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EXPLORING RISK PERCEPTION TOWARDS CLIMATE CHANGE IN THE GENERAL POPULATION

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Abstract: Climate change is an existential threat to humanity and the world that we live in, and has been undeniably representing a great challenge of this age. The qualitative study was conducted to explore the risks that the general people perceive related to climate change using Interpretative Phenomenological analysis (IPA). A sample of 7 people from the general Pakistani population from Lahore, of ages ranging from 22-43 years, were targeted, and the data was collected using semi-structured interviews. The analysis revealed one master theme, three superordinate themes, and subordinate themes, where the master theme was climate change risk perception. In contrast, the superordinate themes included perception of climate change, temporal immediacy, and spatial risk perception associated with climate change. The study helps to understand the risk perception associated with climate change in a cultural context.
Keywords: Climate change, Climate change risk perception, IPA, General population, Pakistan

INTRODUCTION

Climate change poses an existential threat to humanity and the world we know, and has been indisputably representing a great challenge of this age, as stated by United Nations Secretary-General Ban Ki-moon (2014). The inevitable consequences, ranging from extreme weather conditions, irreversible damage to ecosystems, acidification of marine beds, etc., are among the ever-escalating and intensifying aftermath of climate change (O'Neill & Nicholson-Cole, 2009). Climate change is one of the most complex and unpredictable phenomena known to humanity, driven by many interdependent factors that make it extremely difficult to manage (Swim et al., 2009). It confronts us with fundamental questions about the viability of human life and the integrity of life's systems on Earth (Fritze et al., 2008). Climate change, therefore, can be conceptualized as not only an environmental stressor but also a psychological stressor that can be perceived by the general public as risky, harmful, and depriving on a greater scale and scope (Lepore & Evans, 1996).

Climate change is the most complex and insidious global threat posing significant challenges to the people of the Earth (Swim et al., 2011), despite the magnitude of the risk, public views regarding climate change as a potential risk vary widely (Kim & Wolinsky-Nahmias, 2014). This disparity emerges because human perception naturally separates actual worldly threats from the subjective experience or interpretation of those threats (Pidgeon et al., 2003). Hence, it can be concluded that risk is inherently a human invention or mental construct (Sjöberg, 2000) as it exists because of our minds and cultural dispositions (Slovic, 1992). To illustrate, public in Australia, United Kingdom, and of the Europe, is aware of the catastrophic toll climate change and its impact would have (European Commission, 2014; Pidgeon, 2012; Reser et al., 2012), whereas the risk perception is relatively lower and less concrete in China and the United States (Leiserowitz et al., 2014).

Hence, risk perception is a broad phenomenon that provides a comprehensive view of people's opinions of things that are threatening; it encompasses the evaluation and integration of effective methods to communicate the information to people, decision-makers, and even technical experts. Hence, risk perception can be regarded as a fundamentally subjective judgement or opinion people hold about the intensity and features of a risk (Slovic, 2016; Brewer et al., 2004; Godovykh et al., 2021) while climate change risk perception refers to the phenomenon through which people interpret and judge the information from external sources about climate change, and how they form personal opinions about the probability and gravity of the potential hazards of climate change (Bradley et al., 2020; Slovic, 2016).

In terms of risk perception, climate change is novel and complex (Breakwell, 2010); therefore, different studies have utilized diverse versions of risk perceptions. Notably, researchers have used terms like climate change, global warming, or global climate change that are distinct and have drastic variations in them (Leiserowitz et al., 2013; Villar & Krosnick, 2011; Whitmarsh, 2009). Furthermore, terms like concern, worry, or perceived seriousness have been used interchangeably in the literature, having different meanings altogether (Van der Linden, 2014).

MATERIALS AND METHODS

Research Design: A qualitative phenomenological descriptive research design was utilized in this study, which aimed at investigating the climate change risk perception in the general population. Seven people from the general Pakistani Population from Lahore were selected. The in-depth interviews were performed till the point of saturation, using a non-probability purposive sampling technique. All the participants were Pakistani nationals and had been living in Lahore for the last two years atleast. People with nationalities other than Pakistan and dual nationals, those with diagnosed mental and physical disabilities, impairments, and chronic illnesses were excluded from the study to maintain homogeneity. Interpretative Phenomenological analysis (IPA) was used to extract themes. In-person interviews were conducted for this study.

Table 1 Demographic Information of the Study Participants (N=7)

Participants	Age	Gender	Living in Lahore for (years)	Education
Participant 1	25	Female	10	Matric
Participant 2	22	Male	05	Matric
Participant 3	27	Male	20	Bachelors
Participant 4	30	Female	10	Bachelors
Participant 5	35	Female	22	Masters
Participant 6	40	Male	25	Matric
Participant 7	43	Female	10	Masters

Note. The table above displays the demographic characteristics of the study participants.

