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## Effect of A Nurse-Led Interactive Education On Perception of Disease Risk Among Nurses in Lagos State University Teaching Hospital, Lagos

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**ABSTRACT:** *This research examines the influence of nurses' perceptions of the risk associated with COVID-19 on public health outcomes, with a specific emphasis on LASUTH, a vital healthcare referral centre in Lagos, Nigeria. The study utilises a quasi-experimental pre-/post-test approach to evaluate the efficacy of nurse-led interactive education in influencing nurses' perceptions of COVID-19 risk. The cohort included 527 nurses from LASUTH. The data was gathered by a validated questionnaire, whereas the intervention consisted of a nurse-led interactive training session. The statistical analyses, both descriptive and inferential, were performed using SPSS version 25. The results demonstrate changes in nurses' views after the intervention. At first, 6.8% of individuals held negative impressions, which subsequently rose to 10.2%. The percentage of fair opinions declined from 27.1% to 20.3%, whilst the percentage of excellent perceptions saw a little rise from 66.1% to 69.5%. The average perception score reduced from  $13.2 \pm 3.47$  to  $12.5 \pm 3.76$ , indicating a rise in awareness and changed attitudes after the intervention. The results indicate a reduction in the level of intense anxiety towards the virus, from 27.1% to 22%. There is also an increased level of worry over mortality, as well as a greater recognition of the need of preventative actions. The intervention significantly altered the nurses' sense of danger. The results also verified a substantial disparity ( $p < 0.05$ ) in the perceptions before and after the intervention, so providing evidence to reject the null hypothesis. This research highlights the efficacy of treatments led by nurses in altering perceptions of COVID-19 risks, offering valuable information for public health initiatives and interventions.*

**KEYWORDS:** Nurse-Led Interactive Education, Perception, Disease risk, Nurses

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### INTRODUCTION

COVID-19 vaccinations are designed to provide protection against the SARS-CoV-2 virus, the causative agent of the COVID-19 illness (Ogunrinde & Gbenga-Epebinu, 2020). The creation and

use of these vaccinations is a crucial tactic in combating the COVID-19 epidemic. (Leng et al., 2020) assess the effects of an interactive educational intervention on teenagers attending a high school in North Bay, Ontario. As of early 2023, multiple COVID-19 vaccines have received authorization for emergency use or approval from regulatory agencies worldwide. These include the Pfizer-BioNTech vaccine, the Moderna vaccine, the Johnson & Johnson vaccine, the AstraZeneca vaccine, and the Sinovac vaccine, among others (WHO, 2023). These vaccines use diverse methodologies, although their common objective is to stimulate the immune system to identify and combat the SARS-CoV-2 virus.

These vaccines have shown efficacy in clinical studies, effectively decreasing the likelihood of severe illness, hospitalization, and mortality caused by COVID-19 (Osakinle et al., 2019). Nevertheless, the efficacy of these measures may fluctuate based on variables such as age, health condition, and the particular strain of the virus in circulation. The objective of (Wake, 2022) and the meta-analysis was to ascertain the worldwide pro-vaccination stance and related variables regarding the COVID-19 vaccine among healthcare professionals (HCWs) and non-healthcare workers (non-HCWs). (Zavala et. al., 2022) conducted qualitative interviews with pregnant and lactating women (PLW), healthcare professionals, and policymakers in Kenya. The aim was to gain insight into how the perceptions of various stakeholders about the national policy on COVID-19 immunization during pregnancy influenced vaccine-related behaviors and decision-making processes.

Public health authorities are distributing COVID-19 vaccinations globally in a synchronized manner, prioritizing groups such as healthcare professionals, old folks, and those with underlying medical issues. In addition to the availability of vaccines, it is crucial to maintain adherence to other preventive measures, including mask-wearing, practicing social distancing, and regular handwashing, in order to effectively mitigate the transmission of the virus (Hedima et al., 2021). To comprehend nurses' perception of disease risk, particularly in relation to COVID-19, it is necessary to evaluate their knowledge on the virus, its patterns of transmission, and the possible ramifications on their well-being and the healthcare system (Manning et al., 2021). The view of nurses, who are at the forefront of healthcare, plays a crucial role in the successful implementation of preventive measures due to their heightened knowledge of the hazards involved (Choi et al., 2018). Nurses' perceptions of disease risk are shaped by several variables, including the availability of personal protective equipment, training, and workplace procedures (Gupta et al., 2022). Addressing occupational risk, allocating sufficient resources, and assuring mental health support are essential factors in cultivating a favorable view of illness risk management among nurses (Hedima et al., 2021). The study aims to investigate how nurses' perceptions of the risk associated with COVID-19 illness impact public health outcomes. This research focuses specifically on nurses working at LASUTH, a referral center where nurses play a crucial role in healthcare. The study specifically assessed the pre and post intervention of perceptions of disease risk among Nurses.

