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Effect of A Nurse-Led Intervention On Practice of Standard Precautions Among Nurses in Two Selected Tertiary Hospitals in Ogun State

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Abstract:

There is a constant presence of occupational hazards as health care workers in general carry out their various clinical activities which are mostly exposure prone procedures in hospitals and other medical facilities. The study investigated the effects of a nurse-led intervention on practice of standard precautions among nurses in two selected tertiary hospitals in Ogun State, Nigeria. The study adopted a quantitative design, two group quasi-experimental method. The sample consisted of 256 nurses drawn via purposive sampling technique. Data were collected through structured adapted checklist. The reliability coefficient of the instrument was 0.726. The data collected in this study were subjected to descriptive and inferential statistics. All hypotheses were tested at 0.05 level of significance using t-test. Findings revealed that there was low practice of standard precautions among nurses in the intervention group as revealed by the mean score at pre-test was 9.79 equivalent to 40.79%, after intervention it was 76.33% equivalent to 18.32. This means nurse's practice of standard precautions after post-test was high in intervention group unlike the control group which had low practice at pre and post. There was significant difference between pre and post-intervention knowledge of practice of standard precaution (knowledge gained=8.53; t=36.468; p=0.000<

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0.05) among nurses in the intervention group while there was no difference in the control group (t=0.899; p=0.369>0.05). It was evident that nurse-led education programs on standard precautions can benefit nurses resulting in an increase in practice of standard precautions. It was recommended among others that an intensive and comprehensive educational initiative should be organized by nursing leaders and tailored to meeting the specific needs of nurses at all levels of nursing.

Keywords: Nurse-led Intervention, Standard Precautions, Practice,

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Introduction

Infection constitutes a very common health challenge worldwide, leading to considerably high illness and death. The remote causes of these are the micro-organism isolates antimicrobial resistance, surgical site complications, exogenous flora like bacteria, fungi, protozoa, and viruses from other patients; endogenous flora living on the patient's skin, mucous membrane, gastro intestinal tract, respiratory tract; inanimate environmental surfaces, contaminated objects, medical equipment devices such as the doctors coats and nurses scrubs uniforms, stethoscope, sphygmomanometer, thermometer, housekeepers cleaning tools (mop, broom, brush, buckets) and bed linens. Other sources of infection could be complicated due to laxity or nonchalant behavior of health care providers (Mireille, et al., 2019).

There is a continual presence of occupational dangers to health care workers in general in carrying out their various clinical activities which are commonly exposure prone procedures in hospitals and other medical facilities. Due to their continuous exposure with body fluids like blood and sharp objects like surgical blades and needles, these health care workers are in contact with blood borne viral and bacterial pathogens which include Treponema pallidum, Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV), and Hepatitis C virus (HCV) (Yohanis, et al., 2019).

In clinical practice, the researcher has observed instances where nurses handle soiled linen with bare hands, put needles on the patient's mattress after administering injections, do not clean the stethoscope after use for each patient and do not wash hands regularly while on duty. Poor infection prevention and control practices among nurses surges the rates of hospital-acquired infections. Standard precautions are the minimum way of infection prevention in respect to patient's care whether the patient's status of infection is still suspected or confirmed. Standard precautions are geared towards the decrease to the barest minimum level, the transmission of infections from hospital workers to care receivers; from patients to their family members; as well as from patients to fellow patients (WHO, 2019). Standard precautions comprise of hand washing, disinfection of utensils, the use of personal protective equipment (PPE) such as gloves, gowns, goggles; proper management of sharps, and proper handling of blood and bodily fluids, and maintaining clean clinical environment. Hand washing is the most essential part of standard precaution and one of the most effective ways of curbing infections among health care workers (Ujjwala, et al., 2018).

