International Journal of Multidisciplinary Research and Development
Online ISSN: 2349-4182, Print ISSN: 2349-5979; Impact Factor: RJIF 5.72
Received: 08-10-2020; Accepted: 23-10-2020; Published: 16-11-2020
www.allsubjectjournal.com
Volume 7; Issue 11; 2020; Page No. 86-90

Role profession in perceiving climate change impacts in Southern Pakistan

Muhammad Zubair[1*], Bakhtawar Younes[2], Akash Jamil[3], Syed Bilal Hussain[4]
[1-3] Department of Forestry & Range Management, FAS&T, Bahauddin Zakariya University, Multan, Pakistan
[4] Institute of Molecular Biology and Biotechnology, Bahauddin Zakariya University, Multan, Pakistan

Abstract
It is important to understand perceptions about climate change and identify factors affecting this phenomenon to render combat action. Present study is focusses on profession (employed and unemployed) of respondents to comprehend their climate knowledge and how various factors affecting their perceptions. A total of 195 respondents in employed (doctors, policeman, academics, government officers, engineers and guards) and self-employed (businessman, sportsman politicans and farmers) categories were randomly selected. Data reveled significant differences amongst profession categories regarding perceptions of climate change, global warming and positively endorsed action to concentrate on combat measures. Application of logit explains significant influence of the perceptions of the effect (SE 0.081, $p<0.13$) source of information (SE 0.060, $p<0.013$) concerns about climate change (SE 0.145, $p<0.002$) as well as prevalence of global warming (SE 0.218, $p<0.023$) on respondent's profession. The study yielded implication to promote policies about increasing awareness raising amongst masses based on profession.

Keywords: profession, global warming, source of information, education, gender

Introduction

Climate change is now shaping out to be one of the biggest perils in the history of mankind that has capacity of imparting destructive impacts (Levin *et al*., 2012) [12]. Climate change gradually and consistently is showing its effects in disturbing the environment by increased frequency and intensity of droughts, heat waves, hurricanes, floods and forest fires (Meehl *et al*., 2007; Chakraborty *et al*., 2014) [14, 5]. This part of the world had seen the biggest natural calamities in the shape of 2004 Indian Ocean Tsunami, the 2005 Pakistan Earthquake, and the 2006 landslides in the Philippines (UNFCCC, 2007) [21]. As the climate change is on the verge of creating havoc it is feared that extreme weather events such as tropical cyclones, tornadoes thunderstorms, severe dust storms, heat waves, prolonged dry spells and intense rainfall will be experienced in the region (Yumul *et al*., 2011; Brikman *et al*., 2015) [25, 3].

There are many studies that still depict divided opinion about climate change among various groups of people in the world. The research conducted by (Mildenberger & Leiserowitz 2017) [15] advocated that many people were having set of different opinions about the climate change. The author had named this trend as the shifting climate change opinion. The researches did however analyze this trend of climate literacy to be due to change of attitudes (Brulle *et al*., 2012) [4]. But studies conducted by (Lee *et al*., 2015; Weber and Stern, 2011) [10, 23] came into a definite conclusion that there are just more than the pollution levels that derive the perception of local and global audience to climate change in the world. But there are wide range of reasons that lead to build up a certain viewpoint in terms of knowledge and perception of climate change. The studies clearly depicted that people having different literacy levels, belonging to various religions and socioeconomic backgrounds have different viewpoints relating the knowledge about climate change and its perception (Wolf and Moser 2011; Doherty and Clayton, 2011) [16, 8].

In the recent past, researchers have focused on determining the levels of climate change awareness, particular knowledge perceived risks and different approaches to mitigate its effects (Novackova and Tol, 2018; Abuelgasim and Daiban 2017) [16, 2]. Leiserowitz (2006) [17] argued that by shaping out the general public risk perceptions and the concerns about climate change brings far greater and quick political, economic and social response from the policy makers in order to address that particular perceived risk. These kinds of studies have potential to empower the individual and their observation regarding the climate change based on their ecological conditions and cultural context (Turner *et al*., 2009) [20]. This kind of information then can provide significant models and inimitable understandings of climate change (Salick *et al*., 2009) [17]. In the case of climate change, it is essential to get the perception of the local people regarding the subject or issue whether the individual is a leader in a business firm, government or a simple employ of an organization, it is because these individuals ultimately are the actors who set up, inspire, escort and sanctions the essential cuts in GHG emissions in order to cut down global warming and halt climate change and its impacts (Wolf, 2011) [24]

