Urban Resident's Perception of Climate Change and Health Problems: An Exploratory Study of Kolkata Metropolitan Area, India

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Introduction

- Climate change, directly and indirectly, effects on the health of different age group population. The study explored the precipitation of climate change and significant health Problems in the Kolkata Metropolitan Area..

- Urban expansion influences on the extinction of open spaces and ecologically sensitive areas. Land-use changes are the driver's force for regional climate change.

- The weather attributes temperature variation, heavy rainfall and humidity effect on health.

- Climate change-related variable effects on the health of different age group population in the Kolkata Metropolitan Area..

Literature Review

- The health impacts of climate change will be influenced by a range of factors such as environment, socioeconomic circumstances at country, regional, and personal levels(Burton, Bambrick, & Friel, 2015).

- The health risk of vector-borne diseases, such as malaria and dengue fever, increases with warming temperature from 1.5 °C to 2 °C (Cissé, 2019).

- Climate change is one of the emerging challenges to the psychological health of the entire humanity (Kabir, 2018).

- Extreme temperature events and global climatic change may put a significant health risk (Boeckmann, 2016).

- Physical and psychological health can be affected by the social context; It is indirect impacts of climate change that will affect interpersonal relationships within the communities and overall quality of life (Manning & Clayton, 2018).

- Groups of people at high risk of these adverse health effects include the elderly, especially those who live independently. Many people also have a higher risk of pre-existing illnesses, and people living in congested areas or socio-economically deprive (Vardoulakis et al., 2015).

Need of the Study

- According to the World Bank Report and another published report of the Organization for Economic Co-operation and Development (OECD) said in terms of population exposure, by 2050, almost 40 percent of the city area and 47 percent of city population would be affected as a climate change consequence.

- Climate change is fast turning out to be a big challenge for megacities in India.

Aim of the Study

- To examine the household's perception and knowledge about climate change and climate change-related health problems in the Kolkata Metropolitan Area.

Data Source & Methods of Analysis

- The proposed study was carried out by using primary data. This study nature is exploratory.
- Both qualitative and quantitative data was collected for the study. The eligible sample was interviewed through the semi-structured interview schedule and gather the required information.
- The statistical techniques was used for data analysis through a bivariate analysis and Chi-Square test.
- This study also used narrative analysis method for qualitative data analysis.

Definition of the variable

Climate Change: Climate change in IPCC usage refers to a change in the climate that can be identified (e.g., using statistical tests) by changes in the mean and the variability of its properties, which persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.

Results

Table: 1 Socio-Demographic characteristics of Study population in Kolkata Metropolitan Region

	Frequency	Percentage
Gender		
Female	22	31.43
Male	48	68.57
Age		
45-54	30	42.86
55-64	25	35.71
65and above	15	21.43
Marital Status		
Married	49	70
Widowed	21	30
Occupation		
Govt. Job	4	5.71
Private Job	12	17.14
Business	31	44.29
Others	23	32.86
Type of family		
Nuclear	49	70
Joint	21	30
Religion		
Muslim & Christian	10	14.29
Hindu	60	85.71
Caste		
SC/ST/OBC	32	45.71
General	38	54.29
Type of House		
Semi Pucca	48	68.57
Pucca	22	31.43
Separate Kitchen		
Yes	37	52.86
No	33	47.14
Source of Drinking Water		
Tap water	23	32.86
Packaged drinking water	47	67.14

Climatic phenomenon changed in last 30 years in Kolkata Metropolitan Area

Climatic Phenomena	Frequency	Percent of responses	Percent of cases
Changing patterns of rainfall	63	17.4	90.0
Temperature increasing	70	19.3	100.0
Temperature variation in day and night time	31	8.6	44.3
Winter temperature increasing as compare the past year	35	9.7	50.0
Natural calamities	46	12.7	65.7
Frequently flood	53	14.6	75.7
Increasing pollution and dust	64	17.7	91.4

Key Findings

- The study shows that the Respondents had a clear perception and knowledge about climate change and their health problems.

