

# Climate change awareness among residents of Delhi, India.

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**Abstract:** Climate change has begun to become a topic of concern in recent times. To take decisions regarding the impact of climate change, public understanding and awareness have become a prerequisite. This study was undertaken in regard to assess the level of awareness of climate change. A structured questionnaire was used to collect data from the residents of Delhi. Findings revealed that the majority of the participants had some knowledge about climate change. Still, there were some sections of the society who had never heard of the term climate change. Results revealed that age group had significant associated with awareness. The influence of education, occupation and monthly family incomes of the upper class and upper middle class were also associated with climate change; this may have been due to additional advantage of resources. It is, therefore, necessary to improve better understanding as to be able to combat the effects of climate change.

**Index Terms:** Climate change, Awareness, Perception, Survey

## INTRODUCTION

Climate change is a global challenge that has no boundaries and to fight against it requires a coordinated effort by all countries. To improve the quality of life for better growth and development in a degrading environment, it challenges us in relation to human health and diseases. Therefore, it is equally imperative to critically address climate change as part of adverse consequences on physical, biological and public systems. Global Climate Change, the associated terms, causes, consequences, solutions and its potential health impact show the need to act immediately to evade an irreversible accumulation of greenhouse gases. Global warming adds a potentially enormous cost to the economy and society worldwide in relation to consumption of resources (Adedeji et.al, 2014). There are consequential series of events at a global scale which involves the climate in its own destruction. These effects are starting to be sensed globally and will worsen in the decades ahead. The main part of rising in temperature is due to the burning of fossil fuel which is up to 80% of all the energy (industrial) the world uses (Foster & Elzinga 2015). It is ongoing progress in the development of new philosophies. Climate change can have a positive, negative, or neutral effect on individual pathological systems because of the specific nature of the interactions between host and pathogen. As Indian cities continue their rapid growth, the number of people exposed to extreme heat due to inadequate housing and susceptible to heat-related illness due to lack of access to drinking water or electricity is set to increase (Oldenborgh et.al, 2018). Fundamental knowledge significantly improves concern about climate change and inclines to support climate-friendly policies. Therefore, to determine that risk communication one should focus on causal knowledge provided this knowledge does not threaten cultural values (Shi et.al, 2015). People who never participate in climate change public awareness are not aware of the causes and how to mitigate greenhouse gases emission and various adaptation options in agriculture and water management (Tacoli et.al, 2015). National and local programmes aiming to increase citizen commitment with climate change must be subjective to the unique context of each country, especially in the developing world. Indian National Action Plan on Climate Change reported that Indian progressive route is based on its unique resource contributions. The prevailing priority of economic and social development and poverty eradication and its adherence to its civilizational legacy places a high value on the environment and its maintenance of ecological balance. Given that climate change operates at a global scale, a lack of understanding of epidemic processes at an appropriate environmental and global scale has hindered its progress. The aim of the study was to determine the level of climate change awareness among the residential population.

## RESEARCH METHODOLOGY

**Population and Sample** - The study targeted the residential population of Delhi. Total of 1100 participants from Delhi capital region was used for the questionnaire survey. A semi-structured questionnaire was designed to achieve the research objectives written in English and local language (Hindi) used as a research tool to collect data. **Statistical tools** - Simple Random sampling was used to select respondents for the study. The variables examined include the age, gender, marital status, size of family, combined annual income, their socioeconomic, perception and challenges associated with climate change in their daily lives. Data analysis was done as per need.

## RESULTS AND DISCUSSION

Based on a survey conducted a total of 1100 participants from Delhi capital region were used for the questionnaire survey. The basic demographic characteristics of the resident's findings revealed that the majority were in the younger age group between 20-

39 years (58%). Participants came largely from middle-class socioeconomic backgrounds: the majority (60%) had degree education or higher; the majority were students (32%) and private employee (30%), majority earned between 1-3 lakh annually (42%) and 56% were married. As the study was conducted in the urban sector of Delhi the participants were mainly living residential houses with basic and essential amenities. Research participants (73%) aware of the term climate change but, 11% had not heard of the term climate change (Table 1).