Ethical Considerations: The American Psychological Association's (APA) ethical standards were followed in this study. Permissions from the appropriate authorities were acquired. Pseudonyms and informed consent were used to properly manage the confidentiality. The importance of the research and the interview guide's technique used in the study were fully explained to the participants. Prior to data collection, each participant's consent was obtained for audio recording. Participants were assured that their information would be kept private. Moreover, the respondents were informed that they had the right to drop out of the research at any point in the study in case they felt uncomfortable throughout the study. These measures ensured that the participants did not feel embarrassed to share their experiences because they were assured that their freedom and privacy would be fully honored.

Procedure: The interviews were conducted with willing participants after the permission of the topic by the Internal and External Doctoral Program Committee, Riphah International University and the Board of advanced Studies and Research (BASAR). The informed consent of the research participants was taken, and the aim of the study was explained. They were guaranteed privacy and confidentiality of data and anonymity. The participants were free to quit the research anytime in case they were not comfortable. As was necessary, probing/follow-up questions were used during interviews. The interviews were conducted in Urdu language in order to retain the richness of data. The interviews were allotted between 45-60 minutes whereby participants in the study were motivated to provide answers to certain questions in a very detailed manner.

After the interviews, the researcher transcribed the interviews, only the researcher and supervisor had access to information of the interviewee. Pseudonyms were used to ensure the privacy and anonymity of the data of each interview. Since the information in the interviews was sensitive, it was ensured that no information that could be used to identify any party was retrieved. All the required regulations were also upheld during the study. All of the interviews were recorded after the permission and the assent of the participants had been obtained. Overall, a step II interview guide was developed to explore the risks further that the general population recognizes as a consequence of climate change. The aim of the guide was to draw rich information on their perception and experience on risks of climate changes. The guide included a number of semi-structured questions intended to elicit in-depth answers regarding the risks that people believe climate change has caused. “When you think about climate change in Pakistan, does it feel close and immediate to your life or distant and far away?” was one such question.

RESULTS

The analysis was done using Interpretive Phenomenological Analysis (IPA) that included one master theme, three superordinate themes, and subordinate themes. The master theme was climate change risk perception, while the superordinate themes included perception of climate change, temporal immediacy, and spatial risk perception associated with climate change.

Table 2 Master Theme, Superordinate Themes, and Subordinate Themes of Climate Change Risk Perception in the General Population (N=7)

Master Theme	Superordinate Themes	Subordinate Theme
	Perception of Climate Change	Extreme Weather Events

Climate Change Risk Perception		Water-Related Climate Disasters
		Fluctuations in Temperature
		Air Quality Degradation
		Unpredictable Weather Events
		Climate Change as a Present Reality
		Intergenerational Risk and Responsibility
	Temporal Immediacy	Urgency and the Need for Immediate Action
		Present Suffering and Future Anxiety
		Global and National Vulnerability
		Socially Marginalized and Economically Vulnerable Groups
	Spatial Risk Perception	Gendered Vulnerabilities
		Children and Future Generations
		Health-Related Vulnerabilities

Note. This table shows the master, superordinate, and subordinate themes of climate change risk perception

Master Theme: Climate Change Risk Perception

One master theme, three superordinate themes, and numerous subordinate themes made up the study's findings (see Table 2). The notation 'PX', where 'X' indicates the participant number, is used in this report to refer to participant responses. 'P5', for instance, denotes Participant 5. The perception of climate change, temporal immediacy, spatial risk perception are the three superordinate themes that comprise the master theme of climate change risk perception (see Table 2).

How close or distant the issue feels in people's daily lives has a significant impact on how they perceive the risk of climate change. Climate change is frequently viewed in abstract terms when it is believed to be something that will only happen in the far future, in far-off areas, or to other populations. This can make the issue appear less urgent or personally relevant. The dangers are understood in more tangible and concrete ways, though, when the repercussions are seen firsthand, as in the case of frequent floods in Pakistan, intense heat in Lahore, or obvious health affects in nearby towns. This feeling of urgency heightens awareness and concern by making the threat seem more imminent and real. The degree to which people and communities feel driven to respond to climate change risk is thus determined by their perceptions of time, space, and social relevance (Spence et al., 2012; McDonald et al., 2015).

