD-7)	General Anxiety Disorder Symptoms= 96 (33%)	
			Others (Not paying essential services)= 105 (36.08%)							Patient Health Questionnaire- 9 items (PHQ-9)	Depressive Symptoms= 124 (42.61%)	
(IV) Mulla *et al.* (2020)[20]	Mumbai, India	March 25- may 25, 2020 (02 months)	Dentists= 126 (100%)	Male= 57 (45.2%) Female= 69 (54.7%)	23-30= 97 (76.98%) 31-40= 25 (19.84%) 41-50= 3(2.38%) 51-60= 1(0.79%)	n/a	n/a	n/a	126	Fear for COVID-19 Scale-9items (FCV-19S)	Fear= 72 (57.14%)	(i) Both male and female dentists (86.50%) were apprehensive about personal safety from COVID-19[20]. (ii) 65.08% considered COVID-19 as a major contributor of stress[20]. (iii) 78.57% felt that COVID-19 affected their profession as a dentist[20]. (iv) 96.03% dentists are apprehensive about patient safety[20].
(V) Sil *et al.* (2020)[21]	India	May 13-May 20, 2020 (07 Days)	Dermatologist = 41(100%)	Male= 24 (58.5%)	<26= 2(4.9%)	n/a	Postgraduate Trainees= 21(51.2%)	n/a	41	Patient Health Questionnaire- 9 items (PHQ-9)	Depression= 11 (26.82%)	(i) High perceived stress were more prevalent in female participants[21].

(*Contd.*)

Table 1 — Interpretation of the results of the scientific research articles (*Contd.*)

Author/s	Location of the Study	Duration of the Study	Category of the Health Care Workers	Gender	Age Range in Years	Education level	Work experience	Marital status	Sample size	Psychometric Scales used	Number of the participants having various symptoms of Mental illness	Inference drawn from the studies
					26-30= 30 (73.2%)		Senior Residents= 12(29.3%)					
				Female= 17 (41.5%)	>30= 9(22%)		Consultants = 8(19.5%)			Perceived Stress Scale (PSS)	Stress= 12 (29.2%)	
(VI) Jahrami *et al.* (2020)[22]	Bahrain	n/a	Frontline Healthcare Workers= 129 (50.2%)	Male= 77(30%)	Mean Age= 40.2±9.7	n/a	n/a	Single= 28(10.9%)	257	Pittsburgh Sleep Quality Index (PSQI)	Sleep Quality= 193 (75.2%)	(i) 60% of the total population suffered from both poor quality sleep and moderate-severe stress[22].
			Non-frontline Healthcare Workers= 128 (49.8%)	Female= 180 (70%)				Married= 229 (89.1%)		Perceived Stress Scale (PSS)	Stress= 216 (84%)	(ii) Frontline healthcare workers had lower sleep quality and higher stress level than their non-frontline healthcare counterparts[22]. (iii) Females had high prevalence of poor sleep quality and perceived stress[22].
(VII) Salopek-Ziha *et al.* (2020)[23]	Croatia	March 26- April 6, 2020	Physician= 27(22%)	Male=	Physician Mean Age= 42.9	n/a	n/a	n/a	124	Short form of Health Survey-36 (SF-36)	Worry= 83 (67%)	(i) To cope with the stressor the physicians used the planned and analytic strategy and the nurses used positive reassessment strategy[23].
			Nurse= 97(78%)	Female=	Nurse Mean Age= 37.9					Depression Anxiety Stress Scales (DASS-21)	Depression= 14 (11%) Anxiety= 21 (17%) Stress= 12 (10%)	(ii) Younger Healthcare workers used fantasy strategy to cope with the pandemic whereas the older healthcare workers mostly conversed and seek advice[23].
(VIII) Maciaszek *et al.* (2020)[24]	Poland	March 16- April 26, 2020 (41 Days)	Medical professionals= 1216 (59.6%)	Male= 454 (22.3%)	Medical profession Mean Age= 39.23	n/a	n/a	Unmarried = 486 (23.8%)	2039	General Health Questionnaire-28 items (GHQ-28)	Severe depression= 1321 (64.8%)	(i) Medical professionals presented higher levels of psychopathological symptoms of anxiety, insomnia and somatic
			Non-	Female=	Non-			Married=			Somatic symptom=	
(IX) Prasad *et al.* (2020)[25]	USA	April 14- April 25, 2020 (11 Days)	Non-physician Healthcare workers= 347 (100%)	Male= 32 (9.2%)	26-30= 119 (34.3%) 31-35= 74 (21.3%)	n/a	n/a	n/a	347	Mini-Z Burnout Assessment Scale	Burnout=104 (30%)	(i) High prevalence of psychological symptoms, especially anxiety and distress was observed among non-physician healthcare workers in otolaryngology[25].
										Generalized Anxiety Disorder Scale-7 items (GAD-7)	Anxiety= 241 (69.5%)	
				Female= 315 (90.8%)	36-40= 33(9.5%)					Impact Event Scale-15 items (IES)	Distress= 292 (84.1%)	(ii) Age groups 31 to 35 years and 36 to 40 years experienced more burnout than those in 26-30years group[25].
					>40= 121 (34.9%)					Patient Health Questionnaire-2items (PHQ-2)	Depression= 79 (22.8%)	(iii) 36 to 40 years old experienced more anxiety than their 26 to 30 years cohort[25].
(X) Guiroy *et al.* (2020)[26]	13 countries of Latin America	April 4- April6, 2020	Spine Surgeons: Neurosurgeons= 84(41.2%) Orthopedics = 120 (58.8%)	Male= 197 (96.6%)	Mean Age= 47.77	n/a	0-5= 33(16.2%) 5-10= 52(25.4%) 71 (34.8%) 48(23.5%)	n/a	204	Patient Health Questionnaire-9items (PHQ-9)	Depression= 99 (48.5%)	(i) Younger age is directly correlated with higher levels of Depression[26]. (ii) Neurosurgeons tend to suffer more from depression than the orthopaedics in this study[26].
				Female= 7 (3.4%)								

