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Youth Perceptions of Climate Change and Its Psychological Impact: A Qualitative Study in Jordan

Hindya O. Al-Maqableh
Jordan University of Science and Technology.
hindya.maqableh94@hotmail.com
Raneen. A. Al-Husban
Al al-Bayt University
raneemalhusban7@gmail.com
Hana'a. M. Abu Sawan
Zarqa University
Habusawan@zu.edu.jo
Sanad A. Al-baoni
Yarmouk University

Asma. M. Al-Ghzawi
Ministry of Health.
Asma.gh88@yahoo.com
Wala.A. Alrawashdeh
Yarmouk University
weamz7m@gmail.com
Wala'a.Y. Al-Smadi
Al-Ahliyya Amman University
walaasmd@yahoo.com

Ali. S. Al-Quraan
Al al-Bayt University.
alisalim364@gmail.com
Amira.Z. Al-Ghazawi
Jordan University of Science and Technology
Amira.alghazawi@gmail.com
Emad.A. Al-Qasem
Jordan University of Science and Technology
emadalieb@gmail.com

Marah. A Audi
Luminus Technical University College.
Marah.a.audi@gmail.com
Mohammad.Y. Alsmadi
Ministry of Health
Msmadi1991@gmail.com
Eslam.R. Mutlq
Jordan University of Science and Technology
eslam92.mutlq@gmail.com

Abstract:
This study explored Jordanian university students' perceptions of the psychological impacts of climate change and their coping strategies. Semi-structured telephone interviews were conducted with 16 students aged 18–28 from public and private universities across northern, central, and southern Jordan, including urban, rural, and Badia settings. Data were analyzed thematically using Braun and Clarke's framework, with methodological rigor guided by Lincoln and Guba's criteria. Five themes emerged: climate change awareness, psychological and emotional impacts, lived experiences of climate-related stressors, coping and resilience strategies, and youth recommendations for institutional and policy action. Participants described climate change as a daily stressor associated with heat exposure, water scarcity, infrastructure limitations, and environmental instability. Psychological responses included anxiety, sadness, and frustration. Coping strategies included religious meaning-making, selective avoidance, and limited pro-environmental behaviors. The findings highlight the need to integrate mental health and psychosocial support (MHPSS) into climate adaptation, strengthen climate-related education in higher education, and enhance youth participation in policymaking. These findings are relevant to other climate-vulnerable settings.

Keywords: climate change; mental health; eco-anxiety; youth; coping strategies; Jordan.

تصورات الشباب حول الآثار النفسية لتغير المناخ في الأردن: دراسة نوعية

هندية عقله المقابلة
جامعة العلوم والتكنولوجيا الأردنية.
hindya.maqableh94@hotmail.com
رنيم عارف الحسبان
جامعة آل البيت
raneemalhusban7@gmail.com
هناء محمد ابوصوان
جامعة الزرقاء
Habusawan@zu.edu.jo

سند عاكف الباعوني
جامعة اليرموك
sanad.alba3oni@gmail.com

أسماء محمد الغزاوي
وزارة الصحة الأردنية
Asma.gh88@yahoo.com
وئام ماهر الرواشده
جامعة اليرموك
weamz7m@gmail.com
ولاء يونس الصمادي
جامعة عمان الأهلية
walaasmd@yahoo.com

علي سالم القرعان
الهيئة الطبية الدولية /جامعة آل البيت
alisalim364@gmail.com
أميرة زيد الغزاوي
جامعة العلوم والتكنولوجيا الأردنية
Amira.alghazawi@gmail.com
عماد علي البشايرة
جامعة العلوم والتكنولوجيا الأردنية
emadalieb@gmail.com

مرح عبدالله عودة
كلية لومينوس التقنية الجامعية
Marah.a.audi@gmail.com
محمد يونس الصمادي
وزارة الصحة الأردنية
Msmadi1991@gmail.com
إسلام رياض مطلق
جامعة العلوم والتكنولوجيا الأردنية
eslam92.mutlq@gmail.com

