INTERNATIONAL JOURNAL OF SOCIAL HEALTH
https://ijsh.ph/index.php/rp
Volume 2 Number 6 June 2023 E-ISSN: 2984-7079

EFFECT OF HEALTH EDUCATION ON POSTURE PRACTICES TOWARDS REDUCTION OF LOW BACK PAIN AMONG PATIENTS IN RIVERS STATE

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KEYWORDS
health education, functional posture practices, therapeutic posture practices, reduction of low back pain.

ABSTRACT
This study investigated the effect of health education on posture practices in reducing low back pain among patients in Rivers state, Nigeria. To achieve this, pretest-posttest quasi-experimental design was employed, and the study targeted 170 patients at the University of Port Harcourt Teaching Hospital in Nigeria. Two objectives having corresponding research questions and hypotheses guided the study, while convenience and stratified sampling techniques were used to select 50 participants, comprising 35 patients from the general outpatient clinic department and 15 patients from the spine physiotherapy unit, with 20 male and 30 female participants. Data collection was done by administering a self-structured, self-administered questionnaire, titled health education effect on ergonomic practices and low back pain, which had a reliability coefficient of 0.75. Both descriptive and inferential statistics were used to answer the research questions and test the hypotheses. The research found that educating patients on various methods of preventing low back pain, including healthy weight maintenance, warm-up exercises, and proper postural habits while sitting and standing, had a noteworthy impact on reducing pain. Moreover, the study also revealed that health education programmes were successful in therapeutic posture practices and reducing low back pain in patients residing in Rivers state. Therefore, the study concluded and recommended that health education interventions for functional and therapeutic posture practices are effective strategies for reducing low back pain among patients in Rivers state, and healthcare providers should incorporate these interventions into their treatment plans for patients suffering from low back pain.

DOI: 10.58860/ijsh.v2i6.59

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INTRODUCTION

Health, which is defined as a full physical, psychic and social well-being not as a lack of an illness or an indisposition, constitutes a multi-sided value either individual or social (Ubom, 2023). The health of a society influences the productive potential and prosperity of its citizens (Polcyn et al., 2023); (Wang et al., 2023). Consequently, the healthcare has become one of the most essential sections of social policy of contemporary countries (Wang et al., 2023). Ongoing development in medicine constantly expands possibilities not only in the field of prevention and treatment of diseases but also the prolongation of life (Fang et al., 2020); (Eckstrom et al., 2017). Ageing of society has contributed to the increase of needs in this field. The health of a society depends not only on the standard of the healthcare, its availability and the quality of medical services but also on a good national policy whose aim is to implement healthcare programmes (Przybylska et al., 2014).

Health Education plays a crucial role in the development of healthy, inclusive and equitable social, psychological and physical environment (Fasoranti & Adeyeye, 2015). It reflects current best practice, using an empowering, multi-dimensional, multi professional approach which relates to all setting, organizations, including the community, schools, health services and the workplace (Fasoranti & Adeyeye, 2015). Health Education helps to provide health knowledge, enhance wellness behaviours, promote health situations, facilitate healthful relationship and enables community members make responsible decisions (Brar, 2018); (Fasoranti & Adeyeye, 2015). This term known as health education helps provide health knowledge (Sharma, 2021), enhance wellness behaviours (Kubzansky et al., 2018), promote health situations (Blake et al., 2013), facilitate healthful relationship (Bodryzlova & Moullec, 2023) and enables community members make responsible decisions (Fasoranti & Adeyeye, 2015).

