

Original Article

Assess Climate Change Anxiety among Undergraduate Nursing Students at College of Nursing Female Mirpurkhas, Sindh

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ABSTRACT

Background: Climate change anxiety is increasingly recognized as an emerging mental health concern among young adults and students, particularly in environmentally vulnerable settings where climate-related disasters are common. Nursing students may be especially affected because of their awareness of health consequences associated with environmental change. **Objective:** To assess climate change-related anxiety among undergraduate nursing students at the College of Nursing Female Mirpurkhas, Sindh. **Methods:** A descriptive cross-sectional study was conducted among 152 undergraduate nursing students selected through non-probability convenience sampling from a total population of 250 students. Data were collected using a structured questionnaire incorporating the 13-item Climate Change Anxiety Scale, which evaluates cognitive-emotional impairment and functional impairment. Responses were analyzed in SPSS version 24 using descriptive statistics, and internal consistency reliability was assessed using Cronbach's alpha. **Results:** Most participants were younger than 25 years (92.1%), unmarried (88.8%), and from middle-income households (92.1%). The mean score for cognitive-emotional impairment was 2.58 ± 1.17 , while the mean score for functional impairment was 2.76 ± 1.23 , indicating a moderate level of climate change anxiety overall. The highest mean item score was observed for difficulty enjoying time with family or friends because of climate concerns (2.89 ± 1.26), whereas the lowest was observed for crying because of climate change (2.18 ± 1.18). **Conclusion:** Undergraduate nursing students demonstrated a moderate level of climate change anxiety, with relatively greater impact on functional aspects of daily life than on overt emotional expression. These findings support the need for contextually appropriate educational and psychosocial support strategies within nursing institutions. **Keywords:** Climate change anxiety, nursing students, undergraduate students, mental health, Sindh, Pakistan.

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INTRODUCTION

Climate change is increasingly recognized as a major public health challenge with important consequences for mental health, particularly among adolescents and young adults who are expected to face its long-term environmental, social, and health effects. In addition to direct exposure through floods, heatwaves, fires, and other climate-related disasters, climate change may also affect psychological wellbeing indirectly through disruption of livelihoods, housing, education, healthcare access, and social stability (1-5). In vulnerable settings, repeated exposure to environmental uncertainty may contribute to persistent worry, fear, helplessness, and stress, which are increasingly described under the construct of climate change anxiety (6-9).

Climate change anxiety refers to distress and functional burden associated with awareness of climate change and its anticipated consequences. It may involve cognitive-emotional symptoms such as difficulty concentrating, sleep disturbance, intrusive thoughts, and sadness, as well as functional impairment affecting social interaction, academic engagement, and daily productivity (10,11). This issue

is especially relevant in student populations because psychological distress during training years may adversely influence learning capacity, emotional resilience, and future professional readiness. Among nursing students, the issue may be more pronounced because their education places them in close contact with the health consequences of environmental change while also preparing them for professional roles that demand both scientific awareness and emotional endurance (12-14).

Recent studies have shown that nursing students and other university populations report measurable levels of worry, stress, and anxiety related to climate change, and that greater awareness of environmental threats may coexist with greater psychological burden (4,12,15). Cross-national and educational research has further indicated that concern about climate change may affect emotional wellbeing, academic functioning, social relationships, and perceived self-efficacy (10,16,17). However, evidence from Pakistan remains limited, particularly among nursing students. This gap is important because Pakistan, and Sindh in particular, has experienced repeated climate-related adversities in recent years, including flooding, extreme heat, and environmental disruption, which may intensify climate-related psychological concerns among students living and studying in affected communities (15,18,19).

