PSYCHOLOGICAL IMPACT OF COVID-19 PANDEMIC ON MEDICAL AND ALLIED HEALTH CARE WORKERS IN IBADAN, OYO STATE, NIGERIA

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ABSTRACT

The study examined the psychological impact of COVID-19 pandemic on medical and allied healthcare workers in Ibadan. Oyo State, Nigeria, The study is explanatory in nature and adopted the exploratory research design. The population comprised ninety-three healthcare workers which consisted of 48 medical and 45 allied healthcare workers while three research questions were formulated. A validated Depression, Anxiety and Stress Scales known as (DASS-21) with a reliability co-efficient value of 0.87 was used to gather relevant information. Data collected was analysed with mean, standard deviation and independent t-test. Findings revealed that both groups, Medical healthcare workers with a mean (±SD) score of 17.44(±15.75) and Allied healthcare workers with a Mean (±SD) score of 26.40(±22.06) experienced low psychological distress, however, independent t-test (t-cal= -2.116, df = 91, p < 0.05) revealed that the Allied group had a significant higher mean score than the Medical group. The study concluded by recommending that Industrial Social Workers should design intervention programmes in order to ensure the psychological wellbeing of healthcare workers. Furthermore, researches should be conducted to examine the long-term psychological impact of COVID-19 pandemic among all healthcare workers.

Key Words**: Psychological impact, COVID-19 pandemic, Healthcare workers**.

INTRODUCTION

COVID-19 a novel viral disease caused by severe acute respiratory syndrome Corona virus-2 (SARS-CoV-2) broke out in Wuhan, China in November, 2019. The virus is spread primarily through small droplets from coughing, sneezing and talking. It was subsequently declared a pandemic of Public Health Emergency of International concern on the 30th of January, 2020 by the World Health Organization (WHO, 2020). Similarly, the Secretary General of the United Nations, António Guterres described it as the biggest global crisis since the Second World War (British Breasting Corporation, 2020). As at the 30th of August, 2020 over 25 million people have been infected globally, over 17 million recovered while more than 836,000 deaths were recorded (Worldometer, 2020). In Africa, over 874, 000 persons were infected, 18, 498 recovered while 524,557 died as a result of complications from the disease. In Nigeria, 53,317 tested positive to the virus, 40,726 recovered while 1054 deaths was recorded (Nigeria Centre for Disease Control, 2020).

As number of infections and death toll increase globally, as a result of the unpredictable nature and fast spreading of the disease, the world began to panic, social activities such sports, schools, and businesses were closed, flights were suspended and borders were shut. Lockdown measures were also announced as people were ordered to stay at home in order to reduce the spread of the virus. However, healthcare workers were on duty to take care of infected patients (Greenberg, Docherty, Gnanapragasam, Wessely, 2020; Lai, Ma, Wang, Cai, Hu & Wei, 2020). The World Health Organization (2006) defined healthcare workers as people engaged in actions with the primary intent to enhance health. They include doctors, nurses, midwives, social workers, pharmacists, medical lab personnel, paramedical staff, hospital administrators and support staff such as Ambulance drivers, hospital cleaners etc.

By the nature of their occupation, healthcare workers are high-risk group exposed to infection during pandemic (Koh, 2020). For example, in May 2020, the International Council of Nurses reported that at least 90,000 healthcare workers have been infected and more than 260 nurses had died as a result of COVID-19 virus complications (The Independent

News, 2020). On 8 August 2020, the India Medical Association announced that 198 doctors died in India due to COVID-19 (Economic Times, 2020). Similarly, in United State of America, an interactive data base reported that more 900 frontline healthcare workers have died of Covid-19 (Guardian News, 2020). In Europe, healthcare workers also accounted for a substantial proportion of all COVID-19 cases. Chersich et al, (2020) reported that in Italy, as of 3 April 2020, about 10,000 healthcare workers have been infected and 74 have died. In the United Kingdom, Kursumovic, Lennane & Cook (2020) reported that healthcare workers database shows that nearly 200 deaths were highlighted of which 157 were confirmed as of 3 May 2020. A global review of COVID-19 infection and mortality among healthcare workers by Bandyopadhyay et al (2020) using parallel searches of academic bibliographic databases recorded as at 5th of June, 2020, shows that a total number of 152,888 infections and 1,413 deaths. This comprises of doctors, nurses, non-clinical staff, support workers and other allied health professionals. The report added that nurses have the highest number of infections while deaths were mainly among doctors with Europe having the highest numbers of reported cases of infections and deaths.

