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EFFECTIVENESS OF HEALTH EDUCATION ON PREVENTION AND MANAGEMENT OF CONSTIPATION IN TERMS OF KNOWLEDGE AMONG GERIATRIC PEOPLE IN A SELECTED OLD AGE HOME KOLKATA

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ABSTRACT: AIM: The aim was to evaluate the effectiveness of Health education in terms of knowledge on prevention and management of constipation among geriatric people. **SETTING AND DESIGN:** A pre experimental research was conducted in a selected old age home in Kolkata using one group pre-test posttest design, 30 geriatric people have taken by non-probability purposive sampling technique. **SUBJECTS AND METHODS:** The Semi-structure interview schedule for background information of geriatric people and structured interview schedule for assessment of knowledge of geriatric people was used to see the effectiveness of health education program. **RESULT:** Finding reveals that 70% geriatric people increased their knowledge and the health education program was effective as seen by 't' value ($t_{29}=12.53$, $p<0.001$). The posttest knowledge was not significantly associated with education and food habit of geriatric people as evidence by χ^2 value ($\chi^2_{(1)}=1.38$, $p<0.05$ and $\chi^2_{(1)}=1.38$, $p<0.05$) but pretest knowledge is significantly associated with education and food habit of geriatric people as seen by χ^2 value ($\chi^2_{(1)}=15.93$, $p<0.001$ and $\chi^2_{(1)}=12.54$, $p<0.001$). **CONCLUSION:** The findings confirmed that Health education is a cost effective intervention to enhance the knowledge of geriatric people on prevention and management of constipation. It can be implemented in nursing practice in community field, geriatric clinic and old age home. **KEYWORDS:** Health education, knowledge, geriatric people old age home, prevention and management of constipation.

INTRODUCTION: Aging is an universal, inevitable and irreversible phenomenon common to all communities and nations.¹ Constipation is an abnormal infrequency or irregular of defecation, abnormal hardening of stools that makes the passage difficulty and sometime painful, decrease stool volume and sense of incomplete evacuation after defecation.² One or more health related problem among elderly aged 65 and above is reported 86.1%. Constipation is the main problem /complication of the elderly.³ Constipation is developed five time older people than the younger people.⁴ Constipation negatively affects patient social and professional lives and places great economic burden on both patients and nations.⁵ Approach and treatment of chronic constipation is non-pharmacological and pharmacological for elderly people. With the absence of secondary causes and medication induced causes life style changes i.e. intake of eight glass of water, eating high fiber diet like fruit, vegetable, optimal time of bowel movement preferable morning and soon after meal⁶. Constipation of geriatric of geriatric people is managed by i) prevention of constipation focusing on the people who have in the risk of suffering of constipation ii) changing lifestyle and behaviour iii) pharmacological treatment iv) maintenance and prevention of recurrence.⁷

According to WHO, "health education is the development of individual, group, institutional, community and systematic strategy to improve health knowledge, attitude, skills and behavior."⁸

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Health education is an important aspect of health care for elderly people to minimize the problem. It was helpful to adopt and inculcate the behavioral patterns through constant practice to prevent the occurrence of disease or reduce the effects of illnesses.⁹ In the “Era of Population Aging” century,¹⁰ presently there are estimated 600 million persons aged 60 years all over the world. This may double by 2025 and two billion by 2050. According to estimation by 2021, India’s elderly population will cross 137 million. Presently India has the second largest aged population in the world.¹¹

The old age population is increasing proportionately in West Bengal.¹² Old age people residing old age homes to fulfill their need and care. Old age home population is increasing in India. Most of the elder people have poor health as they have a lifelong exposure to health risks, deprivation, and lack of knowledge and resources for health promotion and poor access of health services.¹⁰ Kolkata has also joined in the WHO Global Network of age-friendly Cities and communities.¹³ Effective intervention and programs are the significant cost saving health related behaviors to reduce risk and morbidity and mortality.¹⁴ This study was to evaluate the effectiveness of develop health education program on prevention and management of constipation in terms of knowledge among geriatric people in old age home.

OBJECTIVE:

1. To assess the knowledge level on prevention and management of constipation among geriatric people before and after exposure to health education on prevention and management of constipation.
2. To determine the effectiveness of health education in terms of change in knowledge of prevention and management of constipation among geriatric people.
3. To find the association between pre-test knowledge score and selected variables, post-test knowledge score and selected variables.