In addition to hand washing, the use of gloves when carrying out procedures on patients is equally important and compulsory. The use of gloves, gowns, goggles otherwise known as Personal Protective Equipment (PPE) stands as barrier between the health workers, infectious procedures, and the patients. With the aid of an adequate use of the PPEs, the transfer of pathogens is minimized to the barest level. Agofure and Perewari (2017) submitted good understanding, attitude, and practice of standard precaution but nevertheless, about 43.5% of the participants had the habit of recapping needles after use, 43.5% have had needle stick injuries within the space of one year, and 26.0% always detach needles. Poor immunization practice was also noticed as only 40.0% had been immunized against hepatitis B virus. A conclusion on the need to train and re-train nurses on standard precaution practices was arrived at. Jain, et al., (2017) conducted an assessment of knowledge

and practices of 400 health care personnel on hospital infection and control practices. The practices included hand hygiene, needle stick injury (NSI), standard precautions (SPs), Post-exposure prophylaxis (PEP) and environmental cleaning protocols of the hospital. The result showed that the hospital had suboptimal knowledge regarding the SPs with n=220 (55%) and risks associated with NSI with n=128 (32%).

It appears that nurses who work in primary health care centres, general hospitals, and tertiary hospitals still find it difficult to observe standard precautions in their practices; reasons implicated may be low supervision, non-availability of materials, and less ratio of staff to patients. From the researcher's observation, experience in clinical postings and observations during several visits to the hospitals either as a student, staff, patient relative, patient, or a social visit, most health care workers lack the knowledge of the guidelines of standard precautions as directed by the Centre for Disease Control (CDC, 2019). This should be seen as negligence on their part in the cause of their practice because the standard of conduct, performance and ethics (SCPE) of the Health Care Professions Council (HCPC, 2019), has made it clear that it is the duty of health care practitioners to update their understanding by constantly reviewing healthcare practice guidelines which is the reason for this study. Best practices by the nurse in standard precautions may contribute to reducing infection rate in the hospital and also limit the stay of the patients in the hospital. Therefore, there is need for nurse-led intervention on practice of standard precautions among nurses in two selected tertiary hospitals in Ogun State. This study specifically:

1. assessed the pre and post-intervention practice of standard precautions among nurses in the intervention and control group;
2. administer a structured nursing intervention on standard precautions; and
3. determine the difference in the pre- and post-intervention practice of standard precautions among nurses in the intervention and control group

Research Questions

The following research questions were raised for this study:

1. What is the pre and post-intervention practice of standard precautions among nurses in the intervention group?
2. What is the pre and post-test practice of standard precautions among nurses in the control group?

Research Hypotheses

These hypotheses were postulated for this study:

1. There is no significant difference between the pre and post-intervention practice of standard precautions among nurses in the intervention group
2. There is no significant difference between the pre and post-test practice of standard precautions among nurses in the control group

Methodology

The study adopted a pre-test, post-test, two group quasi-experimental design (one experimental group and one control group) to assess the outcome of intervention programme on the intervention group. The target population size for the study was all the nurses working in the two selected tertiary hospitals in Ogun State. They are about 721 on the whole. The sample size of 256 was gotten through the use of Taro Yamane (1998) formula.

A checklist was used as tool for collecting information from the respondents. The checklist was developed by the researcher having gone through text-books, journals and articles that were related to the subject matter. The checklist was presented to experts in the field of nursing science to ascertain content and face validity. The face and content validity of the checklist was determined as valid. Reliability of the checklist was ascertained by pre-

testing it among 28 nurses in Babcock University Tertiary hospital Ilishan in Ogun State. The internal consistency approach based on Cronbach Alpha was used in the presentation of reliability coefficient result which yielded a value of 0.726.

The study was carried out in three phases namely pre-intervention phase, intervention phase and post-intervention phase. All the data collected were coded and analyzed with the use of Statistical Package for Social Sciences (SPSS) Version 27. Descriptive and inferential statistics were used to analyze the data collected. The research questions were answered using frequency count, simple percentage, mean and standard deviation. All the hypotheses were tested using t-test at 0.05 level of significance.

Results

Research Question 1: What is the pre and post-intervention practice of standard precautions among nurses in the intervention group?

Table 1: Information on the pre and post intervention practice of standard precautions among nurses in the intervention group

Practice of standard precautions	Category of scores	Pre-intervention		Post-intervention	
		Freq.	%	Freq.	%
Low	1-11	90	92.8	-	-
Average	12-17	7	7.2	32	33.0
High	18-24	-	-	65	67.0
Total		97	100.0	97	100.0
Mean		9.79 (40.79%)		18.32 (76.33%)	
Standard dev.		1.14		2.00	
Mean difference		8.53 (35.54%)			
Maximum		12.00		22.00	
Minimum		7.00		14.00	

Table 1 presents the pre and post mean scores of an educational training program on practice of standard precautions. The nurses' practice mean score of standard precautions at pre-test was 9.79 which is equivalent to 40.79%. Thus, it could be said that the nurses' practice of standard precautions before intervention was low. After the intervention, the study revealed that nurses' practice mean score of standard precautions was 18.32 (76.33%).

