Risk Perception and Precautionary Behaviour Against Covid-19 Pandemic among Health Workers in Calabar, Nigeria

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Abstract

This study aimed at assessing risk perception and precautionary behaviour against COVID-19 pandemic among health workers. Through descriptive cross-sectional survey, 400 respondents were conveniently sampled to elicit data using respondent's self-administered questionnaire designed by the researchers. Data collection which spanned through two months were collected, cleaned, sorted, coded, inputted and analyzed using SPSS version 20 software. Association between risk perception and precautionary behaviour was tested using Chi-square statistics significant at 95% confidence level. Results were presented in descriptive and inferential statistics. Risk perception and the feeling of being very susceptible to contracting COVID-19 was high 382 (95.5%). This created a spike in improved and positive precautionary behaviour 398 (99.5%) by strict adherence to consistent use of Personal Protective Equipments (PPEs) amidst the COVID-19 pandemic. To majority 339 (84.8%), the frequently use of PPEs was to prevent COVID-19 and other hospital-related diseases while for some 312 (78.0%), the consistent use of PPEs has been habitual. The study found a significant association between risk perception and precautionary behaviour of healthcare workers against COVID-19 pandemic ($P < 0.001$; df = 1; Chi-square = 11.280). There is need for healthcare workers to continue in the habit of always being conscious in the use of their PPEs even after the COVID-19 pandemic. This is because, there are still and may still be re-emerging diseases that needs to be prevented. Therefore, there is need for healthcare workers to always be proactive and be at alert at all times because the healthcare setting is like a war front for all manner of diseases where the first attack or target is the healthcare worker.

Keywords: *Risk perception, Precautionary behaviour, COVID-19, Pandemic, Health workers.*

Introduction

The same way perception influences people's actions and behaviour in all spheres of life is also the same way risk perception influenced precautionary behaviour against COVID-19 pandemic among healthcare workers.

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A study by group of Nigerian researchers documented that perception and knowledge about the COVID-19 has brought about a positive shift in practice.[1] When people perceive the risk of contracting a disease or risk of being susceptible to a disease, they tend to take precautionary measures and responsibility. Perception by concept is the process of identifying (awareness), organizing (gathering and storing), and interpreting (binding to knowledge) sensory information which deals with the human senses that generate signals from the environment through sight, hearing, touch, smell and taste. The understanding that, any slack in taking precautionary measures like constant washing of hands with soap and water, use of hand sanitizers and consistent/proper use of all the Personal Protective Equipments such as face

mask, face shield, hand gloves, and other body gears may make healthcare workers susceptible to contracting COVID-19 has triggered better behaviour among health teams.

Due to COVID-19 cosmopolitan nature, Nigeria is prone to its outbreak if stringent public health measures are not put in place.[2] These emphasize the need to have well equipped diagnostic laboratories, trained diagnosticians and public health measures to forestall the occurrence of COVID-19 epidemic in Nigeria. Adequate knowledge of the novel COVID-19 has aggravated this consciousness and adherence to the guidelines towards it prevention among healthcare practitioners. A very recent survey-based study by team of researchers on assessment of knowledge, practice and guidelines towards the novel COVID-19 among eye care practitioners in Nigeria, has found knowledge of the virus to trigger risk perception and encourage adherence to precautionary measures and better bahaviour among eye care practitioners in Nigeria.[3]

The thought of the reality that there is currently no vaccine for COVID-19 really became source of risk perception to healthcare workers and encourages better behavior towards its prevention.[4] The awareness and knowledge of symptoms of COVID-19 which include fever, flu-like symptoms such as a cough, sore throat and fatigue and/or shortness of breath, loss of taste, loss of smell, diarrhea, nausea and vomiting is also a determinant to this risk perception and behaviour change.[5] More so, the knowledge that the risk of death in COVID-19-infected individuals increases with older age, presence of hypertension, diabetes and coronary heart diseases[6] as well contributes to the risk perception and better behaviour among healthcare practitioners on strict adherence to guidelines towards the prevention and management of COVID-19. The alarming, continuous experience in steady increase in the number of confirmed cases and increasing daily infection (not less than 138 daily new cases with a total of 53,865)/death rates (1,013 total deaths)[7] are not exemptions as these also spiked the risk perception among healthcare teams and, this has arose the consciousness of better compliance to CIVID-19 guidelines across all health facilities.