الملخص

هدفت هذه الدراسة إلى استكشاف تصورات طلبة الجامعات الأردنية للآثار النفسية لتغير المناخ واستراتيجيات التعامل معها. وأُجريت مقابلات هاتفية شبه منظمة مع 16 طالبًا وطالبة، تراوحت أعمارهم بين 18 و28 عامًا، من جامعات حكومية وخاصة في شمال الأردن ووسطه وجنوبه، شملت بيئات حضرية وريفية وبدوية. وحُللت البيانات باستخدام التحليل الموضوعي وفق إطار براون وكلارك، مع ضمان الصرامة المنهجية استنادًا إلى معايير لينكولن وجوبا. وأسفر التحليل عن خمسة موضوعات رئيسة: الوعي بتغير المناخ، والآثار النفسية والانفعالية، والخبرات المعيشة للضغوط المناخية، واستراتيجيات التكيف والمرونة النفسية، وتوصيات الشباب بشأن الإجراءات المؤسسية والسياساتية. ووصف المشاركون تغير المناخ بأنه مصدر ضغط يومي يرتبط بالحرارة وشح المياه ومحدودية البنية التحتية وعدم الاستقرار البيئي. وشملت الاستجابات النفسية القلق والحزن والإحباط، فيما تضمنت استراتيجيات التعامل إضفاء المعنى الديني، والتجنب الانتقائي، وسلوكيات بيئية إيجابية محدودة. وتؤكد النتائج أهمية دمج الدعم النفسي والاجتماعي (MHPSS) في استراتيجيات التكيف المناخي، وتعزيز التثقيف المناخي والنفسي في التعليم العالي، وإشراك الشباب في صنع السياسات. وتمتد أهمية هذه النتائج إلى البيئات الأخرى المعرضة لتغير المناخ.

الكلمات المفتاحية : تغير المناخ؛ الصحة النفسية؛ القلق البيئي؛ الشباب؛ استراتيجيات التعامل؛ الأردن.

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Introduction

Climate change represents one of the most significant challenges of the twenty-first century, disrupting environmental, social, and health systems at multiple levels. The Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change, 2023), highlights that climate-related threats are intensifying globally, with continued warming expected to exacerbate heat stress, water scarcity, food insecurity, and population displacement. Beyond these physical impacts, climate change also imposes a substantial psychological burden. The World Health Organization (2022) characterizes climate change as a "threat multiplier" for mental health, linking exposure to environmental hazards and associated losses with increased levels of anxiety, stress, grief, post-traumatic symptoms, and reduced overall wellbeing (Lawrance et al., 2022). These responses align with emerging conceptualizations of climate anxiety as a rational and non-pathological reaction to environmental threats (Clayton, 2020), as well as ecological grief associated with environmental loss (Cunsolo & Ellis, 2018).

Empirical evidence continues to demonstrate the significance of these psychological dimensions. A large cross-national survey found that 60% of adolescents across ten countries reported being "very" or "extremely" worried about climate change, with 45% indicating that such concerns negatively affected their daily functioning (Hickman et al., 2021). From a developmental perspective, adolescence and emerging adulthood represent critical stages of identity formation and future orientation; consequently, climate-related uncertainty may both increase vulnerability to psychological distress and stimulate adaptive engagement (Clayton et al., 2017; Erikson, 1968). Among youth, exposure to climate information through social media and digital platforms further shapes risk perception, simultaneously enhancing awareness while potentially amplifying distress and misinformation (Ogunbode et al., 2022). At the same time, frameworks of constructive hope suggest that value-based meaning-making and collective action can transform distress into sustained engagement, particularly when supported within educational contexts (Economic and Social Commission for Western Asia, 2022; Lelieveld et al., 2016; Ojala, 2012; Ojala, 2015; Ojala, 2023; Pihkala, 2020a; Pihkala, 2020b).

In the Middle East and North Africa (MENA) region, the intersection of climate change with chronic water scarcity, rising temperatures, and environmental degradation creates compounded vulnerabilities for populations and health systems. Projections indicate increasing heat extremes and declining precipitation, with significant implications for water resources, agriculture, urban livability, and population health (Al-Delaimy & Ramanathan, 2020; Neira et al., 2023; World Bank, 2023). These environmental stressors are further intensified by socio-political and economic challenges, amplifying risks to wellbeing and resilience (Assi et al., 2022; Hayes et al., 2018).

Jordan exemplifies these intersecting risks. As one of the most water-scarce countries globally, Jordan faces escalating challenges related to water security, agricultural sustainability, and infrastructure resilience due to recurrent drought,

declining rainfall, and rising temperatures (Braun & Clarke, 2006). Although national adaptation strategies recognize health as a cross-cutting priority, the integration of mental health within climate policy remains limited. Given that more than 60% of the Jordanian population is under the age of 30, understanding youth perspectives is both timely and critical.

