Impactsof Pandemic on HealthCare Workers in Teaching Hospitalsin Rivers State, Nigeria.

ABSTRACT

Background: Pandemics are wide-ranging incidences of infectious disease that significantly increase morbidity and mortality in extensive geographic area and cause substantial economic, social, and political interruption. The study assessed impacts of pandemic on healthcare workers in teaching hospitals in Rivers State, Nigeria.

Materials and Methods: This study was conducted among health workers in teaching hospitals (University of Port Harcourt Teaching Hospital (UPTH) and Rivers State University Teaching Hospital (RSUTH) in Rivers State Nigeria. Multi-stage sampling method was adopted to recruit healthcare workers with a descriptive cross-sectional study design. A structured questionnaire wasdeveloped and pre-tested. The reliability of the questionnaire for this study was performedwith the index of internal consistency and was calculated with Cronbach's alpha coefficient which gave a considerable value of 0.72. The responses gotten from the participants were entered into, and analysed with Statistical Package for Social Sciences (SPSS) software version 25. Ethical clearance to conduct the study was gotten from the Research and Ethics Committee of the University of Port Harcourt.

Result: Most (62.2%) of the participants experienced psychological impact of pandemics,(59.4%) of the participants experienced emotional impact of pandemics, (54.5%) of the participants experienced financial impact of pandemics and theoverall (58.2%) impact of pandemics on the HCWs was obtained. Also, the resultrevealed that there was a statistically significant association between marital status (p=0.000), sex (p=0.003), religion (p=0.000), level of education completed (p=0.039), income (p=0.000), professional category (p=0.000), duration of work (p=0.00) and overall impact of pandemics on the participants. We predicted that among the participants, marital status, sex, religion, education, income professional category, and work duration at ($p \leq 0.05$), significantly contributed to the level of impact of pandemic.

Conclusion: Majority of the healthcare workers reported that pandemics impacted on them However, psychological impact of the pandemics was most prevalent and the level of pandemic impact experienced by the health workers were significantly influenced by age, marital status, sex, tribe, religion, income, professional category and work duration.We recommend hospital management should improve the work setting, and the HCWs should avail themselves the opportunity of trainings on coping strategies.

Key words: Impacts, pandemics, healthcare workers, teaching hospitals,Nigeria.

INTRODUCTION

Pandemics are wide-rangingincidences of infectious disease that significantly increase morbidity and mortality inextensive geographic area and cause substantial economic, social, and political interruption [1]. Studies revealed that the possibility of pandemics have increased in the past century due torise ininternational travel and incorporation, urbanization, changes in land use, and more misuse of the natural environment [2]. Pandemics occurrence seem to increase in frequency, particularly due to the growing emergence of disease from animals. Some of the pandemic diseases include Avian influenza, Cholera, Ebola, Plague, Yellow fever, Meningitis,

MERS, Influenza, Zika, Rift Valley Fever, Lassa fever, Leptospirosis, etc[2,3]. Pandemic risk is driven by the combined effects various factors such as environment, host, geographic regions, lack of preparedness, poor health system etc [3]

Globally,there have several efforts have been made in preparing for and mitigating the impacts of pandemics [4]. Multiple outbreaks revealed gaps related to the timely detection of disease, availability of basic care, follow-up of contacts, separation and isolation measures, and readiness outside the health sector, including global management and response utilization [5]. These gaps are predominantly evident in developing and low-income countries and have posed challenges during relatively confined epidemics, with serious implications for what may happen during a full-fledged worldwide pandemic[6].Majority of pandemics emanated through the "zoonotic" transmission of pathogens from animals to humans[7].Zoonoses go in into human populations from both home animals and wildlife. Historyhas it that a lot of significant zoonoses have been introduced through increased human-animal interaction as a result of domestication, and potentially high-risk zoonoses (such as avian influenzas) continue to arise from livestock production systems[8]. Certain pathogens have been linked to have emerged from reservoirs of wildlife and pass into human populations through the hunting and consumption of wild species (for instance; bushmeat), trading of wild animal, and other contact with wildlife[9]. However, zoonotic pathogens differ in the level to which they can survive within and spread between human hosts.

Impact of pandemics

Pandemics results not only in the increased morbidity and mortality fromthe diseases but also significantly impacts on different aspect of life of the healthcare worker such as health, lifestyle, economic status, mental health etc [10]. Health-care workers (HCWs) are frontline workers are engaged in the fight against pandemics [11].Health-care workers' (HCWs) defense from pandemics isvital but their protection ofphysiological, emotional and financial problems is of greaterimportance[11]. The mental health of healthcare workers is adversely affected during pandemics due to different factors associated with the nature of the disease and work[12]. Psychological distress and other health issues have been linked to uncommon scene experiencedby the HCW during the pandemics [12]. Under normal circumstances, work-related psychological distress in HCWs is associated with several short and long-term adverse outcomes [13]. During pandemics, psychological problemsareattributed to adverse occupational outcomes such aspoor ca quality care of patient, colleagues' irritability, negative impact on patient care due to cognitive impairments of HCW, absence from work and intentsofexiting job [13]. HCW who experience psychological distress are also at risk of experiencing adverse

personal outcomes including substance misuse, and suicide [13]. In situations such as infectious disease outbreak, such consequences may intensify and heighten psychological distress [13].