Low back pain (LBP) is a prevalent health problem that affects people of all ages and professions(Mondal, 2023). The burden of LBP is high in developing countries, including Nigeria, where it is a leading cause of disability and work absenteeism (Orupabo et al., 2023); (Igwesi-Chidobe et al., 2017). Health education has been identified as an effective tool for reducing LBP by promoting good posture practices among patients. Posture practices refer to the way individuals position their bodies while sitting, standing, or performing other activities. Poor posture during daily activities can lead to musculoskeletal disorders, including LBP (Eberendu et al., 2020). Besides, prolonged inactivity is also known to contribute to a reduction in muscle strength, spinal flexibility, and quality of life (QOL). Previous research has shown that 40-64% of people subjected to have LBP during prolonged standing, even though they do not have it before. Long periods of standing require the back extensors to stay engaged for an extended period of time, which can lead to muscle fatigue (Seyed & Mohamed, 2021). According to a review by Shiri et al, there is strong evidence linking poor posture to LBP(Shiri et al., 2018). The review also highlights the importance of promoting good posture practices through education and training programs. The study also used evidence-based health education strategies that have been proven effective in reducing LBP. For example, a randomized controlled trial by Jaromi et al found that a six-week educational programme that included training on posture practices significantly reduced the incidence of LBP among participants compared to those who received usual care(Jaromi et al., 2012).

Many treatments strategies, such as stretching exercises, muscle strengthening, and flexibility training may have a significant positive impact on posture. Therefore, educating patients on how to maintain good posture is essential in preventing and managing LBP (Ubom, 2023). Thus, carrying out a study on health education as a tool for reducing LBP among patients with a focus on posture practices is vital in Rivers state, Nigeria, because of the high prevalence of LBP in the region. According to a study by Okafor et al. (2019), the prevalence of LBP among adults in Rivers state was 37.8%. This finding underscores the need for interventions that can reduce the burden of LBP in the region. Health education is one such intervention that can empower patients with knowledge and skills to prevent and manage LBP. The study was focused on posture practices because poor posture is a significant risk factor for LBP.

Statement of the Problem

Low back pain is a persistent and debilitating condition that affects a significant portion of the population world over. However, the effectiveness of traditional treatments such as medication and surgery has been called into question. In addition, many patients experience relapses due to a lack of education on how to maintain their recovery. This raises the question of whether health education, particularly focused on functional and therapeutic posture practices, can significantly improve low back pain outcomes. Can providing patients with information on maintaining their recovery prevent relapses and ultimately lead to a reduction in low back pain? Thus, this study sought to investigate the effect of health education on low back pain with attention to functional and therapeutic posture practices among patients in Rivers state, in an effort to bridge the gap in treatment and improve patient outcomes.

This study was aimed at investigating effect of health education on posture practices towards reduction of low back pain among patients in Rivers state, Nigeria. Previous research has highlighted the significance of health education in promoting correct posture practices and reducing the prevalence of low back pain among patients. A study shows that individuals who received health education on proper sitting and standing postural habits experienced a significant reduction in low back pain symptoms (Bettany-Saltikov et al., 2019). Moreover, the study suggested that educating patients on the importance of physical exercise, back strengthening exercises, and using supportive posture aids, such as lumbar cushions, can help mitigate the onset of pain. Another study investigated improvement of knowledge and postural habits after an educational intervention programme in school students (Miñana-Signes et al., 2019). The researchers found that the program had a beneficial impact on reducing pain symptoms and encouraging better posture habits among participants. However, the current study distinguishes itself from previous research by focusing on the impact of health education on different aspects of posture practices, including maintaining a healthy weight and engaging in effective warm-up exercises before physical activity.

METHOD

This study employed a pretest-post test quasi experimental design to investigate the effect of health education on posture practices towards reduction of low back pain among patients in Rivers state, Nigeria. Convenience and stratified sampling techniques were adopted to draw a sample of 50 participants from a population of 170 patients at the University of Port Harcourt Teaching Hospital (UPTH) in Nigeria. The sample included 35 patients from the general outpatient clinic department (GOPD) and 15 patients from the spine physiotherapy unit, with 20 male and 30 female participants. All participants were diagnosed with low back pain and met the inclusion criteria of being aged 18-60 years, having low back pain of three months duration, having a medical diagnosis of this condition, and not having underlying pathology or surgery. Exclusion criteria were used to exclude participants who were not qualified to participate in the study, such as those with mental instability, underlying pathology, infection, and spinal fracture. The study used the Health Education Effect on Ergonomic Practices and Low Back Pain Questionnaire (HEEEPLBPQ) as the data collection tool. In addition, expert review and test-retest methods were used to validate and establish the questionnaire's reliability, yielding a Cronbach Alpha of 0.75. Mean and standard deviation were used to answer research questions, while ANCOVA and simple percentage were used to test hypotheses at a 0.05 level of significance. All respondents completed their copies, demonstrating a very high level of return rates.