Despite increasing global attention to the mental health impacts of climate change, qualitative research capturing the lived experiences, meaning-making processes, and coping strategies of youth in Arab contexts remains limited (Lincoln & Guba, 1985). Existing studies are predominantly quantitative and often lack contextual depth, particularly in relation to how environmental stressors are experienced in daily life. Addressing this gap, the present study explores how Jordanian university students conceptualize climate change, the psychological impacts they associate with it, and the coping and adaptation strategies they employ.

Specifically, this study addresses the following research questions:

- How do young people in Jordan conceptualize and understand climate change?
- What psychological effects do they report?
- What coping and adaptation behaviors do they engage in?

Given the study's focus on perceptions, emotional responses, and meaning-making processes, a qualitative phenomenological approach was adopted. This design enables an in-depth exploration of lived experiences and supports the development of culturally and contextually grounded insights (Braun & Clarke, 2006). By centering youth perspectives, this research aims to generate actionable, context-specific evidence to inform university services, guide public health interventions, and support the integration of mental health into climate adaptation policies in Jordan and comparable MENA settings. This study was conducted under the framework of the 4Human initiative (4Human, 2025), which seeks to advance climate and mental health research in Jordan.

Methods

Study Setting and Design

This study was conducted in Jordan, a middle-income country in the World Health Organization (WHO) Eastern Mediterranean Region (EMR), with an estimated population of 11.2 million (Department of Statistics, 2020). Arabic is the official language, and the higher education system comprises both public and private universities distributed across the country. Participants were university students enrolled during the 2023/2024 academic year. The study was implemented under the framework of the 4Human initiative (Creswell & Poth, 2018), which focuses on advancing climate change and mental health research in Jordan. A qualitative phenomenological design was employed to explore students' awareness of climate change, its perceived psychological impacts, and coping strategies. This approach was selected as facilitates in-depth exploration of lived experiences and meaning-making processes, allowing for a

nuanced understanding of subjective psychological responses within their sociocultural context (Guest et al., 2006; Hennink et al., 2017).

Participants and Recruitment

Eligibility criteria included: (1) age between 18 and 30 years, (2) current enrollment in a Jordanian university, and (3) willingness to provide verbal informed consent for participation and audio recording. A purposive sampling strategy with maximum variation was applied to capture diverse perspectives across gender, academic discipline, and geographic location (north, central, and south Jordan), as well as residence type (urban, rural, and Badia settings). This approach was used to enhance the breadth and transferability of findings by incorporating variation in environmental exposure and sociocultural context.

Participants were recruited through university mailing lists, WhatsApp groups, and student networks. Recruitment continued iteratively until thematic saturation was achieved, defined as the point at which no new codes or themes emerged from the data. The final sample comprised 16 participants aged 18–28 years (mean = 22.7 years), including 11 females and 5 males, representing both health-related and non-health academic disciplines. This sample size is consistent with recommendations for phenomenological studies focusing on depth rather than breadth (Cianconi et al., 2020; Lincoln & Guba, 1985).

Data Collection

Data were collected between 1 May and 31 July 2025 using semi-structured telephone interviews conducted in Arabic. Each interview lasted approximately 40–60 minutes. All interviews were audio-recorded with participants' consent, transcribed verbatim in Arabic, and subsequently translated into English for analysis. To ensure linguistic and conceptual accuracy, key analytic decisions and interpretations were cross-checked against the original Arabic transcripts. The interview guide was designed to capture multiple dimensions of participants' experiences and included six domains:

1. Demographic and background characteristics (e.g., age, gender, region, socioeconomic status, health conditions).
2. Awareness and knowledge of climate change (definitions, sources of information, perceived credibility).
3. Psychological and emotional responses (e.g., anxiety, fear, sadness, perceived impact on daily functioning).
4. Personal and community experiences of climate-related events (e.g., heatwaves, water scarcity, pollution).
5. Coping and resilience strategies (e.g., behavioral adaptation, religious and cultural coping, environmental engagement).
6. Recommendations for action (e.g., roles of universities and policymakers).

The full interview guide is provided in Appendix A (Arabic with English translation).