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more from depression than the ortho-spine surgeons. However, Gupta *et al.* (2020)[19], who studied a sample comprising of 123 doctors, nurses and technicians, 63 non-medical workers and 105 other cohort not paying an essential services in Kurukshetra, Haryana reported that the overall the Indian population had high prevalence of an acute stress reaction, GAD and depressive symptoms during the COVID-19 pandemic. They had observed that symptoms of severe depression and anxiety were noticeable in health-care workers as well as in others who are not involved essential services. It may be due to that the healthcare workers are in constant contact with the patients may become vulnerable to psychological issues. They also opined that the public, who spent too much time on gathering epidemic related information, tend to suffer more from these psychological issues.

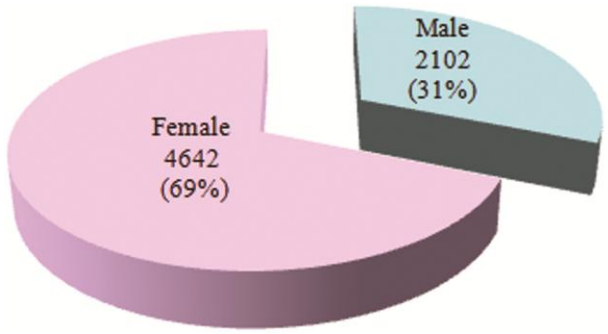

Fig. 1 — Gender-wise distribution of the sample

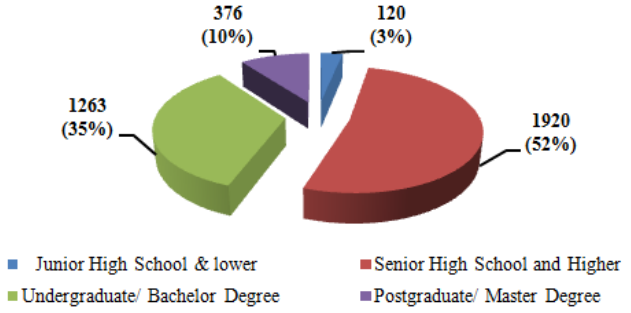

Fig. 2 — Educational qualification wise distribution of the sample

The analysis of the studies clarified that the healthcare workers working in areas where the prevalence of the COVID positive cases is high, tend to experience more symptoms of mental illness. Lai *et al*. (2020)[17], examined 493 physicians and 764 nurses working in Wuhan and in other areas inside and outside Hubei province, China, inferred that the healthcare workers working in Wuhan experienced severe symptoms of depression, anxiety, insomnia and distress than those outside Wuhan and outside Hubei province. Mulla *et al*. (2020)[20], studied the prevalence of the symptoms of fear for COVID-19 among 126 dentists working in Mumbai, India. They reported that 86.50% of both male and female dentists are apprehensive about their personal safety from COVID-19 and 96.03% were also apprehensive about their patients' safety. 65.08% felt stressed and 78.57% felt that the pandemic had affected their profession as a dentist.

