IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 10, Issue 1 Ser. III (Jan. – Feb. 2021), PP 29-36
www.iosrjournals.org

Healthcare Workers Demographic Variables and relationship with Covid-19 Pandemic Challenges, Coping Strategies and Resilience in a State in Northern Nigeria.

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Abstract
Background*: Health care workers are at high risk of being infected with COVID-19. They have the potential to spread the virus among colleagues and family members. There are lack of studies on the relationship of demographic characteristics and challenges, coping strategies and resilience among health care works during this pandemic. This study investigaedthe relationship between some demographic variables and COVID-19 pandemic challenges, coping strategies and resilience among health care workers in Kebbi State, Nigeria .*
Design:*This was a descriptive cross-sectional study*
Setting: *Kebbi State, Nigeria.*
Population: *Health care workers working in secondary and tertiary health care facilities in the State.*
Sampling technique and sample selection:*A combination of consecutive and convenient sampling methods were used for the study. One hundred and forty three health care workers participated in the study.*
Data collection: *Through online survey using google form software. Three questionnaires were used as the instruments for data collection. Data was collected for a period of three months, from 15th March 2020 to 15th June 2020. Data was transferred from the google form software to the Statistical Product and Service Solutions (SPSS) version 25 for analysis and testing the association between the variables using Fisher's Exact Test at 95% Confidence Interval (CI).*
Result:*Most of the respondents (89.5%) had very high challenges. Majority of the coping strategies were at low to moderate levels (35.7% and 37.1%) respectively. Most (27.3%) had very low resilience. The challenges, coping strategies and resilience were not significantly associated with age categories, professions, educational qualifications and years of experience (P > 0.05) respectively, except coping strategies and years of experience in which there was significant association, P < 0.05.*
Conclusion: *The existence of challenges among thehealth care workers during the COVID-19 pandemic was high. It affected their coping strategies and resilience.*
Key words: *Challenges, Coping, Covid-19,Demographic Variables, Health Workers, Resilience.*

Date of Submission: 15-01-2021 Date of acceptance: 31-01-2021

I. Introduction:

Coronaviruses are a group of viruses of Coronaviridae family, and infects both humans and animals. The human coronaviruses cause mild conditions like common cold, but some cause more severe conditions such as MERS (Middle East Respiratory Syndrome) and SARS (Severe Acute Respiratory Syndrome). However, a new form of corona virus that has not been previously identified in humans emerged in Wuhan, China in December 2019 (WHO, 2020a), and this Corona Virus Disease 2019 (COVID-19) was declared as pandemic by World Health Organization (WHO, 2020b). Gao et al. (2020) opined that the rapid spread ability of COVID-19, its strong contagion, lethality in severe cases, with no specific cure, made it a threat, and poses a challenge to human life and health.

Healthcare workers are at high risk of being infected and at the same time required to work for a long and distressing periods to meet the healthcare requirement in any pandemic period (Zhang et al., 2017). Healthcare workers are at forefront in treating and caring of patients with COVID-19. They are particularly

vulnerable to the infection and potential to spread the virus among colleagues and family members (Huang et al., 2020). The WHO (2020b) asserted that, in this pandemic period of COVID-19, health workers are prone to hazards like pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout, stigma, and physical and psychological violence. This situation drastically raised the need to have safest healthcare delivery ground.

DW Africa (2020) reported lack of protective gear in Africa, which risks the lives of frontline health workers in this period of COVID-19 pandemic. Healthcare workers in various African countries are protesting the poor working conditions, scarcity of Personal Protective Equipment (PPE), and the fear of infection from the Coronavirus. In Zimbabwe, doctors and nurses went on strike over lack of PPEs, such as goggles, protective suits and sanitizer to use while treating patients. Similar situation is found in West Africa's Togo, where several doctors and nurses contracted the virus due to having contact with COVID-19 patients. The same situation is also found in Nigeria and Kenya (DW Africa, 2020). The World Health Organization has warned of 10 million cases on the continent within three to six months (The guardian, 2020).