Research Question 2: What is the pre and post-intervention practice of standard precautions among nurses in the control group?

Table 2: Information on the pre and post intervention practice of standard precautions among nurses in the control group

Practice of standard precautions	Category of scores	Pre- test		Post-test	
		Freq.	%	Freq.	%
Low	1-11	144	90.6	108	67.9
Average	12-17	15	9.4	51	32.1
High	18-24	-	-	-	-
Total		159	100.0	159	100.0
Mean		9.94 (41.42%)		10.71 (44.63%)	
Standard dev.		1.22		1.79	

Mean difference	0.77 (3.21%)	
Maximum	15.00	14.00
Minimum	8.00	8.00

Table 2 presents the pre and post mean scores of practice of standard precautions. The nurses' practice mean score of standard precautions at pre-test was 9.94 which is equivalent to 41.42%. After a period of time because the control group was not exposed to intervention, the study revealed that nurses' practice mean score of standard precautions was 10.71 (44.63%). Thus, it could be said that the nurses' practice of standard precautions at pre and post-test were low.

Test of Hypotheses

$H_0$1: There is no significant difference between the pre and post-intervention practice of standard precautions among nurses in the intervention group

Table 3: Independent t-test showing the difference between pre and post-intervention practice of standard precaution among nurses in the intervention group

	N	Mean	Std. Deviation	df	T	Mean diff	Sig
Pre intervention	97	9.79	1.14				
Post intervention	97	18.32	2.00	192	36.468	8.53	.000

Results in Table 3 indicate a significant difference between pre and post-intervention practice of standard precautions among nurses in the intervention group (Knowledge gained = 8.53; t = 36.468; p = .000 < .05). It could be deduced from these findings that the difference observed between pre and post intervention mean scores could not have been by chance but as a result of the intervention or training the participants (nurses) were exposed to. Going through the practice mean scores as shown above, one can say that there is an improvement between pre-intervention practice (9.79) and the post-intervention practice (18.32). The earlier set hypothesis was rejected.

$H_0$2: There is no significant difference between the pre and post-test practice of standard precautions among nurses in the control group

Table 4: Independent t-test showing the difference between pre and post-test practice of standard precaution among nurses in the control group

	N	Mean	Std. Deviation	df	T	Mean diff	Sig
Pre test	159	9.94	1.22	316	4.501	0.77	.000
Post-test	159	10.71	1.79				

Results in Table 4 indicate a significant difference between pre and post-test practice of standard precautions among nurses in the control group (t = 4.501; p = .000 < .05). It could be deduced from these findings that there was a little knowledge gain of 0.77 which could be as a result of chance since the control group was not exposed to any intervention or training. Going through the practice mean scores as shown above, one can say that there is no major improvement between pre-test knowledge (9.94) and the post-test knowledge (10.71). Though the earlier set hypothesis was rejected.

Discussion

The findings of the study revealed that nurses' practice mean score on standard precautions in intervention group at pre-test was low (40.79%) while post-test was high (76.33%). Same was recorded for control group as nurses' practice mean score at pre-test was low (41.2%), however, post-test of control group was also low (44.63%). Agofure and Perewari (2017) studied the knowledge, attitude and practice of standard precaution among Health Care Workers in Federal Medical Centre Yenagoa, Nigeria, result revealed good practice of standard precaution but nevertheless, about 43.5% of the respondents had the habit of recapping needles after use, 26.0% always detach needles and 43.5% have had needle stick injuries within the space of one year. Rajbhandari, et al. (2018) conducted a study on knowledge and compliance of standard precaution among nurses in Primary Health care and result showed that there is good knowledge but poor performance in standard precaution. According to Daniele, et al., (2019), standard precautions skills among nursing students is enhanced by increasing standard precautions knowledge, providing more standard precautions training, promoting management support, reducing identified standard precautions barriers, and improving nursing staff implementation of standard precautions. Study by Xiong and Zhang (2017) have indicated that practice on standard precautions among nurses is 9.1% and 73% in developing and developed countries respectively, suggesting urgent actions for improvement in developing countries.