Data Analysis

Data were analyzed using thematic analysis following the six-phase framework proposed by Braun and Clarke (2006): (1) familiarization with the data, (2) generation of initial codes, (3) identification of candidate themes, (4) review and refinement of

themes, (5) definition and naming of themes, and (6) production of the final report. NVivo software was used to facilitate data organization and coding. Two researchers independently coded all transcripts to enhance analytical rigor. Coding discrepancies were discussed and resolved through iterative dialogue until consensus was achieved. Themes and subthemes were developed inductively from the data, and representative quotations were selected to illustrate key findings.

Trustworthiness and Rigor

To ensure methodological rigor, the study applied the criteria of Lincoln and Guba (1985).

- Credibility was enhanced through member checking; whereby summary interpretations were shared with selected participants to verify accuracy.
- Dependability was supported by maintaining an audit trail documenting coding processes and analytic decisions.
- Confirmability was ensured through reflexive journaling and regular peer debriefing within the research team to minimize researcher bias.
- Transferability was addressed by providing detailed descriptions of the study context, participant characteristics, and thematic findings.

Ethical Considerations

Ethical approval was obtained from the Ethics Committee for Scientific Research (ECSR) at Zarqa University (Approval Number: 4/2/2025). Participation was voluntary, and verbally informed consent was obtained from all participants prior to data collection. To ensure confidentiality, all identifying information was removed from transcripts. Audio recordings and transcripts were securely stored on password-protected devices accessible only to the research team.

Results

Participant Demographics

A total of 16 university students participated in the study, aged between 18 and 28 years (mean = 22.7 ± 2.8). The sample included 11 females and 5 males, representing diverse geographic regions of Jordan (north, central, and south) and varying residential contexts (urban, rural, and Badia). Participants were enrolled in both health-related and non-health academic disciplines. Most reported moderate socioeconomic status, with family incomes ranging between 300 and 800 Jordanian dinars. Additional demographic details are presented in Table 1.

Table 1

Participant characteristics (n = 16)

Characteristic		n	%
Age (years)	18–21	7	43.8
	22–25	6	37.5
	26–28	3	18.7
	Mean age (SD)	22.7 (±2.8)	–
Gender	Female	11	68.8
	Male	5	31.2
Region	North	6	37.5

	Central	5	31.2
	South	5	31.2
Residence type	Urban	9	56.3
	Rural	5	31.2
	Badia	2	12.5
Field of study	Health sciences (medicine, pharmacy, nutrition)	7	43.8
	Non-health (business, psychology, computer science, mathematics)	9	56.2

Overview of Themes

Thematic analysis generated five interconnected themes:

- evolving and experience-driven climate awareness,
- pervasive psychological burden and future-oriented anxiety,
- daily lived disruptions linked to environmental stressors,
- diverse coping mechanisms balancing engagement and avoidance, and
- youth-driven recommendations for institutional and policy-level action.

Theme 1: Fragmented and Experience-Driven Climate Awareness

Participants demonstrated varying levels of awareness of climate change, often shaped by a combination of formal knowledge and lived experiences. While some students articulated scientific explanations, others expressed partial or evolving understanding influenced by educational exposure and media. For instance, one participant initially associated climate change with personal health practices before connecting it to broader environmental processes: *"I always think of ultraviolet rays and the ozone layer. At first, I related it to cosmetics and sunscreen, but later I understood it's about greenhouse gas emissions." (Female, 20 years, urban)*

Others highlighted limited knowledge but ongoing learning: *"Honestly, I don't know much yet, but I am attending workshops on climate change…" (Female, 20 years, North Jordan, urban)* . Importantly, students in environment-related disciplines linked climate change directly to practical consequences, indicating a more experiential understanding: *"It means constant rising temperatures we can't bear… productivity is falling…" (Female, 28 years, rural)*. These findings suggest that climate awareness among youth is not uniform but emerges through the interaction between formal education and everyday environmental exposure.

Theme 2: Psychological Burden and Future-Oriented Anxiety

Participants consistently described negative emotional responses, including anxiety, stress, and low mood, often linked to uncertainty about future environmental conditions. *"It's a problem the whole world faces, and it makes me feel anxious…" (Female, 19 years, urban).*Climate-related stress was not only conceptual but also embedded in daily emotional experiences: *"Climate change affects my mood… sudden changes in weather make me feel down." (Female, 21 years, Badia)*. Although a minority of participants expressed motivation to act, the dominant pattern reflected a sense of overwhelm, indicating that climate change is perceived as a psychological burden than a source of empowerment.