Globally, particularly in developing countries including Nigeria, there is asubstantial decrease in workforce of all hospital staff (clinical and non-clinical staff) in health facility during pandemics [14]. The impact of the pandemic on staffing shortages variesdepending on the type of health care worker in addition tothe hospital setting. Also, thisproblem of workforce has been linked to many other factors such as poor hospital equipment, family responsibilities, fear of getting contracting the disease, poor morale [15].In Nigeria, workforce shortages among healthcare workershad been serious problem in most hospitals leading to increase work load even before the pandemic [16].The mental health of HCW is worsened decreased workforce and increase work load due to increased demand for patient care, including testing, immunizations etc [17]. Furthermore, healthcare workers contracting the pandemic diseases also added to staffing shortages and work stress This may continue to impact the workforce in the hospital, thereby contributing to increased work load and work stressfor few HCWs[18].

During pandemics health workers often reportincreased stress and workload, and a continued struggle to get the supplies they needed. Healthcare workers are, for the most part, psychologically resilient professionals, trained and experienced in dealing with illness and death [19].In Nigeria, the mental health and psychological wellbeing of HCW before pandemics was already being known as an important healthcare issue, proved by the increasedoccurrence of stress, burnout, depression, dependence on drug and alcohol, and suicide attemptsprofessionals, in many countries [20]. High stress roles combined with the exceptional demands during pandemic crisis have indisputably placed frontline healthcare workers at more risk for mental health problems, with early reports from around the world showinghigh rates of depression, worry, post-traumatic stress disorder (PTSD) and suicide actions [21].

Additionally, the health care workers face pandemics with poor working conditions, as a result of the scarcity of biosafety equipment, lack of infection control systems, poor of recognition and incentives for programs and work, physical and psychological abuse, and discrimination by patients thereby impacting on mental health of HCWs[22].These are drivers of psychosocial and emotional problems among health care workers. Also, other emotional of impact of pandemics such as headaches, grinding your teeth or clenching your jaw, shortness of breath, dizziness. tiredness, anxious stress, depression have been associated with inadequate information about the pandemics, the continuous care of patients with pandemics, increasedworkload, regular

exposure to critical events such as death, fear of contracting and transmitting to their familiesand its effects on their own health[20]. Health care workers experience economic hardship as a result of reduced earnings common during the pandemics. There was delay in releasing and payment of salaries in many organizations because hinges in executing payment policies by the management and Government. Most of the patients stopped work and do not have enough income for hospitals bills apart from in serious cases. The HCWs experience delays in receiving the risk allowance contributed to their economic hardship [23]. The adverse impact of employment loss on financial, psychological well-being and life risk makes HCWsto rethink of their job and career options.Hence, this study tends analyze the impacts of pandemic on healthcare workers in teaching hospitals in Rivers State, Nigeria.

MATERIALS AND METHOD

Study Area

This study was conducted among health workers in teaching hospitals (University of Port Harcourt Teaching Hospital (UPTH) and Rivers State University Teaching Hospital (RSUTH) in Rivers State Nigeria. Rivers State is one of the 36 and has its capital located in Port Harcourt LGA [24]It was estimatedat a population of 7,303,900in 2016, making it the sixth-most populous state in the country [25]. Rivers State has borders with Imo, Abia and Anambra States on the northern part, Akwa Ibom State on the eastern part, Bayelsa and Delta states on the western part. The State has a wide agro-ecological diversity and economically important to the Niger Delta region [26]. It has a latitude 5°21'N and longitude 6°57'E and found as one of the states in the South-South geopolitical zone and Niger Delta states.There are about 23 Local Government Areas that makes up the State with Port Harcourt being the biggest city in the State. The Port Harcourt city has a population of about 1,865,000 inhabitantsas at 2016. The city is located in the Niger Delta as it lies along the Bonny River[25]. The Port Harcourt City is part of the Port Harcourt local government area which is consisting of the former European quarters now called Old GRA and New Layout areas. The urban area of Port Harcourt consists of the Port Harcourt local government area, parts of Obio-Akpor and some parts of Eleme [25].

Port Harcourt is the centre of medical services, there are many hospitals and health facilities located in Rivers State. The Port Harcourt city is a host to the two tertiary health facilities or teaching hospitals, many health facilities. University of Port Harcourt Teaching Hospital (UPTH) is on East West Road, Port Harcourt, Nigeria[26]. It is a major tertiary-care teaching and research facility in Rivers State. University of Port Harcourt Teaching Hospital originally commenced its operations in 1980 and was officially commissioned by the Federal Government in 1985. When it started out, there were 60 beds mainly in use[26].

University of Port Harcourt Teaching Hospital is managed through a three-tier managerial system made up of the Board of Management, Hospital Management Committee (HMC) and the Departments[26]The hospital consist of the following departments: Accident and Emergency, Accounts, Administration, Anaethesiology, Catering, Central Sterilization Service Department (CSSD), Communication, Community Medicine, Computer Science, Dentistry, Dialysis, Ear, Nose and Throat, General Out Patient Department, Intensive Care Unit, Internal Medicine, Laundry, Maintenance, Medical Illustration Unit, Medical Laboratory Services (Chemical Pathology, Haematology and Blood Bank, Medical Microbiology and Parasitology, Anatomical Pathology), Medical Records, Medical Social Welfare, Neuropsychiatry, Nuclear Medicine, Nurse Practice Development Unit, Obstetrics and Gynecology, Ophthalmology, Oral Maxillo Facial, Orthopaedic Department, Paediatric Services, Pharmacy, Physiotherapy, Radiology, Stores, Surgical Department, Works and Services. Most of the clinics are made up of a team of consultant, senior registrars, junior registrars, matron nurse, other nurses, interns, other staff and ward [26]However, in the recent pandemic the hospital established a COID-19 laboratory and Isolation Centre [26].