In Africa, the World Health Organization (2020) reported that over 10,000 healthcare workers tested positive for COVID-19 in July, 2020. According to the Director-General of the Nigeria Centre for Disease Control, as at the 2nd of June 2020, 812 healthcare workers have tested positive for COVID-19 and 29 of the affected are staff of Nigeria Centre for Disease Control (Punch Health-wise, 2020). COVID-19 is not only a pandemic but also a psychological crisis that placed an enormous burden on healthcare workers due to severity and mortality of the disease (Corona-virus Pneumonia Emergency Response Epidemiology Team, 2020).

Adverse psychological outcomes among healthcare workers are caused by a variety of factors during a pandemic such as the COVID-19 with high level of mortality. These include inadequate medical/personal protective equipment, fears of contracting the disease and spreading it to family members, grief over the death of professional colleagues and patients, stigma and discrimination (Jalloh, Li, Bunnell, Ethier, O'Leary & Hageman (2018); Brooks, Webster, Smith, Woodland, Wessely & Greenberg, (2020). According to Greenberg, Wessely & Wykes (2015) witnessing a high number of infection and death among professional colleagues and patients during the rampaging COVID-19 pandemic put carers at risk of poor psychological outcomes such as anxiety, depression and post-traumatic stress disorder.

STATEMENT OF THE PROBLEM

Responding to COVID-19 pandemic in a country with a population estimated to be about 200 million people with a healthcare system that is overstretched from staff to equipment poses a serious challenge to the wellbeing of healthcare workers. For instance, in less than a month Nigerian doctors went on strike twice due to lack of protective equipment and poor welfare. The doctors, via the Nigerian Medical Association (NMA), went on strike on May 20th and 15th of June, 2020. The medical professional body instructed its members to stay away from work because it had become unsafe for them to continue to provide health care services. As at 4th of September, 2020, the body threaten to begin another nationwide strike starting from September 7 because the 21-day ultimatum given to the Federal Government expired on August 17, 2020 (Aljazeera News, 2020). As part of its demands, the doctors asked the federal government to provide adequate personnel protective equipment (PPE) such as N95 respirators, gloves, etc. to all health workers, as well as payments of outstanding COVID-19 related allowances they were promised three months before the first case of COVID-19 was reported in Nigeria. It also called for the payment of arrears owed to its members at both federal and state tertiary health institutions in line with Nigeria's new minimum wage.

Similarly, the Joint Health Sector Union (JOHESU) which consists of five registered health professionals unions such as the National Association of Nigeria Nurses and Midwives (NANNM), and the Nigeria Union of Allied Health Professionals (NUAHP) on September, 13, 2020, embark on a nationwide seven-day warning strike as the government

failed to meet its demands, which include payment of COVID-19 hazard allowance, failure of the government to address the infrastructure in the health sector and discrimination of the body in the payment of allowances (Premium Times, 2020),

As pressure increases on health facilities, so will the risk of infection of COVID-19 among healthcare workers resulting in long working hours, reduced rest period and increased workloads increases. Furthermore, the fear of contracting the virus and passing it to family members couple with the loss of colleagues have the potential to affect the mental health well-being of healthcare workers. It is therefore, appropriate that fears and anxiety about the pandemic are not ignored, but acknowledged and addressed by the appropriate authorities. Understanding the psychological impact of COVID-19 pandemic particularly among all healthcare workers is crucial in providing necessary interventions to address their psychological well-being in order to enhance their performance.

Review of Literature

Generally, infectious disease outbreaks are known to have adverse psychological impact on the general population Olaseni, Akinsola, Agberotimi & Oguntayo (2020); Abdulmajeed, Saleh, Ali, Ahmed & Moath (2020), however, compared with the general population, healthcare workers are more likely to experience a wide range of negative psychological impact such as depression and anxiety during a pandemic due to direct exposure to the virus (Si, Su, Jiang, Wang, Xiao, Li, Jing, Shao, Ze-Fang, Ran, Yuan & You, 2020). Severe psychological distress had been reported during and after the infectious diseases outbreak in previous studies, For example, during the outbreak of severe acute respiratory syndrome (SARS) epidemic in 2003 in Asia Tam, Pang, Lam & Chiu (2003), Ebola virus disease in Democratic Republic of Congo in 2014 Lee, Kang, Cho, Kim & Park (2018) and Middle East respiratory syndrome (MERS) outbreak in 2018 (Raven, Wurie & Witter, 2018).

