

Effect of Health Education on Prevention of Transient Ischemic Attack (TIA) Among Adults Residing in Urban Regions of Maharashtra.

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Abstract—Background of the study: A Transient Ischemic Attack (TIA) serves as a critical warning sign for full-blown stroke, yet public awareness regarding early recognition, management, and preventive lifestyle strategies remains low. Early educational interventions can reduce major stroke risk by up to 80%. Globally, 16.9 million people experience a stroke each year worldwide, with a global incidence rate of 258 per 100,000 population. The incidence of stroke varies considerably between high-income countries 217 per 100,000 population and low-income countries 281 per 100,000 population. Among the strategies available for managing these complications, Health Education (HE) has shown potential in improving the knowledge on prevention of TIA.² The purpose of this study was to assess the effect of Health Education (HE) on prevention of Transient Ischemic Attack (TIA) among adults residing in urban regions of Maharashtra by using specially designed questionnaire. Objective: The objective of the study was to assess the effect of Health Education (HE) on prevention of Transient Ischemic Attack (TIA) among adults residing in urban regions of Maharashtra. A quantitative approach and true experimental design were used to carry out this study. The adults were selected by randomized sampling technique where data was collected by using Self-administered questionnaire (SAQ). The analysis was done by using descriptive and inferential statistics. In this true experimental study of 136 adults in urban Maharashtra ($N = 68$ experimental, $N = 68$ control), baseline testing revealed critical knowledge deficits, with 100% of participants demonstrating poor or average knowledge and displaying particular weakness in TIA prevention and management strategies (pre-test mean: 11.91 ± 2.76 experimental vs. 10.91 ± 2.93 control). Following a 45-minute health education intervention, the experimental group achieved an 84.6% increase in mean knowledge score, rising to 21.99 ± 4.06 ($t = 27.61$, $p <$

0.001), with 83% of participants reaching good or excellent knowledge levels. In contrast, the control group showed negligible change (10.96 ± 2.81 , $t = 0.24$, $p = 0.812$), establishing a highly significant post-intervention difference between the two groups ($t = 18.40$, $p < 0.001$). Furthermore, inferential F-test analysis confirmed that these knowledge gains were entirely independent of age, gender, education level, occupation, diet, or income ($p > 0.05$ across all variables), Conclusion: Analysis of data showed that there is significant difference between pre-test and post-test knowledge. Hence, health education is a universally effective intervention for improving knowledge on prevention of TIA among adults residing in urban regions of Maharashtra.

Index Terms—Transient Ischemic Attack, Health Education, Primary Prevention, Stroke Literacy, Nursing Intervention, Adults of Urban regions, Maharashtra.

I. INTRODUCTION

A TIA is ‘warning stroke ’a brief episode of neurological symptoms caused by a temporary blockage of blood flow to the brain or retina, usually symptoms usually last for a few minutes to less than 24 hours most often less than 1 to 2 hours without lasting damage causing temporary neurological symptoms but no lasting brain damage. Quick evaluation with imaging and lab tests is essential to prevent a major stroke. Globally, 16.9 million people experience a stroke each year worldwide, with a global incidence rate of 258 per 100,000 population. TIAs represent urgent medical emergencies: up to 20% of individuals experiencing a TIA suffer a major ischemic stroke within 90 days, with the highest risk occurring within

the first 48 hours. Rapid clinical evaluation and implementation of secondary preventive strategies including antihypertensive therapy, statins, antiplatelet regimens, and targeted lifestyle modifications can lower subsequent stroke incidence by up to 80%.

Despite advances in clinical management, public "stroke literacy" remains alarmingly deficient worldwide. Patients frequently adopt a "wait-and-see" approach during symptom onset due to the transient nature of the deficits. In rapidly developing urban centers across India such as the urban regions of Maharashtra rising stress levels, sedentary routines, dietary changes, and unmanaged metabolic risk factors (hypertension, diabetes, hyperlipidemia) have increased cerebrovascular risk. Educational interventions led by healthcare providers, particularly nurses, are essential to bridging this knowledge gap, facilitating timely health-seeking behaviors, and encouraging lifestyle compliance.

1.1 Objectives

The objectives of study are;

- To assess the knowledge on prevention of TIA among adults belonged to experimental and control group before intervention.
- To find out the effect of HE between pre-test and post-test knowledge scores on prevention on TIA among adults in control and experimental group.

II. MATERIALS AND METHODS

A quantitative approach was adopted and randomized experimental and control group design was used for this study. The study was carried out in the selected urban region of Maharashtra. The period of data collection was three weeks. The permission was obtained from authorities concerned ngarsevak of selected urban region. The randomized sampling technique was used to select 136 adults residing in urban regions of Maharashtra. Written consent was obtained from the samples and pre-test has been assessed for all the 136 adults from experimental and control group using demographic and Self-administered questionnaire (SAQ) questionnaire for assessing knowledge. Then the health education was given for all adults residing in urban regions to whom the pre-test was conducted. After 7 days, the post test was taken and the data was analyzed. Statistical

Analysis The data was analyzed by descriptive and inferential statistics. Demographic data was analyzed using frequency and percentage, data from the questionnaire before and after health education administered was also analyzed using frequency, percentage and 's' test. The association between knowledge findings and demographic variables was found by using t test and chi-square test.

