

PEOPLE'S PERCEPTIONS OF ENVIRONMENTAL RISKS INFLUENCE THEIR PRO-ENVIRONMENTAL BEHAVIORS AND MENTAL WELL-BEING: A QUALITATIVE STUDY

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Abstract. *This qualitative study delves into the intricate relationship between perceptions of environmental risks, pro-environmental behaviors, and mental well-being. Through in-depth interviews and thematic analysis, the research explores how individuals' perceptions of environmental risks shape their attitudes, beliefs, and actions towards environmental conservation. Findings reveal the complex interplay between risk perception, pro-environmental behavior, and mental health, highlighting the importance of understanding these dynamics for promoting sustainable living and holistic well-being. (N=15) participants were targeted with age ranges 25-40. Six themes were generated through interpretation of statements of participants through thematic analysis (Interpretative Phenomenological Analysis [IPA]) including: Key factors of PEBs and RP, Importance of PEBs and RP, Interconnections, Motivators and Hinders, Social Factors and Steps for betterment of society. The study underscores the significance of qualitative approaches in uncovering nuanced insights into the motivations, barriers, and consequences of environmental engagement, offering valuable implications for interventions, policies, and future research endeavors aimed at fostering environmental sustainability and enhancing human flourishing.*

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Introduction

In today's society, there is a growing acknowledgment of the intricate connections among pro-environmental actions, risk perceptions, and mental health outcomes. However, our current understanding of how these elements interact and impact each other is fragmented, lacking a thorough examination. It was essential to identify the complex dynamics among involvement in pro-environmental actions, risk perceptions, and mental health to develop precise interventions and policies promoting sustainable practices and enhancing psychological well-being. Thus, there was an urgent need for qualitative research that delves into the nuanced

interplay between pro-environmental behaviors, risk perception, and mental health, offering insights to guide strategies aimed at improving both environmental sustainability and mental health outcomes.

Pro-environmental behavior (PEB) and risk perception are two key factors influencing how individuals interact with and respond to environmental challenges. Understanding the association between these two elements is pivotal for shaping effective environmental policies and promoting sustainable practices. Individuals with higher environmental values exhibit higher levels of Risk Perception, experience more moral emotions, and engage in more Pro-Environmental Behavior (Li et al., 2022). Risk Perception is positively associated with Pro-environmental behavior (Maartensson & Loi, 2022). Risk perception play a mediating role in the correlation between egalitarian culture and pro-environmental behavior, environmental risk perception is significantly related to pro-environmental behavior. Therefore, raising the perception of environmental risks among young people can help young people develop pro-environmental behaviors (Zeng et al., 2020). Perceptions of environmental risks, if effectively communicated, can motivate pro-environmental behavior by highlighting the importance of sustainable actions in mitigating potential threats (Gifford, 2011). Risk perception, psychological adaptation, mitigation beliefs and behavioral intention predict directly and indirectly pro-environmental behavior (Keresztes & Kotta, 2021). Risk perception significantly affect the pro-environmental behaviour and specific emotions (Zhou, 2023). Risk perception significantly predicted pro-environmental behavior (Zander, 2018). Individuals with higher environmental knowledge always show higher passion to pro-environmental behavior, environmental perception plays a partially mediating role between environmental knowledge and pro-environmental behavior and post-materialistic values moderate the formation of environmental behavior systematically; and on comparing with public counterpart, the relation between environmental knowledge and PEB is significantly higher in private environmental behavior (Xie & Lu, 2022). The relationship between pro-environmental behavior (PEB) and mental health has gained increasing attention as researchers explore the interconnectedness between individual actions and well-being. PEBs may also influence hedonic wellbeing because they require an element of physical activity that may result in positive physical and mental experiences (Lapa, 2015). Positive impact of PEBs on wellbeing or life satisfaction is that they can promote social interaction. Schmitt et al. (2018) found that PEBs that involved a degree of social interaction or were more easily observed by others were the strongest predictors of life satisfaction. A study was conducted on risk perception and mental health among college students in China during pandemic and revealed a significant correlation between the risk perception and mental health among Chinese college students. Additionally, perceived stress was identified as a mediating factor in the relationship between risk perception and mental health (Li et al., 2022). Risk perception related to environmental issues can impact mental health. Perceiving environmental risks, such as climate change, can