Psychological symptoms were more prevalent in the younger healthcare workers than their older counterparts[19,26]. Unlike to this report Prasad *et al*. (2020)[25] observed that the 36 to 40 years old healthcare workers experienced more anxiety than their 26 to 30 years counterpart. Also the healthcare workers aged from 31 to 40 years experienced more burnout than the 26 to 30 years colleagues.

Few studies inferred that the female frontline workers tend to experience more severe depression, anxiety, distress, poor sleep quality than their male counterparts[17,19,21,22].

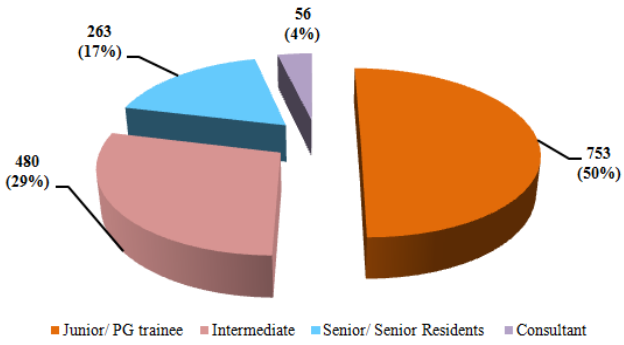

Fig. 3 — Work experience wise distribution of the sample

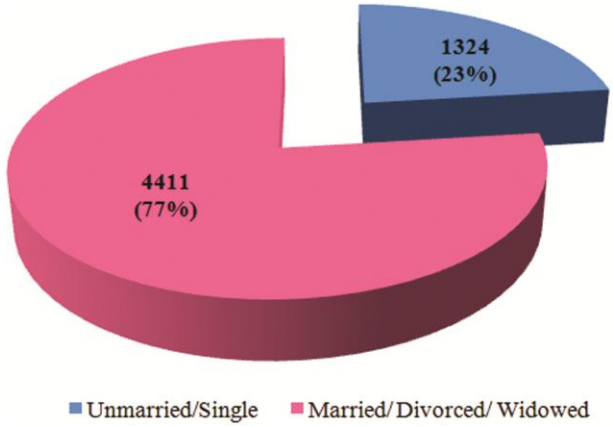

Fig. 4 — Marital status wise distribution of the sample

Apart from the symptoms of depression, anxiety, distress and poor sleep quality two studies reported that small percentage of the healthcare workers had high risk of developing other psycho-pathological symptoms. Zhang *et al*. (2020)[18] reported that 17.46%, 3.5%, 2.9% and 0.9% of their sample had the symptoms of low professional identity, obsessive-compulsive symptoms, phobic symptoms and somatisation symptoms, respectively. Maciaszek *et al*. (2020)[24] inferred from their study on 2039 participants that 100% had somatic symptoms and 64.5% suffered from social dysfunction.

Salopek-Žiha *et al*. (2020)[23] conducted an investigation on 27 physicians and 97 nurses in Croatia and reported that 67%, 11%, 17% and 10% of their sample suffered from worry, depression, anxiety and stress, respectively. They further observed that their sample had distinct coping strategies. The physicians used the planned and analytic strategy whereas the nurses used the positive reassessment strategy. The younger cohort used fantasy strategy and the older healthcare personnel mostly conversed and seek advice.

