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Outcome of Nursing Intervention on Knowledge of Prevention of Low Back Pain Among Nurses at Uniosun Teaching Hospital, Osogbo, Osun State

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Abstract

LBP is one of the major musculoskeletal disorders which affect the nerves, tendons, ligaments, and all its associates' structures. So many scholars have carried out studies on the Low Back Pain among Nurses but only a limited number of studies could be found that evaluated the knowledge of nurses about the prevention and self-treatment principles for LBP. This study accessed the outcome of a nurse-led intervention on knowledge of prevention of LBP among the participants. The study utilizes one group pre-test post-test quasi-experimental research to assess the effect of an educational intervention on knowledge of prevention of LBP among nurses. The total Population of the nurses is 258. Simple random technique was used to select the participants for this study. The sample size of 160 was determined using Leslie Kish's formula. A test paper was used for data collection. The questionnaire was made up of two sections. Section A contains 5 items that measured the participants' socio-demographic ratings while section B assessed the knowledge of prevention of LBP. Reliability of the instrument was determined using Cronbach's alpha model technique to ensure internal consistency of the instrument. Thus, Cronbach's alpha value was 0.871. Data collection was in three phases while the data collected were subjected to descriptive and inferential statistics. The findings of the study revealed that the intervention programme improved the knowledge of nurses on the prevention of LBP among nurses. The improvement in the knowledge mean score of participants on prevention of LBP did not occur by chance but due to educational intervention been exposed to. It was recommended

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among others that there should be establishment of in-service educational program to provide continuous education for nurses aiming to refresh their knowledge on the prevention of LBP.

Keywords: Low Back Pain, Outcome, Nursing Intervention, Prevention,

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Introduction

Low back pain (LBP) remains a usual health challenge and one of the most prevalent musculoskeletal conditions found among low, middle and high income countries (Almeida & Kraychete, 2017). It is among the top 10 disease that cause disability worldwide (Johnson & Edward, 2019), and one of the usual symptom/condition that stimulates people to continuously seek for medical consultation (Allegri, et al., 2016). LBP is still the persistent public health problems around the world. It substantially affects quality of life and poses disability especially to the global working population. LBP is an important public health challenge in all industrialized countries because it poses problem to employers. It is shown as one of the usual cause of job related disability, missed work days and employee turnover (Allegri et al., 2016).

LBP differ in intensity from a dull constant ache to a quick sharp sensation making the affected person incapacitated (National Institute of Neurological Disorder and Stroke (NINDS), 2019), a situation causing decrease in wages and productivity (Ellis, 2016). While the rate of LBP between men and women remains unclear (Shieh, et al, 2016), incidence remains high in Africa ranging between 14% - 72% (Johnson & Edward, 2016), while more than 80% of people in the high income countries have been shown to have complained of having LBP (Yao, et al, 2016). Most complaint usually commence between age 20-40 (Casazza, 2017).

LBP has been shown to be a usual occupational health problem among health care workers. This challenge has affected more than 80% of adults at some point in life (Budhrani-Shani, et al, 2016) causing persistent medical problems, low ability to work, sick-leaves and loss of productivity. Educational interventions have been commenced to help reduce the sufferings of healthcare workers with LBP. In fact, Rustoen (2016) submitted that *educational interventions* on *back pain* do not need to be extensive in order to have favourable outcomes. In the same vein, Mekonnen (2019) submitted that educational intervention based on the HBM was effective in educating nurses' on prevention of low back pain.

Nurses when compared to other health workers are the most susceptible group to low back pain (LBP) due to the fact that they often stand for long hours while working and are involved in performing heavy physical activities such as moving patient from one ward to another, lifting and handling of patients, among others (Ahmadi, et al, 2021). More than 80% of nurses have been down low back pain (at one point or the other), and regardless of various researches that have been done on low back pain with several recommendations such as the need to equip hospitals with necessary lifting equipment, organize refresher courses on back care ergonomics and patient transfer.

In most teaching hospitals, many nurses usually complain of LBP which invariably contribute greatly to their low performance and productivity. Despite the fact that most of them frequently visit the physiotherapy clinic to lodge complaint and for further management of the LBP, the occurrence keeps persisting. One of the reasons is the incidence and risk factors associated with this LBP syndrome among these nurses still remain obscure as no research has been carried out in this setting to ascertain the effect of a systematic educational intervention. Therefore, this study will investigate the effect of an educational intervention on knowledge of prevention of LBP among nurses in UNIOSUN teaching hospital. This study specifically:

1. assessed the pre and post-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital;
2. implemented the instructional package on knowledge of prevention of LBP among nurses in UNIOSUN teaching hospital; and

3. established the difference in the pre and post intervention mean score on knowledge of prevention of LBP among nurses.