contribute to anxiety, stress, and depressive symptoms (Wyle's et al., 2019). Risk perception significantly correlated with depression and anxiety. Perceived stress established as a mediator of epidemic risk perception and depression/anxiety (Li & Lyu, 2021). Risk perception associated with emotion and ultimately mental health. Interventions on reducing excessive risk perception and managing emotional distress could promote mental health (Han et al., 2021). Risk perception and its associated factors significantly affect the mental health of people in public health crises (Ding et al., 2020). Risk perception was associated with a higher level of mental health symptoms (Liu et al., 2021). Engaging in pro-environmental behaviors can reduce stress and anxiety related to environmental risks (Clayton & Opatow, 2003). Perceiving environmental risks as high can motivate individuals to take action, which can improve mental health (Hart, 1997). Perceiving environmental risks as high can lead to increased anxiety, fear, and stress, negatively impacting mental health and individuals who perceive environmental risks as high are more likely to engage in pro-environmental behaviors (Lacroix & Gifford, 2018).

Rationale of Study

As environmental concerns gain greater attention worldwide, their impact on individuals becomes more pronounced. This research aims to examine how participating in pro-environmental actions and possessing an accurate understanding of environmental risks can affect individual mental well-being. The study seeks to explore the causal relationship between pro-environmental behavior, perceptions of environmental risks, and mental health outcomes. Notably, there is a lack of prior qualitative studies investigating all these variables simultaneously. Identification of associations between pro-environmental behavior, risk perception, and mental health. Insights into potential mediators or moderators influencing these relationships. Practical implications for interventions promoting both environmental sustainability and mental well-being and improved understanding of the psychological mechanisms involved in sustainable living and mental well-being. The outcomes will contribute valuable insights to interdisciplinary efforts aimed at fostering a sustainable and psychologically healthy society.

Research question

The study was conducted to explore how people's perceptions of environmental risks influence their pro-environmental behaviors and mental well-being.

Methods

Sample

Recruited participants with diverse environmental risk perceptions and pro-environmental behaviors. Fifteen individuals, aged between 25 and 40, were chosen for participation in the study, all of whom were actively engaged in social

activism. Consider factors like age, gender, education, location, and environmental exposure.

Data collection

Conducted in-depth interviews to gather rich qualitative data. The interview guide utilized for data collection employed a semi-structured approach, involving one-on-one interviews lasting between 40 and 45 minutes. Initially developed in Urdu language, the guide comprised 12 open-ended questions based on variables (Thompson, 2019). The first query pertained to participants' biographical information, while questions 2- 6 delved into concepts such as pro-environmental behavior, its connection to risk perception, and their combined influence on mental health. Questions 7-10 focused on factors contributing to individual engagement in such activities. The final two questions (11-12) explored potential steps for societal improvement and betterment.

Data analysis

Thematically analyze the data to identify recurring patterns and relationships between risk perception, behavior, and mental health.

Procedure

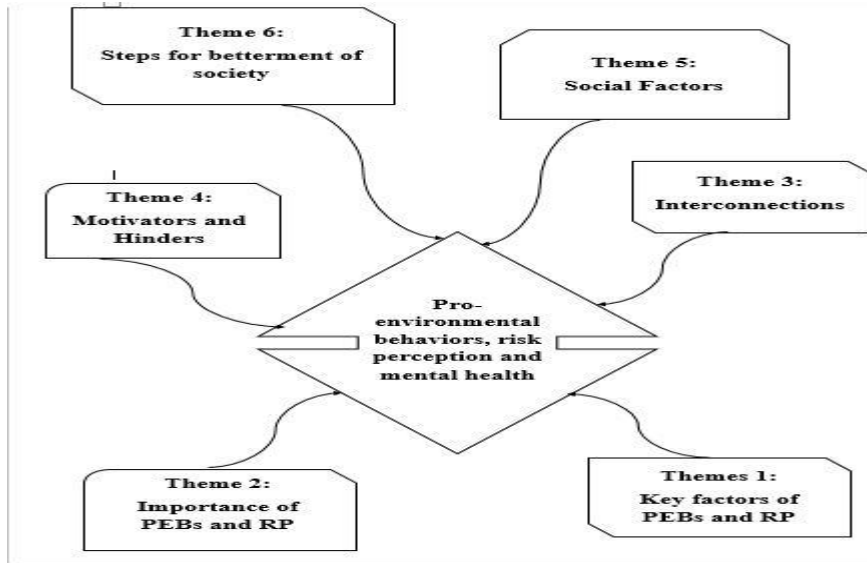
Initially, an interview protocol was crafted to conduct semi-structured interviews aligned with the study variables. Permission was obtained prior to commencing each interview, and throughout the process, the protocol was adhered to diligently. Data was captured using a tape recorder, with participants' consent. Ethical guidelines were strictly upheld, including obtaining participants' consent, safeguarding their confidentiality, and respecting their integrity. Participants were given ample time to formulate responses to questions. Incentives were provided upon the conclusion of each interview session.