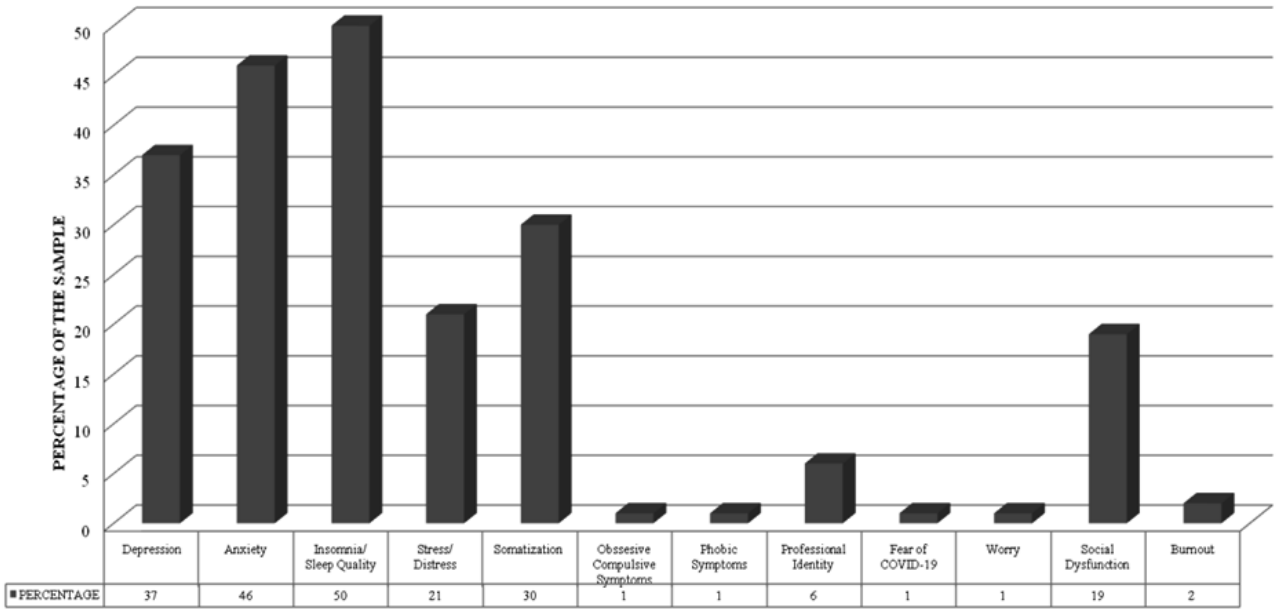

Fig. 5 — Percentage of the sample having various symptoms of mental illness

The thorough investigation of the ten scientific research articles makes it evident that the healthcare workers who are battling tirelessly and un-conditionally to save the mankind from the deadly virus are the most vulnerable not only to physical illness but also to mental illness. Therefore, steps need to be taken to preserve the mental well-being of the healthcare workers[12]. Ornell *et al*. (2020)[8] emphasized that resources must be invested to promote the mental health care of the frontline professionals, in terms of research, prevention and treatment. Prevention efforts such as screening for mental health problems, psycho-education and psychosocial support should focus on them[5,15].

The physical distance must not be synonymous to emotional distance and isolation must be distinguished from loneliness[8]. Xiao *et al*. (2020)[15] aptly reported that social support reduces anxiety and stress and improves self-efficacy and quality of sleep. Reasonable resting facilities for the medical staff may also help in relieving stress[14]. Counselling services should be set up for the Healthcare workers[13]. Mindfulness- based interventions may help the healthcare workers to relieve stress, anxiety and depression[11,16]. The healthcare personnel should be provided with adequate social support to maintain good mental health. Santarone *et al*. (2020)[12] rightly observed that while action to preserve the psychological and emotional health of the healthcare personnel needs to begin now, these providers would need long-term resources to fully recover from their traumatic experiences.

Limitation of the study

Appropriate empirical papers dealing with healthcare personnel working in Africa and Oceania were not found. Males and females, personnel of different age group, with educational qualification and work experience could not be compared as all relevant data were not available.

Conclusion

It may be inferred from the current investigation that the healthcare workers, especially those linked with the treatment of the COVID-19 patients are at high risk of developing various psycho-pathological symptoms that may adversely affect their mental well-being and productivity. Adequate measures are needed to be taken by both the individuals and the government to support the well-being of these frontline personnel so that they may feel mentally well, be productive and contribute actively to their communities.

Conflict of Interest

All authors declare no conflict of interest.

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