Lai, Ma, Wang, Cai, Hu, Wei, Wu, Du, Chen, Li, Tan, Kang, Yao, Huang, Wang, Wang, Liu & Hu (2020) in a cross-sectional study that involved 1257 front-line health care workers in 34 hospitals in China, found a considerable proportion of health care workers reported experiencing symptoms of depression, anxiety, insomnia, and distress, especially in women and nurses. Similarly, Tan, Chew, Lee, Jing, Goh, Yeo, Zhang, Chin, Ahmad, Khan, Shanmugam, Chan, Sunny, Chandra, Ong, Paliwal, Wong, Sagayanathan, Chen & Sharma (2020) examined psychological distress among “medical” (physicians and nurses) and “nonmedical” personnel (Allied health professionals, pharmacists, technicians, administrators, clerical staff, and maintenance workers) in Singapore in the midst of the outbreak.

The outcome of the study revealed that there was prevalence of depression, stress, anxiety, and posttraumatic stress disorder (PTSD) among all health care workers. Increase work demand, fear of contracting the virus, grief over the death of colleagues, anxiety about having to self-isolate, quarantine or becoming ill are some of the causes of psychological distress. However, when compared with the medical healthcare, the nonmedical health care workers had higher prevalence of anxiety even after adjustment for possible confounders. Temsah, Al-Sohime, Alamro, Al-Eyadhy, Al-Hasan, Jamal, Al-Maglouth, Aljamaan, Al Amri, Barry, Al-Ssubaie & Somily (2020) assess the psychological impact of COVID-19 on 811 health-care workers (HCWs) of a tertiary care teaching Hospitals in comparison to the stress brought on by the Middle East respiratory syndrome coronavirus (MERS-CoV) epidemic in Saudi Arabia. While there were no COVID-19 cases reported yet in Saudi Arabia at the time of the study, the anxiety level from COVID-19 was significantly higher than that from seasonal influenza. Majority of health workers expressed fears about COVID-19 pandemic and were concern of being infected and the risk of transmitting the infection to their families.

Chew, Lee, Tan, Jing, Goh, Ngiam, Yeo, Ahmad, Ahmed Khan, Napolean, Sharma, Komalkumar, Meenakshi, Shah, Patel, Chan, Sunny, Chandra, Ong, Paliwal & Sharma (2020) conducted a multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. The study includes healthcare workers such as doctors, nurses, allied healthcare workers,

administrators, clerical staff and maintenance workers. Out of the 906 healthcare workers who participated in the survey, 48 (5.3%) screened positive for moderate to very-severe depression, 79 (8.7%) for moderate to extremely-severe anxiety, 20 (2.2%) for moderate to extremely-severe stress, and 34 (3.8%) for moderate to severe levels of psychological distress. The study concluded that there was significant association between the prevalence of physical symptoms and psychological outcomes among healthcare workers during the COVID-19 outbreak.

Elamin, Hamza, Abdalla, Mohammed Mustafa, Altayeb, Mohammed, Alhusseini & Abass (2020) in a study on the psychological impact of COVID-19 on health professional in Sudan reported that 72% have some degree of depression while severe depression was found among health professional working in the emergency room. In Italy, a nurse was reported to have committed suicide after being traumatized trying to save lives patients with COVID-19 (Telegraph, 2020). Given the magnitude of COVID-19 pandemic and the psychological impact it may have on the frontline healthcare and allied workers. This study examines the psychological impact of COVID-19 on medical and allied healthcare workers and proffer suggestions in order to enhance their wellbeing.

Research Questions

i. What is the level of psychological distress experience by medical healthcare workers during the COVID-19 pandemic?
ii. What is the level of psychological distress experience by Allied healthcare workers during the COVID-19 pandemic
iii. Is there any significant difference in the level of psychological distress experience by Medical healthcare workers and Allied healthcare workers during the COVID-19 pandemic?