Table 1 Frequency and percentage distribution variables

CHARACTERISTICS OF THE PARTICIPANTS	FREQUENCY	PERCENTAGE
AGE GROUP (In Years)		
Less Than 20	185	17%
20-39	643	58%
40- 59	204	19%
60 And Above	68	6%
GENDER		
Male	696	63%
Female	404	37%
MARITAL STATUS		
Married	614	56%
Unmarried	472	43%
No Response	14	1.3%
SOCIO-ECONOMIC CLASS		
Upper Class	329	29.9%
Upper Middle Class	534	48.5%
Lower Middle Class	179	16.3%
Lower Class	58	5.3%
EDUCATION LEVEL		
Illiterate	7	1%
Below 10th Standard	19	2%
10th Standard	82	7%
12th Standard	212	19%
Diploma	116	11%
Degree or higher	664	60%
OCCUPATION STATUS		
Employed For Daily Wages	87	8%
Government Employee	89	8%
Private Employee	332	30%
Self-Employed/ Business	85	8%
Home Maker	92	8%
Student	354	32%
Retired	46	4%
Unemployed	15	1%
INCOME GROUP		
Below 50,000/-	48	4%
50,000/- - 1 Lakh	273	25%
1 - 3 Lakh	459	42%
3 - 5 Lakh	193	18%
Above 5 Lakh	127	12%

There was a significant level of awareness (76%) among the age group between 20-39 Yrs. Gender association had a similar level of awareness between male (74%) and female (71%). The socio-economic upper class (93%) and upper middle class (72%) showed the highest percentage in regard to other lower classes. The education level showed 80% of respondents had knowledge of climate change with a degree or higher. With lower education level respondents percentage also declined. Respondents working in the government sector and income group above 5 lakh had a high percentage of 85% and 93% respectively. (Table 2)

Table 2 Cross-tabulation association between socio-demographic variables and awareness of climate change

VARIABLE	AWARENESS OF CLIMATE CHANGE		STATISTICS
	Yes %	No %	
AGE GROUP (In Years)			
Less Than 20	66	16	$\chi^2 = 13.105$
20-39	76	8	df = 6
40- 59	69	13	p = 0.041
60 And Above	73	10	
GENDER			$\chi^2 = 25.180$
Male	74	13	df= 2
Female	71	7	p < 0.001
MARITAL STATUS			$\chi^2 = 3.403$
Married	72	10	df= 4
Unmarried	74	11	p = 0.493
SOCIO-ECONOMIC CLASS			
Upper Class	93	3	$\chi^2 = 57.433$
Upper Middle Class	72	9	df= 6
Lower Middle Class	65	18	p < 0.001
Lower Class	50	31	
EDUCATION LEVEL			
Illiterate	43	43	$\chi^2 = 92.613$
Below 10th Standard	57	37	df= 10
10th Standard	60	30	p < 0.001
12th Standard	68	12	
Diploma	58	15	
Degree or higher	80	6	
OCCUPATION STATUS			
Employed For Daily Wages	55	16	$\chi^2 = 42.890$
Government Employee	85	6	df= 14
Private Employee	76	7	p < 0.001
Self-Employed/ Business	69	20	
Home Maker	62	15	
Student	75	10	
Retired	80	9	
Unemployed	60	13	
INCOME GROUP			
Below 50,000/-	81	17	$\chi^2 = 63.364$
50,000/- - 1 Lakh	64	17	df= 8
1 - 3 Lakh	69	10	p < 0.001
3 - 5 Lakh	81	6	
Above 5 Lakh	93	5	