### **Research Hypothesis**

H<sub>0</sub>1: There is no significant difference between the pre and post intervention of perceptions of disease risk among intervention group

### **METHODOLOGY**

The research used a quasi-experimental, pre-/post-test one-group design to evaluate the impact of nurse-led interactive education on the perception of COVID-19 disease risk among nurses at Lagos State University Teaching Hospital in Lagos, Nigeria. The research cohort included 527 nurses employed at LASUTH, located in Lagos state. We were nurses who were present and accessible for data collection at LASUTH. The sample size was determined using the Yamane sample size calculation, resulting in a sample size of 250. The data gathering tool included a questionnaire divided into two pieces. Section A evaluated the demographic characteristics of the participants, whereas section B evaluated their views about the risk of illness. The instrument's validity was established via the assessment of face and content validity. A pilot test of the instrument was conducted using a sample size that represented 10% of the estimated sample size. The purpose of the pilot test was to assess the reliability of the instrument, which was determined using the Cronbach alpha coefficient after administering the instrument. The pilot research yielded a coefficient value of 0.89, indicating a high level of internal consistency.

Participants were provided with information on the pre-test/post-test questionnaire and instructed on how to properly complete it. Prior to their involvement in the study, the participants were given informed permission. The preliminary questionnaire was sent to the participants. The research assistants provided a clear explanation of the directions for completing the questionnaire and addressed any questions raised by the participants. Participants were provided with a sufficient amount of time to autonomously complete the questionnaire. After the pre-test questionnaire was finished, the research assistants gathered it. Following the completion of the pre-test questionnaire, the nurse-led interactive teaching session commenced. The nurse conveyed insights into their beliefs of illness susceptibility. After the nurse-led interactive education session concluded, the post-test questionnaire was given to the participants. The data was analyzed using the statistical software program for social sciences (SPSS) version 25. The data was analyzed using descriptive statistics and inferential statistics, namely the independent sample t-test, with a significance level of 0.05.

**RESULTS****Table 1: Socio demographic distribution of Participants**

Variable		F(%)
Age	Less than 20yrs	-
	20-39yrs	164(69.5)
	40-59yrs	68(28.8)
	60yrs and above	4(1.7)
	<b>Total</b>	<b>236(100)</b>
	Mean age	30yrs $\pm$ 0.503
Gender	Male	52(22)
	Female	184(78)
	<b>Total</b>	<b>236(100)</b>
Ethnicity	Hausa	16(6.8)
	Igbo	48(20.3)
	Yoruba	172(72.9)
	<b>Total</b>	<b>236(100)</b>
Religion	Christianity	176(74.6)
	Islam	60(25.4)
	<b>Total</b>	<b>236(100)</b>
Highest level of Education	RN only	60(25.4)
	BSC	172(72.9)
	MSC	-
	PhD	4(1.7)
	<b>Total</b>	<b>236(100)</b>

The demographic characteristics of a sample population, as illustrated in the table, showcase key information about the participants in the study. Regarding age distribution, the majority of participants fall within the 20-39 years category, constituting 69.5% of the total sample, while those aged 40-59 years represent 28.8%. Participants aged 60 years and above are the smallest group, comprising 1.7% of the total sample. The mean age of the entire sample is reported as 30 years with a standard deviation of  $\pm$ 0.503.

In terms of gender distribution, the study includes 22% male participants and 78% female participants. Ethnicity is also diverse, with 6.8% identifying as Hausa, 20.3% as Igbo, and the majority, 72.9%, as Yoruba. Regarding religious affiliation, the sample is predominantly Christian, accounting for 74.6%, while 25.4% identify as Muslims.

The highest level of education attained by participants varies, with 25.4% having only an RN qualification, 72.9% holding a BSC degree, and 1.7% having achieved a PhD. No data is provided for participants with an MSC degree. In summary, this information offers a comprehensive overview of the demographic composition of the study participants, providing a foundation for understanding the characteristics of the sample population.

