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Research Article

Assessing Climate-Related Behavioural Engagement in the Himalayan Region of India

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ABSTRACT

Introduction: The Himalayan region, known for its natural heritage and unique biodiversity, is particularly vulnerable to the impacts of climate change. From this perspective behavioral engagement emerges as a crucial factor, as individual and collective actions significantly influence climate adaptation, resilience and sustainable environmental practices in the region.

Objectives: This research paper aims to assess the climate-related behavioral engagement among population, considering Preservation and utilization factors that influence their actions.

Methods: The researcher employed a 2-MEV scale to collect data from 142 respondents, from different parts of Uttarakhand, representing a diverse cross-section of the population.

Results: Key findings revealed a noteworthy level of engagement among the respondents regarding climate change issues, with 50 percent respondents reported to agree to indulge in some or other kind of climate related actions.

Conclusions: This study provides insights into their adaptation strategies and broader understanding of climate resilience, sustainable development and environmental conservation.

Key words: Climate Change, 2-MEV Scale, Behavioral Engagement, Environmental Conservation.

1.0 INTRODUCTION

The Himalayan region, characterized by its awe-inspiring landscapes and ecological significance, is confronting the ramifications of climate change with increasing urgency. This ecologically sensitive area is home to a diverse population of indigenous communities whose lives and livelihoods are intricately intertwined with the region's natural environment. As climate change accelerates, the Himalayas are experiencing a series of complex challenges, including glacial melt, altered precipitation patterns, shifts in agriculture, and a heightened vulnerability to extreme weather events. These changes have profound implications for the communities that inhabit this unique landscape, and their responses are critical in determining the future of the region. The Intergovernmental Panel on Climate Change (IPCC) has identified the Himalayan region as one of the "hotspots" of climate change, susceptible to a myriad of environmental, social, and economic challenges (IPCC, 2019). The region's vulnerability to climate change is underscored by a series of alarming reports, including the Hindu Kush Himalaya Assessment Report (2019) and research studies such as the one by Immerzeel et al. (2020), which detail the notable changes occurring in the Himalayan cryosphere.

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As the impacts of climate change continue to mount, it is imperative to understand how the Himalayan population perceives, adapts to, and mitigates these changes. Research by Ojha et al. (2016) has emphasized the importance of local knowledge ,engagement and community-based climate adaptation in the Himalayan region. In this context, our study delves into the intricate web of climate engagement behaviours exhibited by the same population. Understanding the dynamics of climate-related behavioural engagement within the Himalayan region is crucial for the development of informed and effective climate resilience strategies.

This study adds to the larger conversation on climate change adaptation and helps to preserve one of the most important ecosystems on Earth by assessing the adaptive strategies and attitudes that influence the respondents' climate-related actions.

2.0 LITERATURE REVIEW

The Himalayan region, celebrated for its awe-inspiring landscapes, rich biodiversity, and unique cultural diversity, faces an ever-increasing threat from the impacts of climate change. Climate change poses a profound challenge to the lives and livelihoods of the indigenous communities that call this region home. As global temperatures rise, the Himalayas are experiencing a cascade of climatic changes, including glacier melt, altered precipitation patterns, increased weather extremes, and disruptions to traditional agricultural practices. These shifts have far-reaching implications for the populations residing in this ecologically sensitive area. This literature review presents a comprehensive overview of recent studies related to climate engagement and behavioural responses in the Himalayan region.

The Himalayan region has been identified as a climate change hotspot, with a high level of vulnerability to climate impacts. The Intergovernmental Panel on Climate Change (IPCC) has recognized the Himalayas as particularly susceptible to changes in temperature and precipitation, leading to disruptions in water resources and glacial melt (IPCC, 2019). Himalayan cryosphere, which includes glaciers and snowpack, is experiencing rapid changes (Bolch et al., 2019). Melting glaciers and altered snowmelt patterns affect the availability of freshwater resources, impacting both agriculture and hydroelectric power generation.

Recent global studies have delved into the behavioural responses of Himalayan communities to climate change. These studies explore various themes, from the adoption of climate-resilient agricultural practices (Nesheim et al., 2020) to the influence of socio-cultural and economic factors on pro-environmental behaviours (Xu et al., 2018). Agrawal & Lemos, 2007, observed that community based initiatives to address climate change , have provided valuable lessons that can inform sustainable practices in the Himalayan region.