There was significant difference between the pre and post-intervention practice of standard precautions among nurses in the intervention group (Knowledge gained = 8.53; t = 36.468; p = .000 < .05). Also, there was significant difference between the pre and post-test practice of standard precautions among nurses in the control group (t = 4.501; p = .000 < .05). Arinze-Onyia, et al., (2018) in their study on hospital-acquired infection observed that nurses have good knowledge of standard precaution but the clause still remains that they lack the practical skills towards standard precaution. Hence, they concluded that there was need for frequent intervention programmes for nurses.

Conclusion

This study achieved its initial objectives of assessing the effect of nurse-led intervention on practice of standard precautions among nurses in two selected tertiary hospitals in Ogun State. This study concluded that nurse-led intervention education programs on standard precautions can benefit nurses therefore, resulting in an increase in practice of standard precautions.

Recommendations

Based on the conclusions of this study, the following recommendations are call for:

1. An intensive and comprehensive educational initiative should be organized by nursing leaders and tailored to meeting the specific needs of nurses at all levels of nursing.
2. Nurses and other health providers should also be encouraged by their superiors and managers, to also care for themselves as they care for others by taking standard precautions.

3. The government should ensure favourable working condition of all health facilities, availability of the necessary hospital amenities and adequate staffing to effectively achieve fair distribution of labour in order to encourage standard precautions.

References

Agofure, O.,& Perewari, O. A. (2017). Knowledge, Attitude and Practice of standard precaution among Health Care Workers in Federal Medical Centre Yenagoa, Nigeria. *IOSR Journal of Pharmacy and Biological Sciences (IOSR-JPBS)12*(4), 79-86. Doi: 10.9790/3008-1204037986.

Arinze-Onyia S., Ndu, A., Aguwa,E.,Modebe, I., &Nwamoh, U. (2018).Knowledge and practice of standard precautions by health-care workers in a tertiary health institution in Enugu, Nigeria.*Niger J ClinPract*, *21*(149),149-55.

Centers for Disease Control and Prevention (2019). Guidelines for isolation precautions: preventing the transmission of infectious agents in healthcare settings. Retrieved from http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html.

Daniele, D., Valentina, B., Claudia, C., Maria, G., & Daniela, T.(2019). Compliance with Standard Precaution among Clinical Nurses: Validity and Reliability of the Italian Version of the Compliance with Standard Precautions Scale (CSPS-It). *International Journal of Environmental research and Public Health.*12(7), 67 – 81

Mireille, D., Irene, P., Rosa, V., Johannes, C., Suzanne, D., Christiana, M., & Martine C. (2019). Infection control link nurses in acute care hospitals: a scoping review; *Antimicrobial Resistance &Infection Control, retrieved from:* https://doi.org/10.1186/s13756-019-04768.

Rajbhandari, A. K., Sagtani, R. A., Thapa, B., &Adhikari, P. (2018). Knowledge and Attitude infection Control and Standard Precautions among Healthcare Workers of Rural Nepal.*BJHS* (*2*)6, 453-457.

Ujjwala, N.G., Silpi, B., Priti, K., Suvarna, S., Swati, C., Gargi, M., Nilima, S. T., Ramesh, P. F., & Nitin, R. (2018). Educational intervention to foster best infection control practices among nursing staff. *Int J Infect*, *5*(3), e81531. https://doi.org/10.5812/iji.81531.

Xiong, P., & Zhang, X., (2017). Effects of a mixed media education intervention programme on increasing knowledge, attitude, and compliance with standard precautions among nursing students: a randomized controlled trial. American Journal of Infection Control.Retrieved from www.ajocjournal.org.

Yohanis, A., Lemlem, B., Hywot, E., Tariku, B., Netsanet, T., &Yibeltal, A. (2019). Assessment of knowledge and Practices of standard Precaution against Blood Borne Pathogens among Doctors and Nurses at Adult Emergency Room in Addis Ababa, Ethiopia. *Emergency Medicine International, https://doi.org/10.1155/2019/2926415.*

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