Superordinate Theme I: Perception of Climate Change: Although Pakistan is one of the most climate-vulnerable countries in the world, the way its citizens perceive climate change affects its response in the area to a great extent. In such locations as Lahore, which undergo the simultaneous pressure of fast urbanization, blazing heat, flooding, as well as some of the poorest air pollution on the planet, it is even more important to be aware of the opinion of the population. Since risk perception cannot be perceived through a vacuum, it is important to factor in the general attitude of the population towards climate change in general when examining how the general population perceives the risk of climate change. Risk perception is based on general beliefs, such as whether individuals believe that climate change is genuine, caused by humans, dangerous, or applicable to their everyday life. The public's risk assessments will remain inadequate if they do not see climate change as an urgent issue or acknowledge its effects on individuals and society, which will reduce their motivation for adaptation and support for policies.

All the participants explained their perception about climate change in different ways, i.e., extreme weather events, fluctuations in temperature, water-related climate disasters, air quality degradation, and unpredictable weather events. A participant reported that:

"…Climate change is very real, and we are very much aware that it is happening. We can see it all around us. The heavy rains, smog, and extreme weather conditions are all indicators of climate change…" (P2)

Another participant reported that:

"…climate change is how the weather is changing drastically. Winters are now intense with smog that makes it difficult to breathe. Summers are too long and hot…" (P3)

Similarly, a participant added that:

"…floods, heavy rains, unpredictable weather patterns are all proof that climate change is here and affecting us all. Heavy rains are causing floods, cloud bursts are happening, glaciers are melting..." (P4)

Superordinate Theme II: Temporal Immediacy: Temporal immediacy is when climate change is perceived as a near-future issue, such as heatwaves, water shortages, or crop failures happening in the coming summer, people focus on concrete, low-level details, like electricity shortages, food prices, or daily adaptation strategies (Liberman & Trope, 1998). Thus, the temporal distance shapes whether climate change is understood as a global moral challenge or as a practical, day-to-day survival issue.

This distinction has important implications, if climate change is always framed as a distant, abstract issue, people may feel less urgency to act in the present. However, when temporal distance is reduced by emphasizing immediate local

impacts, individuals may adopt more concrete behavioral changes, such as conserving energy, reducing waste, or supporting local adaptation policies.

All participants had their own perspectives on how far or near they perceived climate change to be, i.e., climate change as a present reality, intergenerational risk and responsibility, urgency and the need for immediate action, and present suffering and future anxiety.

A participant stated that:

"….it is an urgent issue, what we thought would happen in the future is all happening in front of our eyes, sometimes it feels unreal and terrifying that whatever is happening seems too much at the moment, what will the future be like…."(P1)

One of the participants reported that:

"…Climate change is impacting us now and is having immediate impacts like drastic weather patterns, smog, and different diseases that are erupting due to these changes in the climate. We should be serious about it…" (P5)

Another participant stated that:

"…Climate change is already here. It is not just an issue of today but also of the future. It would be negatively impacting this generation and the future generation as well. Serious attention should be paid…" (P7)

Superordinate Theme III: Spatial Risk Perception: In reference to climate change, spatial distance portrays the physical location of an occurrence or event. When people perceive that an event or issue (for instance, the melting of the polar ice in the Arctic) is occurring farther away, the less personally relevant it seems and the more abstract it becomes (Trope & Liberman, 2010). People are more likely to engage in climate action, and they are more likely to be concerned about the climate change impact when it is local (or when they are exposed to it directly) rather than global (Scannell & Gifford, 2013).

Research consistently shows that spatial proximity heightens perceived risk, vulnerability, and intention to engage in protective behaviors. For instance, people evaluate near threats as more severe because they can more easily imagine specific outcomes and actions they might take to mitigate harm (Henderson et al., 2011). This effect has been demonstrated in environmental risk contexts, where risks such as flooding, air pollution, or climate-related hazards are judged as more urgent when they are framed as local rather than distant (Spence et al., 2012). Spatial distance also reduces feelings of personal control; distant risks are perceived as systemic or global issues outside one's locus of influence, leading to weaker behavioral responses.

All the participants explained their perception about climate change while considering the spatial distance and talked about it in different ways, like stating it as global and national vulnerability, socially marginalized and economically vulnerable groups, gendered vulnerabilities, children and future generations, and health-related vulnerabilities.