The Rivers State University Teaching Hospital (RSUTH) is one of the oldest of the hospital hospitals in Rivers State and located in Port Harcourt city in the State. It provides general, specialist medical and surgical services in addition with a range of diagnostic and support services[27].The RSUTH consists of 731 medical staff members and 375 licensed beds. Its departments include Medicine, Laboratories, Paediatrics, Pathology, Obstetrics and Gynaecology, Radiology, Family Medicine, Surgery, Ophthalmology, Anaesthesia, Accident Centre, and Surgical/Medical Emergency[28]The hospitals Pharmacy, Maintenance, General Administration and Finance departments. offer health care, counselling and referral services, treatment and management of the pandemic infections such as COVID-19 patients[28].

Study Design/Sampling method

A descriptive cross-sectional study design was used in the study. This study design was used to determine the impact of pandemic on HCWs usingmulti-stage sampling method to select the participants and administer questionnaire by interviewer administer method.

Study tool and Validation

The structured questionnaire was pre-tested in FMC Bayelsa State among health workers who were randomly selected. The pre-test was conducted with a sample size of 75 which is equal to the 10% of the total sample size for the study. Reliability of the questionnaire study was

assessed byusing the index of internal consistency with Cronbach's alpha coefficient which gave a considerable value of 0.72.

Data analysis and interpretation

Data was gotten (taken) from participants and entered into Statistical Package for Social Sciences (SPSS) software version 25. It was coded in numerical values and was analyzed with Statistical Package for Social Sciences (SPSS) version 25.Descriptive statistics was performed to report variables in frequency and percentages. We conducted an inferential statistic such as chi-square test, logistics regression.

Ethical Considerations

We got the ethical clearance for the study from the Research and Ethics Committee of the University of Port Harcourt. Permission to conduct this study was gotten from UPTH and RSUTH Research Committee and informedconsent was obtained from the eligible participants.

Results

Table 1: Socio-Demographic Characteristics

Variable	Frequency (N=754)	Percentage (%)
Age (years)		
18-27	*94*	*12.5*
28-37	*314*	*41.6*
38-47	*253*	*33.6*
48-57	*62*	*8.2*
>57	*31*	*4.1*
Marital Status		
Single	*253*	*33.6*
Married	*377*	*50.0*
Separated	*10*	*1.3*
Widow	*21*	*2.8*
Widower	*31*	*4.1*
Cohabiting	*62*	*8.2*
Sex		
Male	*409*	*54.2*
Female	*345*	*45.8*
Tribe		
Igbo	*345*	*45.8*
Yoruba	*30*	*4.0*
Hausa	*2*	*.3*
Others	*377*	*50.0*
Religion		
Christianity	*701*	*93.0*
Islamic	*31*	*4.1*
Others	*22*	*2.9*

Table 1 shows that most (41.6%) of the respondents were of the age range 28-37years, half (50.0%) of the study participants were married female (must not be combined) as more than half

(54.2%) of the respondents are male. While many almost half (45.8%) of the participants were Igbos and majority of the respondents (93.0%) were Christians.

Table 2: Socio-demographic characteristics

Variable	Frequency (N=754)	Percentage (%)
Highest level of education		
None	*5*	*0.7*
Primary education	*36*	*4.8*
Secondary education	*74*	*9.8*
Tertiary education	*576*	*76.4*
Post Tertiary	*63*	*8.4*
Income (monthly)		
≤50,000	*220*	*29.2*
50,000	*188*	*24.9*
50,001-100,000	*220*	*29.2*
100,001-150,000	*64*	*8.5*
150,001-200,000	*62*	*8.2*
Professional Category		
Physician	*95*	*12.6*
Nurse	*252*	*33.4*
Med. Lab	*32*	*4.2*
Pharmacist	*31*	*4.1*
Community Health Worker	*125*	*16.6*
Management Staff	*93*	*12.3*
Support Staff	*94*	*12.5*
Security	*32*	*4.2*
Duration of Work in the Hospital		
<5years	*565*	*74.9*
6-14years	*157*	*20.8*
>25years	*32*	*4.2*
Level (at work)		
6	*31*	*4.1*
7	*157*	*20.8*
8	*64*	*8.5*
9	*315*	*41.8*
11	*62*	*8.2*
12	*93*	*12.3*
14	*32*	*4.2*

The table 2 indicates that majority of the participants (76.4%) has attained tertiary level of education, some of the study respondents (29.2%) and (29.2%) earn ≤₦50, 000 and 50,001-₦100, 000 respectively. Among professional category, many of the respondents (33.4%) are Nurses, majority of the study participants (74.9%) have worked <5years and most of the participants (41.8%) are of level 9.