Table 1 *Demographic Analysis of participants*

Sr. No	Age	Gender	Qualification	Reside Info
1	31 years	Male	PhD	Colony
2	34 years	Female	PhD	Colony
3	26 years	Female	Masters	Colony
4	30 years	Male	Masters	Colony
5	25 years	Female	Masters	Colony
6	27 years	Male	Masters	Colony
7	35 years	Female	PhD	Colony
8	38 years	Male	PhD	Colony
9	28 years	Female	Masters	Colony
10	29 years	Female	Masters	Colony
11	26 years	Female	Masters	Colony

12	36 years	Male	PhD	Colony
13	39 years	Female	PhD	Colony
14	40 years	Male	PhD	Colony
15	28 years	Female	Masters	Colony

Emerging Themes



Discussion

Theme-1: Key factors of PEBs and RP

Higher levels of education are often associated with greater environmental awareness and pro-environmental behavior. Individuals who are more aware of environmental issues and express greater concern for the environment are more likely to engage in pro-environmental behavior. Peer pressure, social norms, and role models can significantly impact individuals' environmental attitudes and behaviors. Environmental values, ethical considerations, and spiritual beliefs can motivate individuals to adopt pro-environmental behaviors. Availability of resources such as recycling facilities, public transportation, green spaces, and eco-friendly products can facilitate pro-environmental actions. Financial incentives, cost-saving opportunities, and economic circumstances can influence individuals' decisions to engage in environmentally friendly behaviors. Government policies, environmental regulations, and incentives can shape societal norms and encourage pro-environmental actions. The extent to which individuals identify themselves as environmentally conscious or view environmental issues as central to their identity can influence their behavior. Personality traits, such as altruism, empathy, and

environmental concern, can play a significant role in predicting pro-environmental behavior. Effective communication strategies, environmental campaigns, and environmental education initiatives can raise awareness and promote pro-environmental behaviors.

Theme 2: Importance of PEBs and RP

Participating in activities that benefit the environment, such as spending time outdoors, gardening, or recycling, fosters a deeper connection to nature. Research suggests that connecting with nature is linked to improved mental health, reduced stress levels, and increased feelings of happiness and well-being. Adopting pro-environmental behaviors can provide individuals with a sense of purpose and meaning in their lives. Contributing to environmental conservation efforts and sustainability initiatives gives people a sense of accomplishment and fulfillment, which can enhance overall well-being. Pro-environmental behaviors often involve collaboration and cooperation with others, whether it's participating in community clean-up events, joining environmental organizations, or advocating for policy change. This social connection and sense of belonging can have positive effects on mental health by reducing feelings of isolation and loneliness. Many pro-environmental behaviors, such as walking or biking instead of driving, eating a plant-based diet, and reducing exposure to pollutants, have direct benefits for physical health. Improving physical health can, in turn, have positive effects on mental well-being. Engaging in sustainable lifestyle practices, such as conserving energy, minimizing waste, and living in harmony with nature, can help reduce stress and anxiety. Knowing that one is making a positive impact on the environment can provide a sense of control and alleviate feelings of eco-anxiety or eco-guilt. By promoting environmental stewardship and sustainable living practices, pro-environmental behaviors contribute to the long-term health and well-being of both people and the planet. Protecting natural resources, preserving biodiversity, and mitigating climate change are essential for creating a sustainable and resilient future for generations to come.