A participant reported that:

"…climate change is not only an issue that is impacting the planet and can be seen from afar, but it has now reached our homes, and we can feel it in our country and our city. It has become so hard to breathe, there are now kinds of allergies that we are dealing with every day…." (P6)

Similarly, another participant added that:

"…Climate change is not just impacting the people who are far away, but it is impacting us, specifically people with weak immune systems and chronic illnesses, women, poor people, children, minorities…"(P4)

DISCUSSION

The study provides a detailed understanding of how members of the general population conceptualize and emotionally respond to the threat of climate change. The master theme climate change risk perception is concerned with the various and correlational aspects of risk perception in relation to climate change. In addition, there are three subordinate themes, namely, perception of climate change, temporal immediacy, and spatial risk perception. The results point out that climate change risk perception is not only a dynamic but a multidimensional phenomenon. Climate change is certainly the most crucial environmental problem of our age that must have an urgent response. The scientific analyses and reports almost all caution the drastic environmental impact (Intergovernmental Panel on Climate Change, 2001). Climate change has the potential to cause water shortage, destruction of agriculture, abnormal weather patterns and countless diseases and health complications among others (Norgaard, 2006).

The participants were broadly aware of climate change and perceived it as a reality that was a threat to the environment. Most people used perceivable signals in the environment, like the increase in temperature and unpredictable weather conditions, to rationalize climate change in their daily lives. This is in line with previous studies that have found that people tend to combine both experiential signals and the scientific data in the development of beliefs on climate change (Howe et al., 2019). Nevertheless, this awareness did not always lead to a high level of personal risk perception. In line with other researchers, the respondents separated between recognizing climate change as a worldwide issue and seeing it as a personal threat at the moment (Whitmarsh & Capstick, 2018). The results support the idea by Van der Linden (2015), that climate change risk perception is formed due to the combination of cognitive, affective, and sociocultural factors and is not formed as a result of knowledge. The variety of interpretations witnessed in this study

justifies the idea that risk perception is not merely an instrument of scientific knowledge, but it is firmly rooted in the wider social and psychological settings.

The second dominating theme of temporal immediacy provided a remarkable disparity in the placement of climate change risks by participants on a temporal scale. Other participants saw the effects of climate change as something happening on the spot by mentioning the recent extreme instances of weather or seasonal anomalies. The interpretations were frequently followed by a more pronounced concern or emotional distress, which indicated that a perceived temporal proximity increases the salience of climate risks. It is in line with reports that when people who are facing climate effects perceive them to be close it is more likely that they will be more worried and feel more personally vulnerable (Spence et al., 2012; Wang et al., 2021). On the other hand, some of the participants defined climate change as a problem in the future which the current generation had to face in future as compared to the present. This time-related distance can be a form of psychological coping, which can help people to accept the gravity of the situation without the necessity to feel significant personal discomfort (Brügger et al., 2015). This type of distancing has the ability to reduce urgency and undermine the impetus to engage in adaptive or mitigative responses. This is in line with construal level theory that argues that perceived events far in the future are construed in a more abstract way, which reduces perceived risk and temporal behavioral involvement (Trope & Liberman, 2010).

Climatic spatial dimensions of risk were found to be a major conceptualization of climate change by the participants. The effects of climate take place in the geographically distanced place, such as other cities and countries, as opposed to the immediate surrounding. This result is typical of long-reported spatial distancing dynamics, i. e. people view climate change as a more serious threat to far areas rather than to their localities (Singh et al., 2017). Interestingly, some respondents who accepted the fact that local environmental changes occurring also said that they were not sure whether climate change would explain such changes. This uncertainty is reflective of the past literature where people have not been able to relate personal experiences to long term climatic patterns because of the variability of weather (Howe et al., 2019). Spatial proximity, as mentioned by Spence et al. (2012), plays a major role in defining perceived relevance; the perceived personal risk will decrease in case the perception of climate change as a problem affecting other people exists.

When combined, the results show that the perceptions of climate change risk are influenced by the psychological distance both in time and space. Individuals who had felt climate impacts either as temporally proximate or spatially close said they felt more emotions and a more tangible sense of vulnerability. On the other hand, individuals who saw climate change as far off were found to report that they perceived less perceived personal risk even though they recognized the importance of climate change globally.

CONCLUSION

This study provides an in-depth, qualitative understanding of how the general population perceives the risks associated with climate change. The master theme and superordinate themes illustrate that risk perception is shaped by a complex interplay of personal observation, emotional interpretation, and psychological distancing. Participants simultaneously saw climate change as present yet distant, serious yet difficult to fully grasp in relation to their own lives.

Limitations and Future Directions: Like any other qualitative study, the findings will be restricted to the thoughts of this specific sample, and it is not intended to be generalizable to all populations. Mixed-method research design can be applied in the future to measure relationships of psychological distance and behavioral intentions, or to compare various studies using positional and cultural background. The way of perception of risks over time intensifies with the increase of climate effects, can also be explored in the light of longitudinal studies.

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