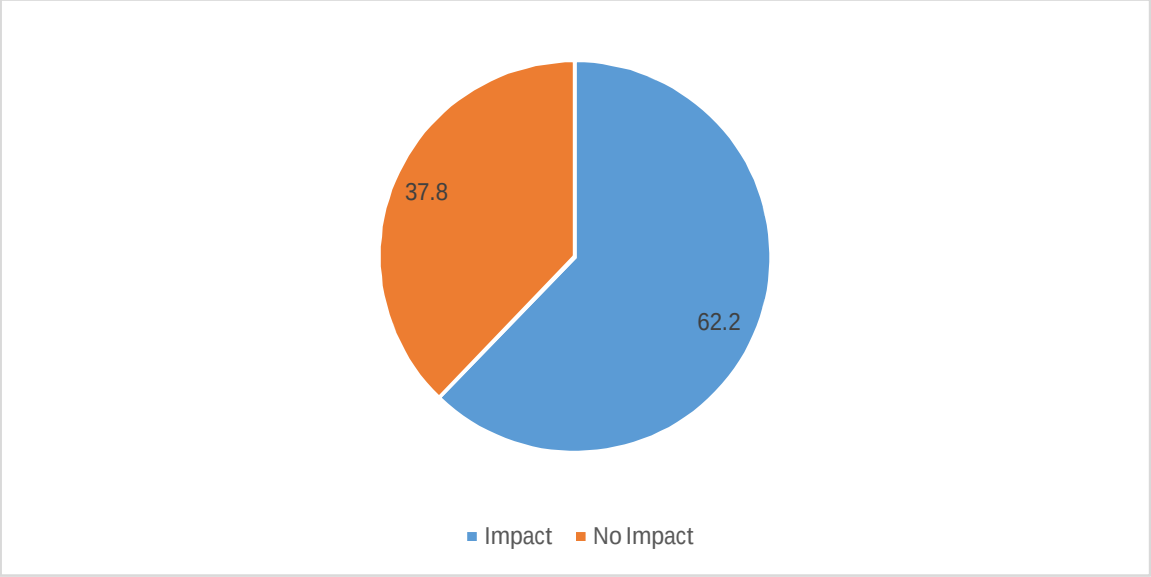
Table 3: Psychological impact of pandemics on health workers

Variable	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)

Experienced being stressed due to workload during the pandemics	157(20.8)	124(16.4)	31(4.1)	379(50.3)	63(8.4)
Experienced burnout due to workload during the pandemics	93(12.3)	190(25.2)	93(12.3)	284(37.7)	94(12.5)
Experienced sleeping difficulties during the pandemics	63(8.4)	188(24.9)	219(29.0)	221(29.3)	63(8.4)
Experienced symptoms of depression during the pandemics	94(12.5)	157(20.8)	157(20.8)	252(33.4)	94(12.5)
Experienced symptoms of anxiety working in the hospital during the pandemics	93(12.3)	62(8.2)	94(12.5)	442(58.6)	63(8.4)
Experienced symptoms of posttraumatic stress disorder during the pandemics	125(16.6)	189(25.1)	94(12.5)	252(33.4)	94(12.5)
Experienced mental health issues during the pandemics	188(24.9)	125(16.6)	31(4.1)	315(41.8)	95(12.6)
Experienced psychiatric morbidity or general psychological distress	62(8.2)	127(16.8)	188(24.9)	346(45.9)	31(4.10)

Table 3 shows that more of the respondents (50.3), (37.7%) agree to have experienced being stressed due to workload during the pandemics, experienced burnout due to workload during the pandemics, and experienced sleeping difficulties during the pandemics respectively. Also, more of the participants (29.0) were not certain if they had sleeping difficulties during the pandemics. Also, more (33.4%) agree to have experienced symptoms of depression during the pandemics. More of the participants (58.6%), (33.4%) and (41.8%) agree to have experienced symptoms of anxiety working in the hospital during the pandemics, symptoms of posttraumatic stress disorder during the pandemics and had mental health issues during the pandemics respectively. The table revealed that more (45.9) of the respondents experienced psychiatric morbidity or general psychological distress.

Figure 1: Assessment of level of psychological impact of pandemics on health workers



This figure shows that most (62.2%) of the participants had psychological impact of pandemics, while less than half (37.8%) of the participants experienced low or no psychological impact during the pandemics.

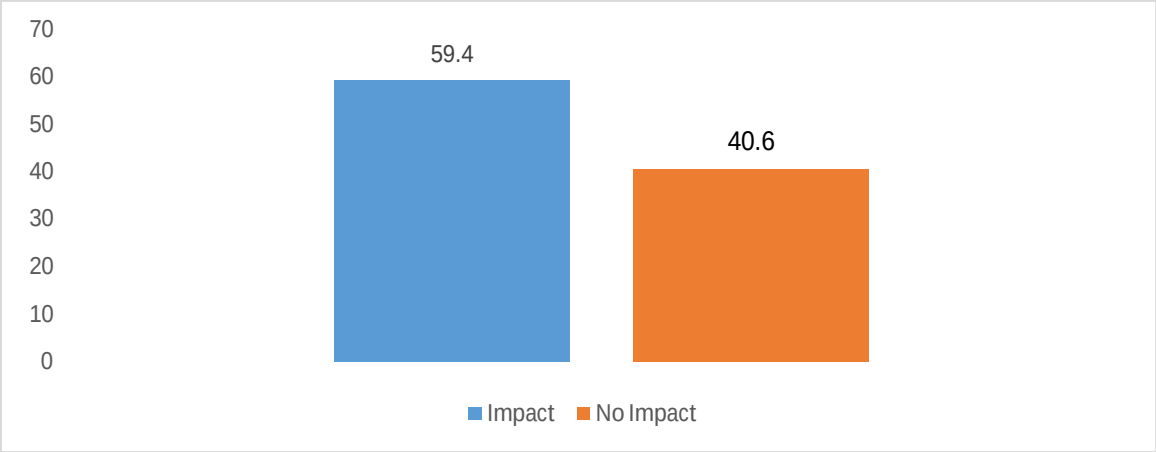
Table 4: Emotional impact of pandemics on health workers