The objective of this study was to assess risk perception and precautionary behaviour against COVID-19 pandemic among health workers in Calabar, Nigeria. Appraisal of strict adherence to COVID-19 guidelines and protocols by health workers was also carried out. Evidence from this study will raise consciousness on the need for consistent adherence to the use of PPEs by health workers during and post COVID-19 pandemic. This study, however, stresses the reality that the healthcare setting is a 'war front' for almost all contagious diseases, not just COVID-19 and as such encourages healthcare workers to 24/7 be conscious of protecting themselves, the patient and others from nosocomial infections.

Methodology

Study Design: This study was a descriptive cross-sectional survey.

Study Area: The study was conducted on health workers in healthcare facilities across Calabar Metropolis. These health facilities included government-owned (public) health facilities (teaching hospitals, secondary hospitals and Primary Healthcare Centers-PHCs) and private healthcare facilities in the study area. There are a total of 128 healthcare facilities in the study area (2 tertiary federal health facilities, 20 secondary state health facilities, 18 Primary Healthcare Center-PHCs, 65 health posts, and 44 private-owned healthcare facilities)[8].

Sample size determination: The required sample for the study was determined using a single population proportion formula given as: $n = (Z^2pq)/d^2$

Where:

n = required sample size.

Z = standard normal deviation, estimated at 1.96 at 95% confidence level.

p = proportion of the desired attribute

q = 1-p

d = the acceptable sampling error

$n = (Z^2pq)/d^2 = (1.96^2 \times 0.50 \times 0.50)/(0.05)^2 = 0.9604/0.0025 = 384.16$

To make up for non-response rate of 4% = 15.3664 + 384.16 = 399.5264. Therefore, the total sample size was 400 healthcare workers. In the absence of similar studies and data to give the exact number of healthcare workers in Calabar, the study assumed a proportion of 50% of the population and used a desired precision of 5% and 95% confidence level for a two-sided test. To make up for non-response rate of 4%, the sample size was determined to be 400 respondents, which was adequate to investigate the situation under study.

Data collection and analysis: Respondents were conveniently sampled and respondent's self-

administered questionnaire designed by the researchers was used for data collection. It consisted of 15 items with two sections. Section A collected data on socio-demographic characteristics of respondents while section B elicited data on risk perception of healthcare workers and their behaviour against COVID-19 pandemic. The questionnaire required that respondents provide responses based on how susceptible and how often they carry out some positive health behavours in the course of delivering healthcare. Items were rated 0 and 1 respectively, where 0 implies not doing it often while 1 implies doing it often. The implication of this scale is in the fact that, in measuring behaviour, it is either it is positive or negative, it is either one is doing it right or wrongly, which implies that there is no middle playing ground. Data collection spanned through two months. Collected data were cleaned, sorted, coded, inputted and analyzed using SPSS version 20 software. Hypothesis was tested using Chi-square statistics significant at 95% confidence level. Results are presented using descriptive and inferential statistics.

Results

Demographic profile or respondents: A total of 400 healthcare workers (males, n = 167, 41.8%, females, 233, 58.2%) participated in the study. Most of the respondents (194, 48.5%) were aged 28-37 years, followed by those (115, 28.8%) aged 38-47 years. A greater proportion (116, 29.0%) were nurses followed by Medical Laboratory Scientists (83, 20.8%) and Medical Doctors (60, 15.0%) who came third while the least group of professionals were Public Health (14, 3.5%). Majority had Bachelor's degree (245, 61.3%) as their highest level of education. Most of the healthcare workers (312, 78.0%) were practicing in public (government-owned) health facilities and greater proportion of the respondents (251, 62.8%) were from secondary health facilities.