Research Questions

The following research questions were raised for this study:

1. What is the pre-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital?
2. What is the post-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital?

Research Hypotheses

These hypotheses were postulated for this study:

1. There is no significant difference between pre and post intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital.

Methodology

This study utilized one-group pre-test post-test quasi-experimental design to assess the effect of educational intervention on the knowledge of nurses on prevention of LBP at UNIOSUN teaching hospital. The study population comprises of nurses working in different wards at UNIOSUN Teaching Hospital Osogbo, Osun State. The total Population of the nurses is 258. Simple random technique was used to select the participants for this study. The sample size of 160 was determined using Leslie Kish's formula. A test paper was used for data collection. The questionnaire was made up of two sections. Section A contains 5 items that measured the participants' socio-demographic ratings while section B assessed the knowledge of prevention of LBP. Reliability of the instrument was determined using Cronbach's alpha model technique to ensure internal consistency of the instrument. Thus, Cronbach's alpha value was 0.871.

The data were collected in three phases. The first phase of data collection was the pre-intervention phase. Pre-test was also administered in the first phase. The second phase is when the educational intervention was conducted in 2 modules while the third phase is the post-test phase, which was administered 4 weeks after the intervention program. Descriptive statistics of frequency, percentage, mean and standard deviation was used to describe the data. T- test was used to determine the difference in the pre and post-intervention knowledge scores of nurses on prevention of LBP at 0.05 level of significance.

Results

Research Question 1: What is the pre-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital?

Table 1: Pre-intervention knowledge means score of participants on the prevention of LBP

Knowledge of prevention of LBP	Category of scores	Control	
		F	%
Below average	1-7	99	61.8
Average	8-14	30	18.8
Above average	15-20	31	19.4
Total		160	100.0
Mean ± SD (%)		9.08 ±1.26 (45.4%)	
Maximum score		17	
Minimum score		6	

Table 1 shows the pre-intervention knowledge mean score of participants on the prevention of LBP. Ninety-nine (61.8%) participants had below average score, 30 (18.8%) and 31 (19.4%) had knowledge mean scores at average and above average respectively on the prevention of LBP. The pre-intervention knowledge mean score of participants on the prevention of LBP was 9.08±1.26 (45.4%). This result shows that the pre-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital is poor.

Research Question 2: What is the post-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital?

Table 2: Post-intervention knowledge means score of participants on the prevention of LBP

Knowledge of prevention of LBP	Category of scores	Control	
		F	%
Below average	1-7	-	-
Average	8-14	27	16.9
Above average	15-20	133	83.1
Total		160	100.0
Mean ± SD (%)		17.89 ±1.62 (89.5%)	
Maximum score		20	
Minimum score		9	

Table 2 shows the post-intervention knowledge mean score of participants on the prevention of LBP. One hundred and thirty-three (83.1%) participants had above average score and 27 (16.9%) had knowledge mean scores at average on the prevention of LBP. The post-intervention knowledge means score of participants on the prevention of LBP was 17.89±1.62 (89.5%). The result revealed that the post-intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital is good.

Test of Hypothesis

Hypothesis 1: There is no significant difference between pre and post intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital.

Table 3: Independent t-test showing the difference between pre and post intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital

	N	Mean	Std. Deviation	Std. Error Mean	df	T	Mean diff	p value
Pre-test	160	9.08	1.26	.80				
Post-test	160	17.89	1.62	.89	158	5.25	8.81	.000

Table 3 presents the result of hypothesis one postulated in this study. It is indicated that there is a significant difference between pre and post intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital (mean difference = 8.81, $t_{(158)} = 5.25$ $p = .000 < .05$). Based on this, the earlier set hypothesis

cannot be accepted. Therefore, there is a significant difference between pre and post intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital. Therefore, the difference observed in the intervention knowledge mean score of participants on the prevention of LBP among nurses in UNIOSUN teaching hospital could not have happened by chance but due to the educational intervention the participants they were exposed to.