HYPOTHESIS: H₁: After exposure to health education program on prevention and management of constipation, the mean post-test knowledge score is higher than the mean pre-test knowledge score of the geriatric people at 0.05 level of significant. H₂: There is association between pre-test knowledge score and selected variables at 0.05 level of significance. H₃: There’s association between posttest knowledge score and selected variables at 0.05 level of significance.

Conceptual Framework: The General System theory by Ludwig Von Bertalanffy is an appropriate and useful framework to provide interrelated concepts for systemic explanation of knowledge enhancement of geriatric people of the old age home through effective health education program on prevention and management of constipation.

MATERIALS AND METHOD: Pre-experiment research approach and one group pre-test post-test research design was adopted in this study. The study was conducted at Navanir Home for the aged, Shyam Bose Road, Chetla, Kolkata-27. Geriatric people with the confirmed age of 60 and above in the old age home was the population. Thirty geriatric people from the old age home was selected by non-probability purposive sampling technique. An inclusion criterion of sample was geriatric people between the ages of 60 years and above who could see, move and hear effectively. Background

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information of geriatric people was collected by interview technique using semi structured interview schedule. Content validity and language validity was obtained of this tool.

Reliability of the tool was obtained by 100% agreement of inter-rater method. Knowledge on prevention and management of constipation of geriatric people was assessed by interview technique using structured knowledge interview schedule in two parts. Part A: all possible correct responses and part B: multiple choice questions. Content validity and language validity of the tool was obtained.

The reliability of Part A tool was computed by test-retest method and correlation coefficient obtained 0.96 by Pearson Product Moment Method. The reliability of part B tool was computed by split half method and reliability coefficient was obtained 0.83 by Spearman's Brown correlation coefficient. Health education program was developed after obtain content validity from expert.

Ethical clearance obtained from ethical committee. After obtaining permission from secretary and obtaining informed consent from all participants' demographic data and pre-test knowledge data on prevention and management of constipation was collected. Followed by pre-test, health education on prevention and management of constipation was administered. On seventh day post-test knowledge data was collected. Knowledge score interpretation: <50%- poor knowledge, 51-59%- average knowledge, >60%- good knowledge.

RESULTS: Demographic Characteristics of Geriatric People: Major participants (33%) are in the age group 65-69years, only 17% of the participants are 60-64years. The major participants (40%) are graduates and 7% are educated up to the primary level. Previous occupation of major participants (47%) was service, only 10% are businessman. The major participants (53.33%) are widows and only 10% are married. Major participants (33.33%) are cigarette addicted and only 20% are not addicted. Maximum(60%) participants are non-vegetarian and only 40% participants are vegetarian major participants (30%) are suffer from hypertension and only 30% are suffer from arthritis. Maximum participants (67%) are taking medicine and only 33% participant are not taking medicine. Among them, major (35%) participants take anti-hypertensive and 3% take diuretics.

Assess the Pre-Test and Post-Test Knowledge Score after Exposure to Health Education: In pre-test, 70% participants had poor knowledge or knowledge deficit and only 30% geriatric people had knowledge on an average to perform preventive action of constipation. 83, 33% participants had gained good knowledge and only 16.67% had average knowledge in posttest. All participants appreciable gained knowledge to perform preventive action of constipation. Maximum (70.83%) mean knowledge gained in the aspect of 'prevention of constipation and management of constipation'.

Effectiveness of health education in term of change of participant's knowledge score from pre-test to post-test. N=30

	Max score	Mean (%)Score		Mean % gain		Modified gain
		Pre-test	Post-test	Actual gain	Possible gain	
Concern about constipation	5	40	56.67	16.67	60	0.28

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Development process of constipation	3	42.22	50	7.78	57.78	0.13
Risk of suffering from constipation	8	47.5	65	17.5	52.5	0.33
Symptom	6	51.11	62.22	11.11	48.89	0.23
Complication	6	53.33	61.11	7.78	46.67	0.17
Treatment/management	6	47.22	66.66	19.44	52.78	0.37
Prevention	16	41.88	70.83	28.95	58.12	0.5

Table 1: Mean percentages of participants' pre-test and post-test score, maximum possible gain, actual gain in percentage and modified gain of knowledge aspects on prevention and management of constipation

The maximum knowledge gain was occurred in 'prevention of constipation' aspect as evidence by modified gain (0.5) as well as actual mean gain (28.95) in percentage and minimum knowledge gain occurred in 'development process of constipation' aspect as per modified gain (0.13) as well as actual mean gain (7.78) in percentage.'