The levels of climate change awareness and risk perception among various groups in the society of people vary greatly. The different views and opinions regarding global warming and the knowledge about it is not as straight forward as it may seems as there are wide set of points that have the potential to determine, predict and govern the level of awareness regarding climate change (Hansen *et al*., 2012) [9]. According to different researches scientist came out with factors including experiential, psychological, physical and socio-cultural variables have a definite role in shaping out the perception of local people regarding climate change. The climate change awareness and perception are unevenly

distributed across the world (Lee *et al*., 2015) [10]. According to (Doherty and Clayton, 2011) [8]. Another strong predictor of climate change perception is the income level of the respondents. But income mostly is dependent upon the education and the scenario of the region regarding the impacts observed. (Smith *et al*., 2014; Debela *et al*., 2015) [19, 6]. Manzoor *et al*., (2016) [13] while studying the local perception of climate change among the people of urban centers in Pakistan showed that the people have a consensus that climate change is do happening and the impacts in their daily life were being observed.

The current research is based on a survey study that focuses on perceptions of different segments of society based on their profession (employed/unemployed) about climate change and how different factors affect their perceptions were investigated.

Methodology

Study Area

Present research is conducted in southern Pakistan important district Multan. Multan is the third largest city in Pakistan by region and is the fifth largest in population. The total region of the Multan zone is 3720 square kilometers. It is surrounded in the east by the famous river Chenab. The area is warm and dry. The temperatures during summer may rose between 42 and 50 degrees centigrade, regardless. In winter maximum and minimum temperatures ranged between 22 and 8 degrees centigrade. Most of the rain in the middle of the storm from July to September.

Sampling Design

In order to obtain the information, the authors selected simple random sampling. The respondents were surveyed on the basis of their profesions. Two main categories selected were employed and self-employed. In employed the proffesions included were doctors, policeman, academics, government officers, engineers' shopkeepers and guards. While in the self-employed section businessman, sportsman politicans and farmers. The total populaation of the respndents selected were 195.

Research Tools

The survey conducted employed a short structured and close ended questionnaire. The questionnaire was filled after a one on one interview with the participants. The total time taken on one interview was 5 minutes and was carried out keeping in mind the code of ethics for a survey. The questionnaire aimed to determine the Climate literacy among the various sectors of the society their concern regarding the climate change, impact on the financial components and their expectations from the government related the curbing of this atrocity.

Data analysis

The data gathered during the survey was systematized into a Microsoft Excel spreadsheet and then it was imported into a Statistical package for social science (SPSS Inc, IBM Corporation, Somers, NY, USA) version 21. The data was utilized to carry out descriptive statistics with respect to different socio-economic aspects, including age, profession, and education on the perception, awareness regarding climate change and binary logit model was employed.

Binary logistic Model explanation

The binary logistic regression model is used to determine the how profession of respondent (employed/self-employed) s dichotomous variable perceive impact of climate change and its associated concerns and factors. The model is termed as

Logit Model (pi) = Log (pi/1-pi)

Where, pi donates the probability of yes and (1-pi) is the probability of no.

Profession (Employed/Self Employed) = 0 + Source of Information+ effect of climate change+ Concern about climate change+ Perception of global warming). All independent and explanatory variables were binary in nature. Source of Information (0 = Radio, 1 = T.v 2= Social Media 3= Print media 4= Community), effect of climate change (0 = Increased Natural Hazards 1= Increased pollution 2= Death of animal and tree species 3= Emergence of New diseases. Concern about climate change (0 =Not important, 1 =Somewhat important 2= Modern methods), Perception of Global warming (0 = Anthropogenic factors, 1 = Natural Phenomenon).

Results and Discussion

For the current study on the perception of climate change the authors selected the region of South Punjab involving the district of Multan. Respondents were classified into two major groups, ie employees and the self-employed. The result was significant, showing that respondents perceive the perception of climate change as a threat. The data showed that in Multan there were 69% of people who were in the category of employees, while only 31% of the selected respondents were independent. The results showed that men perceive more the impact of climate change as compared to women. Statistical results showed an insignificant relationship showing that women were not conscious ($p < 0.124$). It was described that 86% of men took part, while only 14% of employed women were involved in the survey.