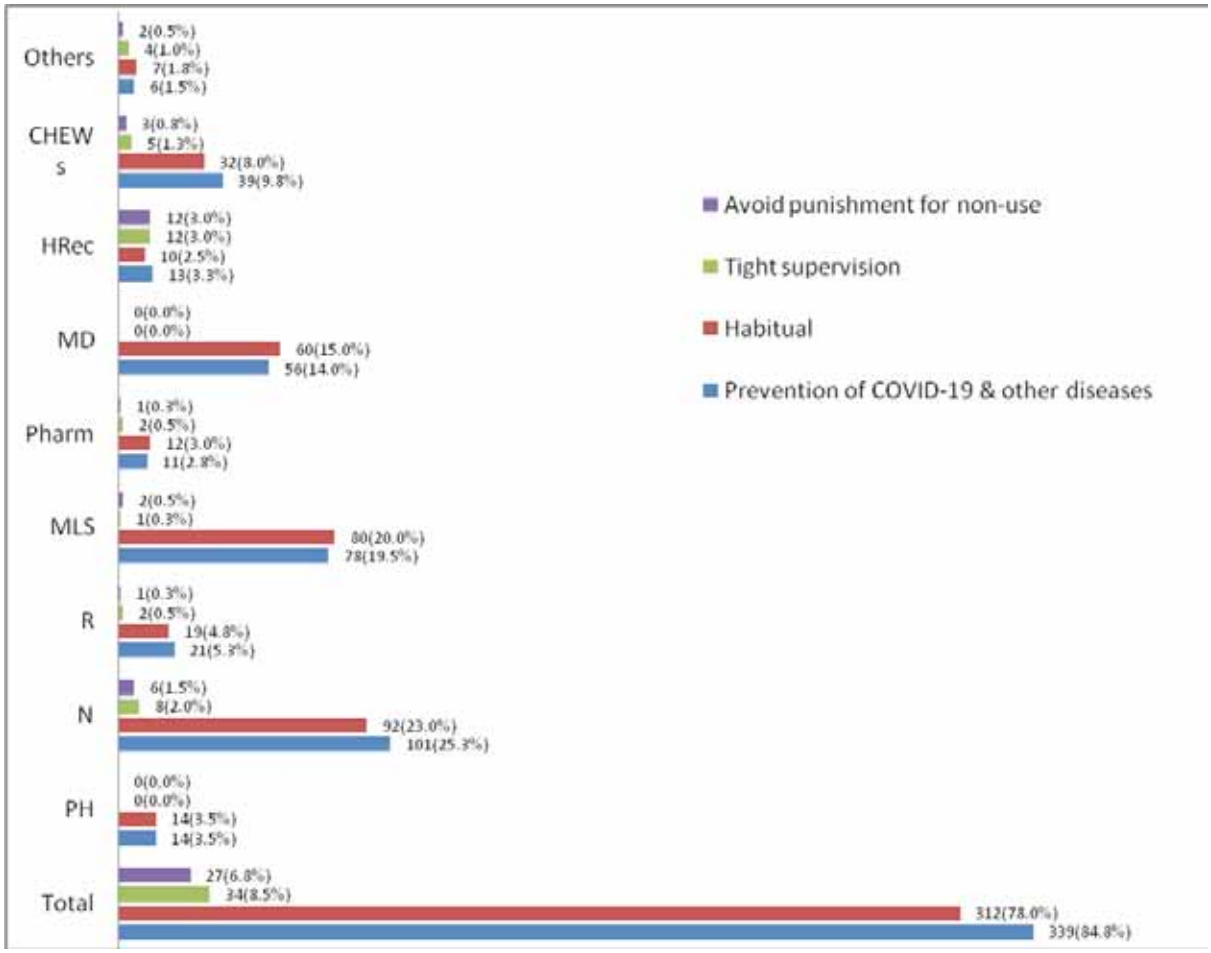
Risk perception of healthcare workers to COVID-19 pandemic: Almost all the respondents 382 (95.5%) have high risk perception and feel very susceptible to contracting COVID-19. A total of 396 (99.0%) healthcare workers feel very susceptible to contracting it from patients while some 218 (54.5%) feel they can contract it from colleagues in the course of their duty. The susceptibility and risk perception was more felt among Nurses 113 (28.3%) followed by Medical Laboratory Scientists 83 (20.8%) but all the Public Health Experts 14 (3.5%) has high risk perception. Details are shown in Table 1.