- Respondent reported that climatic variability, such as *temperature* and *rainfall patterns*, changed over the last *thirty years.*

- Around *ninety* percent of people reported that rainfall pattern is changing as compared the previous year.

- But they still experienced temperature is increasing over the time period.

- Over **eighty percent** of urban residents faced negative health consequences due to climate change.

Cont…

Urban resident responses the main causes of climate change in Kolkata Metropolitan Area

Reason of climate change	Frequency	Percent of responses	Percent of cases
Urban expansion	44.00	11.3	62.86
Land use changes	63.00	16.2	90.00
Decreasing of natural vegetations	55.00	14.1	78.57
Industrialization	10.00	2.6	14.29
Population growth	55.00	14.1	78.57
Increasing the motor vehicles	67.00	17.2	95.71
Increasing the pollution and dusts	68.00	17.4	97.14
Household energy consumption	28.00	7.2	40.00

Table 2. Knowledge and perception about climate change in Kolkata Metropolitan Area

Table: 2 Knowledge and perception about climate change in Kolkata Metropolitan Area

	No	*Yes*	Chi Square value	*P*
Gender				
Female	3(13.64)	19(86.36)	6.84	0.01
Male	0(0.0)	48(100.00)		
Age				
45-54	0(0.00)	30(100.00)	4.34	0.11
55-64	1(4.00)	24(96.00)		
65and above	2(13.33)	13(86.67)		
Marital Status				
Married	0(0.00)	49(100.00)	7.31	0.01
Widowed	3(14.29)	18(85.71)		
Occupation				
Govt. Job	0(0.00)	4(100.00)	1.89	0.60
Private Job	0(0.00)	12(100.00)		
Business	1(3.23)	30(96.77)		
Others	2(4.29)	67(95.71)		
Type of family				
Nuclear	3(6.12)	46(93.88)	1.34	0.25
Joint	0(0.00)	21(100.00)		
Religion				
Muslim & Christian	0(0.00)	10(100.00)	0.52	0.47
Hindu	3(5.00)	57(95.00)		
Caste				
SC/ST/OBC	0(0.00)	32(100.00)	2.64	0.10
General	3(7.89)	35(92.11)		
Type of House				
Semi Pucca	3(6.25)	45(93.75)	1.44	0.23
Pucca	0(0.00)	22(100.00)		
Separate Kitchen				
Yes	0(0.00)	37(100.00)	3.51	0.06
No	3(9.09)	30(90.91)		
Source of Drinking Water				
Tap water	2(8.70)	21(91.30)	1.62	0.20
Packaged drinking water	1(2.13)	46(97.87)		

Table 3. Climate change related major health problems of study population

Table: 3 Climate change related Major health problems of the study population

Health problems	No	Yes
Eye irritation	31(44.29)	39(55.71)
Diarrhea	49(70.00)	21(30.00)
Typhoid	59(84.29)	11(15.71)
Malaria	62(88.57)	8(11.43)
Dengue	37(52.86)	33(47.14)
Asthma	27(38.57)	43(61.43)
Skin disease	28(40.00)	42(60.00)
Cold and cough	20(28.57)	50(71.43)

- *Children, women, old age people* were equally affected negative health issue due to climate change.

- Self-reported major health problems are *dengue, malaria, diarrhea, eye irritation, asthma, and cold and cough.*

- Focus Group Discussion and In-Depth Interviews respondents have also reported the *same health problems*.

- **Forty-seven** percent and more than **Sixty** percent respondents have perceived the vector borne disease and Asthma.

Conclusion

- Climate change directly and indirectly effect on health of the city population in Kolkata metropolitan Area.

- Our study revealed that a high proportion of surveyed respondents have knowledge about the climate change and climate change related health problems.

- Based on these key findings, Policy makers can developed effective strategies protect the health issues from the adverse effect of climate change.

THANK YOU