III. RESULTS

Table 1: Distribution of adults according to their demographic variables in experimental and Comparison group

n=136

Demographical Variables	Control Group		Experimental group	
	f	%	f	%
Age Of Adults				
18-31years	26	38%	32	47%
32-45 Years	24	35%	20	29%
46-60 Years	18	26%	16	24%
Gender				
Male	29	43%	29	43%
Female	39	57%	39	57%
Education				
Non-Literate	7	10%	5	7%
Primary Education	15	22%	14	21%
Secondary And Higher Secondary	32	47%	33	49%
Degree And above	14	21%	16	24%
Marital Status				
Unmarried	16	24%	25	37%
Married	20	29%	21	31%
Divorced	16	24%	18	26%
Widowed	16	24%	4	6%
Type Of Diet				
Vegeterian Diet	17	25%	49	75%
Non-Vegetarian Diet	51	72%	19	28%
Occupation				
Unemployed	49	72%	17	25%
Employed	19	28%	51	75%
Per Capita Income				
Rs. 10000/- and below	23	34%	23	34%
Rs.10001/- and Rs.20000/-	21	31%	22	32%
Rs.20001/- and Rs.30000/-	14	21%	19	28%
Rs.30001/- and above	10	15%	7	10%

Table 2: Significant difference between pre-test and post-test knowledge score on prevention of TIA among adults in comparison and experimental group.

n=136

Group	Test	Mean	SD	Mean Difference	df	't' Value	'P' Value
Control	Pre-Test	10.91	2.93	0.04	67	0.24	0.8116
	Post-Test	10.96	2.81				
Experimental	Pre-Test	11.91	2.76	10.07	67	27.61	0.001
	Post-Test	21.99	4.06				

This table shows that the comparison group, the difference between pre-test and post-test mean scores was statistically not significant ($t = 0.24$, $p = 0.8116$). Showed virtually no change between the pre-test ($M = 10.91$) and post-test ($M = 10.96$). The difference of 0.04 was not statistically significant ($t_{67} = 0.24$, $p = 0.8116$). $p > 0.05$, there was no meaningful improvement or decline in performance in the absence of the treatment indicating no improvement without intervention. However, in the experimental group, a highly significant difference was observed between pre-test and post-test scores ($t = 27.61$, $p < 0.001$). For the Experimental Group, the pre-test mean score was 11.91 ($SD = 2.76$) and increased to a post-test mean score of 21.99 ($SD = 4.06$). This resulted in a substantial mean improvement of 10.07 points. A paired-sample t-test indicated that this increase was statistically significant, $t(67) = 27.61$, $p < .001$. The extremely high t-value confirms a highly significant gain following the intervention. This confirms that health education (HE) on prevention on Transient ischemic attack (TIA) among adults residing in urban regions was effective in improving knowledge regarding prevention of TIA.

Table 3: Significant difference in the post-test knowledge scores of adults between comparison and experimental Group.

n=136

Group	Test	Mean	SD	Mean difference	df	't' value	P value
Control	Post-test	10.96	2.81	10.07	134	18.43	0.001
Experimental	Post-test	21.99	4.06				

This table shows that the independent-samples test was conducted to compare the post-test scores of the Control and Experimental groups following the intervention. The Experimental Group scored significantly higher ($M = 21.99 \pm SD = 4.06$) than the Control Group ($M = 10.96 \pm SD = 2.81$), with a mean difference of 10.07 points, $t(134) = 18.43$, $p < .001$. These results confirm that the health education on prevention of Transient ischemic attack (TIA) among adults residing in urban region had a statistically significant, positive effect on post-test outcomes compared to the control condition.

IV. DISCUSSION

The present study was undertaken to assess the effect of Health education on prevention of Transient ischemic attack among adults residing in urban regions of Maharashtra. In contrast, the experimental group showed a marked improvement after the health education. During the pre-test, 34 participants had poor knowledge with a mean of 9.50 ± 1.24 , and 34 had average knowledge with a mean of 14.30 ± 1.56 , with an overall mean score of 11.9 ± 2.76 . After intervention, none of the participants remained in the poor category. The study finding shows that a significant increase in knowledge (pre-test control group mean = 10.91 ($t = 0.24$, $p = 0.8116$), pre-test experimental group mean = 11.91; $t = 27.61$, $p < 0.001$) The post-test mean knowledge score of the experimental group (21.99 ± 4.06) was significantly higher than the comparison group (10.96 ± 2.81). Thus, it is considered that the health education was effective to improve the knowledge scores among adults residing in urban regions of Maharashtra. The study also concluded that there was no significant association of knowledge score and selected demographic variables such as age of adults, gender, education, marital status, type of diet, occupation, per capita income because the p value is > 0.05 .

V. CONCLUSION

After the detailed analysis, this study leads to the following conclusion: The adults have good and very good level of knowledge regarding prevention of TIA. There was a significant increase in knowledge of adults after introduction of health education. To find the effectiveness of health education Self-

administered questionnaire” test was applied to the experimental and control group and post test score experimental group was significantly higher at 0.05 level than that of control group. This indicates the effectiveness of health education in improving knowledge regarding TIA prevention was found to be effective as a teaching strategy. Hence, based on the above cited findings, it was concluded undoubtedly that the educational intervention by the investigator in the form of health education helped the primary adults to increase knowledge regarding prevention of TIA.

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