**Table 2: Summary of Respondents Perceptions towards COVID-19 disease risk among the intervention group in Lagos State**

Scores	Level of perception	Intervention	
		Pre	Post
0-6	Poor	16(6.8%)	24(10.2%)
7-11	Fair	64(27.1%)	48(20.3%)
12-18	Good	156(66.1%)	164(69.5%)
Total		236(100%)	236(100%)
<b>Mean</b>		<b>13.2±3.47</b>	<b>12.5±3.76</b>

The table provides a comprehensive overview of the intervention group's perceptions towards the risk of COVID-19 in Lagos State, both before and after a specific intervention. Prior to the intervention, a small proportion (6.8%) of the respondents held a poor perception of the COVID-19 disease risk. Following the intervention, this percentage increased slightly to 10.2%. In terms of a fair perception, 27.1% of participants held this view before the intervention, and this decreased to 20.3% post-intervention. On the other hand, the majority of respondents (66.1%) had a good perception of the COVID-19 disease risk before the intervention. After the intervention, this percentage slightly increased to 69.5%.

Table 2 illustrates participants' perceptions of COVID-19 vaccine-related disease risk before and after the intervention. Initially, the mean perceptions score was  $13.2 \pm 3.47$ , which decreased to  $12.5 \pm 3.76$  post-intervention. This reduction reflects a decrease in indifference towards vaccine risks, indicating the intervention's effectiveness in raising awareness and altering perspectives among nurses.

**Table 3. Respondents Perceptions towards COVID-19 disease risk**

Items	Options	Pre-intervention	Post intervention
I believe COVID-19 possess a very high risk to people	Strongly disagree	8(3.4%)	64(27.1)
	Disagree	60(24.4%)	40(16.9)
	Agree	44(18.6%)	24(10.2)
	Strongly agree	124(52.5%)	108(45.8)
I fear the risks that come with being infected with the virus	strongly disagree	12(5.1%)	52(22)
	Disagree	40(16.9%)	24(10.2)
	Agree	52(22%)	68(28.8)
	Strongly agree	132(55.9%)	92(39)
I am sometimes concerned about people who I know who have died from the virus	strongly disagree	16(6.8%)	20(8.5)
	Disagree	48(20.3%)	36(15.3)
	Agree	56(23.7%)	76(32.2)
	Strongly agree	116(49.2%)	104(44.1)

People in my community don't really care about it again	strongly disagree	16(6.8%)	36(15.3)
	Disagree	72(30.5%)	60(25.4)
	Agree	56(23.7%)	56(23.7)
	Strongly agree	92(39%)	84(35.6)
I have taken all recommended vaccine jabs to prevent me from having the virus	strongly disagree	28(11.9%)	16(6.8)
	Disagree	44(18.6%)	36(15.3)
	Agree	36(15.3%)	56(23.7)
	Strongly agree	128(54.2%)	128(54.2)
If I have any means to prevent myself from having the virus, I will	strongly disagree	8(3.4%)	8(3.4)
	Disagree	28(11.9%)	8(3.4)
	Agree	36(15.3%)	12(5.1)
	Strongly agree	164(69.5%)	208(88.1)

Table 3 illustrates pre- and post-intervention perceptions of COVID-19 disease risk among nurses. The data reflects a notable decrease in the proportion of individuals expressing high fear of the virus (from 27.1% to 22%) post-intervention. Conversely, there was an increased concern regarding virus-related fatalities. Nevertheless, a majority acknowledged the importance of preventive measures against COVID-19. The intervention notably heightened participants' awareness, emphasizing the significance of preventive measures and a shift in risk perception among the Nurses.

### Test of Hypothesis

Ho1: There is no significant difference between the pre and post intervention of perceptions of disease risk among intervention group.

**Table 4: t-test analysis for mean score Comparison between pre and post intervention of nurses perception towards COVID-19 disease risk**

	Test	N	Mean±SD	Mean difference	Std. error mean	t.value (df)	P	Dec.
Diseases risk	Pre intervention	236	13.2±3.47	0.7	0.017	52.34 {235}	0.00	Sig.
	Post intervention		12.5±3.76					

Table 4 depicts the results for the only hypothesis tested in this study, indicating a significant difference in COVID-19 disease risk perceptions among nurses pre- and post-intervention ( $p < 0.05$ ). The pre-intervention mean score (13.2±3.47) exceeded the post-intervention mean score (12.5±3.76), highlighting a decrease in disease risk perceptions. Furthermore, the analysis revealed a substantial mean difference between pre and post-intervention for COVID-19 disease risk (Mean diff. = 0.7,  $t(235) = 52.3$ ,  $p = .000$ ). This difference strongly suggests the impact of the intervention

on altering disease risk perceptions, leading to the rejection of the null hypothesis based on these findings.