N=30

FIG. 1: Frequency polygon for comparison between participants' pre-test and post-test knowledge score.

Fig. 1

The pre-test knowledge score ranges from 16 to 29 with the mean 22.87 and median 23, mode 23 and standard deviation 3.43. The post-test knowledge score ranges from 26 to 37 with the mean 32.27 and median 32.5 mode 33 and standard deviation 2.77. Lowest knowledge score of pretest was 16 to 18 where as in post-test it ranged between 28 to 30. Maximum knowledge score of geriatric people was 22 to 24 in pre-test whereas 32-34 in post-test. The standard deviation of post-test knowledge score of geriatric people (2.77) seemed to be less distributed than the pre-test knowledge score indicating less homogeneity in the respondents compared to pretest knowledge score (3.43). Figures 1 depicts that the mean pretest knowledge score lies to the left side of the median, so distribution is positively skewed and skewness = $3(\text{mean} - \text{median}) / s$ is -0.11 which is negligible indicating the scores are normally distributed. The mean posttest knowledge score lies to the left side of the median, so distribution is positively skewed and skewness is -0.24 which is negligible indicating the scores are normally distributed. N=30

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FIG. 2: Cumulative frequency polygon for the comparison of participants' pre-test and post-test knowledge score after exposure to health education on prevention management of constipation.

Fig. 2

The post-test curve lies to the right of the pre-test curve over the entire range. It indicates that the post-test scores are consistently higher than the pre-test scores. The distance separated the two curves at various levels showing the gain in knowledge after exposure to health education. A comparison between certain percentile points can also show the gain in knowledge. The 25th percentiles of pre-test and posttest are 21 and 31.67, 50th percentiles are 23.25 and 32.88, 75th percentiles are 25.8 and 34.71 respectively. So the 25th percentile of post-test knowledge scores (31.71) falls beyond the 75th percentile of pre-test (25.8), which indicates an appreciable rise in knowledge among the participants after exposure to health education. In order to find the significance of the difference between the two means of pre-test and post-test knowledge score, the 't' value computed as the pre-test and post-test knowledge score was normally distributed. In order to see the effectiveness of the health educational program, the following research hypothesis was stated.

H_1 : After exposure to health education on prevention and management of constipation, the mean post-test knowledge score is higher than the mean pre-test knowledge score of geriatric people at 0.05 level of significance. To test the research hypothesis, the following null hypothesis is stated.

H_{01} : After exposure to health education on prevention and management of constipation, there is no difference between the mean post-test and the mean pre-test knowledge score of geriatric people on prevention and management of constipation score at 0.05 level of significance.

Knowledge test	Mean	Mean _D	SD _D	SEM _D	't' value
Pre-test	22.87	9.67	4.21	0.769	12.57***
Post-test	32.27				

Table 2: Mean, Mean difference, standard deviation of difference, standard error of mean difference and 't' value of mean pre-test and mean post-test knowledge scores on prevention and management of constipation of geriatric people. N=30

t (29)=3.66, ***p < 0.001

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The mean posttest knowledge score of geriatric people (32.27) is significantly higher than the mean pre-test knowledge score (22.87) after exposure to health education on prevention and management of constipation with a mean difference of 9.67. The obtained difference between the mean post-test knowledge score and the mean pre-test knowledge score of geriatric people is found to be statistically significant as evident from 't' value of 12.57 for degree of freedom 29 at 0.001 level of significance. Therefore the obtained mean difference between pre-test and post-test knowledge score of geriatric people is a true difference and not by chance. Hence the null hypothesis H_{01} is rejected and research hypothesis H_1 is accepted because calculated 't' value is higher than table value.

Association between the participant's pre-test knowledge score and selected variables e. g., education, marital status, previous occupation and food habit.

In order to see the effectiveness of the health educational program, the following research hypothesis was stated H_{02} : There is association between pretest knowledge score and selected variables at 0.05 level of significance. To test the research hypothesis, the following null hypothesis is stated. H_{02} : There is no association between pretest knowledge score and selected variables at 0.05 level of significance.

