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Assessment of the Knowledge and Attitude Regarding Global Warming among High School Students of Ramnagar, Belagavi city: A Cross-Sectional Study.

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Abstract: *Background: Global warming has become one of the major environmental issues facing the world today and there is distressing evidence of wide range of implications for human health. Objective: To assess the knowledge and attitude regarding global warming among the high school students. Materials and Methods: A community based cross-sectional study was carried out among 400 students of three different medium schools using pretested, self administered questionnaire. Ethical clearance, informed consent and assent was taken from the concerned authority and person. Percentage and Chi-square was applied for statistical analysis. Results: In this study only (16.5%) of students had good knowledge about global warming while majority (70.5%) of them had average knowledge and (13%) had poor knowledge towards the same. Majority (78.5%) of students had average attitude towards global warming whereas (21.5%) of them had poor attitude. A significant difference in the level of knowledge and attitude was found according to age, sex, class/grade and different medium of school at P<0.05 but no significant difference was found with place of residence and religion. Conclusion: Nearly three quarters of the students had average level of knowledge and attitude towards global warming. None of the students had good attitude towards the same.*

Keywords: *Attitude, Global Warming, High School Students, Knowledge.*

I. Introduction

Global warming is the effect accumulated due to carbon dioxide (CO_2) and water vapour (H_2O) and which insulates earth and raises atmospheric temperature of earth by preventing heat loss. It results in climatic, environmental and seasonal changes. Global change will affect every inhabitant, every part of the environment, natural resources and almost every aspect of our lives.[1]A number of recent studies signify that the rise in the temperature of the world and melting of the icebergs are the indications of global warming. Global warming occurs due to green house gases which accumulate in the atmosphere because of the usage of fossil fuels, destruction of plants and animals, rapid industrialization and urbanization .[2]

There is emerging and outstanding evidence that most of the global warming is due to anthropological causes.[3] A recent report published in the Lancet has indicated that "climate change is the biggest global health threat of the 21st century".[4]

India is the second most populous and seventh largest country in the world which is bounded by the Himalayan Mountains in the north and surrounded by Arabian Sea, the Indian Ocean and the Bay of Bengal. With its large and growing population and an economy which is closely united to its natural resource base, India's population is at risk of the impacts of climate change such as changes in forest and water resources and rise in sea level.[5]

In 2000 AD, World Health organization (WHO) estimated that 5.5 million DALY's and 1,50,000 deaths was contributed to cardiovascular diseases, diarrhoea, malaria, injuries from flooding and malnutrition which are due to the consequences of climate change even though, this excluded the problem of pollution and changes in food production.[6,7] Therefore there is an urgent need to intervene and reduce the anthropological contributors to global warming which demand a conscious and structured environment education.

Main purpose of environment education is to attain consciousness of all parts of the society through positive and permanent changes of behaviours and active involvement. Environment education should be a lifelong education, starting from the preschool stage to all the formal and public education stages.

Very few researches are done in India regarding knowledge and attitude of global warming in school students. Hence this study was conducted to assess the knowledge and attitude regarding global warming among the high school students.

II. Materials and methods

A cross-sectional study was conducted in the three high schools of Belagavi city, Karnataka from February 2014 to October 2014. Students of 8th, 9th and 10th class from 3 randomly selected high schools who gave the assent were included in the study. Students who were absent during the data collection period were excluded from the study.

Due to lack of published literature investigating knowledge and attitude levels of school students, the present study calculated the maximum possible sample size. To achieve this, 50% prevalence (p) is considered and was calculated by the formula $n= 4pq/d^2$ (q=1-p). Sample size came to 400, after considering an allowable error (d) 5%.

In Ramnagar Urban Field Practice area of JNMC, there were totally 18 Government schools, among which 7 were high schools and 11 were primary schools. Out of the total 7 high schools, 3 schools were selected by simple random sampling, lottery method (1 each in English, Kannada and Marathi medium). The selected high schools were GA Kannada medium, Mahila Vidyalay English medium and Mahila Vidyalay Marathi medium with students of 643, 339 and 479 respectively. Secondly, Proportionate based systematic random sampling was applied to select the sample of 176, 93 and 131 from the GA Kannada medium, Mahila Vidyalay English medium and Mahila Vidyalay Marathi medium high schools respectively to obtain desired sample of 400.

Pre designed and pre tested self administered questionnaire were used to elicit the information on socio-demographic status, knowledge and attitude towards global warming. The questionnaire was translated into Kannada and Marathi language from English language for collection of information from the Kannada and Marathi medium schools.

To find out the level of knowledge and attitude all the knowledge and attitude related question were compiled with considering the score of correct answer as 1 and wrong answer as 0. To assess knowledge and attitude in accordance with good, average and poor, Mean score and SD of the participants were calculated. Participants with score less than Mean score – SD was considered as poor, Mean score – SD to Mean score + SD as average and more than Mean score + SD as good. After computing Mean score and SD, participant with score >7.604 was considered as having good knowledge, between 3.776 to7.604 as average and <3.776 as poor. Similarly for the attitude related question participant with score <3.217 was considered as having poor attitude and between 3.217 to5.183 as average. None of the participant had good level of attitude towards global warming.