Variable	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)
Experienced violence and harassment at work from colleagues or patients during the due to the pandemics	31(4.1)	189(25.1)	219(29.0)	222(29.4)	93(12.3)
Experienced feeling of sadness at work during the pandemics	84(11.1)	68(9.0)	107(14.2)	401(53.2%)	94(12.5)
Experienced lack of encouragement or support at work during the pandemics	31(4.1)	125(16.6)	158(21.0)	378(50.1)	62(8.2)
Experienced stigmatization and discrimination among health workers and other people during the pandemics	62(8.2)	189(25.1)	62(8.2)	378(50.1)	63(8.4)
Experienced lack of care for family members during the pandemics	94(12.5)	188(24.9)	155(20.6)	285(37.8)	32(4.2)
Experienced fear of dying from the pandemic's infections	24(3.2)	58(7.7)	284(32.9)	301(39.9)	123(16.3)
Experienced depression due death of your colleague at work during the pandemics	156(20.7)	159(21.1)	62(8.2)	345(45.8)	32(4.2)
Experienced little interest in doing your usual work	123(16.3)	74(9.8)	114(15.1)	334(44.3)	109(14.5)
Experienced eating disorders (loss appetite or eating too much) during the pandemics	115(15.3)	93(12.3)	104(13.8)	361(47.9)	81(10.7)
Feel low esteem (personality disorders) due to your work during the pandemics	102(13.5)	102(102)	96(12.7)	381(50.5)	73(9.7)

Table 4 shows that more of the participants (29.4%) and (53.2%) agree to have experienced violence and harassment at work from colleagues or patients during the due to the pandemics, and felt sadness at work during the pandemics respectively. Also, half of the (50.1%) and (50.1%) of the respondents agree to lack of encouragement or support at work during the pandemics, and that they experienced stigmatization and discrimination from health workers and other people during the pandemics. However, (37.8%) agree to lack of care for family members during the pandemics, (39.9%) agree that they experienced fear of dying from the pandemic's infections. More of the (45.8%) experienced depression due death of your colleague at work during the pandemics (44.3%), (47.9%) and (50.5%) agree they experienced little

interest in doing your usual work, eating disorders (loss appetite or eating too much) during the pandemics and felt low esteem (personality disorders) due to your work during the pandemics.

Figure 2: Assessment of level of emotional impact of pandemics on health workers



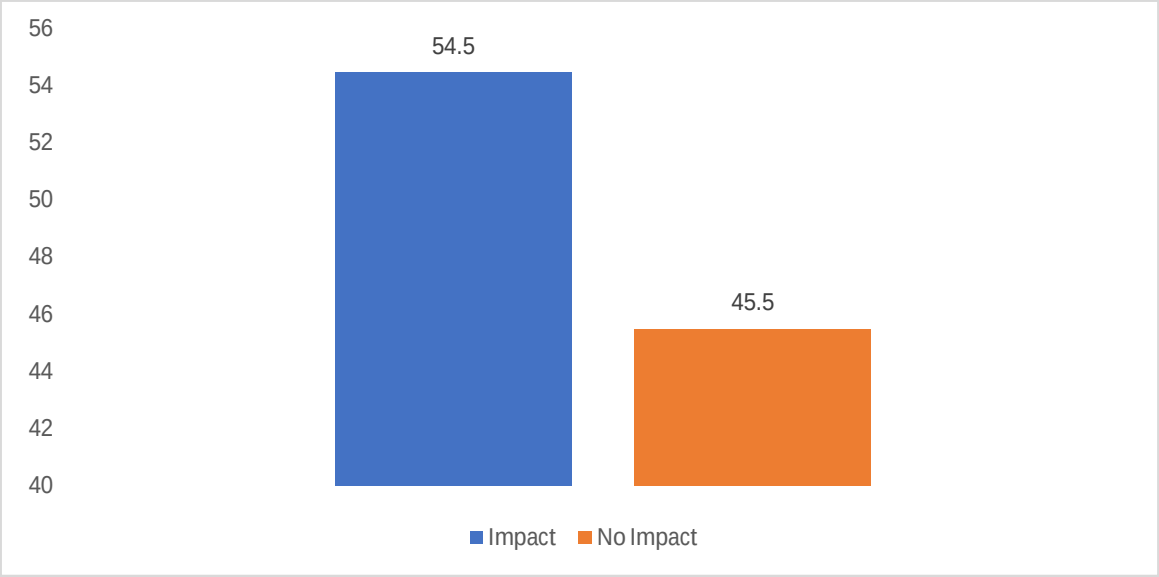
This figureshows that most (59.4%) of the participants had emotional impact of pandemics, while less than half (40.6%) of the participants experienced low or no emotional impact during the pandemics.

