

Research Progress and Development Suggestions of Climate Change Psychology

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Keywords: Climate change; Psychological health; Behavioral response; Psychology of Climate Change

Abstract: Climate change has become one of the biggest global challenges of the 21st century, with profound impacts on ecology, economy, and society. Among them, the impact of climate change on human mental health and behavior is receiving increasing attention. This article systematically reviews the research progress of climate change psychology, focusing on exploring the theoretical framework, research methods, main research achievements, and challenges. Through comprehensive analysis, the article emphasizes the importance of interdisciplinary cooperation, especially in data collection, research methods, and strategy application. In addition, this article also provides development suggestions for future research, emphasizing the investment of research funds and resources, the establishment of standardized research methods, and the strengthening of global cooperation. Overall, this article aims to provide a comprehensive overview of the field of climate change psychology and provide guidance for future research and practice.

1. Introduction

Climate change, as one of the most concerned topics in the world today, not only involves environmental, economic and social issues, but also leads to in-depth exploration of human psychological and behavioral responses. With the gradual warming of global climate, frequent extreme weather events and rising sea level, the impact of climate change on human mental health and well-being has become increasingly significant. Under this background, the psychology of climate change came into being and became an important subject field to explore this phenomenon [1]. Global climate change, especially the greenhouse effect caused by human activities, leads to a series of chain reactions, such as rising global average temperature, melting glaciers and increasing the frequency and intensity of extreme meteorological events, which have a far-reaching impact on natural ecosystems and human society [2]. Extreme weather events such as drought, floods, hurricanes and typhoons around the world directly threaten people's life safety, but also cause great damage to agriculture, water resources and infrastructure. The direct and indirect effects of climate change pose challenges to people's mental health [3]. For example, extreme weather events may cause post-traumatic stress disorder, anxiety, depression and other mental health problems. Long-term environmental changes caused by climate change, such as drought and food shortage, may also increase psychological pressure and lead to emotional and behavioral problems. In addition, concerns and uncertainties about climate change may also lead to a wide range of psychological and emotional reactions [4]. Some cultures may pay more attention to harmonious coexistence with nature, while others may pay more attention to technological progress and economic development. Under the economic and geographical background, people living in low altitude or coastal areas may be more concerned about sea level rise, while people living in arid areas may be more concerned about water resources. In order to understand and deal with the influence of climate change on mental health and behavior more comprehensively, scholars put forward a new research field, "Climate Change Psychology", which not only pays attention to individual psychological reactions, such as anxiety, depression, adaptation and coping strategies, but also pays attention to group and social reactions, such as community cohesion, social cognition and collective action [5]. Exploring the relationship between climate change and mental health has important practical significance. Neo-Confucianism research involves complex statistical analysis, such as multivariate analysis and path analysis. If you use inappropriate statistical methods or misunderstand the results,

it may lead to wrong conclusions. Climate change is an interdisciplinary topic, involving ecology, meteorology, economics, political science and other disciplines. Psychologists may face difficulties in cooperating with experts in these fields. Each discipline has its own terminology, methods and theoretical framework, which may lead to communication difficulties. Different disciplines may have different research emphases and methods on the same problem, which need to be coordinated within the team. Interdisciplinary projects may require more time and resources, but it may be more difficult to obtain funds and support. Firstly, it provides strategies and tools for communities, governments and non-governmental organizations to help people better cope with the psychological and behavioral challenges brought about by climate change. Secondly, through understanding the psychological responses of individuals and groups, climate adaptation and mitigation strategies can be formulated and implemented more effectively. Finally, the research results in this field also provide support for global efforts to deal with climate change in many aspects, including policy making, public education and the design of intervention measures [6]. Generally speaking, with the increasing challenge of global climate change, it is particularly important to understand and deal with its impact on human mental health and behavior. This paper aims to provide a comprehensive overview of this emerging field, hoping to provide valuable reference and enlightenment for researchers, policy makers and the public.

2. The main research progress of climate change psychology

2.1. Climate change perception and risk assessment

Climate change perception refers to the understanding, attention and feelings of individuals or groups on climate change phenomena. Research shows that the formation of perception is influenced by many factors, including direct experience, media reports, educational background and social interaction [7]. In this paper, climate change perception and risk assessment are analyzed, as shown in Figure 1.