Data entry and analysis was made by using Statistical Package for Social Science (SPSS) software (Version 20.0). The results were expressed in percentages. Chi square test was applied to see the association. Ethical clearance was obtained from Institutional Ethics Committee (IEC) of KLEU, J.N.M.C. Written informed consent from principal of three respective schools was taken and assent from the students was obtained after explaining about the whole study.

III. Results

In this study 218 (54.5%) were boys and 182 (45.5%) were girls and majority of them were of age 14 years. Most of the participants 342 (85.5%) were Hindus followed by Muslims 58 (14.5%). Majority of the participants 291 (72.75%) were from urban area followed by rural area 109 (27.25%). Almost 141 (35.25%) of the participants were from 9th class/grade, followed by class 8th 132 (33%) and class 10th 127 (31.75%). Nearly 176 (44%) of the participants were from Kannada medium, followed by Marathi medium 131 (32.75%) and English medium 93 (23.25%). According to modified B.G. Prasad Classification 111 (27.75%) of participants belonged to class II, followed by class IV 87 (21.75%), class I 76 (19%), Class III 71 (17.75%) and Class V 55 (13.75%). (Table no. 1)

School (57.34%) was the major source of information regarding global warming followed by the media (36.57%) and friends and family (6.09%). (Fig. no. 1)

There was a significant difference in the level of knowledge of student towards global warming according to their age, sex, class/grade, different medium of school and socio-economic status at $p<0.05$ respectively. No significant difference was found with religion and place of residence with respect to their level of knowledge towards global warming. (Table no. 2)

The study found that there was a statistically significant difference in the level of attitude of student towards global warming according to their age, sex, class and different medium of school at $p<0.05$. No significant difference was found with place of residence, religion and socio-economic status with respect to their level of attitude towards global warming. (Table no. 3)

Table no. 1: Participants by socio-demographic characteristics.

Variables		Frequency	Percentage (%)
Age in years	13	43	10.75
	14	198	49.5
	15	109	27.25
	16	50	12.5
Sex	Male	218	54.5
	Female	182	45.5
Place of residence	Rural	109	27.25
	Urban	291	72.75
Class/Grade	8	132	33
	9	141	35.25
	10	127	31.75
Religion	Hindu	342	85.5
	Muslim	58	14.5
Different medium of school	English	93	23.25
	Kannada	176	44
	Marathi	131	32.75
Socio-economic status	Class I	76	19
	Class II	111	27.75
	Class III	71	17.75
	Class IV	87	21.75
	Class V	55	13.75
Total		**400**	**100**

Fig. no. 1: Sources of information regarding global warming.

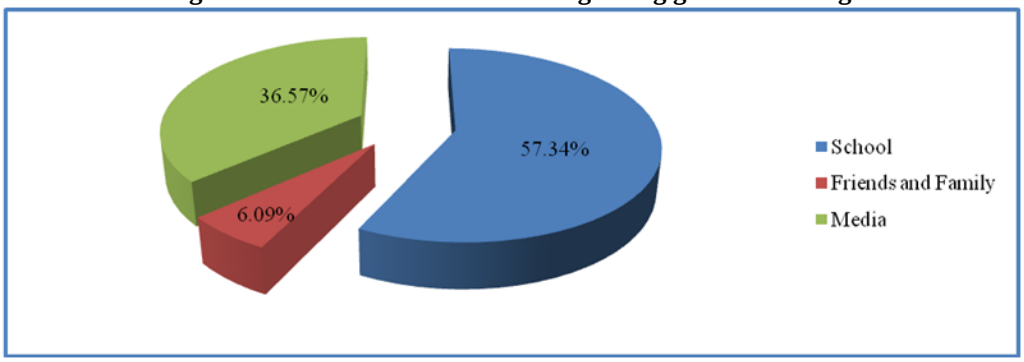

Table no. 2: Association between the levels of knowledge and socio-demographic variables.

Socio-demographic variables		Knowledge Level			Statistical test value		
		Poor (n=52)	Average (n=282)	Good (n=66)	χ^2	df	P value
Age in years	13	13	22	8	19.032	6	0.004*
	14	21	147	30			
	15	8	81	20			
	16	10	32	8			
Sex	Male	37	160	21	20.078	2	<0.001*
	Female	15	122	45			
Place of residence	Rural	13	83	13	2.710	2	0.258
	Urban	39	199	53			
Religion	Hindu	45	241	56	0.068	2	0.966
	Muslim	7	41	10			
Class/Grade	8	28	88	16	14.373	4	0.006*
	9	10	102	29			
	10	14	92	21			
Different medium of school	English	3	64	26	28.418[¥]	4	<0.001*
	Kannada	27	116	33			
	Marathi	22	102	7			

Socio-economic status	Class I	9	52	15	17.921¥	8	0.022*
	Class II	9	85	17			
	Class III	7	45	19			
	Class IV	15	60	12			
	Class V	12	40	3			

*** = Significant at p<0.05** **¥ =Yates corrected chi square test**

Table no. 3: Association between the levels of attitude and socio-demographic variables.