The first official case of COVID-19 in Nigeria was announced On Feb 27, 2020. This is followed by another victim from Ogun state who was discovered to have had contact with the first patient. Since then, the situation escalates with more cases occurring (Kalu, 2020), affecting nearly all the 36 states and Federal Capital Territory (FCT). Report had it that, as of April, 2020, four members of the Kano government's Covid-19 taskforce, including the co-chair, have already reportedly contracted the virus (The guardian, 2020). According to the report by the DW Africa correspondents as of May 6th 2020, ten medical professionals have already been infected with COVID-19 in one of Nigeria's largest states, Kano (DW Africa, 2020). However, according to the Nigeria Center for Disease Control (NCDC, 2020), as of May 15, 2020, there were 288 new confirmed cases, 3 deaths were recorded, and there were total of 5445 confirmed cases, 1320 discharged and 171 deaths in 34 states and the Federal Capital Territory. Within the same period, the NCDC reported Kebbi state to have 31 confirmed cases, out of which 16 were on admission, 11 discharged cases and 4 death.

The covid-19 pandemic has the potentiality of causing unprecedented situations to healthcare workers in making difficult decisions. These may include balancing their own healthcare needs with those of patients, and how to provide care for all severely unwell patients with inadequate resources (Greenberg, et al., 2020). Other challenges outlined by US Department of Veterans Affairs (2020) that healthcare workers treating patients with the COVID-19 may likely faced are need to employ strict biosecurity measures, risk of disease transmission, multiple medical and personal demands, and stigma. The situation necessitates the hospitals to think of techniques and methods of tackling these new challenges brought in by the outbreak (Heymann & Shindo, 2020). Nevertheless, the actions taken by those hospitals and even the effectiveness of the actions to cause resilience of healthcare system are under question (The Lancet, 2020; Legido-Quigley, 2020). Resilience, the ability to recover from problematic challenges, and cope normally despite the high level of adversity (Earvolino-Ramirez cited in Yılmaz, 2017), makes healthcare workers overcome difficulties and address issues through embracing difficult working situations and environments (Manzano & Ayala-Calvo, 2012).

In Nigeria, and according to UNICEF (2020) coping with COVID-19 with about 200 million people and a healthcare system that is overstretched and lacks almost everything - from staff to equipment poses a particular challenge; and healthcare workers are at the front line of response, as elsewhere. However, there are lack of studies on demographic characteristics of healthcare workers mostly affected with Covid19 challenges, poor coping strategies and low resilience for helping the situation. This study therefore, was aimed at studying the association of demographic variables among healthcare workers and Covid-19 pandemic challenges, coping strategies and resilience.

1.2: Objectives of the study

The main objectives of this study was to investigate the association of demographic variables of health workers and covid-19 pandemic challenges, coping strategies and resilience among healthcare workers in Kebbi state, Nigeria.

1.3: Specific objectives

1. To assess the Covid-19 pandemic challenges among healthcare workers
2. To find out the level of coping strategies of healthcare workers in Covid-19 pandemic
3. To examine the resilience state of health care workers in Covid-19 pandemic
4. To find out association of Covid-19 challenges, coping strategies and resilience with demographic variables among healthcare workers.

II. Materials And Method:

Study design: The study was descriptive cross-sectional survey.

2.1: ***Study Variables***

Investigated the association of Covid-19 challenges, coping strategy and resilience with demographic variables among healthcare workers in Kebbi state, Nigeria.

Research setting/location

Kebbi State is one of the seven state of Northwestern Nigeria. The state was created in 1991 from the southwestern part of Sokoto state. It borders Niger republic to the west and Benin republic to the southwest, Nigerian states of Sokoto and Zamfara to the north and east and Niger to the south. The major ethnic groups in the state include the Fulani, Hausa, Dakarki (Dakarawa), and Kamberi. Most of the population is Muslim. Kebbi State comprises of 21 Local Government Areas and 4 Emirates Councils each under a first class Emir. Kebbi State has lot of hospitals comprising of Primary health care facilities, Secondary and Tertiary hospitals which are strategically located to serve the populace accordingly. During the COVID-19 pandemic, these hospitals continued to receive a large turnout of patients.

Sample and sampling procedure

A combination of consecutive sampling and convenient sampling were used as sampling procedures for the study. This is done through an online survey in which different groups of Kebbi state HCWs were contacted for the study; and data were collected for the period of three months, from 15th March 2020 to 15th June 2020. One hundred and fourty three health care workers participate in the study. They were employees to Kebbi State Government, working in the various secondary and tertiary health facilities in the state.