Undergraduate nursing students in Mirpurkhas represent a relevant yet understudied population in this regard. As future healthcare professionals, they require not only knowledge about environmental health but also sufficient psychological resilience to function effectively in increasingly climate-affected healthcare systems. Despite this, there is limited local evidence on the extent to which climate change-related concerns are associated with cognitive-emotional and functional difficulties in this group. Assessing climate change anxiety in this population is therefore important for understanding the student mental health burden within nursing education and for informing contextually appropriate educational and psychosocial support strategies. Accordingly, the objective of this study was to assess climate change-related anxiety among undergraduate nursing students at the College of Nursing Female Mirpurkhas, Sindh.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted at the College of Nursing Female Mirpurkhas, Sindh, over a three-month period following ethical approval. The target population comprised 250 undergraduate students enrolled in the Bachelor of Science in Nursing (Generic) program. A sample of 152 participants was included in the study. Students were selected through non-probability convenience sampling based on their availability during the data collection period and willingness to participate.

Eligible participants included currently enrolled undergraduate BSN students who agreed to participate voluntarily. Graduated students, including interns, as well as students who were absent or on leave during data collection, were excluded. Recruitment was carried out in the academic setting after students were informed about the purpose and procedures of the study. Written informed consent was obtained before questionnaire administration. Participation was voluntary, and respondents were assured that their information would remain confidential and anonymous and would be used only for academic purposes.

Data were collected using a structured self-administered questionnaire consisting of two parts. The first part captured demographic characteristics, including age, sex, marital status, and economic status. The second part comprised the 13-item Climate Change Anxiety Scale developed by Clayton and Karaszia, which assesses two domains of climate change-related anxiety: cognitive-emotional impairment and functional impairment (20). The cognitive-emotional domain included items related to difficulty concentrating, sleep disturbance, nightmares, crying, and repetitive thoughts associated with climate change, whereas the functional domain assessed the extent to which climate-related concerns interfered with enjoyment of family or social life, balancing responsibilities, and completion of academic or work-related tasks. Responses were recorded on a five-point Likert scale and coded from 1 to 5 for analysis, corresponding to never, rarely, sometimes, often, and almost always, respectively, with higher scores indicating greater climate change anxiety.

The questionnaire was administered in person, and completed forms were reviewed for completeness at the time of collection to reduce missing responses and entry errors. Data were coded and entered into SPSS version 24 for analysis. Descriptive statistics were used to summarize participant characteristics and item-level responses. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were computed for Climate Change Anxiety Scale items and domain-level scores. Internal consistency reliability of the 13-item scale was assessed using Cronbach's alpha. Because the aim of the study was descriptive, the analysis focused on estimating the level and pattern of climate change anxiety rather than testing causal associations.

Several procedural steps were taken to improve data quality and reduce bias. The same questionnaire was used for all participants, data collection was conducted within a defined study period, and participants completed the instrument under uniform institutional conditions. Restricting the study to currently enrolled undergraduate students improved population consistency, although the use of convenience sampling and self-reported responses may still have introduced selection and response bias. Ethical approval for the study was obtained from the Ethical Review Committee of the College of Nursing Female Mirpurkhas, Sindh, before commencement of data collection. The study was conducted in accordance with accepted ethical principles for human participant research.

RESULTS

A total of 152 undergraduate nursing students participated in the study. Most respondents were younger than 25 years, unmarried, and from middle-income households. All participants were female, reflecting the study setting.

Table 1. Demographic characteristics of the participants (n=152)

Variable	Category	Frequency	Percentage
Age	Under 25 years	140	92.1
	25–30 years	12	7.9
	Over 30 years	0	0.0
Sex	Female	152	100.0
	Male	0	0.0
Marital status	Unmarried	135	88.8
	Married	17	11.2
Economic status	Lower	8	5.3
	Middle	140	92.1
	High	4	2.6

Of the 152 participants, 140 were aged below 25 years, representing 92.1% of the sample, while 12 students, or 7.9%, were aged 25 to 30 years. No participant was older than 30 years. All respondents were female. Most students were unmarried, accounting for 135 participants or 88.8%, whereas 17 participants, or 11.2%, were married. Regarding economic status, 140 students, corresponding to 92.1%, reported middle-income status, followed by 8 students, or 5.3%, in the lower-income group and 4 students, or 2.6%, in the high-income group.