Table 1: Risk perception of healthcare workers to COVID-19 pandemic (n = 400)

Risk Perception	Total	PH	N	R	MLS	Pharm	MD	HRec	CHEWs	Others
1. Susceptibility of contracting COVID-19										
Very Susceptible	382(95.5)	14(3.5)	113(28.3)	26(6.5)	83(20.8)	20(5.0)	60(15.0)	16(4.0)	40(10.0)	9(2.3)
Not Susceptible	18(4.5)	0(0.0)	3(0.8)	2(0.5)	0(0.0)	4(1.0)	0(0.0)	5(1.3)	0(0.0)	4(1.0)
2. Susceptibility of contracting COVID-19 from patient										
Very Susceptible	396(99.0)	14(3.5)	116(29.0)	28(7.0)	83(20.8)	24(6.0)	60(15.0)	20(5.0)	40(10.0)	10(2.5)
Not Susceptible	4(1.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1(0.3)	0(0.0)	3(0.8)
3. Susceptibility of contracting COVID-19 from colleagues										
Very Susceptible	218(54.5)	13(3.3)	38(9.5)	21(5.3)	60(15.0)	18(4.5)	35(8.8)	10(2.5)	18(4.5)	5(1.3)
Not Susceptible	182(45.5)	1(0.3)	78(19.5)	7(1.8)	23(5.8)	6(1.5)	25(6.3)	11(2.8)	23(5.8)	8(2.0)
4. Susceptibility of patients and other colleagues contracting COVID-19 from asymptomatic healthcare workers										
Very Susceptible	247(61.8)	14(3.5)	53(13.3)	23(5.8)	40(10.0)	12(3.0)	45(11.3)	18(4.5)	30(7.5)	12(3.0)
Not Susceptible	153(38.2)	0(0.0)	63(15.8)	5(1.3)	43(10.8)	12(3.0)	15(3.8)	3(0.8)	11(2.8)	1(0.3)
5. Susceptibility of family and friends contracting COVID-19 by coming in contact with an asymptomatic health worker										
Very Susceptible	312(78.0)	14(3.5)	92(23.0)	24(6.0)	67(16.8)	16(4.0)	42(10.5)	6(1.5)	40(10.0)	11(2.8)
Not Susceptible	88(22.0)	0(0.0)	24(6.0)	4(1.0)	16(4.0)	8(2.0)	18(4.5)	15(3.8)	1(0.3)	2(0.5)

Figures in parenthesis represent percentages (%); PH=Public Health; N=Nurses; R=Radiographers/Radiologists; MLS=Medical Laboratory Scientists; MD=Medical Doctors; HRec=Health Recorders; CHEWs=Community Health Extension Workers.

Precautionary behaviours of healthcare workers against COVID-19 pandemic: Almost all the healthcare workers 398 (99.5%) adhere strictly to consistent use of their Personal Protective Equipments (PPEs) amidst the COVID-19 pandemic (Table 2). The data in Figure 1 shows that majority of the respondents 339 (84.8%) frequently use their PPEs to protect themselves from contracting COVID-19 and other hospital-related diseases while for some of the workers 312 (78.0%), the consistent use of PPEs has been a habit to them. The data in Table 2 shows a high consistent use of face masks and/or face shield by healthcare workers 396 (99.0%) and there is also a good proportion of respondents 329 (82.2%) who are all the time consistent in washing of hands with soap and water before and after attending to patients.



*Respondents gave multiple responses.