Instruments for data collection

Three questionnaires were used as instruments for data collection. A 20 item unstructured, researcher constructed, 5 option Likert scale "Covid-19 Pandemic Healthcare Workers Challenges Assessment Questionnaire" was used to assess the adequacy of the solutions to challenges facing HCWs in their respective health institutions. The scoring method used for this questionnaire was 1=not available at all, 2=not adequate, 3=somehow adequate, 4=adequate, 5=very adequate. The validity of the questionnaire was ascertained using face and content validity. The questionnaire was found to have the reliability of 0.94 using Cronbach's alpha. The measuring scale used to analysed the questionnaire was ≤ 3.00 = very high challenge, 3.01 - 3.50 = high challenge, 3.51 - 4.00 = moderate challenge, 4.01 - 4.50 = low challenge, and 4.51 – 5.00 = very low challenge.

The "Covid-19 Pandemic Challenges Coping Strategies Questionnaire", a 4 option Likert scale adapted and modified Brief-COPE self-report questionnaire (Carver, 1997; Carver et al., 1989; Eisenberg et al., 2012). It was used as 25 item questionnaire to assess the coping strategies of the respondents. The scoring method used for this questionnaire was 1=I haven't been doing this at all, 2=a little bit, 3=a medium amount, 4=I've been doing this a lot. The validity of the questionnaire was ascertained using face and content validity. It was found to have the reliability of 0.79 using Cronbach's alpha. The measuring scale used for the questionnaire was ≤ 2.00 = very low Coping Strategies, 2.01 - 2.50 = low Coping Strategies, 2.51 - 3.00 = moderate Coping Strategies, 3.01 - 3.50 = high Coping Strategies, and 3.51 – 4.00 = very high Coping Strategies.

The Connor-Davidson Resilience Scale is a 5 option Likert scale adapted questionnaire from Gonzalez e al., (2015). The CD-RISC-10 version was selected due to its suitability with this study. The scoring used for this questionnaire was 0=not true at all, 1=rarely true, 2 =sometimes true, 3=often true, 4=True nearly all the time. The measuring scale used for the questionnaire was ≤ 2.00 = very low resilience, 2.01 - 2.50 = low resilience, 2.51 - 3.00 = moderate resilience, 3.01 - 3.50 = high resilience, and 3.51 – 4.00 = very high resilience.

The instruments wereadapted structured questionnaires modified by the investigators after extensive literature review and expert consultation. The instruments had the reliability of 0.94,0.79 and 0.82 using Cronbach's alpha.The questionnaire asked for theparticipants' demographic data; including age, gender, professional status, educational qualification and years of experience. It also sought for the challenges, coping strategies and resilience among the workers. The structured questionnaires were filled by respondents who met the inclusion criteria.

Inclusion criteria

These comprised of medical doctors, nurses, laboratory scientists, pharmacists and community health workers working in various hospitals in the State during the CVID-19 pandemic.

Exclusion criteria

Health care workers on study leave, sick leave, annual leave, maternity leave and other forms of leaves, or those on secondment to non-clinical sector during this period of Covid-19 pandemic were not included among the subjects of study.

2.2: *Statistical Analysis*

Data was collected through an online survey using google form software.Data was transferred from the google form software to the Statistical Product and Service Solutions (SPSS) version 25 for analysis and testing the association between the variables using Fisher's Exact Test at 95% Confidence Interval (CI).Descriptive statistics results were presented in frequencies and percentages table.

2.3: Ethical Approval :

Ethical approval for this research was received from the Ministry of Health, Kebbi State Health Research Ethics Committee KSHREC, and the registration Number is: 105: 19/2020. An informed consent form was sent to participants providing information on the essence of the study and seeking the respondents' consent to participate in the study. The researchers adhered to the ethical principles that guide the study which are the principles of informed consent, respect for persons, beneficence, non-maleficence, and justice. These ensued voluntary participation by respondents and also ensured that respondents were aware of confidentiality and anonymity. Confidentiality was maintained by not giving out participant's information obtained during the study. There was no provision for the participants to write their names or endorse with any identifier. Participants were made to know that they are free to withdraw their consent at any time and end their participation in the research without any fear of retribution.

III. Results:

Table 1 showed that majority of the respondents (28.0%) were within 31-35 years of age.The percentage of male and female respondents were nearly equal, 51.0 % and 49.0% respectively. Most respondents (60.8%) were nurses. The holders of BSc/BNSc educational level were the highest(47.6). Majority (32.9%) had 1-5 year of experience.