METHOD

Research Design

The study is explanatory in nature using the exploratory research design. This design is suitable when problem is novel such as the COVID-19 pandemic and when data collection may be difficult, for example, the highly contagious nature of the disease may hinder data collection. Exploratory design allows the researcher to be creative in order to gain the most amount of insight on the subject being studied and provide answers to address research questions. It is therefore an excellent design that allows the researcher to provide quality and insightful information to the problem being investigated.

Study Population

Population for the study was drawn from healthcare workers involved in the treatment of COVID-19 patients. This includes “Medical” health care workers such as (physicians, nurses) and “Allied” health workers such as pharmacists, social workers, technicians, administrators, clerical staff, and maintenance workers such as hospital cleaners and ambulance drivers.

Instrumentation

The instrument used for the study is the Depression, Anxiety and Stress Scale (DASS-21) developed by Lovibond & Lovibond (1995). The instrument contained 21 Items divided into three sections designed to measure the emotional states of depression, anxiety and stress. Each section contains seven items, divided into subscales with similar content. The depression scale assesses hopelessness, dissatisfaction, devaluation of life, self-deprecation, lack of interest/involvement, inability to feel pressure. The anxiety scale assesses skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic nonspecific arousal.

It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items. Respondents are expected to pick a number

0, 1, 2 or 3 which indicates how much the statement applied to them during the COVID-19 Pandemic. The rating scale is as follows: 0- (*Did not apply to me at all)*, 1- (*Applied to me to some degree, or some of the time)*, 2- (*Applied to me to a considerable degree or a good part of time)* and 3- (*Applied to me very much or most of the time)*. The scale has been widely used and found suitable for psychological distress screening in normal adults.

Validity and Reliability of the instrument

Content validity was done for the instrument through consultations with experts in the concern areas of study to ensure suitability of the instrument while reliability test was done through test re-test which yielded Cronbach alpha values of 0.87.

Procedure

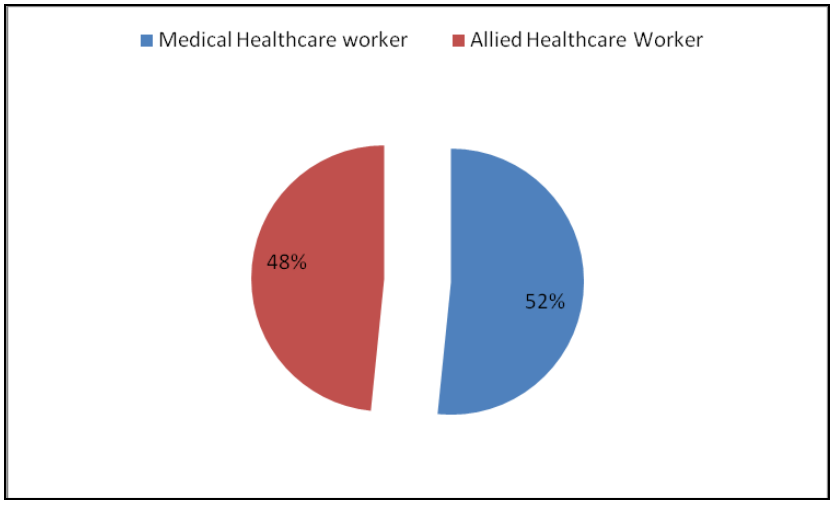
Questionnaire was sent to online to participants through their various group platforms such as the What-App and E-mail Address. A link to the survey on Google form was sent to all participants. On clicking the link, participants were auto directed to the questionnaire. The first question was on consent. Participants were required to give their consent as a prerequisite before they can have access to answer the questionnaire. They were also informed that they are free to opt out of the survey at any time they want. Only individuals who gave their consent participated in the study.

Data Analysis: The first two research questions were analysed through mean and standard deviation while independent t-test was used to compare the difference between the two groups (Medical and Allied healthcare workers).

FINDINGS AND DISCISSIONS

Demographic Information of the Respondents

Figure 1: Occupation Type



The figure 1 shows that out of ninety-three (93) respondents, forty- eight (51.6%) were medical healthcare workers while 45(48.4%) were allied healthcare workers

Table 1: Analysis of Demographic Variables

Variable	Overall (N=93)	Medical healthcare worker (N=48)	Allied healthcare worker (N= 45)
Gender (%)			
Male	51 (54.8)	27 (56.2)	24 (53.3)
Female	42 (45.2)	21 (43,8)	21 (46.7)
Mean Length of service (Std. Dev.)	9.3 (7.6)	9.8 (7.0)	8.7 (8.3)

The table above shows that 51 (54.8%) were males while 42 (45.2%) were female. Furthermore, 48 are medical healthcare workers while 45 are Allied healthcare workers. The table also revealed that medical healthcare workers has a mean 9.3 of length of service while allied healthcare workers has a mean of 8.7 of length of service.

