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A DESCRIPTIVE STUDY TO ASSESS KNOWLEDGE REGARDING ENERGY CONSERVATION AMONG ADOLESCENTS IN KRISTRAJ HIGHER SECONDARY SCHOOL AT KOLLAM DISTRICT WITH A VIEW TO DEVELOP A SELF INSTRUCTIONAL MODULE

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ABSTRACT

The research project under took was "A descriptive study to assess the knowledge regarding energy conservation among adolescent in Kristraj Higher Secondary School at Kollam district with a view to develop a self instructional module." The objectives of the study were as follows to assess the knowledge regarding energy conservation among adolescents in Kristraj Higher Secondary School at Kollam.to find out the association between knowledge regarding energy conservation among adolescents and selected demographic variables. A quantitative non-experimental descriptive research design was adopted for this study. The study was conducted among 100 adolescents at Kristraj Higher secondary school Kollam district. In order to assess the knowledge regarding energy conservation among adolescents, was selected by convenience sampling technique. The tool used for data collection consisted of variables and self structured questionnaires, basic introduction of the study was given to the subjects. The analysis of the data was based on the objectives of the study. The Major findings of the study were as follows: The Study shows that out of 100 samples 27% of sample had Excellent knowledge. 52% had good knowledge. 19% had average knowledge and 2% had poor Knowledge regarding energy conservation. The study found that there was significant association between knowledge and demographic variables such as age, economical status and total number of LED bulbs. Non significant association was found between knowledge and demographic variables like type of water, previous exposure to class, number of class attended

KEYWORDS: Assess, adolescent, knowledge, energy conservation, self structured questionnaires.

INTRODUCTION

Energy is very important in the entire process of evolution, growth and survival of the world. The increasing energy demand has an adverse effect on the environment and also an increasing pressure for a government. For a developing country like India, the energy criterion decides the growth of the country. Being the third largest power producer in the world, energy demand and scarcity rules the country. Energy demand in our country is increasing exponentially. Energy conservation can be the best solution for the raising energy demand. Energy conservation is reducing the energy consumption by using less of an energy service.

A study was conducted in 2019 on the characteristics of energy- saving behaviors, attitudes and awareness of university students in Macau. This study is conducted to characterize the energy-saving, attitude and awareness of university 2 students in Macau. 800 samples were taken in this study and the data collected from 737 valid questionnaires, from five typical universities in Macau. Paper questionnaire sampling was adopted in this research study. The result showed that the energy-saving behaviors and attitudes of respondents from five universities nearly the same. Meanwhile, 75.98% of the respondents clearly recognized that energy-saving behaviors are closely related to their daily study and life, and 96.61% of the university students thought that it is very necessary to save energy. 92.94% of students thought it is necessary to carry out energy-saving education in universities. They correlated energy-saving awareness at the significance level of 10% and 5% respectively.

STATEMENT OF PROBLEM

A descriptive study to assess the knowledge regarding energy conservation among adolescents in Kristraj Higher Secondary School at Kollam district with a view to develop a self- instructional module**.**

OBJECTIVES

- To assess the knowledge regarding energy conservation among adolescents.
- To find out the association between knowledge regarding energy conservation among adolescents and selected demographic variables.
- To develop a self- instructional module regarding energy conservation among adolescents.

ASSUMPTION

- The adolescents may have some knowledge regarding energy conservation.
- There may be association between the knowledge regarding energy conservation among adolescents and selected demographic variables.