Table 2 showed that most of the respondents (89.5%) had very high challenges. Majority of the coping strategies were at low to moderate levels (35.7% and 37.1%) respectively. Most (27.3%) had very low resilience.

Table 3 showed that the healthcare workers covid-19 pandemic challenges, coping strategies and resilience were not significantly associated with respondents' age categories, professions, educational qualifications and years of experience ($P > 0.05$) respectively, except coping strategies and years of experience in which there was significant association, $P < 0.05$.

IV. Discussion

4.1: Discussion

The results indicates that majority of the respondents were less than 40 years , and therefore within their productive age. It is expected that they highly contribute in providing active healthcare during the Covid-19 pandemic. However, and as expected, the result revealed most of the respondents were nurses, probably because nurses form majority of HCWs owing to nature of their duties of patients care throughout the patients stay in hospital. The CHEWs and CHOs were least among different professionals. This is not surprising because community health workers are usually working in primary health centers (PHCs), and this study had not covered the PHCs. It is worth mentioning that few respondents were found to be non-graduate. Thus, graduates HCWs dominated the secondary and tertiary healthcare centers in kebbi state. It was found that majority of the respondents were having 10 or below 10 year of experience. This correspond with the finding of this study that majority of the respondents were youth.

The result of this study revealed that HCWs suffer very high challenges in their place of practice. It shows inadequate resources such as PPEs to practice in the period of Covid-19 pandemic in secondary and tertiary hospitals. This finding is contrary to the finding of a research conducted in south-south Nigeria to assess the Knowledge, Attitudes and Fears of HCWs towards the Covid-19 Pandemic and found that 78% of the respondents strongly agree that Work place safety is adequate (Ogolodom, et al., 2020). Finding from this study also indicated that the HCWs were having low to moderate coping strategies level. This is contrary to a study conducted in Saudi Arabia to assess the HCWs Emotions, Perceived Stressors and Coping Strategies during a MERS-CoV Outbreak, where it was revealed that the mean scores of different strategies ranges from 0.68 - 2.82 (maximum 3). Six out of 13 strategies were having the mean above 2.0, and 5 strategies were having the mean less than 1.5 (Khalid et al., 2016). Resilience is very vital for HCWs to practice in period of infectious disease pandemic. However, unexpectedly, it is shown that most of the respondents of this study were having very low

to moderate resilience. But this finding is contrary to a research conducted by Lin et al. (2020) to study the factors influencing resilience of medical workers from other provinces to Wuhan fighting against 2019 novel coronavirus pneumonia, it was found that generally, participants showed a high level of resilience.

There was lack of statistical significant association between respondents' age, and their covid-19 pandemic challenges, coping strategies and resilience respectively. This means that statistically healthcare workers equally suffered from covid-19 pandemic challenges, have the same coping strategies and same level of resilience in the period of covid-19 practice. Contrary to this finding, a study in Pakistan by Salman et al. (2020) found that nurses hadsignificantly higher coping style scores than doctors. There was no statistical significant association between respondents' profession and their covid-19 pandemic challenges, coping strategies and resilience respectively. Therefore all the professions statistically have same challenges, coping strategies and resilience levels in the covid-19 pandemic period. However, a study in Wuhan, China, on factors influencing resilience of medical workers from other provinces to Wuhan fighting against 2019 novel Coronavirus pneumonia; the results revealed significant differences in the resilience for occupation (Lin et al., 2020).

Also, there was no statistical significant association between respondents' educational qualification and their covid-19 pandemic challenges, coping strategies and resilience respectively. Thus, educational qualification had no influence on level of covid-19 pandemic challenges, coping strategies and resilience among HCWs in the period of covid-19 pandemic. In contrary, the study in Wuhan, China, found significant differences in the resilience for education (Lin et al., 2020). On the aspect of years of experience, there was no statistical significant association between respondents' years of experience and their challenges and resilience respectively. However, there was statistical significant association between respondents' years of experience and their coping strategy. Statistically therefore, challenges and resilience of HCWs in the period of covid-19 pandemic were not associated with their years of experience. But coping strategy was associated with years of experience statistically.

4.1 Strengths and Limitations of the study

Strength: This study is the first to be carried out in the State on COVID-19 and similar studies are not found in Nigeria. It will help to understand the condition of services of health workers during the COVID-19 pandemic and make necessary amendments to prevent spread of the infection.