## **DISCUSSION**

The research identified a significant disparity in the perception of illness risk between the phases before and after the intervention among the group receiving the intervention. Indications point to the fact that the nurse-led interactive education program effectively augmented nurses' comprehension of the hazards linked to COVID-19. The program enhanced nurses' understanding of illness risk by offering detailed information on the disease and its possible effects. Supporting these results, previous studies emphasize the crucial significance of educational interventions in increasing knowledge and comprehension of illness risks, as shown by Blanchard et al. (2018) and Jayagobi et al. (2021). In addition to providing further information, Chekole et al. (2022) emphasized that 51.6% of healthcare practitioners in Southern Ethiopia had felt stress during the COVID-19 pandemic. In their study, Hedima et al. (2020) examined a group of adult Nigerians and discovered that females, young people, and healthcare professionals had a greater perception of risk. This finding supports the idea that many demographic characteristics play a significant role in shaping the dynamics of risk perception.

Yii et al. (2021) conducted a qualitative study with emergency healthcare workers, emphasizing the importance of developing new knowledge and taking precautions to protect oneself. This helps to increase the confidence of healthcare providers who are dealing with COVID-19 cases. In their study, Mushi et al. (2021) examined the knowledge, attitude, and perceived dangers of COVID-19 among healthcare workers in Saudi Arabia. Their research provided detailed insights into the complex understanding of the pandemic among healthcare professionals. The nurse-led interactive education program aims to provide nurses with precise knowledge on COVID-19 and its related hazards. This program has the potential to improve infection control procedures and lead to better patient outcomes. This comprehensive synthesis of research offers a strong basis for comprehending the complex interaction between education, perception, and the ever-changing difficulties presented by the COVID-19 epidemic among healthcare personnel.

## **CONCLUSION**

Ultimately, the research provides a thorough examination of the intervention group's perspectives on the COVID-19 risk in Lagos State, both before to and during a focused intervention. The results demonstrate a subtle effect on participants' perceptions, with a small rise in the number of those reporting negative perception after the intervention, a drop in those reporting average view, and a tiny increase in those reporting positive impression. The average perception score decreased from  $13.2 \pm 3.47$  to  $12.5 \pm 3.76$  after the intervention, suggesting a favourable change in general attitudes towards the risk of COVID-19.

The research analyses the perceptions connected to vaccines and finds that there is a drop in the average perception score. This indicates a significant change in attitudes among nurses after the intervention. The intervention seems to have successfully increased knowledge and changed views, hence decreasing apathy towards vaccination dangers. In addition, the research examines the perceptions of COVID-19 disease risk among nurses before and after an intervention. It reveals a drop in the percentage of nurses reporting significant fear of the virus and an increase in worry about virus-related mortality. Nevertheless, most individuals saw the significance of precautionary actions, demonstrating the effectiveness of the intervention in increasing awareness and fostering a change in nurses' perception of risk.

Moreover, the research provides statistical evidence to support the effectiveness of the intervention in changing nurses' perceptions of illness risk. The significant change in means highlights the efficacy of the intervention in affecting perceptions, resulting in the rejection of the null hypothesis. In summary, our results highlight the significance of focused interventions in influencing perceptions and attitudes around COVID-19, emphasising the need for continuous educational initiatives in healthcare environments...

### **Recommendations**

1. Health authorities, professional healthcare organisations, and educational institutions should work together to establish and maintain continuous educational initiatives. These organisations have the ability to provide seminars, training sessions, and educational campaigns that specifically target healthcare workers, with a specific emphasis on nurses.
2. Collaboration between public health authorities, communication professionals, and healthcare institutions is necessary to create and distribute customised messages. This may include developing educational materials, using communication channels within healthcare facilities, and involving health communication professionals to guarantee the successful transmission of information.
3. Healthcare institutions and employee wellness programmes should spearhead the implementation of psychosocial support programmes in partnership with mental health specialists. The establishment and promotion of these programmes may be significantly facilitated by the involvement of human resources departments and mental health services within healthcare organisations.
4. Collaboration between health research institutes, public health authorities, and healthcare organisations is essential in order to build a robust system for ongoing monitoring and assessment. Research teams can regularly evaluate, while healthcare organisations and authorities can utilise the results to modify and enhance their interventions according to the changing requirements and perspectives of healthcare professionals.

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