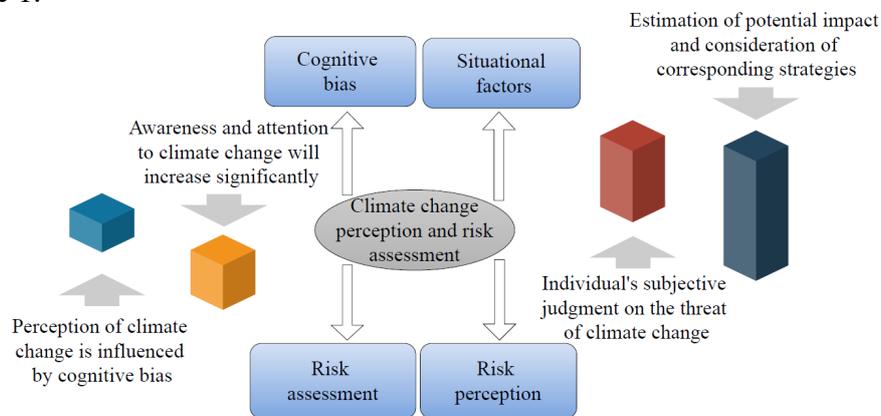


Figure 1 Climate change perception and risk assessment

Cognitive biases, many people's perception of climate change is influenced by cognitive biases, such as "superiority bias" believing that they are more likely to adopt environmental behavior than others, or "optimistic bias" underestimating the likelihood of their region being affected by climate change. Situational factors, such as people's perception and attention to climate change significantly increase after experiencing extreme weather events [8]. Risk assessment involves cognitive and emotional assessment of the threat posed by climate change. This usually includes estimation of potential impacts and consideration of corresponding strategies, risk perception, and individual subjective judgments of climate change threats, which are closely related to individual knowledge, experience, and values.

2.2. Psychological health issues caused by climate change

Climate change not only affects the ecological environment, but also poses a threat to human mental health. Global climate change, especially the greenhouse effect caused by human activities,

leads to a series of chain reactions, such as rising global average temperature, melting glaciers and increasing the frequency and intensity of extreme meteorological events, which have a far-reaching impact on natural ecosystems and human society[9]. Common mental health issues include post disaster traumatic stress disorder, extreme weather events such as hurricanes, floods, or droughts, which can lead to people experiencing traumatic events. With the degradation of the natural environment, people may experience emotions related to loss, sadness, and helplessness, and concerns about future climate change may lead to sustained anxiety [10].

2.3. Research on Behavior Change and Intervention

Psychologists have begun to study how to promote climate-friendly behavior through psychological strategies. Internal motivation and external motivation, research shows that when people start from internal motivation, such as caring for the environment, rather than external motivation, such as reward or punishment, they are more likely to take climate-friendly behavior. Social identity theory, people often shape their behavior according to the social groups they identify with. Therefore, the establishment of climate-friendly social identity can effectively promote climate-friendly behavior.

2.4. Study on Group Differences and Characteristics

People with different cultural, economic and geographical backgrounds have different psychological reactions to climate change. For example, cultural differences, people with different cultural backgrounds may have different cognitive and emotional responses to climate change. For example, some cultures may pay more attention to harmonious coexistence with nature, while others may pay more attention to technological progress and economic development. Under the economic and geographical background, people living in low altitude or coastal areas may be more concerned about sea level rise, while people living in arid areas may be more concerned about water resources.

3. Challenges and limitations of climate change psychology

The quality and accuracy of psychological research on climate change largely depend on high-quality data. When collecting data, if the samples are not diverse or representative enough, the research results may be biased. For example, only considering the reaction of a certain region or community may ignore other important demographic characteristics. Many psychological studies on climate change rely on participants' self-reports, but this may be influenced by social expectations, memory bias or other cognitive biases. Psychological research involves complex statistical analysis, such as multivariate analysis and path analysis. If you use inappropriate statistical methods or misunderstand the results, it may lead to wrong conclusions. Climate change is an interdisciplinary topic, involving ecology, meteorology, economics, political science and other disciplines. Psychologists may face difficulties in cooperating with experts in these fields. Each discipline has its own terminology, methods and theoretical framework, which may lead to communication difficulties. Different disciplines may have different research emphases and methods on the same problem, which need to be coordinated within the team. Interdisciplinary projects may require more time and resources, but it may be more difficult to obtain funds and support. The ultimate goal of climate change psychology research is to turn the research results into practical coping strategies and actions. The research conclusions drawn in the laboratory environment may be difficult to be directly applied to the real world, because the variables in the real world are more complicated. The strategy of one region or culture may not be applicable to another place. Psychological intervention strategies need to consider the specific background of the target group. Even if some psychological strategies are effective in the short term, it may be difficult to maintain long-term effects. The strategy needs to be tracked and evaluated for a long time.