Limitation: The proposed sample was not attained as respondents were not willing to fill the questionnaire. Need to encourage health workers in this part of the country to develop positive attitude towards research.

CONCLUSION AND IMPLICATIONS FOR TRANSLATION

HCWs faced high challenges during practice in this period of Covid-19 pandemic. These include inadequate resources for prevention like PPEs, lack of adequate training, as well as deficient support and counseling. Low coping strategies and low resilience were observed among HCWs. The challenges experienced, the low coping strategies and low resilience among HCWs were found across all the variables (age, profession, educational level and years of experience) with statistically equal strength except coping strategies that shows association with years of experience. It is therefore important for policy makers and hospitals management to provide adequate protection equipments for health workers Covid-19.

Implication for practice: The existence ofchallenges to health care workers during the COVID-19 pandemic was high. It affected their coping strategies and resilience. Tackling the challenges, improving coping strategies and resilience among the health care workers will improve quality care for patients during the COVID-19 pandemic. Similar study should be carried out in other States in Nigeria for better generalization if results.

Key words: Challenges, Coping, Covid-19,Demographic Variables, Health Workers, Resilience.

Conflicts of Interest: [No conflict of interest exist]

Financial Disclosure: [Authors have no financial support. Been for over 6 months without salary, now 3 months thus limited in finance]

Funding/Support: [Had no sources of funding / sponsors for this study]

Ethics Approval: [Ethical approval for this research was received from the Ministry of Health, Kebbi State Health Research Ethics Committee KSHREC, and the registration Number is: 105: 19/2020. An informed consent form was sent to participants providing information on the essence of the study and seeking the respondents' consent to participate in the study. The researchers adhered to the ethical principles that guide the study which are the principles of informed consent, respect for persons, beneficence, non-maleficence, and justice]

Acknowledgements: [I acknowledge Prof C.S. Lukong for his cooperation towards this study despite the COVID-Pandemic and other odds]

Disclaimer: [Non]

Key Messages

- [We are from a low resource country (Nigeria). Wish to know if there is room for Waiver of fee as we do not have any funding/sponsor for thing research. The research was carried out due to the authors inquisitiveness about the rising cases of COVID-19. Thank you in advance]

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TABLES

3.1:*Sociodemographic Characteristics* **N=143**

Variable	Frequency	Percentage
Age		
16 – 20	1	0.7
21-25	9	6.3
26-30	38	26.6
31-35	40	28.0
36-40	22	15.4
>40	33	23.1
Gender		
Male	73	51.0
Female	70	49.0
Profession		
CHEW	1	0.7
CHO	1	0.7
Medical Doctors	25	17.5
Lab. Scientist	13	9.1
Nurse	87	60.8
Pharmacist	16	11.2
Educational Qualification		
Diploma	41	28.7
BSc/BNSc	68	47.6
MBBS	22	15.4
MSc	9	6.3
PhD	3	2.1
Years of experience		
1-5	47	32.9
6-10	45	31.5
11-15	21	14.7
16-20	6	4.2
21-25	3	2.1
26-30	10	7.0
>30	11	7.7

3.2: Covid-19 Challenges, Coping strategies and Resilience of Healthcare Workers N=143

Variable	Frequency	Percentage
Challenges		
Very Low	1	0.7
Low	1	0.7
Moderate	2	1.4
High	11	7.7
Very high	128	89.5
Coping strategies		
Very Low	22	15.4
Low	51	35.7
Moderate	53	37.1
High	15	10.5
Very high	2	1.4
Resilience		
Very low	39	27.3

Low	28	19.6
Moderate	33	23.1
High	26	18.2
Very high	17	11.9

3.3: Association between Covid-19 challenges, coping strategies and resilience of healthcare workers and their demographic variables. N=143

Variable	Age (Years)	Profession	Educational qualification	Years of Experience
	χ^2 (df), P	χ^2 (df), P	χ^2 (df), P	
Challenges	24.79(20)0.64	36.17(20)0.24	24.81(16)0.08	29.29(24)0.43
Coping strategies	10.46(20)0.49	25.06(20)0.25	21.69(16)0.07	39.49(24)0.01
Resilience	13.97(20)0.92	26.31(20)0.08	11.30(16)0.76	30.21(24)0.07

Fisher's Exact Test (Monte Carlo) at 95% CI

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