Research Question 1: What is the level of psychological distress experienced by Medical healthcare workers during the COVID-19 pandemic?

Table 2: **Level of Psychological Distress among Medical Healthcare Workers (N=48)**

	Items	**Mean**	**Standard Deviation**
1.	I often feel tense	1.48	1.07
2.	I found it hard to wind down	1.31	1.03
3.	I couldn't seem to experience any positive feeling at all	1.17	1.08
4.	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0.67	0.51
5.	I found it difficult to work up the initiative to do things	0.90	0.82
6.	I tended to over-react to situations	0.94	0.85
7.	I experienced trembling in part of my body (e.g. in the hands)	0.58	0.94
8.	I felt that I was using a lot of nervous energy	1.06	1.01
9.	I was worried about situations in which I might panic and make a fool of myself	0.94	0.06
10.	I felt that I had nothing to look forward to	0.73	0.06
11.	I found myself getting agitated	0.81	0.07
12.	I found it difficult to relax	0.96	0.66
13.	I felt down-hearted and blue	0.54	0.42
14.	I was intolerant of anything that kept me from getting on with what I was doing	0.85	0.80
15.	I felt I was close to panic	0.77	0.63
16.	I was unable to become enthusiastic about anything	0.85	0.66
17.	I felt I wasn't worth much as a person	0.58	0.44
18.	I felt that I was rather touchy	0.65	0.62
19.	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0.75	0.69
20.	I felt scared without any good reason	0.85	0.72
21.	I felt that life was meaningless	0.65	0.43
	Overall Mean	**17.44**	**15.75**

In table 2 the level of psychological distress in medical healthcare workers during COVID-19 pandemic was defined by twenty-one items (0-Not at all, 1–Some of the time, 2–good part of time and 3-most of the time). Descriptive statistics was used to analyse the data collected and the results are presented in table 2. From the test norm level of psychological distress in medical healthcare workers during COVID-19 pandemic scale, the total maximum score of sixty-three is permissible. A score of 0-31 points' shows low level of psychological distress and 32–63 points indicates high level of psychological distress.

Since the mean(±SD) score of the respondents is 17.44(±15.75) as shown in table 2 which falls within the range of 0–31, it can then be concluded that there was a low level of psychological distress in medical healthcare workers during COVID-19 pandemic during covid19 pandemic. The study also revealed that out of the twenty-one items listed to determine the level of psychological distress, only four items yielded high mean scores between 1.06 and 1.48 while the remaining seventeen items yielded low mean scores between 0.54 and 0.94. With these results, it could be deduced a low level of psychological distress in medical healthcare workers during covid-19 pandemic.

This finding is in line with that of Si et al., (2020) that adverse psychological symptoms were prevalent among medical care workers in China during the COVID-19

pandemic. They listed some of the psychological distress to include stigmatization, risk of being infected or infecting others, lack of necessary medical supplies such as the personal protective equipment and long hours of work and workload.

Research Question 2: What is the level of psychological distress in Allied healthcare workers?

Table 3: Level of Psychological Distress in Allied Healthcare Workers (N=45)

S/N	**Items**	**Mean**	**Standard Deviation**
1.	I often feel tense	1.80	1.06
2.	I found it hard to wind down	1.60	0.94
3.	I couldn't seem to experience any positive feeling at all	1.49	1.10
4.	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	1.20	0.94
5.	I found it difficult to work up the initiative to do things	1.24	1.10
6.	I tended to over-react to situations	1.36	1.39
7.	I experienced trembling in part of my body (e.g. in the hands)	0.98	1.28
8.	I felt that I was using a lot of nervous energy	1.36	1.05
9.	I was worried about situations in which I might panic and make a fool of myself	0.98	0.83
10.	I felt that I had nothing to look forward to	1.36	1.11
11.	I found myself getting agitated	1.31	1.22
12.	I found it difficult to relax	1.09	0.91
13.	I felt down-hearted and blue	1.20	1.01
14.	I was intolerant of anything that kept me from getting on with what I was doing	1.27	1.16
15.	I felt I was close to panic	0.89	0.77
16.	I was unable to become enthusiastic about anything	1.18	1.051
17.	I felt I wasn't worth much as a person	1.09	1.02
18.	I felt that I was rather touchy	1.27	1.17
19.	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0.89	0.09
20.	I felt scared without any good reason	1.18	1.05
21.	I felt that life was meaningless	1.09	1.01
	Overall Mean	**26.40**	**22.06**