Table 5: Financial impact of pandemics on health workers

Variable	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)
Experienced lack of personal protective equipment and other working materials in the hospital due to no fund during the pandemics	62(8.2)	158(21.0)	126(16.7)	314(41.6)	94(12.5)
Experienced experience lack of incentives and insurance in the hospital during the pandemics	24(3.2)	58(7.7)	248(32.9)	301 (39.9)	123(16.3)
Experience delay or no payment of salaries during the pandemics	188(24.9)	315(41.8)	31(4.1)	125(16.6)	95(12.6)

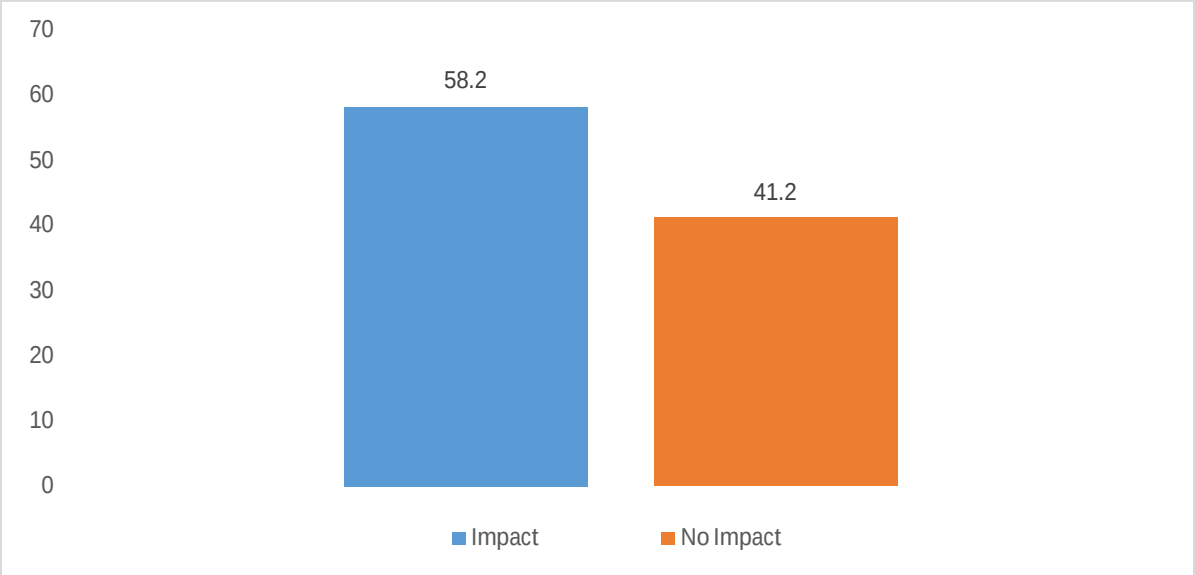
Table 5 shows that more (41.6%) of the participants agree that they experienced lack of personal protective equipment and other working materials in the hospital due to no fund during the pandemics. More (39.9%) of the participants agree experienced lack of incentives and insurance in the hospital during the pandemics, more (41.8%) of the participants disagree to delay or no payment of salaries during the pandemics.

Figure 3: Assessment of level of financial impact of pandemics on health workers



This figure shows that most (54.5%) of the participants had financial impact of pandemics, while less than half (45.5%) of the participants experienced low or no financial impact during the pandemics.

Figure 4: Overall impact of pandemics on health workers



This figure shows that overall (58.2%) impact of pandemics on the HCWs, while less than half (45.5%) of all the participants experienced low or no impact during the pandemics.

Table 6: Association between Socio-demographic Characteristics and Impact of Pandemic

Variables	Impact			x^2		Odd ratio (OR)
	No impact (n(%)	Impact (n(%)	Total	df	(p-value)	95% (CI)
Age (years)						

≤47	284(43.0)	377(57.0)	661(100.0)	1	3.110	1.507
≥48	31(33.3)	62(66.7)	93(100.0		(0.078)	(0.953-2.381)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Marital status						
Married	189(50.1)	188(49.9)	377(100.0)		21.641	2.003
Unmarried	126(33.4)	251(66.6)	377(100.0)		(0.000) *	(1.492-2.688)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Sex						
Male	191(46.7)	218(53.3)	409(100.0)	1	8.903	1.562
Female	124(35.9)	221(64.1)	345(100.0)		(0.003) *	(1.164-2.094)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Tribe						
Igbo	155(44.9)	190(55.1)	345(100.0)	1	2.595	1.270
Others	160(39.1)	249(60.9)	409(100.0)		(0.107)	(0.949-1.698)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Religion						
Christianity	276(39.4)	425(60.6)	701(100.0)	1	23.712	0.233
Others	39(73.6)	14(26.4)	53(100.0)		(0.000) *	(0.124-0.437)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Level of education completed						
Below Tertiary	38(33.0)	77 (67.0)	115(100.0)		4.255	0.645
Above Tertiary	277(43.3)	362(56.7)	639(100.0)		(0.039) *	(0.424-0.980)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Income						
≤150,000	282(44.9)	346(55.1)	628(100.0)	1	15.110	2.297
≥ 151,001	33(26.2)	93(73.8)	126(100.0)		(0.000) *	(1.498-3.521)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Professional Category						
Clinical Staff	250(46.7)	285(53.3)	535(100.0)	1	18.568	2.078
Non-Clinical Staff	65(29.7)	65(29.7)	154(70.3)		(0.000) *	(1.485-2.908)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Duration of Work						
≤14years	315(43.6)	407(56.4)	722(100.0)	1	23.979	0.564
≥ 15years	0(0.0)	32(100.00)	32(100.0)		(0.000) *	(0.529-0.601)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			
Level						
≤8years	94(37.3)	158(62.7)	252(100.0)	1	3.117	0.756
≥ 9years	221(44.0)	281(56.0)	502(100.0)		(0.077)	(0.555-1.032)
Total	**315(41.8)**	**439(58.2)**	**754(100.0)**			