Research approach	: Quantitative research
Research design	**:** Non-Experimental survey design
Variables	**Demographic variables:** In this study the demographic variables were age, type of family, head of family, economic status, occupation of parent, place of residence, type of house, total number of LED bulb, electricity bill, source of water, previous class attended about energy conservation, number of class attended.
Setting of the study	:This study was conducted at Kristraj Higher Secondary School Kollam.
Population	: Adolescents studying in Kristraj Higher Secondary school, Kollam.
Sample	: Adolescents who are studying in plus one age group of 16-17 years in Kristraj Higher Secondary school, Kollam.
Sample Size	: The sample size was 100 adolescents studying in plus one, Kristraj Higher Secondary School,
Sampling Technique	: Convenience sampling technique

RESULT AND DISCUSSION

Section A: Description of level of knowledge regarding energy conservation among adolescents in Kristraj Higher Secondary School

The scores were interpreted as:
Excellent knowledge : 20-25
Good knowledge : 14-19
Average knowledge : 8-13
Poor knowledge : 0-07

Demographic data of adolescents in Kristraj Higher Secondary School

- In the case of age, the chi square value was 9.39 which is greater than table value as7.81at 0.05 level of significance. So there was significant association between age and knowledge of adolescents regarding energy conservation.
- In the case of type of family, the chi square value was 4.87 which is less than table value as 12.59 at 0.05 level of significance. So there was no significant association between type of family and knowledge of adolescents regarding energy conservation.
- Regarding head of family, the chi square value was 1.30 which is less than table value as 12.59 at 0.05 level of significance. So there was no significant association between head of family and knowledge of adolescents regarding energy conservation.
- Regarding economic status, the chi square value was 5.26 which is less than table value as 7.81 at 0.05 level of significance. So there was no significant association between economic status and knowledge of adolescents regarding energy conservation.
- Regarding occupation of parent, the chi square value was 11.52 which is less than table value as 16.92 at 0 .05 level of significance. So there was no significant association between occupation of parent and knowledge of adolescents regarding energy conservation.
- Regarding place of residence, the chi-square value was 5.26 which is less than table value as 7.81 at 0.05 level of significance. So there was no significant association between place of residence and knowledge of adolescents regarding energy conservation.
- Regarding type of house the chi square value was 6.04 which is less than the table value as 12.59 at 0.05 level of significance .so there was no association between type of house and knowledge of adolescents regarding energy conservation.
- Regarding total number of LED bulbs ,the chi square value was 22.83 which is greater than table value as 21.03 at 0.05 level of significance. So there was no significant association between total number of LED bulbs and knowledge of adolescents regarding energy conservation
- Regarding electricity bill, the chi square value was 1.21 which is less than table value as 7.81 at 0.05 level of significance. So there was no significant association between electricity bill and knowledge of adolescents regarding energy conservation.
- Regarding source of water, the chi square value was 2.56 which is less than table value as 12.59 at 0.05 level of significance. So there was no significant association between source of water and knowledge of adolescents regarding energy conservation.
- Regarding previous class attended, the chi square value was 5.88 which is less than table value as 7.81 at 0.05 level of significance. So there was no significant association between previous class attended and knowledge of adolescents regarding energy conservation.

- Regarding number of class attended, the chi square value was 5.10 which is less than table value as 9.49 at 0.05 level of significance. So there was no significant association between number of class attended and knowledge of adolescents regarding energy conservation.

- **Table 1: Age.**

SL NO	AGE	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	16	20	23	12	0
2	17	7	29	7	2

The table of data regarding age shows that 55% of sample were in the age group of 16years. The data regarding the age shows that 45% of sample were in the age group of 17 years.

Table 2: Type of family.

SL NO	TYPE OF FAMILY	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Nuclear family	22	43	13	2
2	Joint family	4	7	6	0
3	Extended family	1	2	0	0

The data regarding types of family shows that 80% of nuclear family, 17% of joint family and 3% of extended family.

Table 3: Head of family.

SL NO	Head of family	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Father	24	42	16	2
2	Mother	2	6	2	0
3	Any other	1	4	1	0

The data regarding the head of family shows that 84% of father, 10%of mother and 6% of any others.

Table 4: Economic status.

SL NO	Economic status	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	APL	14	29	6	2
2	BPL	13	23	13	0

The data regarding economical-status shows that 51% of APL and 49% of BPL.