Figure 1: Healthcare workers' reasons for consistent use of Personal Protective Equipment (PPEs).

Table 2: Precautionary behaviours of healthcare workers against COVID-19 pandemic (n = 400)

Precautionary behaviour	Total	PH	N	R	MLS	Pharm	MD	HRec	CHEWs	Others
1. Consistent use of PPEs										
Consistent/all the time	398(99.5)	14(3.5)	115(28.7)	26(7.0)	83(20.8)	20(5.0)	60(15.0)	20(5.0)	41(10.3)	9(3.3)
Not consistent	2(0.5)	0(0.0)	1(0.3)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1(0.3)	0(0.0)	0(0.0)
2. Consistent use of face mask or shields										
Consistent/all the time	396(99.0)	14(3.5)	112(28.0)	28(6.5)	80(20.0)	20(5.0)	60(15.0)	20(5.0)	38(9.5)	10(2.5)
Not consistent	20(5.0)	0(0.0)	4(1.0)	2(0.5)	3(0.8)	4(1.0)	0(0.0)	1(0.3)	3(0.8)	3(0.8)

Precautionary behaviour	Total	PH	N	R	MLS	Pharm	MD	HRec	CHEWs	Others
3. Consistent use of hand sanitizers										
Consistent/all the time	306(76.5)	10(2.5)	110(27.5)	23(5.8)	63(15.8)	18(4.5)	58(14.5)	20(5.0)	40(10.0)	5(1.3)
Not consistent	94(23.5)	4(1.0)	56(14.0)	5(1.3)	20(5.0)	6(1.5)	2(0.5)	1(0.3)	1(0.3)	1(0.3)
4. Consistent washing of hands with soap and water (before/after attending to patient)										
Consistent/all the time	329(82.2)	11(2.8)	79(19.8)	21(5.3)	66(16.5)	18(4.5)	60(15.0)	20(5.0)	41(10.3)	13(3.3)
Not consistent	71(17.8)	3(0.8)	37(9.3)	7(1.8)	17(4.3)	6(1.5)	0(0.0)	1(0.3)	0(0.0)	0(0.0)
5. Consistent use of hand gloves										
Consistent/all the time	345(86.2)	12(3.0)	107(26.8)	25(6.3)	83(20.8)	12(3.0)	56(14.0)	8(2.0)	35(8.8)	7(1.8)
Not consistent	55(13.8)	2(0.5)	9(2.3)	3(0.8)	0(0.0)	12(3.0)	4(1.0)	13(3.3)	6(1.5)	6(1.5)

Figures in parenthesis are percentages (%); PH=Public Health; N=Nurses; R=Radiographers/Radiologists; MLS=Medical Laboratory Scientists; MD=Medical Doctors; HRec=Health Recorders; CHEWs=Community Health Extension Workers; PPEs=Personal Protective Equipments.

Hypothesis (Ho_1): There is no statistically significant association between risk perception and precautionary behaviour of healthcare workers against COVID-19 pandemic (n = 400). The data in Table 3 shows an increase in the precautionary behaviour of healthcare workers as the risk perception to contracting COVID-19 increases, the more consistent health worker were in the use of Personal Protective Equipments (PPEs) 300 (95.5%). Analysis using Chi-square test showed that the association was statistically significant ($P < 0.001$; df = 1; Chi-square = 11.280). The null hypothesis was therefore rejected and then concluded that there is statistically significant association between risk perception and precautionary behaviour of healthcare workers against COVID-19 pandemic (Table 3).

Table 3: Association between risk perception and precautionary behaviour of healthcare workers against COVID-19 pandemic (n = 400).