RESULT AND DISCUSSION

Answer to Research Questions

Research Question 1: What is the effect of health education on functional posture practices towards reduction of low back pain among patients in Rivers state?

Table 1. Summary of Mean and Standard Deviation scores on the effect of health education on functional posture practices towards reduction of low back pain among patients in Rivers state.

S/No.	Items	Pre-Test		Post-Test		Mean
		Mean	SD	Mean	SD	Gain
1.	Warming up before engaging in physical activity to prevent muscle strain or injury to the lower back area.	1.64	0.22	3.41	0.53	1.77
2.	Maintaining a healthy weight to reduce strain on the lower back area.	1.58	0.14	3.38	0.53	1.80
3.	Keeping my feet flat on the ground while sitting.	1.64	0.22	3.40	0.53	1.76
4.	Sitting with a lumbar support cushion.	1.66	0.23	3.40	0.53	1.74
5.	Maintaining a neutral spine position while standing.	1.60	0.20	3.39	0.52	1.79
	Cluster Mean/SD	1.62	0.20	3.40	0.53	1.77

Research Question 2: What is the effect of health education on therapeutic posture practices towards reduction of low back pain among patients in Rivers state?

Table 2: Summary of Mean and Standard Deviation scores on the effect of health education on therapeutic posture practices towards reduction of low back pain among patients in Rivers state.

S/No.	**Items**	**Pre-Test**		**Post-Test**		**Mean**
		Mean	**SD**	**Mean**	**SD**	**Gain**
6.	The practice of strengthening the core muscles through yoga supports the low back and reduces pain.	1.52	0.11	3.43	0.55	1.91
7.	Forward folds practice can help stretch the hamstrings and relieve tension in the low back.	1.54	0.12	3.27	0.43	1.73
8.	Practicing hip-opening poses can be beneficial for relieving pain in the low back.	1.54	0.12	3.45	0.56	1.91
9.	Practicing gentle movements can help improve flexibility and mobility in the low back without causing further pain or injury.	1.48	0.09	3.47	0.58	1.99
10.	Use of props such as balls, wedges, and straps to aid in exercises improves static balance in individuals with chronic low back pain.	1.49	0.09	3.22	0.40	1.73
Cluster Mean/SD		1.51	0.11	3.37	0.50	1.85

Test of Hypotheses

Hypothesis 1: Health education has no significant effect on functional posture practices towards reduction of low back pain among patients in Rivers state.

Table 3: ANCOVA result for pre-test and post-test analysis on the significant effect of functional posture practices towards reduction of low back pain among patients in Rivers state

Source	Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Pre-test	15.43	1	15.43	1.21*	0.391	0.006
Group	40.89	1	40.89	9.15*	0.000	0.850
Error	66.57	48	1.39			
Total	122.89	50				

Note: * indicates statistical significance at $p < .05$

Hypothesis 2: Health education has no significant effect on therapeutic posture practices towards reduction of low back pain among patients in Rivers state.

Table 4: ANCOVA result for pre-test and post-test analysis on the significant effect of therapeutic posture practices towards reduction of low back pain among patients in Rivers state.

Source	Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Pre-test	3.90	1	3.90	1.63*	0.114	0.009
Group	27.61	1	40.89	5.28*	0.000	0.745
Error	92.53	48	1.93			
Total	124.04	50				

Note: * indicates statistical significance at $p < .05$

Analyses of Results

The results presented in Table 1 displays pre-test and post-test mean scores, standard deviation, and mean gain of five functional posture practices for reducing low back pain among patients in Rivers state. Results show that all items experienced significant improvements, with high mean gain ranging from 1.74 to 1.80. The cluster mean of 3.40 and SD of 0.53 in the post-test scores suggest a positive effect of the health intervention on patients' functional posture practices.