Discussion

The outcome of this study shows that the pre-intervention knowledge mean score of participants on prevention of LBP was below average. The implication of this finding is that nurses still lack adequate knowledge of prevention of LBP. It could be observed that the nurses' knowledge and their actual behavior concerning the prevention of LBP is below average. From the findings of this study, before the introduction of the nurse-led educational intervention, nurses had low knowledge levels on prevention of LBP. This result is similar to the findings of Mekonnen (2019) in their study on knowledge of nurses concerning prevention of low back pain and musculoskeletal injuries. Their findings showed that majority of nurses had limited knowledge about the various strategies to adopt in order to reduce incidence of musculoskeletal pain among nurses. Although the present study did not explore the actual practice of nurses in relation to the prevention of LBP, findings show that the baseline knowledge of the general principles of LBP prevention was grossly below average. This is in line with the findings of Dlungwane et al., (2018) who reported that there is increasing need for nurses to be engaged in continuing education on how to prevent LBP in clinical practice.

This study revealed that there is a difference in the post-intervention knowledge means score of participants on prevention of LBP. The improvement in the knowledge mean score of participants on prevention of LBP (from below average to above average) did not occur by chance but due to educational intervention been exposed to. This finding corroborated the report of Theodore (2020) who conducted an experimental study on the effect of a video-assisted teaching program. From his findings, majority of the nurses had inadequate knowledge about the prevention and management of LBP before the intervention but after the intervention, majority of them became knowledgeable and could describe the different preventive techniques for LBP. Another study by Homaid et al, (2016) found that nurses showed moderate knowledge on prevention of LBP in pre-test but there was a significant improvement of knowledge levels among the nurses in the post test. This finding is in harmony with the findings of Rustoen (2016) which found that an educational intervention was effective in enhancing nurses' knowledge of LBP prevention and management in South Africa. The implication of this finding is that an intervention is needed to enhance nurses knowledge about different health phenomena and this is reflected in the outcome of this study where nurses' knowledge was significantly improved after they were exposed to the nurse-led intervention. Interestingly, it is commonly said that nurses have sufficient training on health matters but often times, they do not exhibit this knowledge in clinical practice. Hence, a continuing education program should be constantly initiated to remind nurses on the evidence-based preventive measures for LBP.

The outcome of the first hypothesis revealed a significant difference in the pre and post intervention knowledge mean score of participants on prevention of LBP. Therefore, the null hypothesis that states that there is no significant difference between pre and post intervention knowledge scores was rejected while the alternate one was accepted. It could be concluded from this finding that the difference observed between pre and post intervention

knowledge scores of participants' knowledge was not accidental but as a result of the nursing intervention the participants were exposed to. The difference observed in the knowledge mean score of participants on prevention of LBP was a result of the fact that nurses in the selected hospital were adequately exposed to health education and training on prevention of LBP which has positively affected their knowledge prevention of LBP. In-service training has been shown to be a very effective tool in improving nurses' level of knowledge. The higher the nurse's knowledge, the more they adhere to the LBP preventive measures in their work and this contributes to their sense of wellbeing. This is supported by Orlan (2018) who reported that structured teaching package is very effective in enhancing nurses' knowledge of musculoskeletal issues. In this regard, Ahmadi et al (2021) also confirmed the effectiveness of a nurse-led educational package in improving the knowledge of healthcare workers on how to reduce or prevent work-related musculoskeletal issues.

Conclusion

Based on the findings of this study, it is therefore concluded that the intervention programme improved the knowledge of nurses on the prevention of LBP among nurses. The improvement in the knowledge mean score of participants on prevention of LBP did not occur by chance but due to educational intervention been exposed to. The structured nursing intervention has been found effective in enhancing the knowledge of nurses regarding the prevention of LBP. This has shown that when educational interventions are systematically structured and delivered, they become very effective and reliable in improving the knowledge of both professionals and non-professionals about various health information needs.

Recommendations

In view of the findings stated earlier, it has been proven that nurses can acquire sufficient knowledge on how LBP is prevented. The following are hereby recommended:

1. Establishment of in-service educational program to provide continuous education for nurses aiming to refresh their knowledge on the prevention of LBP
2. Educational intervention regarding knowledge of the prevention of LBP among nurses should be structured and systematically delivered.
3. Training of nurses on the prevention of LBP should be done by the continuous education department of the hospital to boost nurses' confidence and wellness while discharging their duties.

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