In table 3 the level of psychological distress in allied healthcare workers during COVID-19 pandemic was defined by twenty-one items (0-Not at all, 1–Some of the time, 2–good part of time and 3-most of the time). .From the test norm level of psychological distress in allied healthcare workers, the total maximum score of sixty-three is permissible. A score of 0-31 points' shows low level of psychological distress and 32–63 points indicates high level of psychological distress. Since the mean(±SD) score of the respondents is 26.40(±22.06) as shown in table 3 which falls within the range of 0–31, it can then be concluded that there was a low level of psychological distress in allied healthcare workers during COVID-19 pandemic during covid19 pandemic

The study also revealed that out of the twenty-one items listed to determine the level of psychological distress; all items yielded high mean scores of between 0.89 and 1.8. This shows that the allied healthcare workers had higher means score than the medical healthcare workers. This finding is consistent with Tan et al., (2020) who found out non-medical personnel in hospital had high prevalence of anxiety during the COVID-19 pandemic than the medical healthcare workers. The authors concluded that some of the major causes of psychological distress are, fear of contracting the deadly virus and spreading it to family members, grief over the death of colleagues in the workplace, anxiety about having to self-isolate, quarantine or becoming ill.

Research Question 3: Is there any significant difference in the psychological distress experience by the medical and Allied healthcare worker?

Table 4: Independent t-test showing significant difference in the psychological distress experience among Medical and Allied healthcare workers

Occupation	N	Psychological Distress Experienced		t-cal	df	p-value
		Mean	Standard Deviation			
Medical Healthcare worker	48	17.44	14.15	-2.116	91	0.037
Allied Healthcare worker	45	26.40	22.06			

The t-test of the mean psychological distress experience by the medical and Allied healthcare worker (Table 4) shows that there is significant difference in the psychological distress experience by the medical and Allied healthcare worker (t-cal= -2.116, df = 91, $p < 0.05$). With this result it can be concluded that there is a significant difference in the psychological distress experienced among the medical and allied healthcare workers. The implication of this result is that the allied healthcare workers group are more likely to experience a higher level of psychological distress than the medical healthcare workers group during the COVID-19 pandemic.

This finding is consistent with that of some studies carried out during the COVID-19 pandemic, for example, Li et al., (2020) found out that frontline nurses had significantly lower mean scores than non–frontline nurses and the general public during the COVID-19 pandemic. Similarly, Tan et al., (2020) found out that non-medical health care workers had higher prevalence of anxiety than the medical health care workers during COVID-19 pandemic in Singapore. The authors attributed the difference to the fact that front line workers unlike medical personnel such as the medical doctors and nurses do not have intensive training on infection control measures such as the use of personal protective equipment, inadequate access to first hand medical information on the outbreak and formal psychological support.

Implications for Industrial Social Workers

Findings revealed that both medical and allied healthcare workers are susceptible to psychological distress as a result of the outbreak of COVID-19. Therefore, Industrial Social Workers should design intervention programmes in order to ensure the psychological wellbeing of healthcare workers. Such intervention should include encouraging social support among co-workers and counselling services. This will enable them to carry out their duties effectively and efficiently particularly during a pandemic of this magnitude.

Conclusion

The study highlighted the importance of exploring psychological distress among healthcare workers during a pandemic as it may have long-term implications for professional and personal wellbeing. It also revealed that although, both medical and allied healthcare personnel experienced significant psychological distress during COVID-19 pandemic, however, the allied healthcare workers had a higher mean score than the medical healthcare. This is an indication that they (Allied group) are a vulnerable group. Therefore, they should be included when designing intervention programmes and healthcare policies. Further research should be conducted to examine the long-term psychological impact of the COVID-19 pandemic among all healthcare workers. Such Follow-up studies would enable researchers to assess the progression or a potential relapse of the adverse effect of psychological distress after the pandemic might have eventually subsides.

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