Results on health education's effect on reducing low back pain as presented in Table 2 compared pre and post-test means and standard deviations on 5 therapeutic posture practices. There was positive improvement in all practices after the intervention, with the highest gain in gentle movements. Overall, the cluster mean of 3.37 and SD of 0.50 in the post-test scores suggest posture practices improved despite lower baseline levels.

The results presented in Table 3 indicate that the pre-test variable is not a significant predictor of the outcome variable, which is supported by the F-value of 1.21 and p-value of 0.391. Conversely, it is apparent that the grouping variable has a notable effect on determining the outcome variable, as evidenced by an F-value of 9.15 and p-value of 0.000. The Partial Eta Squared value of 0.850 further confirms that about 85% of the variation in the outcome variable is explained by the grouping variable, even after considering pre-test variables and error margins.

Results in Table 4 highlights that the pre-test variable is not a significant predictor of the outcome variable as shown by the F-value of 1.63 and p-value of 0.114. However, the grouping variable has a considerable effect on the outcome variable as exhibited by the F-value of 5.28 and p-value of 0.000. The Partial Eta Squared value of 0.745 indicates that 74.5% of the variability in the outcome variable could be explained by the grouping variable even after controlling for the pre-test variable and error.

Discussion of Findings

The findings of this study are discussed under the following subheadings:

Effect of Health Education on Functional Posture Practices towards Reduction of Low Back Pain among Patients in Rivers State

The effectiveness of health education interventions in improving functional posture practices towards reducing low back pain among patients has been demonstrated. Patients who were educated about the importance of maintaining a healthy weight, warming up before physical activity, sitting with a lumbar support cushion, maintaining a neutral spine position while standing, and keeping feet flat on the ground while sitting had significantly reduced the occurrence of low back pain. This effect was observed irrespective of prior knowledge or skills. The grouping variable, which determines whether an individual was assigned to a control or intervention group, played a critical role in explaining the variation in patient outcomes following health education programs for low back pain. The results of various studies including (Garcia et al., 2023)and (Hu et al., 2023) confirm the foregoing. The studies confirmed that health education interventions have also been found to result in better functional status, reduced disability, and overall improvement in quality of life. Further, research conducted by (Roseen et al., 2023) suggested that postural education can significantly reduce low back pain. In addition to this, (Kanaan et al., 2023) study showed that combining health education with exercise can extensively improve pain levels, disability outcomes, and quality of life for those dealing with chronic low back pain.

Effect of Health Education on Therapeutic Posture Practices towards Reduction of Low Back Pain among Patients in Rivers State

The results of our study suggest that health education intervention can effectively improve therapeutic posture practices and reduce low back pain among patients in Rivers state. Specifically, we observed significant improvements in gentle movements practice, hip-opening poses, and core muscle strengthening through yoga. These findings are consistent with previous research(Roseen et al., 2023); (Roseen et al., 2020)highlighting the benefits of yoga and gentle movements for low back pain management (item 6 and 9). Additionally, the use of props during exercises was found to enhance static balance among individuals with chronic low back pain, supporting similar studies (item 10). Nevertheless, not all of our findings align with previous research. For instance, while forward fold practice has been identified as a helpful technique for relieving tension in the low back by some researchers (Kamraju et al., 2023), our study did not observe the same level of improvement (item 7). Similarly, although studies have demonstrated the effectiveness of practicing hip-opening poses for reducing low back pain (Ragoonaden et al., 2012), our study found relatively smaller gains in this area (item 8).

CONCLUSION

Based on the findings of this study, it can be concluded that health education intervention is an effective strategy for improving functional and therapeutic posture practices among patients with low back pain in Rivers state. The results of the study were consistent with previous research, highlighting the effectiveness of certain postures and movements such as gentle movements practice, hip-opening poses, and strengthening core muscles through yoga. However, further exploration is needed for understanding certain findings related to forward fold practice and practicing hip-opening poses. The use of props in exercises was also found to be beneficial for individuals suffering from chronic low back pain by enhancing static balance. These findings align with other studies conducted in this area. Based on these results, it is recommended that healthcare providers incorporate health education interventions including proper posture practices into their treatment plans for patients with low back pain. Furthermore, incorporating props into exercise routines may aid in improving static balance in these individuals.

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