Selected Variables	Knowledge Score		Degree of freedom	X ²	p value at level of significant
	<median	≥median			
Education					
• ≤ Secondary	11	2	1	15.93***	10.83 P<0.001
• > Secondary	2	15			
Marital Status					
• Married	1	2	1	0.14 Y	7.82 P<0.05
• Single	12	15			
Previous occupation					
• Service	2	12	3	Value cannot be calculated	7.82 P<0.05
• Business	2	1			
• Self employed	3	0			
• Housewife	6	4			
Food habit					
• Vegetarian	1	11	1	12.54***	10.83 P<0.001
• Non-vegetarian	12	6			

Table 3: Chi-squires values of association between pretest knowledge level and participants' educational level, previous occupation, marital status and food habit. N = 30

Y indicate chi-squires values after Yates correction.

Calculated χ^2 value between participants' pre-test knowledge score and education and food habit is higher than table value which indicates that the null hypothesis is rejected, research hypothesis is accepted. So Pretest knowledge score is significantly associated with education and food habit of participants at 0.05 level.

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Association between the participant's post-test knowledge score and selected variables e. g., education, marital status, previous occupation and food habit.

In order to see the effectiveness of the health educational program, the following research hypothesis are stated. H_3 : There is association between posttest knowledge score and selected variables at 0.05 level of significance. To test the research hypothesis, the following null hypothesis is stated. H_{03} : There is no association between posttest knowledge score and selected variables at 0.05 level of significance.

Selected Factors	Knowledge Score		Degree of Freedom	X^2	p value at level of significant
	<median	≥median			
Education					
• ≤ Secondary	5	8	1	1.38	3.84 P<0.05
• > Secondary	10	7			
Marital Status					
• Married	1	2	1	0 Y	7.82 P<0.05
• Single	14	13			
Previous occupation					
• Service	6	8	3	1.73	7.82 P<.05
• Business	1	2			
• Self employed	3	1			
• Housewife	5	4			
Food habit					
• Vegetarian	8	5	1	1.38	3.84 P<0.05
• Non vegetarian	7	10			

Table 4: Chi-squires values of association between post-test knowledge level and participants' educational, previous occupation, marital status and food habit N = 30

Y indicate chi-squires value after Yates correction.

Calculated X^2 value between participants' post-test knowledge score and education, marital status, previous occupation, and food habit is lower than table value indicating that the null hypothesis is accepted, research hypothesis rejected. So Post-test knowledge score is not significantly associated with education, marital status, previous occupation and food habit of participants at 0.05 levels,

DISCUSSION: Maximum participants are within age-group 65-69 years (33%), graduates(40%), previously in service (47%), widows (53.33%), cigarette addicted (33.33%), non-vegetarian (60%), suffering from hypertension (30%), and among them taken antihypertensive medicine (67%). Maximum knowledge gained in terms of mean percentage (28.95%) and modified gain (0.5) in the aspect of 'prevention of constipation'. Standard deviation of pre-test and post-test knowledge score is 3.43 and 2.77 respectively. Mean pre-test and post-test knowledge score is 22.87 and 32.67 respectively with a mean difference is 9.67.

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The 't' value for knowledge score is 12.57 at 0.001 level of significance. Mean pre-test and post-test knowledge score is 22.87 and 32.67 respectively with a mean difference is 9.67. The 't' value for knowledge score is 12.57 at 0.001 level of significance. There is association between pretest knowledge score and selected variables for example education at 0.001 level of significance and food habit at 0.05 level of significance. But there is no association between posttest knowledge score and selected variables at 0.05 level of significance.

CONCLUSION: Geriatric people have poor knowledge (70%) before administration of health educational program but knowledge (83.33%) is increased consistently after exposure to health education, to perform the preventive health behavior. Pre-test knowledge score is significantly associated with education and food habit but post-test knowledge score is not significantly associated with education and food habit. The major knowledge gain (28.95%) of geriatric people in respect of 'prevention of constipation' indicates that health education program is more effective for prevention of constipation among geriatric people. The health educational program is an effective measure to increase the knowledge of geriatric people on prevention and management of constipation. So it is effective intervention for reduce the recurrence and reduces or relieves the discomfort of constipation of the old aged people in the old age home.

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