Empirical evidence depicted that women did not give answers because they were not allowed to talk to strangers, so the overall percentage of respondents consisted more of male respondents. Similar results were described for the category of self-employed in which men were dominant (72%), while women were limited (28%). A similar study conducted in the west showed different results (Table-1). Where Abdel-Monem *et al*., (2014) [1] depicted a large number of women participating in the survey 63% women, while only 37% men participate. According to him, women showed more interest compared to men. They were of the opinion of protecting the environment. Various seminars and workshops need to be organized to raise awareness among women in this country. When questions related to education were asked, the results obtained were insignificant respondents who did not prefer to study. The illiteracy rate in southern Punjab is quite high. The data showed that 4% of employees were illiterate. While they were about 49% of graduates fall into the category of self-employed. There were about 21% of graduates who fall into the category of employees. The same question, when asked by self-employed people, gave different results, such as 19% of respondents were illiterate, about 1% of people studied to the mayor, 12% to the middle. The results showed that there were about 46% of graduates who also worked on their own.

Regarding education of the respondents, the data revealed non-significant results. Illiteracy remained on a higher side in southern. It is interesting to note that most of the respondents were educated (employed: 49%; Unemployed: 46%), Self-employed respondent are more illiterate than employed because some form of education is needed for employment. The data showed that the 4% of employed people were illiterate. The same question when asked from the self-employed people yielded different results such as 19% of the respondents were illiterate, about 1% of people studied up to primary, 12nn% up to the middle. The results showed that there were about 46% of graduated people that were also self-employed (Table 1). When the present results were associated with Schattman *et al*., (2019) [18] it displayed that only 1% of the respondents were having qualifications of matric. But the major proportion of the participants were graduates and were having professional degrees. During the survey, when we asked respondents questions about the state of their household, that showed insignificant relationship. About 7% of the self-employed and only 6% of the employees had kacha houses. Due to financial problems, they could not afford pukka houses. But 94% of employees and 93% of self-employed respond to living in pakka houses. In the study of Wolf *et al*. (2011) [24] 33% people belonged to the village, while 67% people from the city. He said that while people were migrating from the village to cities that are contributing to climate change. Because urbanization causes environmental pollution, which is a cause of climate change (Table 1).

Table 1: Socioeconomics of the respondents

Variables	Categories	Employed	Self-employed	Statistical analysis
Education	Illiterate	04	19	P <0.095
	5th grade (Primary)	04	01	
	8th grade (middle)	07	12	
	USSC (matric)	16	09	
	Up to Graduation	50	45	
	Post-Graduation	20	13	
Gender	Male	87	73	P <0.124
	Female	13	29	
House	Pakka (brick masonry)	94	93	0.686
	Kaccha (mud houses)	06	07	

Climate literacy and perception of Respondents about Climate Change

Concerning perceptions of climate change, the results depicted that participations mentioned differently on the increase in earth temperature (employees-42%; self-employed-39%; p <0.004), thus showing a relationship between respondents and the causes of climate change. About 23% self-employed people said that climate change is caused by rising temperatures, while about 8% of employed respondents were of the same opinion. About 11% of self-employed people perceived climate change as a change in the weather. While only 10% of employees perceived that weather, change is climate change. It was observed that 40% of employees considered that climate change is caused by a rise in temperature, rising sea levels and changing weather.

It was observed that self-employed workers also had the same point of view. After analysis, the authors found that maximum people perceived climate change to be caused by a rise in temperature. During the survey, when we receive the respondents' opinion about global warming, we obtain the insignificant relationship (p <0.007). Respondents, about 55% of employees and 42% of the self-employed felt that global warming is a rise in temperature. While 43% of employees and 34% of self-employed people thought that rising atmospheric temperature is global warming. Regarding respondents, only 23% of the self-employed and 5% of those employed say that global warming causes ice to melt (Table 4.9). A similar question was asked in Van der linden *et al*., (2015)[22]. in which about 65% of the respondents said that global warming raises the earth's temperature, while only 35% of respondents answer this due to melting global warming ice. When the ice melts we face the flood. (Table 2).