Socio-demographic Variables		Attitude level		Statistical test value		
		Poor (n=86)	Average (n=314)	χ^2	df	P value
Age in years	13	5	38	22.004	3	<0.001*
	14	30	168			
	15	30	79			
	16	21	29			
Sex	Male	69	149	29.254	1	<0.001*
	Female	17	165			
Place of residence	Rural	18	91	2.207	1	0.137
	Urban	68	223			
Religion	Hindu	70	272	1.489	1	0.222
	Muslim	16	42			
Class/Grade	8	14	118	21.228	2	<0.001*
	9	47	94			
	10	25	102			
Different medium of school	English	10	83	15.308	2	<0.001*
	Kannada	53	123			
	Marathi	23	108			
Socio-economic status	Class I	15	61	0.301	4	0.99
	Class II	24	87			
	Class III	15	56			
	Class IV	19	68			
	Class V	13	42			

*** =Significant at p<0.05**

IV. Discussion

In the present study, among 400 participants (54.5%) were male students and (45.5%) were female students. Majority of the children (49.5%) were of the age 14 years. About (72.75%) of the participants were from urban area followed by rural area (27.25%). (35.25%) of participants were from class 9th followed by class 8th (33%) and class 10th (31.75%). Similarly (27.25%) of the participants belonged to socio-economic class II followed by class IV 87 (21.75%), class I 76 (19%), Class III 71 (17.75%) and Class V 55 (13.75%). Our results were similar to a study conducted on climate change in which (46.1%) were male and (53.9%) were female. (59%) of children were from city schools followed by outside city schools (41%) and (35.2%) were of grade 8th followed by grade 7th (35.0%) and grade 9th (29.8%).[8]

In our study it was observed that school was the main source of information regarding global warming, which is similar to the earlier study conducted among high school students.[9]

In the present study, a significant difference was found in the level of knowledge according to age, sex, class/grade, different medium of school and socio-economic status at p<0.05 level respectively whereas no significant difference was found with place of residence and religion. Our findings were similar to a study done among high schools students, which also found a significant difference between the students of different kinds of high schools at p<0.05 level whereas no difference was found with economic situation of their families.[10] Likewise another study done in Tamil Nadu also showed that male and female students, rural and urban area students differ significantly in respect to their knowledge about global warming at p<0.01 and p<0.05 level respectively.[11]

A significant difference in the level of attitude was found according to age, sex, class/grade and different medium of school at p<0.05 level respectively whereas there was not any relationship between students level of attitude on global warming with their place of residence, religion and socio-economic status. No such literature has been found investigating attitude of student towards global warming.

V. Conclusion

The present study revealed that almost all the high school students were aware about global warming. Though the students were aware of the problem of global warming their level of knowledge and attitude towards global warming was average. Education about global warming was not adequate among students. So it is suggested that awareness campaigns/programs regarding global warming and measures to combat the same

should be done to improve their awareness for better vigilance as they are going to be the youngsters and productive population of tomorrow and the responsibility of stalling the rising problem of global warming lies with them.

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References

[1]. Aladag E, Ugurlu NB. Global climate change education in Turkey. Retrieved from http://www.herodot.net/conferences/ayvalik/papers/educ-08.pdf. Accessed on 13/12/2013.
[2]. Aydin F. Secondary school students' perceptions towards Global warming: A phenomenographic analysis. Scientific Research and Essays 2010; 5(12): 1566-70.
[3]. Santos Dos MAO. South African postgraduate consumer's attitude towards global warming. African Journal of Business Management 2011; 5(3): 4215-25.
[4]. Costello A, Abbas M, Allen A, Ball S, Bell S, Bellamy R, et al. Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. The Lancet 2009; 373(9676): 1693-733.
[5]. National Circumstances – Climate Leaders. Retrieved from http://www.climate-leaders.org/climate-change-resources/india-and-climate-change/the-national-circumstances. Accessed on 5/11/2014.
[6]. Anstey MH. Climate change and health what is the problem? Global Health 2013; 9: 4.
[7]. Shuman EK. Global climate change and infectious diseases. New England Journal of Medicine 2010; 362(12): 1061-63.
[8]. Knowledge, attitudes and practices survey on children and climate change. Prepared by CEED (2011). Retrieved from http://www.Unicef.org/.../KAP-survey-on-children-and-climate-change.pdf. Accessed on 26/11/2013.
[9]. Woods R. Currie community High school pupils views on climate change. A Research project prepared for part of measuring climate change good practice in schools, 2010. Retrieved from http://sites.ace.ed.ac.uk/ekep/files/.../curriecommunityhighschool - views-3.pdf. Accessed on 12/10/ 2013.
[10]. Ozbayrak O, Uyulgan MA, Alpat S, Alpat SK, Kartal M. A Research on High school students knowledge Related to Global Warming. Buca Egitim Fakultesi Dergisi 2011; 29: 58-67.
[11]. Sharmila V, Kulasekara PP, S. College Students knowledge about global warming. International Journal of Current Research 2012; 4(1): 157-59.