Theme 3: Climate Change as a Daily Lived Disruption

Participants described climate change not as an abstract phenomenon but as a tangible disruption affecting daily routines, particularly through heat, infrastructure limitations, and environmental unpredictability. Heat exposure was the most frequently reported stressor: *"The summers have become unbearable… I arrive already exhausted." (Male, 19 years, urban)*. Infrastructure-related challenges further amplified stress: *"My clothes and shoes are soaked… I lose focus during lectures." (Female, 20 years, urban).* Environmental unpredictability also contributed to uncertainty: *"Areas that used to be rainy are now desert…" (Female, 18 years, Badia).* These findings indicate that climate-related distress is mediated through everyday material conditions, particularly transportation, campus infrastructure, and environmental instability.

Theme 4: Coping Strategies Between Engagement and Avoidance

Participants reported a spectrum of coping strategies, ranging from active engagement to emotional avoidance. Some adopted initiative-taking behaviors: *"I joined environmental volunteering campaigns…" (Female, 21 years).* Others relied on cultural and religious frameworks: *"Religion teaches us to protect nature; this gives me strength." (Female, 23 years).* However, avoidance was also evident: *"Sometimes I just try not to think about it…" (Male, 20 years)*. This dual pattern suggests that coping is dynamic, reflecting both resilience and psychological overload.

Theme 5: Youth-Driven Recommendations for Institutional Action

Participants proposed practical recommendations, emphasizing the role of universities and policymakers in addressing climate-related challenges. Key suggestions included integrating climate change into curricula, improving infrastructure, and expanding mental health support: *"Universities should integrate climate change into our courses…" (Female, 19 years)* ; *"There should be more counseling and support…" (Female, 21 years).* Participants also highlighted transportation challenges*: "Transportation is delayed and unsuitable for the heat…" (Female, 22 years).* These recommendations reflect a clear demand for institutional responses that address both environmental and psychological dimensions of climate change.

Discussion

This study provides qualitative evidence that climate change is experienced by Jordanian youth not as a distant environmental risk, but as a proximal, lived disruption embedded in daily life. Participants demonstrated awareness of climate change; however, this awareness was predominantly grounded in tangible stressors particularly heat exposure, water reliability, and environmental degradation rather than abstract scientific concepts. This finding reinforces emerging literature suggesting that climate perceptions are shaped by immediate environmental conditions and lived experiences rather than solely by informational exposure.

Psychologically, participants consistently reported anxiety, stress, and low mood, often linked to uncertainty about future environmental and social stability. These findings align with global evidence on youth climate anxiety (6; 31) but extend this literature by highlighting how emotional responses in the Jordanian context are closely

tied to daily functional disruptions, including transportation challenges, thermal discomfort in educational settings, and infrastructure limitations. In contrast to studies conducted in higher-income contexts, where climate concerns may be framed in abstract or future-oriented terms, participants in this study described climate change as an immediate and ongoing stressor affecting concentration, mobility, and overall wellbeing.

Two context-specific patterns emerged. First, heat and water-related stressors were central drivers of psychological burden. Participants reported fatigue, irritability, and reduced cognitive functioning during extreme heat, consistent with regional evidence linking thermal stress to adverse mental health outcomes (Awad et al., 2025; Berry et al., 2018). These findings underscore the importance of environmental exposure as a determinant of mental health in climate-vulnerable settings.

Second, religious and cultural coping mechanisms were prominent. Participants frequently described faith-based interpretations of environmental responsibility and resilience, reflecting a culturally embedded framework of meaning-making. This differs from many Western contexts, where coping is often associated with activism and policy engagement, and aligns with regional research indicating that climate-related emotions are integrated into moral and social values (Palinkas & Wong, 2020). These patterns are consistent with theories of constructive hope, in which values-based interpretation supports adaptive coping and sustained engagement despite distress (Ojala, 2012; Ojala, 2015; Ojala, 2023).

A key contribution of this study is the identification of infrastructure-mediated pathways linking climate exposure to psychological outcomes. Participants' experiences suggest that climate-related distress is not solely driven by environmental hazards, but is produced and amplified through material conditions, including transportation systems, classroom environments, and water service reliability. For example, prolonged exposure to heat during commutes and inadequate cooling in educational settings were reported to negatively affect mood, attention, and academic performance. These findings support integrative frameworks that conceptualize mental health as shaped by the interaction between environmental stressors and system-level infrastructure (UNICEF, n.d).