BOTTOM OF FORM3.0 DATA AND METHODOLOGY

3.1 Data

The data is collected from the individuals aged 20-40 years residing across different locations of Uttarakhand, which minimizes the occurrence of biasedness error in responses. For this purpose, 142 (N) respondents using random sampling technique, have been analyzed. The data from the respondents are collected through online mode.

3.2 Methodology

Behavioral engagement was measured using a model for environmental values (2-MEV) (Wiseman & Bogner, 2003). It was used to asses behavioral aspect of an individual in the dimension of climate change. The 2-MEV Scale measures two higher-order factors: Preservation of Nature, the intent to preserve the environment, and Utilization of Nature, the usage of the environment. Preservation is “a bio centric dimension that reflects conservation and protection of the environment” while Utilization is “an anthropocentric dimension that reflects the utilization of natural resources” (Wiseman & Bogner, 2003,). These two higher-order factors consist of five primary factors; Intent of Support, Care with Resources, and Enjoyment of Nature combine under the higher-order factor of Preservation, while Altering Nature and Human Dominance combine under the higher-order factor of Utilization (Bogner & Wiseman, 1999). Sample items included, “If I ever have extra money, I will give some to help protect nature” and “I feel guilty if I waste energy. Responses were reported using a Likert scale, with response options ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Reliability in the current sample has been observed to be acceptable ($\alpha = .63$).

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The data analysis were conducted in SPSS version 26 (IBM Corp,2020). Series of preliminary analysis were conducted, including computation of descriptive statistics.

4.0 RESULTS

The average age of the participants has been calculated to be 29.9 years (Table I). The female represents a significant stake in the survey, with 56.34 percent representation. Considering the educational status of the respondents, 47.88 percent and nearly 52.11 percent of the respondents have completed their graduation and post-graduation, respectively. Moreover, regarding the Behavioural Engagement parameter, means of preservation and Utilization have been calculated to be 4.10 (SD = 40) and 3.1(SD = .63), respectively representing average responses between Strongly Disagree to Strongly Agree. The higher mean score of preservation subscale 4.10 compared to utilization subscale 3.1 indicates that respondents are more involved in preserving nature then taking benefits out of it or utilizing natural resources as per convenience.

Further, analysis of Preservation Factor among the surveyed young people illustrates that 34.9 percent of the respondent Strongly Agreed to engaged in some kind of climate change action sometime till the date of the interview (Figure 1). At the same time, 46.9 percent of the interviewed respondents have been Agreed to practice climate change related behaviour to preserve their surrounding respectively. On the contrary, the share of youth who feel uncertain has been observed to be 12.4 percent only. Further, based on the results, it can be highlighted that sustainable practices to mitigate climate change effects might be a motivation factor to pursuing goals for young generation, such as goals connected to health, career, and families.

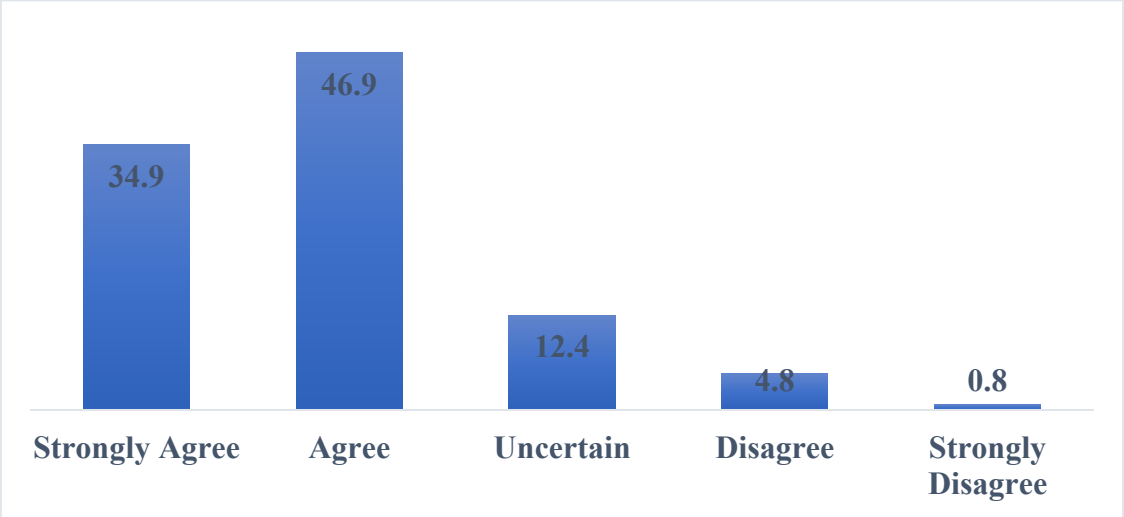

Figure 1: Distribution of respondent's Behavioural Engagement in the dimension of climate change considering factor Preservation.