4. Development suggestions

In order to fully understand and respond to the psychological impact of climate change, psychologists need to establish closer cooperative relationships with researchers from other disciplines. To advance this initiative, it's essential to consider establishing specialized conferences, seminars, and online platforms. These should be designed to facilitate the exchange of research findings, methodologies, and viewpoints among scholars from various disciplines. Additionally, there should be a focus on offering interdisciplinary courses and professional development programs at both the graduate and continuing education levels. This approach is crucial for nurturing researchers who are equipped with interdisciplinary perspectives. Increasing research funding and resources investment in climate change psychology is an emerging field that requires more funding and resources to support research and application. The government and relevant institutions should increase funding support for climate change psychology research, especially for basic and applied research. In addition, it is important to forge collaborative partnerships with enterprises and non-governmental organizations. This collaboration will facilitate research endeavors and joint projects, enabling the sharing of resources and expertise. The research results need to be more widely understood and applied in order to achieve their maximum social benefits. This article has taken change measures for them, as shown in Figure 2.

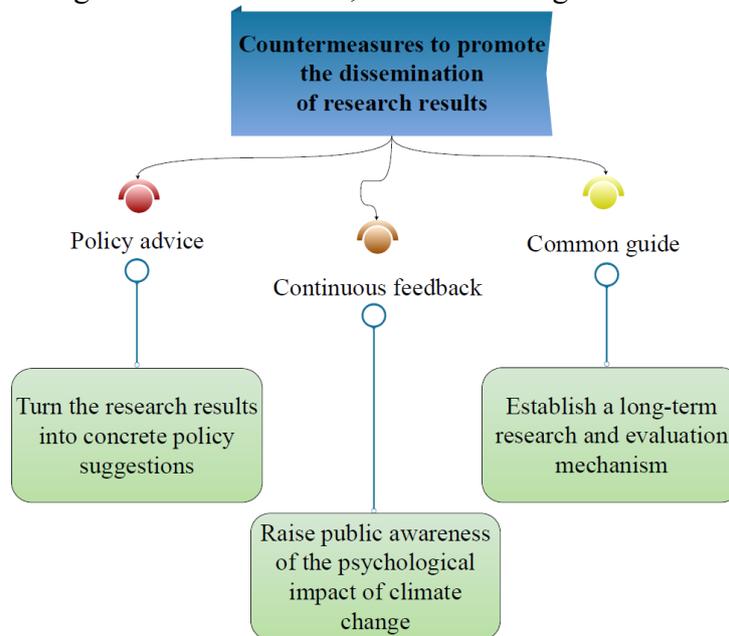


Figure 2 Strategies for Promoting the Dissemination of Research Results

(1) Policy recommendations

Furthermore, it is crucial to ensure that research findings are translated into concrete policy recommendations. This approach will provide government bodies and decision-makers with a solid foundation for evidence-based decision-making.

(2) Public education

Moreover, it's essential to enhance public awareness about the psychological repercussions of climate change. This can be achieved by promoting proactive response strategies through various channels, including public lectures, media exposure, and educational initiatives.

(3) Continuous feedback

Establish a sustainable research and evaluation mechanism that ensures the continuous collection of feedback. This will allow for the consistent adaptation and refinement of research methodologies and implementation strategies.

In order to improve the quality and comparability of research, it is necessary to establish and popularize standardized research methods and tools.

Furthermore, create a standardized operational manual for conducting climate change psychology research. This manual should offer guidance on sample selection, data collection, and

analytical methodologies. Additionally, establish an open-access database to facilitate the collection and dissemination of research data. This approach will promote collaboration and data sharing among researchers. Climate change is a global issue that requires global solutions. Strengthening international cooperation and exchange is crucial. Additionally, establish and strengthen an international research network specifically focused on climate change psychology. This network should foster communication and collaboration among researchers from various countries and regions. Furthermore, provide cultural sensitivity training to assist researchers in effectively understanding and addressing psychological reactions and needs across diverse cultural and social contexts.

5. Conclusions

As an important field to study human psychological response, behavior and adaptation strategies to global climate change, the research on climate change psychology has made remarkable progress. However, this field still faces a series of challenges and limitations, including the difficulty of data collection, interdisciplinary cooperation, the challenge of applying research results to practice and the lack of empirical evidence. Future research should strengthen interdisciplinary cooperation and promote in-depth exchanges and resource sharing between disciplines. This will not only help to improve and enrich the theoretical system of climate change psychology, but also provide more comprehensive and in-depth guidance for practice. In addition, in order to ensure the quality and comparability of research, it is very important to establish standardized research methods and tools. This can not only improve the accuracy and reliability of the research, but also promote the cooperation and data sharing among different researchers. At the same time, the strengthening of global cooperation, especially in data collection, research methods and strategy application, will further promote the internationalization of climate change psychology. Finally, the wide application and dissemination of research results is the key to realize the social value of climate change psychology. This includes providing scientific-based policy advice to the government and decision makers, raising public awareness and willingness to act, and establishing a long-term research and evaluation mechanism to ensure that research results can continuously contribute to climate change.

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