Table 2. Domain-level Climate Change Anxiety Scale scores (1–5 coding)

Domain	Number of items	Mean ± SD	95% CI of mean	Interpretation*
Cognitive-emotional impairment	8	2.58 ± 1.17	2.39–2.77	Moderate
Functional impairment	5	2.76 ± 1.23	2.56–2.96	Moderate

*Higher scores indicate greater anxiety; values centered around 3 suggest responses tending toward “sometimes.”

The cognitive-emotional impairment domain had an overall mean score of 2.58 ± 1.17 , indicating a moderate level of cognitive and emotional reactions related to climate change. The functional impairment domain showed a slightly higher mean score of 2.76 ± 1.23 , suggesting that climate-related concerns had a somewhat greater effect on daily functioning than on cognitive-emotional symptoms alone.

Table 3. Item-wise Climate Change Anxiety Scale scores (n=152)

Item	Mean ± SD	95% CI
Q1. Thinking about climate change makes it difficult for me to concentrate	2.87 ± 1.10	2.70–3.04
Q2. Thinking about climate change makes it difficult for me to sleep	2.88 ± 1.19	2.69–3.07
Q3. I have nightmares about climate change	2.28 ± 1.21	2.09–2.47
Q4. I find myself crying because of climate change	2.18 ± 1.18	1.99–2.37
Q5. I think, “why can’t I handle climate change better?”	2.79 ± 1.10	2.62–2.96
Q6. I go away by myself and think about why I feel this way about climate change	2.50 ± 1.05	2.33–2.67
Q7. I write down my thoughts about climate change and analyze them	2.52 ± 1.29	2.31–2.73
Q8. I think, “why do I react to climate change this way?”	2.66 ± 1.21	2.47–2.85
Q9. My concerns about climate change make it hard for me to have fun with my family or friends	2.89 ± 1.26	2.69–3.09
Q10. I have problems balancing my concerns about sustainability with the needs of my family	2.73 ± 1.14	2.55–2.91
Q11. My concerns about climate change interfere with my ability to get work or school assignments done	2.81 ± 1.27	2.61–3.01
Q12. My concerns about climate change undermine my ability to work to my potential	2.84 ± 1.18	2.65–3.03
Q13. My friends say I think about climate change too much	2.55 ± 1.28	2.35–2.75

At the item level, the highest mean score was observed for Q9, which assessed difficulty enjoying time with family or friends due to climate change concerns, with a mean of 2.89 ± 1.26 . This was followed closely by Q2 on sleep difficulty at 2.88 ± 1.19 and Q1 on difficulty concentrating at 2.87 ± 1.10 . Q12, which addressed reduced ability to work to one’s potential, also showed a comparatively high mean of 2.84 ± 1.18 , while Q11 on interference with school or work assignments had a mean of 2.81 ± 1.27 . In contrast, the lowest mean was recorded for Q4, crying because of climate change, at 2.18 ± 1.18 , followed by Q3 on nightmares at 2.28 ± 1.21 . Overall, item means ranged from 2.18 to 2.89, showing that students generally experienced climate change-related concerns at a level between rarely and sometimes, with relatively greater burden in social and functional domains.

Across domains, the pattern suggests that climate change anxiety in this sample was not limited to internal emotional responses alone, but extended into routine functioning. Functional impairment scores were consistently among the highest observed items, particularly in relation to enjoyment of family and social time, academic performance, and perceived work potential. By comparison, overt emotional expressions such as crying and nightmares were less prominent. Taken together, these findings indicate a moderate level of climate change anxiety among undergraduate nursing students, with greater expression through disruption of daily functioning than through more overt emotional symptoms.