Note: *Figures in parenthesis represent the percentage share of the responses;* ***Source:*** *Authors' calculation based on primary data collection.*

Similarly, utilization subscale analysis reveals that almost 41.1 percent of the interviewed respondents either strongly disagree or disagree that human should utilize natural resources as per their convenience (Figure 2). In addition, 13.3 percent of the interviewed young people are uncertain about either one should be responsible while interacting with environment, also if it is our right to use it as our convenience .It was further concluded by the interviewed young people that the behavioural change aspect is an individual phenomena. However 45.5 percent of young people are either Strongly agree or agree with the prospective of Utilization in the dimension of climate change related behavioural action .

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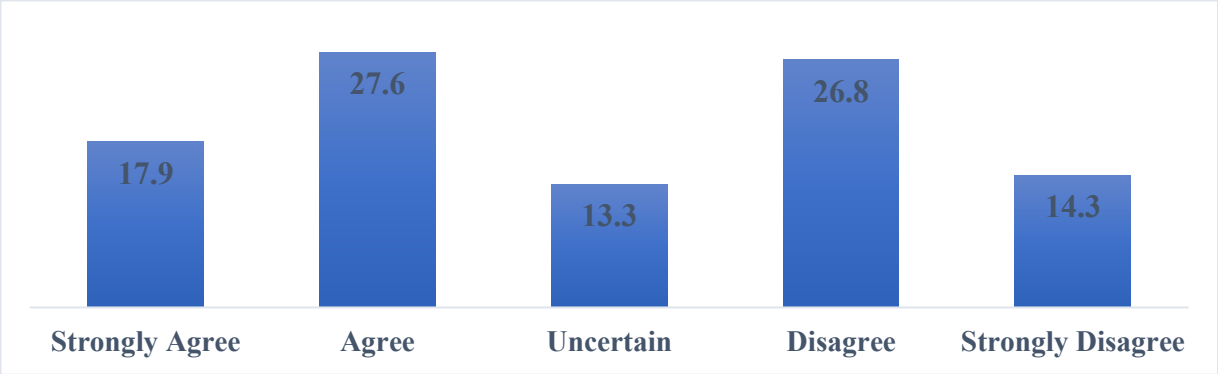

Figure 2: Distribution of respondent's Behavioural Engagement in the dimension of climate change considering factor Utilization.

Note: *Figures in parenthesis represent the percentage share of the responses;* ***Source:*** *Authors' calculation based on primary data collection.*

A Pearson correlation coefficient was computed for the sample to assess the linear relationship between Behavioural engagement's sub scale preservation and utilization associated with climate change. The Pearson correlation coefficient (r) between preservation and utilization subscales is 0.065. The correlation coefficient of 0.065 is close to zero, indicating a very weak or negligible linear association between these two variables .

Table I: Summary of the correlation matrix for the variables; (N =142).

Variable Behavioural Engagement		1.	2.
Preservation	Pearson Correlation	1	.065
	Sig. (2-tailed)		.440
	N	142	142
Utilization	Pearson Correlation	.065	1
	Sig. (2-tailed)	.440	
	N	142	142

Note: *Significance level p < 0.01;* ***Source:*** *Authors' calculation based on primary data collection*

The p-value 0.440 suggests that this correlation is not statistically significant at a conventional alpha level (0.05). In other words, there is no strong evidence to conclude that there is a significant linear relationship between Preservation and utilization subscale in the given dataset of 142 observations.

5.0 DISCUSSIONS, CONTRIBUTIONS AND LIMITATIONS

The results of this study extend work on climate change related behaviour patterns. The study assessed two significant behavioral engagement parameters: preservation and utilization. The higher mean score for preservation compared to utilization implies that respondents are more inclined towards preserving nature than exploiting or utilizing natural resources for personal benefit. This finding indicates a commendable inclination towards conservation efforts among the surveyed individuals. The findings depict a relatively young participant group, suggesting the potential for long-term engagement in climate-related issues. Moreover, the significant representation of females within the survey sample highlights the importance of gender-inclusive approaches in environmental research and policy-making. Education emerges as a potentially influential factor, with a sizable proportion of respondents having