Regionally, the findings align with emerging evidence from MENA countries, including Egypt and Lebanon, indicating high awareness of climate risks alongside increasing psychological concern. However, unlike predominantly survey-based studies, this research provides experience-based insights into how climate stress is embedded in everyday life. At a policy level, participants' recommendations for improved infrastructure, curriculum integration, and psychosocial support reflect broader calls to incorporate mental health and psychosocial support (MHPSS) into climate adaptation strategies (Drabble et al., 2016; Novick, 2008).

Implications

At the policy level, integrating climate-related mental health into national adaptation strategies is essential. Investments in climate-resilient infrastructure such as improved transportation, shaded public spaces, and climate-adaptive educational

environments can reduce both physical and psychological stressors. Ministries of Health, Education, and Environment should collaborate to establish referral pathways for climate-related distress and incorporate youth mental health indicators into national monitoring frameworks. At the institutional level, universities play a critical role in addressing both knowledge and psychosocial needs. Integrating climate education with emotional coping and media literacy can help students navigate both scientific information and psychological responses. Additionally, expanding campus-based mental health services and creating participatory spaces (e.g., peer groups, climate engagement initiatives) can transform climate-related distress into collective efficacy. At the community level, youth-led initiatives offer a scalable approach to combining environmental action with psychological resilience. Programs that integrate behavioral adaptation with coping strategies such as grounding techniques and value-based action can enhance both engagement and wellbeing, particularly in underserved rural and Badia communities.

Conclusion

This study demonstrates that climate change is perceived by Jordanian youth as both an environmental and psychological challenge, experienced through daily disruptions rather than distant risks. Eco-anxiety coexists with adaptive coping strategies, including faith-based resilience and modest behavioral engagement. A key insight is that climate-related distress is mediated through infrastructure and daily living conditions, particularly heat exposure, water reliability, and institutional environments. Addressing these pathways through integrated climate adaptation and mental health strategies can reduce psychological burden while strengthening resilience. Embedding youth-centered mental health and psychosocial support within climate policy, enhancing climate education, and institutionalizing youth participation in decision-making processes are critical steps toward transforming climate-related anxiety into constructive engagement. While grounded in the Jordanian context, these findings offer transferable insights for other climate-vulnerable regions.

Limitations

The findings of this study should be interpreted in light of several limitations. First, the use of self-reported data in qualitative interviews introduces the potential for recall bias and social desirability bias. Although participants provided detailed and candid accounts, responses may reflect selective disclosure or under-reporting of psychological distress. Consequently, the findings are not intended to estimate prevalence or quantify effect sizes. Second, data were collected through telephone interviews. While this approach improved accessibility and logistical feasibility, the absence of face-to-face interaction may have limited rapport and reduced the availability of non-verbal cues, which could influence the depth and richness of responses (Creswell & Poth, 2018; Elsharkawy et al., 2024). Third, the study sample was restricted to university students, which may limit the transferability of findings to non-student youth populations who may experience different environmental exposures, stressors, and coping mechanisms. Fourth, although the sample size (n = 16) is consistent with methodological guidance for phenomenological research and sufficient to achieve thematic saturation, it may not capture less common or divergent

perspectives. Finally, the cross-sectional design does not account for temporal or seasonal variation in climate-related experiences, such as differences between peak heat periods and cooler seasons. Longitudinal approaches would be necessary to explore these dynamics over time.

Recommendations

Integrating climate-related mental health into national and institutional responses is essential to address the growing psychological burden among youth. Policymakers should embed mental health and psychosocial support (MHPSS) within climate adaptation strategies by establishing screening mechanisms, referral pathways, and cross-sectoral coordination between the Ministries of Health, Education, and Environment. Universities should incorporate climate change education alongside coping and media literacy skills, while expanding accessible counseling services to support students' psychological wellbeing. Capacity-building efforts targeting counselors, educators, and peer facilitators are needed to strengthen responses to climate-related distress, particularly in underserved rural and Badia areas. In parallel, institutionalizing youth participation through advisory councils and supporting youth-led initiatives can enhance engagement and locally relevant solutions. Future research should prioritize longitudinal and mixed-methods approaches to better understand evolving climate–mental health dynamics and to evaluate the effectiveness and scalability of intervention models.

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