P≤0.05 **(statistically significant)**

Table 6reveals that there was a statistically significant association between marital status (p=0.000), sex (p=0.003), religion (p=0.000), level of education completed (p=0.039), income (p=0.000), professional category (p=0.000), duration of work (p=0.00) and impact of pandemic. There were no statistically significant associations between age, tribe, level of education completed, level at work and impact of pandemics.Table 6 shows that there is no statistically

significant association between age and impact of pandemic. Participants in the age range of ≥48years have a higher impact of pandemic with those between ≤47years (66.7% vs 57.0%; p=0.078). Also, the table revealed that the older ones (≥48years) are 1.507 times more likely to have higher impact of pandemic than the younger ones (≤47years) (OR: 1.507; CI = 0.953-2.381).

The same table shows that there is a statistically significant association between marital status and impact of pandemic. Participants who were unmarried have higher level of impact of pandemic compared to with married individuals (66.6% vs 49.9; p=0.000). Also, the table revealed that respondents who were unmarried are 1.000 times equal to impact of pandemic to married individual (OR: 2.003; CI =1.492-2.688). The Table 6 indicated that there is a statistically significant association between sex and impact of pandemic. Respondents who were female have perceived risk compared with those who were male (64.1% vs 53.3%; p=0.003). Also, the table showed that respondents who are female are 2.032 times more likely to have perceived risk than respondents who were male (OR: 1.562; CI =1.164-2.094). Table 6 shows that there is no statistically significant association between tribe and impact of pandemic. Participants who were of other tribes have high impact of pandemic compared with those of Igbo tribes (60.9% vs 55.1%; p=0.107). Also, the table revealed that respondents who are of other tribes was 1.270 times more likely to have impact of pandemic than respondents who are from Igbo tribes (OR: 1.270; CI =0.949-1.698)

The result showed that there is a statistically significant association between religion and impact of pandemic. Participants who were Christians have impact of pandemic compared with those who were of other religion (60.6% vs 26.4%; p=0.000). Also, the table showed that respondents who were Christians 0.233 were times more likely to have impact of pandemic than respondents who were of other religions (OR: 0.233; CI =0.124-0.437). Table 6 shows that there is a statistically significant association between level of education and impact of pandemic. Participants who attained education have below tertiary impact of pandemic compared with those who attained above tertiary (67.0% vs 56.7%; p=0.039). Also, the table revealed that those who attained below tertiary are 0.645 times more likely to have good impact of pandemic than those with above tertiary (OR: 0.645; CI =0.424-0.980)

Also, the table shows that there is a statistically significant association between income and impact of pandemic. Participants who earn ≥ 150,001 have perceived risks compared with those who earn ≤ 150,000 (73.8% vs 55.1%; p=0.0001). Also, the table revealed that respondents who earn ≥ 150,001 was 2.297 times more likely to have good impact of pandemic than

respondents who earn ≤ 150,000 (OR: 2.297; CI = 1.498-3.521). Table 6 reveals that there is a statistically significant association between professional category and impact of pandemic. Participants who are clinical staff have impact of pandemic compared with those who are non-clinical staff (53.3% vs 29.7%; p=0.000). Also, the table revealed that those who are clinical staff are 2.078 times more likely to have perceived risk than those who are non-clinical staff (OR: 2.078; CI = 1.485-2.908). The same table shows that there is a statistically significant association between duration of work and impact of pandemic. Participants who worked ≥ 15years have perceived risk compared with those who worked ≤14years (100.0% vs 56.4%; p=0.0001). Also, the table revealed that respondents who worked ≥ 15years are 0.564 times more likely to have impact of pandemic than respondents who worked ≤14years (OR: 0.564; CI = 0.529-0.601).

Table 6 shows that there is a statistically significant association between level/rank and impact of pandemic. Participants whose level are≤8years have perceived risk compared with those whose level are ≥ 9years (62.7% vs 56.0%; p=0.077). Also, the table revealed that those who attained ≤8years are 0.756 times more likely to have perceived risk than those whose level are ≥ 9years (OR: 0.756; CI = 0.555-1.032)

Table 7: Regression Analysis of Socio-demographic Characteristics and Impact of Pandemic among the Respondents

					95% Confidence Interval	
Professional Category	**B**	**Std. Error**	**p-value**	**Exp(B)**	**Lower Bound**	**Upper Bound**
Marital Status	-4.967	0.595	0.0001	0.007	.002	.022
Sex	.694	.150	0.0001	2.003	1.492	2.688
Religion	.446	.150	0.003	1.562	1.164	2.094
Education	-1.456	.321	0.0001	.233	.124	.437
Income	-.439	.214	0.040	.645	.424	.980
Prof category	.832	.218	0.0001	2.297	1.498	3.521
Work Duration	.732	.171	0.0001	2.078	1.485	2.908
Level	18.660	2264.609	0.993	127015259.	0.000	.