Theme 3: Interconnections

Heightened awareness of environmental risks can motivate individuals to take action, fostering a sense of empowerment and control over environmental challenges. This can counteract feelings of helplessness and boost well-being. If risk perception leads to pro-environmental behavior, it can reduce eco-anxiety, a chronic worry about the environment's future. Taking action can alleviate this anxiety and improve mental health. Engaging in sustainable actions fosters a sense of empowerment and control over environmental challenges, reducing feelings of helplessness and anxiety. This can improve mood and well-being. Contributing to environmental health through pro-environmental choices connects individuals to a larger purpose, fostering meaning in life and enhancing well-being. Individuals who perceive environmental issues, such as climate change, pollution, or resource

depletion, as serious threats are more likely to engage in pro-environmental behaviors. The perception of risk can motivate people to take action to mitigate the perceived threats. High-risk perceptions regarding environmental hazards can prompt individuals to adopt behaviors aimed at protecting themselves and their communities. For example, people may be more inclined to support policies or initiatives that aim to reduce environmental risks, such as carbon emissions reduction measures or conservation efforts. Perceiving environmental issues as significant risks can foster a sense of collective responsibility and solidarity, leading to collective action and social movements advocating for environmental protection and sustainability. Individuals may engage in pro-environmental behaviors as adaptive or coping strategies in response to perceived environmental risks. For instance, people might conserve water or energy resources in anticipation of future scarcity or climate-related challenges. Perceptions of risk can influence how individuals process information about environmental issues. High-risk perceptions may lead individuals to seek out more information, critically evaluate risks, and take proactive steps to address them through pro-environmental actions. Effective communication strategies that highlight the risks associated with environmental degradation and the benefits of pro-environmental behavior can influence individuals' risk perceptions and motivate behavior change.

Theme 4: Motivators and Hinders

Increased awareness of environmental issues can spark concern and inspire action. Aligning environmental protection with personal values like altruism or responsibility can motivate pro-environmental choices. Observing pro-environmental behaviors within one's social circle can encourage similar behavior. Believing individual actions can make a difference strengthens motivation. If pro-environmental behaviors are perceived as inconvenient or time-consuming, they're less likely to be adopted. The perceived cost of sustainable choices, like organic food or energy-efficient appliances, can be a barrier. Limited access to recycling facilities or public transportation can hinder pro-environmental actions.

Theme-5: Social Factors

Social factors play a significant role in shaping both pro-environmental behavior and risk perception. Observing pro-environmental behaviors within social circles like family, friends, or communities can strongly encourage similar behavior. Social norms can create a sense of expectation and belonging, making sustainable choices feel more natural. Witnessing others engage in pro-environmental actions or discuss environmental concerns can provide valuable learning opportunities. This can heighten risk perception and motivate individuals to adopt more sustainable practices. Community-based environmental campaigns or social marketing initiatives can effectively raise awareness of environmental issues and promote pro-environmental behavior. These campaigns can influence social norms

and create a sense of collective responsibility. Social pressure from peers can motivate pro-environmental behavior, even if the individual doesn't hold strong personal convictions. This highlights the power of social norms and expectations.

Theme-6: Steps for betterment of society

Implementing environmental education programs in schools can increase students' knowledge about environmental issues and their understanding of the risks involved. This awareness can motivate them to adopt pro-environmental behaviors and develop a heightened perception of environmental risks. Encouraging students to participate in community-based environmental initiatives, such as clean-up events, tree planting campaigns, or sustainable gardening projects, fosters a sense of belonging and social connection. These activities can enhance students' engagement in pro-environmental behaviors while promoting a collective understanding of environmental risks. Providing opportunities for students to interact with environmental role models, such as environmental activists, scientists, or community leaders, can inspire them to take action and become advocates for environmental sustainability. Mentorship programs that pair students with mentors passionate about environmental issues can offer guidance and support in adopting pro-environmental behaviors and understanding risk perception. Establishing supportive policies and practices within educational institutions can create an environment conducive to pro-environmental behavior and risk perception. This can include implementing sustainability policies, promoting green practices on campus, and integrating environmental themes into the curriculum. Providing students with opportunities to spend time in nature through outdoor education programs, nature-based learning experiences, or access to green spaces can have positive effects on their mental health. Connecting with nature enhances well-being, reduces stress, and fosters a deeper appreciation for the environment, which in turn can motivate pro-environmental behavior and increase risk perception. Utilizing effective communication strategies and media campaigns to raise awareness about environmental issues and risks can influence students' attitudes and behaviors. Positive messaging that highlights the benefits of pro-environmental behavior for both the environment and personal well-being can encourage students to take action and engage in risk perception. Human actions are a major driver of environmental issues like climate change, pollution, and resource depletion. Understanding how people make choices that impact the environment allows us to develop effective strategies to promote sustainability. Many people express concern about the environment, but there's often a gap between those feelings and taking action. Studying pro-environmental behavior helps us understand the factors that motivate people to act on their concerns and what can be done to bridge this gap. By understanding the factors that influence pro-environmental behavior, researchers and policymakers can design more effective interventions to encourage sustainable practices. This could involve educational campaigns, policy changes, or economic incentives. There are many factors that