Cross-tabulation was done to examine the association between socio-demographic variables and the awareness of the participants on climate change. Age group showed a statistically significant association ( $p = 0.041$ ), with the knowledge related to climate change. Gender, education, occupation, monthly family incomes were also associated in relation to awareness of climate change (Table 2). These percentages suggested that the education level and economic level have a significant relationship along with age group in regard to the knowledge level. A similar study indicated that most of the respondents had fair general knowledge about the subject although, analysis finds that gender, years of education, and incomes are significant factors that determine the level of awareness (Buloshi & Ramadan 2015). People know about climate change only because it has been reported in the news. The importance of knowing and raising concerns has been questioned in recent years. It has been suggested that cultural values are strong predictors of concern about climate change than knowledge from media outlets. Public knowledge does encourage freedom of expression through affordable communications tools. The survey was conducted regarding American adult's lack of knowledge on climate change; it was evident that the need for informed decision-making in a democratic society was increasing. 57% knew that the greenhouse effect refers to gases in the atmosphere that traps heat; 50% of American's understood that global warming was caused mostly by human activities. This represented that the American's knowledge and perception about climate change were not adequate enough for a significant impact within their society (Leiserowitz & Thaker 2010). It was believed that

segmented education focused specifically on the needs of particular subgroups which should have been directed towards a broader public sector. Governments with policies and legislation could play a major role. Actions and activities responsible of more gas emission to be inaccessible or of high cost while on the other hand making activities that lower emissions and promote adaptation less expensive could encourage people to make substantial changes (Buloshi & Ramadan 2015). National and regional programmes aiming to increase public commitment with climate change must be tailored to the unique context of each country, especially in the developing world. There is a growing need for research in anthropology, psychology, sociology, geography, and other fields on the issue of climate change. This is to increase the knowledge base understanding of the underlying contextual factors that influence individual or groups attitudinal and behavioural outcomes. Climate change risk communicators should develop strategies informed by the analysts of public climate change awareness and risk perception among their own target audience (Lee et.al, 2015).

## CONCLUSION

Present study findings revealed that most of the participants (73%) had some knowledge. Still, there were some sections of the society who had never heard of the term climate change. The study reveals the literacy rate was high in relation to school education in the urban sector. Majority of the participants with higher education had a fair knowledge of climate change, this shows that education plays an important role. Age group distribution showed a statistically significant association with awareness in relation to climate change. Education, occupation and monthly family incomes of Upper class and Upper middle class were also associated with climate change; this may be due to additional advantage of resources. Only through a better understanding of the changing aspects of climate effects can change the mindset of the people.

## REFERENCES

1. Anthony Leiserowitz & Jagdish Thaker. 2010. Climate change in the Indian mind. Yale Project on Climate Change Communication.
2. Cecilia Tacoli, Gordon McGranahan and David Satterthwaite. 2015. Urbanization, Rural-urban Migration and Urban Poverty.
3. Geert Jan van Oldenborgh, Sjoukje Philip, Sarah Kew, Michiel van Weele, Peter Uhe, Friederike Otto, Roop Singh, Indrani Pai, Heidi Cullen, and Krishna Achuta Rao. 2018. Extreme heat in India and anthropogenic climate change. *Natural Hazards and Earth System Sciences*. 18.365-381. 10.5194/nhess-18-365-2018.
4. Jing Shi, Vivianne H. M. Visschers and Michael Siegrist. 2015. Public Perception of Climate Change: The Importance of Knowledge and Cultural Worldviews. *Risk Analysis*. Vol. 35, No. 12.
5. Olufemi Adedeji, Okocha Reuben, Olufemi Olatoye. 2014. Global Climate Change. *Journal of Geoscience and Environment Protection*. 2; 114-122.
6. Oman Ali Said Al Buloshi and Elnazir Ramadan. 2015. Climate Change Awareness and Perception amongst the Inhabitants of Muscat Governorate. *American Journal of Climate Change*. 4; 330-336.
7. Scott Foster, David Elzinga. 2015. The Role of Fossil Fuels in a Sustainable Energy System. *UN Chronicle* Vol. LII No. 3 December.
8. Tien Ming Lee, Ezra M. Markowitz, Peter D. Howe, Chia-Ying Ko, Anthony A. Leiserowitz. 2015. Predictors of public climate change awareness and risk perception around the world. *Nature Climate Change*. 5(11), 1014–1020; DOI: 10.1038/nclimate2728.