P≤0.05 (statistically significant)

Table 7 showed that participants marital status, sex, religion, education, income professionalcategory, and work duration were predicted with impact of pandemic (p ≤ 0.05), while level at work was not predicted.

Discussion

This study found that one-third of the study respondents stated that work profile involves direct no contact with pandemic infected patients in the hospital. About, one-third of the participants are concerned that they might contract the pandemic disease. More than half (58.2%) of the respondents when compared to their colleagues of the same sex and same age, believed were

less likely to contract pandemic disease. Also, less than half of the participants are undecided to when compared to the local population of Africa if likely to contract pandemic disease and few of participants perceived that the preventive measures against pandemic disease are effective. Furthermore, one-third (37.4%) of the respondents were undecided on how serious would be the prognosis if they contracted pandemic disease, while more than half (54.2%) of the participants think it is somewhat not difficult for pandemic infection to be transmitted from one person to another. Less than half of the of study participants stated they were unlikely to contract pandemic disease and few (16.8%) of the participants were somewhat confident that if they were exposed to pandemic disease, that they can avoid pandemic infection by personal skill or diligence.The found that shows that most (58.2%) of the participants perceived impact of pandemics, while less than half (41.8%) of the participants did not perceived the impact of pandemics themselves.

Findings in this study revealed that about half of the respondents disagree to experience shortage of health workers, much work load and being stressed due to workload during the pandemics respectively. Also, few of participants disagree to experienced burnout due to workload and sleeping difficulties during the pandemics. Less than half of the respondents agreed to have experience symptoms of depression during the pandemics, while more than half (58.6%) and (33.4%) of the study participants disagree to have experienced symptoms of anxiety working in the hospital and symptoms of post-traumatic stress disorder during the pandemics. Almost half of the respondents disagree to had experience mental health issues during the pandemics. There waslack of personal protective equipment in the hospital, lack of incentives and insurance in the hospital, violence and harassment, lack of psychological support and stigmatization and discrimination among health workers during the pandemics. Less than half of the respondents had experienced lack of care for family members and death of colleague or health worker during the pandemic. We found that most of the participants had psychological impact of pandemics, while less than half of the participants experienced low or no psychological impact during the pandemics. There is similarity between our finding by Stuijfzand et al.,[29] who reported that the HCWs experienced mental health problems in the short and longer term, particularly: psychological distress, insomnia, alcohol/drug misuse, and symptoms of posttraumatic stress disorder (PTSD), depression, anxiety, burnout, anger, and higher perceived stress. Our study revealed that majority of the participants had emotional impact of pandemics, while less than half of the participants experienced low or no emotional impact during the pandemics.Similarly, Cotrin et al.,[30] reported that physicians and nurses

experienced emotional impact of the pandemics such as feeling of more tired than usual, depressed and anxiety.Our findings showed that most (54.5%) of the participants had financial impact of pandemics, while less than half (45.5%) of the participants. There is consistency between our finding and finding by Cotrin et al.,[30] and healthcare workers who a substantial impactof COVID-19 pandemic in their income, with differences among physicians, nurses and dentists. We noted that most of the participants had general impact of pandemics, while less than half of the participants experienced low or no impact during the pandemics. Finding in this study is in keeping with finding by Preti et al.,[31] who reported that 11 and 73.4% of HCWs experienced psychological and emotional impact during pandemics, WHICH INCLUDES post-traumatic stress symptoms, depressive symptoms, insomnia, and severe anxiety symptoms in 45%. The overall psychiatric symptomsrangedfrom 17.3 and 75.3% with high levels of work-related stress at 18.1 to 80.1% were recorded.

Furthermore, reveals that there was a statistically significant association between marital status (p=0.000), sex (p=0.003), religion (p=0.000), level of education completed (p=0.039), income (p=0.000), professional category (p=0.000), duration of work (p=0.00) and impact of pandemic. There were no statistically significant associations between age, tribe, level of education completed, level at work and impact of pandemics. Our finding revealed that HCWs' marital status, sex, religion, education, income professional category, and work duration were predicted with impact of pandemic ($p \leq 0.05$), while level at work was not predicted.There is some similarity between our findings and finding by Brooks et al., [19] who found that impacts of pandemics were related with the occupational role; training and knowledge; work-related factors; personal protective behaviour-related factors; guidance; distress and risk perception of the HCWs. Also, there is consistency between our finding and finding by Birhanu et al.,[32] who reported psychological and emotional impacts considerablyinfluenced by age, education, occupation, and place of residence ($p < 0.05$). These similarities in the finding may be attributed to the similar work place settings.

Conclusions

Majority of the healthcare workers reported that pandemics impacted on them However, psychological impact of the pandemics was most prevalent and the level of pandemic impact experienced by the health workers were significantly influenced by age, marital status, sex, tribe, religion, income, professional category and duration of work.

Recommendation:

Findings revealed high level of overall impact of pandemics on the healthcare workers with majorly of psychological, financial and emotional. We recommend hospital management should improve the work place setting and provide essential materials for efficient healthcare service delivery by HCWs. Also, HCWs should avail themselves the opportunity of trainings on coping strategies, update courses on prevention and control measures of pandemics in hospitals.

Consent for publication

All authors are aware of the publication.

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