can influence whether someone engages in pro-environmental behavior. Studying this area helps identify barriers, such as lack of knowledge, convenience, or social pressure, and facilitators, such as access to resources or positive social norms. Pro-environmental behavior isn't just about individual choices. Social, economic, and cultural factors also play a role. Studying this field allows us to develop a more comprehensive understanding of how to promote sustainability.

Conclusion

By understanding the interconnections between pro-environmental behavior, risk perception, and mental health, we can develop effective interventions that promote environmental sustainability and human well-being. Pro-environmental behavior is important for addressing environmental challenges such as climate change, pollution, and resource depletion. By making small changes in our daily lives, we can all contribute to a healthier planet. By understanding the motivations and barriers behind sustainable practices, we can create a future where human actions and the environment can thrive together. Risk perception plays a crucial role in shaping attitudes, beliefs, and behaviors related to the environment, ultimately influencing the adoption of pro-environmental behaviors at individual, community, and societal levels. Engaging in pro-environmental behavior is not only beneficial for the environment but also essential for promoting individual and collective well-being. By fostering a deeper connection to nature, promoting social connection and community engagement, and supporting physical and mental health, pro-environmental actions contribute to a more sustainable and fulfilling way of life. There is a significant connection between pro-environmental behavior and mental health. Research has shown that engaging in environmentally friendly behaviors can have a positive impact on mental well-being, and vice versa.

Table 2 *Extracted Themes*

Themes extracted by IPA	<i>Sub-themes</i>
Theme 1: Key factors of PEBs and RP	<ul style="list-style-type: none">• Educational Awareness and Concern• Social Influence• Personal Values and Beliefs• Access to Resources• Economic Factors• Policy and Regulation• Environmental Identity• Psychological Factors• Communication and Messaging

<p>Theme 2: Importance of PEBs and RP</p>	<ul style="list-style-type: none"> • Connection to Nature • Sense of Purpose and Meaning • Social Connection and Community Engagement • Physical Health Benefits • Reduced Stress and Anxiety • Long-Term Sustainability
<p>Theme 3: Interconnections</p>	<ul style="list-style-type: none"> • Empowerment and Action • Reduced Eco-Anxiety • Empowerment and Control • Purpose and Meaning • Threat Perception • Self-Protective Behavior • Collective Action • Adaptation and Coping Strategies • Information Processing
<p>Theme 4: Motivators and Hinders</p>	<ul style="list-style-type: none"> • Motivating Factors: <ul style="list-style-type: none"> ▪ Personal Values ▪ Social Norms ▪ Perceived Effectiveness • Hindering Factors: <ul style="list-style-type: none"> ▪ Inconvenience ▪ Cost ▪ Lack of Infrastructure
<p>Theme 5: Social Factors</p>	<ul style="list-style-type: none"> • Social Norms • Social Learning • Social Marketing and Campaigns • Social Pressure
<p>Theme 6: Steps for betterment of society</p>	<ul style="list-style-type: none"> • Community Engagement • Policy and Institutional Support • Role Modeling and Mentorship • Access to Nature and Outdoor Activities • Communication and Media • Addressing environmental challenges • Bridging the intention-action gap • Designing effective interventions • Identifying barriers and facilitators • Understanding individual and societal factors

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