Test variables Risk perception to COVID-19	Precautionary behaviour		Chi-square	P-value
	Consistent use of PPEs	Not consistent		
Very susceptible to COVID-19	300 (95.5)	82 (89.5)		
Not susceptible to COVID-19	8 (4.5)	10 (10.5)	11.280	<0.001*

Figures in parenthesis represent percentages, *Statistical significance based on P-value < 0.05; df = 1; Critical value = 3.841

Discussion

This is a study that investigates the risk perception of healthcare workers to COVID-19 pandemic and the precautionary behaviour it triggers. This study found that there is a high risk perception of contracting COVID-19 among healthcare working in the course of delivering healthcare. This high risk perception could be attributed to the fact that healthcare workers are at the forefront of delivering care to patients at this period that may or not show signs/symptoms similar to COVID-19. This makes healthcare workers more susceptible to contracting the virus. This is in line with a current Nigerian study where healthcare workers were very much certain that COVID-19 has changed their way they practice amidst the pandemic.[3] This to some extent has mental and psychological underpinning that triggered carefulness in the course of providing healthcare in a very recent study.[9] This same similar risk perception in a very current study in Calabar Metropolis triggered nosophobia and hypochondriasis among respondents.[10] Similarly, a team of researchers also found that healthcare workers had high risk perception of contracting COVID-19 in the course of delivering healthcare.[11]

This study found a positive precautionary behaviour among healthcare workers. This could be attributed to the risk perception of contracting COVID-19. This

justifies that fact that when people perceive harm they tend to find precautionary measures. Several independent novel studies by team of researchers have found a similar finding in line with this study where the fear of contracting the novel virus has triggered positive attitude and behaviour not just among the general public but also among health teams especially among frontline healthcare workers.[10,11] This positive precautionary behaviour is reflected in the consistent use of hand sanitizers, face masks, face shield, and washing of hands with soap and water among others.[12]

The significant association found between risk perception and precautionary behaviour of healthcare workers against COVID-19 pandemic can be attributed to the reality that perceived susceptibility, perceived severity, perceived risk, perceived barriers, and cues to action can trigger positive behaviour. This association was also found in similar studies by different team of researchers on the perception of COVID-19 and attitude/practice of people towards its prevention across the world especially in Africa and Nigeria in Particular.[10,11,12] The test of this hypothesis being significant is very apt in that, the health care worker knowing that he/she is a forefront worker protects his/herself by adhering to COVID-19 protocols despite the discomfort associated with the use of the PPEs. However, this was a similar fact documented by researchers in an Indian study on healthcare workers.[13]

Conclusion

This study documents that there is a link between risk perception and adopting precautionary behaviour. In the midst of COVID-19, healthcare workers in Calabar Metropolis had high risk perception of contracting COVID-19 in the course of providing healthcare and as such have improved their adherence to positive behaviour of frequent use of their PPEs and other non-pharmaceutical approaches for the prevention of COVID-19. However, there was an encouraging precautionary behaviour among all the myriads of healthcare workers who partook in the study. There is need for healthcare workers to continue in the habit of always being conscious in the use of their PPEs even after the COVID-19 pandemic. This is because, there are still and may still be re-emerging diseases that needs to be prevented. Therefore, there is need for healthcare workers to always be proactive and be at alert at all times because the healthcare setting is like a war front for all manner of diseases where the first attack or target is the healthcare worker. The researchers are not ignorant of the fact that this study could be limited in that the sample size is small and may not allow for generalization, choice of methodology, study area/setting and time of the study. Therefore, the researchers suggest that this study can be replicated with a larger sample size, different or similar methodology, study area/setting and time to allow for generalization and authentication of this study finding.

Acknowledgement: The researchers are appreciates the efforts and pains taken time of all the healthcare workers that partook in the study. They appreciate their consent to participate in the study and appreciate the consent given by the various Departmental and Unit heads to allow for data collection. The effort of the research assistants is also appreciated by the researchers.

Ethical Clearance: Taken from State Research Ethics Committee and the study was done in accordance with the Declaration of Helsinki. No harm was done to the respondents, their autonomy and confidentiality was ensured. Written and verbal informed consents were obtained from all the heads of healthcare facilities, departments and units as well as from respondents before commencement of data collection.

Source of Funding: Self (authors)

Conflict of Interest: Nil

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