Table 5: Occupation of parent.

SL NO	Occupation of parent	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Government job	6	10	5	0
2	Private employee	9	10	4	1
3	Self employee	5	17	4	1
4	Others	7	15	6	0

The data regarding occupation shows that 21% of government job, 24% private job, 26% of self employee and 29% of others

Table 6: Place of residence.

SL NO	Place of residence	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Urban	24	47	19	2
2	Rural	3	5	0	0

The data regarding place of residence shows that 92% of urban and 8% of rural areas.

Table 7: Type of house.

SL NO	Type of house	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Terraced	19	34	13	`1
2	Thatched	2	3	2	1

3	Tiled	6	15	4	0

The data regarding the types of house shows that 67% of terraced house, 8% of thatched and 25% of tiled.

Table 8: Total no. of LED bulbs.

SL NO	Total no. of LED bulbs	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	1 bulb	1	0	2	0
2	2 bulb	0	0	1	0
3	3 bulb	3	1	2	0
4	4 bulb	5	15	7	2
5	Any other	18	36	7	0

The data regarding the number of LED shows that 3% of 1 LED, 1% of 2 LED, 6% of 3 LED, 29% Of 4LED and 61% of any other number of LED are using.

Table 9: Electricity bill.

SL NO	Electricity bill	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Above500	26	47	18	2
2	Below 500	1	5	1	0

The data regarding the electric bill shows that 7% of below 500 rupees and 93% of above 500 rupees.

Table 10: Source of water.

SL NO	Source of water	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	Well	20	35	15	1
2	Municipal pipe	5	13	2	1
3	Bore well	2	4	2	0

The data regarding the source of water shows that 71% of well, 21% of municipal pipeline and 8% of bore well.

Table 11: Previous class attended.

SL NO	Previous class attended	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	YES	6	19	3	0
2	NO	21	33	15	2

The data regarding the previous exposure shows that 28% of students has the previous exposure and 72% of students has no previous exposure

Table 12: Number Class attended.

SL NO	Number Class attended	LEVEL OF KNOWLEDGE			
		Excellent	Good	Average	Poor
1	0	21	34	15	2
2	1	5	12	2	0
3	2	1	6	2	0
4	Any other	0	32	0	2

The data regarding the number of class attended shows that 72% of students are not attended, 19% of students attended the previous class at one time and 9% of students are attended the class at 2 times.

Table 5: Association between knowledge regarding energy conservation among adolescents in Kristraj Higher Secondary School, and selected demographic variables. N=100

SI.No	Variables	Level of knowledge				df	Chi square value	Table value	Significance
		Excellent	Good	Average	Poor				
1.	**Age** **16** **17**	 20 7	 23 29	 12 7	 0 2	3	9.39	7081	S*
2.	**Type of family** Nuclear family Joint family	 22 4	 43 7	 13 6	 2 0	6	4.87	12.59	NS*

	Extended family	1	2	0	0				
3.	**Head of family** Father Mother Any other	 24 2 1	 42 6 4	 16 2 1	 2 0 0	6	1.30	12.59	NS*
4.	**Economic status** **APL** **BPL**	 14 13	 29 23	 6 13	 2 0	3	5.26	7.18	S*
5.	**Occupation of parent** Government job Private employee Self employee Others	 6 9 5 7	 10 10 17 15	 5 4 4 6	 0 1 1 0	9	11.52	16.92	NS*
6	**Place of residence** Urban Rural	 24 3	 47 5	 19 0	 2 0	3	2.37	7.81	NS*
7.	**Type of house** Terraced Thatched Tiled	 19 2 6	 34 3 15	 13 2 4	 1 1 0	6	6.04	12.59	NS*
8.	**Total no. of LED bulbs** **1bulb** **2bulb** **3bulb** **4bulb** Any other	 1 0 3 5 18	 0 0 1 15 36	 2 1 2 7 7	 0 0 0 2 0	12	22.83	21.03	S*
9.	**Electricity bill** Above500 Below 500	 26 1	 47 5	 18 1	 2 0	3	1.21	7.81	NS*
10.	**Source of water** Well Municipal pipe Bore well	 20 5 2	 35 13 4	 15 2 2	 1 1 0	6	2.56	12.59	NS*
11.	**Previous class attended** Yes No	 6 21	 19 33	 3 15	 0 2	3	5.88	7.18	NS*
12.	**Number Class attended** **0** **1** **2** **Any other**	 21 5 1 0	 34 12 6 32	 15 2 2 0	 2 0 0 2	4	5.10	9.49	NS*