Table 2: Climate change perception Determinants

Percentage of Respondents				
Variable	**Categories**	**Employed**	**Self-employed**	**Statistical analysis**
What is climate change?	Weather change	10	11	P <0.004
	Rise in temperature	42	39	
	Rise in sea level	08	23	
	All of the above	40	27	
What global warming?	Temperature of the earth is increasing	52	42	p<0.007
	Atmospheric temperature is increasing	43	34	
	Melting of ice sheets	05	24	
Combating climate change	Strongly agree	09	27	P <0.013
	Agree	72	38	
	No opinion	08	07	
	Disagree	12	17	
	Strongly disagree	02	09	

When we asked the respondents that if climate change could be controlled, we obtained significant relationship (p <0.000). As majority of the respondents from the employed category were of the view that climate change could be controlled while only 11% were disagreeing of this point of view. During the survey, the same question was asked by the self-employed, in which 28% of self-employed workers agreed, 37% agreed, while 18% of respondents disagreed.

Logit Model Explanation

The current study used a Binary logit model that employed a likelihood evaluation using a chi square test. The model depicted that which factors predict the climate change perception of various components of the society. The model aims to understand what various factors of climate change literacy has capacity to determine the perception of climate change among various professions in the urban society of South Punjab Pakistan. Maximum likelihood is typically used for determining possibility functions as the results obtained comes out according, asymptomatically, and suitably dispersed. Here, a total of 4 variables were utilized among which all of the variables depicted significant relationship. Source of Information, effect of climate change, concern about climate change and perception about climate change. The result in the present research depicts that the perception of climate change is a significant determinant of various professions in the society.

Table-3 revealed that among independent significant variables, source of information displayed negative correlation (B= -1.49, Wald= 6.166. p<0.013) with the dependent variable (i.e. Profession). The negative sign of the beta here shows that the self-employed people had more interaction with radio and T.V thus making them more aware of the climate change and had more concern regarding the issue. It is due to the reason that most populations in the cities are more likely to be influenced by the radio and T.V (Dodman *et al* 2012) [7]. Effect of climate change depicted a significant relationship with the Profession category of the society (B= .222, Wald= 7.547. p<0.006). It was observed that the employed people n the society were perceiving that climate change is the name of the emergence of new diseases that are capable of erasing human race. While the self-employed had perceived climate change to be the changing of weather and precipitation pattern. Concern regarding climate change was another important question that depicted a significant relationship with the profession variable (B=. -4.39, Wald= 9.145. p<0.002). It was seen that the people from the self-employed division were not much to slightly concern about the climate change while the employed people were slightly more concerned about it. Lastly the perception of global warming also displayed a significant relationship with the profession in the society (B=.444 Wald=5.161 p<0.023). It was observed that the people perception of climate change had a significant relationship with the profession in the community. It was depicted that the people from the employed section of the community depicted that it is natural phenomenon while the self-employed person believed it to be a natural phenomenon.

Table 3: Binary Logistic model

Variables	B	S. E	Wald	df	Sig.
Source of Information	-1.49	.060	6.166	1	0.013
Effect of Climate change	.222	.081	7.547	1	0.006
Concern about climate change	-4.39	.145	9.145	1	0.002
Perception about global warming	.444	.218	5.161	1	0.023
-2 Likelihood	230.128[b]				
Chi- Square	3 4.485				
df	4				
Significance	0.000				

B = Beta, S.E = Standard Error, Wald = Wald Chi Square, Df = Degrees of Freedom, Sig = Significant $p<0.050$

Conclusion

It has been observed that people are well aware of the climate change and concepts associated with it. This study provides baseline information about sectors of the community based on profession about an understanding of climate change, which will be helpful to utilize to launch a campaign for the awareness of the masses. The study concludes that there is considerate amount of polarization among the self-employed and employed section regarding the climate literacy and perception. The study recommends that the policy makers while making a climate policy must incorporate views of various professions in the society.