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attained post-graduate qualifications. This suggests a possible correlation between education and environmental engagement. Garcia and Nguyen (2019), highlighted the influence of education on environmental engagement, corroborating the potential link found in the current study. Interms of behavioral engagement, the study reveals a preference for preservation over utilization of natural resources among respondents. Similarly, Smith et al. (2020), observed a comparable preference for preservation over utilization among young adults in European regions, emphasizing the global relevance of these behavioral dynamics. There's a notable inclination towards actions aimed at preserving the environment, as evidenced by the higher mean score for preservation compared to utilization. This underscores a commendable commitment to conservation efforts among the surveyed individuals. The analysis of the preservation factor demonstrates a substantial percentage of respondents engaging in climate change actions or practicing behaviors to preserve their surroundings. This suggests a prevalent inclination towards proactive action and environmental preservation. However, the utilization subscale analysis reveals a significant portion of respondents expressing disagreement with the idea of exploiting natural resources for convenience. This points towards a sense of responsibility and ethical consideration among the surveyed individuals regarding resource utilization. These finding implies that individuals' tendencies towards preservation or utilization do not significantly influence each other in a straightforward manner.

Contribution

The study's contribution lies in its focus on a younger demographic, essential for understanding future trends in environmental engagement. Additionally, the representation of females in the survey sample emphasizes the need for inclusive strategies in addressing climate-related issues. The correlation between higher education and engagement in climate-related behaviors underscores the potential influence of education in fostering environmental awareness. Moreover, the distinction between preservation and utilization behaviors elucidates nuanced perspectives on conservation and resource use, providing valuable insights for tailored intervention strategies in environmental initiatives.

Limitations

The study's conclusions should be approached with an understanding of its limitations. Firstly, the relatively modest sample size could potentially limit the broader applicability of the findings to larger and more diverse populations. Moreover, the study's exclusive focus on the Himalayan region of India might constrain the transferability of results to different geographical or cultural settings, given the distinct regional perspectives and characteristics. While providing valuable insights into climate-related behavioural engagement, these constraints underline the need for careful consideration when interpreting and extrapolating the study's findings beyond its specific context.

REFERENCE

[1] Agrawal, A., & Lemos, M. C. (2007). A greener revolution in the making? Environmental governance in the 21st century. *Environment, 49*(5), 36-45.
[2] Bolch, T., Shea, J. M., Liu, S., Azam, F. M., Gao, Y., Gruber, S., ... & Pieczonka, T. (2019). The Hindu Kush Himalaya assessment: Mountains, climate change, sustainability and people.
[3] Garcia, C. D., & Nguyen, L. T. (2019). The Role of Education in Environmental Engagement: A Comparative Study. *Environmental Science and Policy*, 25*(3),* 210-228.
[4] Hindu Kush Himalaya Assessment Report. (2019). *Hindu Kush Himalaya Assessment*. ICIMOD.
[5] IPCC. (2019). Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems. *Intergovernmental Panel on Climate Change.*
[6] *IBM Corp. (2020). IBM SPSS statistics for windows, version 27.0. IBM Corp.*
[7] Immerzeel, W. W., Lutz, A. F., Andrade, M., Bahl, A., Biemans, H., Bolch, T., ... & Zhang, G. (2020). Importance and vulnerability of the world's water towers. *Nature*, *577*(7790), 364-369.
[8] Nesheim, I., Olesen, J. E., Schjønning, P., & Høgh-Jensen, H. (2020). Climate-resilient agricultural practices in the Himalayan region: Farmers' perspectives and adoption challenges. *Agricultural Systems, 180*, 102790.
[9] Ojha, H. R., Cameron, J., Giri, K., & Sharma, K. (2016). Community-based climate change adaptation and natural resource management in the Himalayas. *The Geographical Journal*. *182*(1), 13-26.

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Research Article

[10] Steg, L. (2023). Psychology of Climate Change. *Annual Review of Psychology*, 74(1), 391-422.
[11] Wiseman, M., & Bogner, F. X. (2003). A higher-order model of ecological values and its relationship to personality. *Personality and Individual Differences, 34*(5), 783–794. https://doi.org/10.1016/S0191-8869(02)00071-5
[12] Xu, J., Grumbine, R. E., Shrestha, A., Eriksson, M., Yang, X., Wang, Y., & Wilkes, A. (2018). The melting Himalayas: Cascading effects of climate change on water, biodiversity, and livelihoods. *Conservation Biology, 29*(3), 949-956.