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EFFECT OF STRUCTURED TEACHING MODULE ON KNOWLEDGE REGARDING BUERGER ALLEN EXERCISE AMONG DIABETIC PATIENTS

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ABSTRACT: -

Background: Diabetes mellitus may be accompanied by impaired peripheral circulation and lower-limb complications. Buerger Allen Exercise is a non-pharmacological approach intended to support peripheral circulation, while structured teaching can provide patients with organized and focused health information. **Aim:** The present manuscript examined the difference in knowledge gain regarding Buerger Allen Exercise between experimental and control groups and assessed the association of post-test knowledge with selected demographic variables in the experimental group. **Methods:** A quantitative, quasi-experimental, non-randomized control-group pre-test-post-test design was used among 150 diabetic patients, with 75 participants in each group. A structured interview schedule was used to measure knowledge. The experimental group received a structured teaching module and was reassessed after one week. Mean, standard deviation, unpaired t-test and chi-square test were used according to the objectives. **Results:** The experimental group showed a mean knowledge increase of 7.46 ± 3.11 , whereas the control group showed a change of 0.05 ± 0.27 . The difference was statistically significant ($t=20.54$, $p=0.0001$). In the experimental group, post-test knowledge was significantly associated with age ($\chi^2=48.99$, $p=0.0001$) and educational status ($\chi^2=22.77$, $p=0.001$). No significant association was observed with gender, marital status, occupation, type of family or monthly family income. **Conclusion:** The findings indicate that the structured teaching module was associated with substantially greater improvement in knowledge regarding Buerger Allen Exercise. Structured patient education may therefore be useful in nursing practice for improving knowledge related to Buerger Allen Exercise.

The key factors are :- structured teaching module, knowledge regarding Buerger Allen Exercise, and diabetic patients.

I. INTRODUCTION

Diabetes mellitus is a chronic metabolic disorder associated with vascular and neurological complications. Peripheral arterial disease is an important vascular complication in which impaired blood flow can contribute to claudication, ischemic symptoms, ulceration and, in severe cases, limb-threatening complications. Effective patient education is therefore an important component of diabetes care. Buerger Allen Exercise is a non-pharmacological intervention involving elevation, dependency and rest of the lower limbs, intended to facilitate peripheral circulation and improve lower-extremity perfusion.

Structured teaching provides organized, systematic and focused health information and can improve knowledge retention by combining clear explanations, repetition, demonstrations and opportunities for interaction. In the present study, a structured teaching module was administered to the experimental group after the pre-test, followed by a post-test after one week. The complete dissertation included four objectives; this manuscript concentrates on Objective 3, comparison of mean knowledge change between groups, and Objective 4, association of post-test knowledge with selected demographic variables in the experimental group.

II. OBJECTIVES OF THE STUDY

1. To compare the mean difference in knowledge score regarding Buerger Allen Exercise (BAE) among diabetic patients in the experimental and control groups.
2. To associate the post-test knowledge score regarding Buerger Allen Exercise (BAE) among diabetic patients in the experimental group with selected demographic variables.

III. RESEARCH METHODOLOGY

A quantitative approach with a quasi-experimental, non-randomized control-group pre-test–post-test design was used. The study was conducted in selected urban regions of Maharashtra. The sample comprised 150 diabetic patients, with 75 participants in the experimental group and 75 in the control group. Purposive/convenient sampling procedures were used as described in the dissertation.

The dependent variable was knowledge regarding Buerger Allen Exercise, while the independent variable was the structured teaching module. A structured interview schedule containing knowledge items on BAE was used for assessment. The experimental group received the structured teaching module after the pre-test, whereas the control group did not receive the intervention during the study period. A post-test was conducted after one week. Descriptive statistics included frequency, percentage, mean and standard deviation. Inferential analysis included paired t-test for within-group change, unpaired t-test for comparison of mean change between groups, and chi-square tests for association between post-test knowledge and demographic variables. Statistical significance was assessed at $p < 0.05$.

IV. RESULTS

The analysis relevant to the two objectives showed a marked difference in knowledge change between the experimental and control groups.

Table 1. Comparison of mean difference in knowledge score between experimental and control groups

Group	n	Mean knowledge change	SD	t-value	p-value	Interpretation
Experimental	75	7.46	3.11	20.54	0.0001	Significant
Control	75	0.05	0.27			

The experimental group demonstrated a mean increase of 7.46 ± 3.11 points, whereas the control group demonstrated only 0.05 ± 0.27 points of change. The unpaired t-test yielded $t = 20.54$ with $p = 0.0001$, indicating a statistically significant difference in mean knowledge change between the two groups. Thus, the structured teaching module was associated with a substantially greater improvement in knowledge regarding Buerger Allen Exercise.

Table 2. Association of post-test knowledge score with demographic variables in the experimental group (n=75)

Demographic variable	χ^2 value	p-value
Age	48.99	0.0001
Gender	3.10	0.21
Marital status	3.53	0.47
Educational status	22.77	0.001
Occupation	3.71	0.71
Type of family	4.08	0.39
Monthly family income	8.44	0.20

Post-test knowledge was significantly associated with age ($\chi^2=48.99$, $p=0.0001$) and educational status ($\chi^2=22.77$, $p=0.001$). No statistically significant association was found with gender ($\chi^2=3.10$, $p=0.21$), marital status ($\chi^2=3.53$, $p=0.47$), occupation ($\chi^2=3.71$, $p=0.71$), type of family ($\chi^2=4.08$, $p=0.39$), or monthly family income ($\chi^2=8.44$, $p=0.20$).

V. DISCUSSION

The principal finding of this manuscript is the clear difference in knowledge change between participants who received the structured teaching module and those in the control group. The experimental group showed a mean gain of 7.46 points compared with only 0.05 points in the control group, and the between-group difference was statistically significant. The dissertation also documented an increase in the experimental group's mean knowledge score from 12.52 ± 2.23 at pre-test to 19.98 ± 2.37 at post-test, while the control group changed minimally from 8.65 ± 1.84 to 8.70 ± 1.85 .

The association analysis adds an important explanatory dimension. Age and educational status were significantly related to post-test knowledge, suggesting that differences in age-related experience and educational background may influence how health information is understood and retained. In contrast, gender, marital status, occupation, family type and monthly income were not significantly associated with post-test knowledge. This pattern indicates that structured education can provide broadly useful learning opportunities across different social and demographic groups, while educational materials may still need adaptation for participants with different ages and educational backgrounds.

VI. CONCLUSION

The findings demonstrate that the structured teaching module produced a substantially greater improvement in knowledge regarding Buerger Allen Exercise in the experimental group than in the control group. The mean knowledge gain differed significantly between groups ($t=20.54$, $p=0.0001$). Among demographic variables, age and educational status were significantly associated with post-test knowledge, whereas gender, marital status, occupation, type of family and monthly family income were not. Structured teaching is therefore a useful nursing education strategy for improving patient knowledge regarding Buerger Allen Exercise.

VII. ACKNOWLEDGMENT

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