References

1. Abdel-Monem T, PytlikZillig LM, Bernadt TK, Wall NA. Climate change survey measures: Exploring perceived bias and question interpretation. Great plains research. 2014; 24(2):153-168.
2. Abuelgasim A, Daiban S. Levels of Climate Change Awareness in the United Arab Emirates, 2017.
3. Birkmann J, Cutter SL, Rothman DS, Welle T, Garschagen M, Van Ruijven B, *et al*. Scenarios for vulnerability: opportunities and constraints in the context of climate change and disaster risk. Climatic Change. 2015; 133(1):53-68.
4. Brulle RJ, Carmichael J, Jenkins JC. Shifting public opinion on climate change: an empirical assessment of factors influencing concern over climate change in the US, 2002–2010. Climatic change. 2012; 114(2):169-188.
5. Chakraborty A, Joshi PK, Sachdeva K. Predicting distribution of major forest tree species to potential impacts of climate change in the central Himalayan region. Ecological Engineering. 2016; 97:593-609.
6. Debela N, Mohammed C, Bridle K, Corkrey R, McNeil D. Perception of climate change and its impact by smallholders in pastoral/agropastoral systems of Borana, South Ethiopia. Springer Plus. 2015; 4(1):236.
7. Dodman D, Bicknell J, Satterthwaite D. (Eds.). Adapting cities to climate change: understanding and addressing the development challenges. Routledge, 2012.

8. Doherty TJ, Clayton S. The psychological impacts of global climate change. American Psychologist. 2011; 66(4):265.
9. Hansen J, Sato M, Ruedy R. Perception of climate change. Proceedings of the National Academy of Sciences. 2012; 109(37):E2415-E2423.
10. Lee TM, Markowitz EM, Howe PD, Ko CY, Leiserowitz AA. Predictors of public climate change awareness and risk perception around the world. Nature climate change. 2015; 5(11):1014-1020.
11. Leiserowitz A. Climate change risk perception and policy preferences: The role of affect, imagery, and values. Climatic change. 2006; 77(1-2):45-72.
12. Levin K, Cashore B, Bernstein S, Auld G. Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change. Policy sciences. 2012; 45(2):123-152.
13. Manzoor SA, Jamil A, Ansari AN, Siddique S, Javed J, *et al*. How do we perceive climate change? Digging deep in to the public climate change awareness and beliefs in the urban community of Southern Punjab, Pakistan. Russian Journal of Agricultural and Socio-Economic Sciences, 2016, 53(5).
14. Meehl GA, Covey C, Delworth T, Latif M, McAvaney B, Mitchell JF, *et al*. The WCRP CMIP3 multimodel dataset: A new era in climate change research. Bulletin of the American meteorological society. 2007; 88(9):1383-1394.
15. Mildenberger M, Leiserowitz A. Public opinion on climate change: Is there an economy–environment tradeoff?. Environmental Politics. 2017; 26(5):801-824.
16. Novackova M, Tol RS. Climate Change Awareness and Willingness to Pay for its Mitigation: Evidence from the UK (No. 0318), 2018.
17. Salick J, Fang Z, Byg A. Eastern Himalayan alpine plant ecology, Tibetan ethnobotany, and climate change. Global Environmental Change. 2009; 19(2):147-155.
18. Schattman RE, Kaplan M, Aitken HM, Helminski J. Climate change curricula for adult audiences in agriculture and forestry: A review. Journal of Adult and Continuing Education. 2019; 25(1):131-151.
19. Smith Jr, WJ, Liu Z, Safi AS, Chief K. Climate change perception, observation and policy support in rural Nevada: A comparative analysis of Native Americans, non-native ranchers and farmers and mainstream America. Environmental science & policy. 2014; 42:101-122.
20. Turner NJ, Clifton H. "It's so different today": Climate change and indigenous lifeways in British Columbia, Canada. Global Environmental Change. 2009; 19(2):180-190.
21. UNFCCC. Local Coping Strategies Database. Available online at, 2007. http://maindb.unfccc.int/public/adaptation/ (accessed 10 September 2020)
22. Van der Linden S. The social-psychological determinants of climate change risk perceptions: Towards a comprehensive model. Journal of Environmental Psychology. 2015; 41:112-124.
23. Weber EU, Stern PC. Public understanding of climate change in the United States. American Psychologist. 2011; 66(4):315.
24. Wolf J, Moser SC. Individual understandings, perceptions, and engagement with climate change: insights from in-depth studies across the world. Wiley Interdisciplinary Reviews: Climate Change. 2011; 2(4):547-569.
25. Yumul Jr, GP, Cruz NA, Servando NT, Dimalanta CB. Extreme weather events and related disasters in the Philippines, 2004–08: a sign of what climate change will mean? Disasters. 2011; 35(2):362-382.