0.05- level of significance
NS- non-significant
S* - Significant

From the above statistical data, it was clear that there is significant association of knowledge on energy conservation among adolescents with demographic variable such as age, total number of LED bulbs. And it is also clear that there was no association of knowledge regarding energy conservation among adolescents with demographic variable such as type of family, head of family, occupation of parent, place of residence, type of house, electricity bill, source of water, previous class attended, number of class attend.

DISCUSSION

The present study was intended to assess the knowledge regarding energy conservation among adolescents in Kristraj Higher Secondary school at Kollam district, with a view to develop a self-instructional module. In order to achieve the objectives of the study, a non-experimental descriptive research design was adopted. The subjects were selected by convenient sampling. The sample consisted of 100 adolescent students of Kristraj Higher Secondary School Kollam. The findings of the study have been discussed in relation to the objectives and other similar studies.

Discussion of findings with other studies based on objectives

Assess the knowledge regarding energy conservation among adolescents

The present study shows that out of 100 sample, 27% of sample had excellent knowledge, 52% had good

knowledge, 19% had average knowledge and 2% had poor knowledge regarding energy conservation.

The above findings are supported by a study conducted to determine knowledge and factors influencing energy conservation behavior. The study was conducted in an effort to investigate a wide variety of variables and their effect on gasoline consumption, a sample of 253 heads of households who travel over 150 miles per month was selected using a cluster sampling technique. The data were collected in Salt Lake City. A structured questionnaire administered by trained interviewers was used to gather information on a variety of potential predictor variables and demographic information. The main purpose of data analysis was to identify factors that influence gasoline conservation behavior. The discriminant analysis indicated that the variables which were used in the group forming process produced significant ($p<.01$) differences between conservers and non-conservers. The most important variables in distinguishing the two groups were consumers' use of a more fuel efficient auto and consuming less gasoline than five years ago. 33.

Association between knowledge regarding energy conservation among adolescents and selected demographic variables

In the present study, significant association was found between knowledge of adolescents regarding energy conservation and demographic variables such as age, economical status and total number of LED bulbs. No significant association was found between knowledge of adolescents regarding energy conservation and demographic variables such as type of family, head of family, occupation of parent, place of residence, type of house, electricity bill, source of water, previous class attended, number of class attended.

Above findings are supported by a study, conducted to determine knowledge and factors influencing energy conservation behavior in Salt Lake City. The one factor most studied for its relationship to energy conservation was income. Income-related influences on conservation or non-conservation of energy seem to be sufficient to have created a confusing set of findings. So there was no significant relationship between energy conservation and income. The study shows a significant relationship between occupation and energy conservation practices and found that greater conservation by those with higher status occupations. There is positive association with age and energy conservation, that is older people conserve more energy than children. There is positive association with educational status and energy conservation. People who have higher education conserve more than that of people who have less educational status. Study found that there was no significant relationship between energy conservation and family life cycle. In short the study found that there was significant association between knowledge and demographic variables like occupation, age and educational status. No-significant association was found between knowledge and demographic variables like income and family life cycle.

CONCLUSION

The present study was conducted to assess the knowledge regarding energy conservation among adolescents in Kristraj Higher Secondary School at Kollam. Nursing implication of the study included in the area of nursing practice, nursing education, nursing administration and nursing research are given below.

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