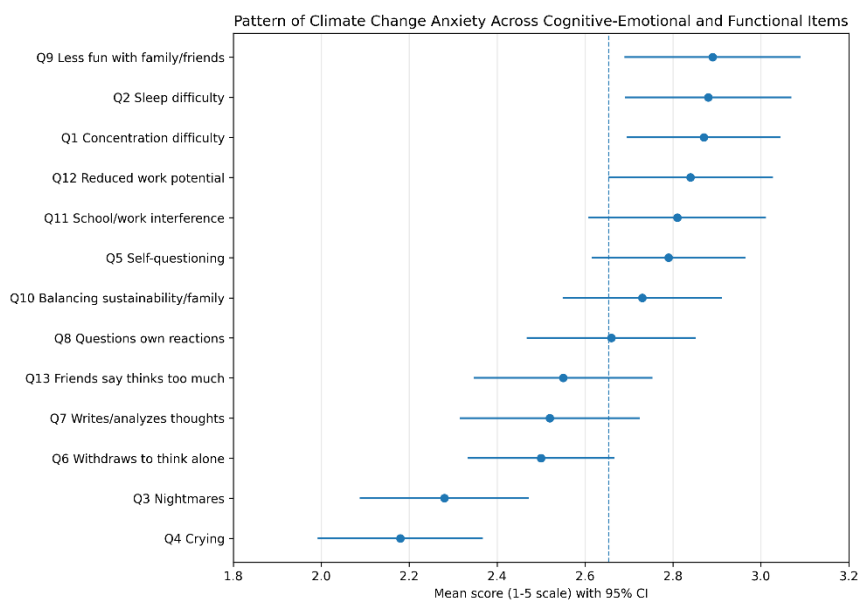


Figure 1 Clustered symptom profile centered around moderate anxiety levels

The figure shows a clustered symptom profile centered around moderate anxiety levels, with item means spanning from 2.18 to 2.89 on the 1–5 scale. The highest burden was concentrated in functional and performance-related items, particularly reduced enjoyment with family or friends (Q9, 2.89; 95% CI 2.69–3.09), sleep difficulty (Q2, 2.88; 95% CI 2.69–3.07), concentration difficulty (Q1, 2.87; 95% CI 2.70–

3.04), and reduced work potential (Q12, 2.84; 95% CI 2.65–3.03). The lowest scores were observed for crying (Q4, 2.18; 95% CI 1.99–2.37) and nightmares (Q3, 2.28; 95% CI 2.09–2.47). This pattern indicates that climate change anxiety in this cohort was expressed more strongly through social, academic, and functional strain than through overt affective reactions.

DISCUSSION

The present study found that undergraduate nursing students at the College of Nursing Female Mirpurkhas experienced a moderate level of climate change anxiety, with somewhat higher scores in the functional impairment domain than in the cognitive-emotional domain. The cognitive-emotional impairment mean was 2.58 ± 1.17 , whereas the functional impairment mean was 2.76 ± 1.23 , suggesting that climate-related concerns in this cohort were expressed more strongly through disruption of daily and academic functioning than through overt emotional symptoms alone. At the item level, the highest mean scores were observed for difficulty enjoying time with family or friends because of climate change concerns (Q9: 2.89 ± 1.26), sleep disturbance (Q2: 2.88 ± 1.19), difficulty concentrating (Q1: 2.87 ± 1.10), and reduced ability to work to full potential (Q12: 2.84 ± 1.18). In contrast, crying because of climate change (Q4: 2.18 ± 1.18) and nightmares about climate change (Q3: 2.28 ± 1.21) were the least frequently endorsed experiences. This pattern indicates that in this student population, climate change anxiety was present primarily as a persistent background burden affecting concentration, sleep, social enjoyment, and academic productivity rather than as more dramatic emotional expression.

The demographic profile of the respondents shows that the sample was predominantly composed of younger students, with 92.1% aged under 25 years, 88.8% unmarried, and 92.1% from middle-income households. All participants were female because the study was conducted in a female nursing college. These characteristics are broadly consistent with the age composition of nursing and university student populations assessed in prior climate anxiety research, in which younger participants often report heightened concern regarding environmental futures and personal vulnerability to climate disruption (3,4,10,16,18). Although the sex distribution in the current study reflects the institutional setting rather than a comparative finding, the exclusively female sample remains relevant because nursing students may represent a population in whom professional health awareness and environmental concern converge, potentially increasing sensitivity to climate-related threats (12,16,17).

The moderate overall level of anxiety observed in this study is consistent with previous work showing that nursing students and other young adult populations experience meaningful but variable psychological distress related to climate change. Studies among medical and nursing students have documented associations between climate concerns and symptoms such as stress, anxiety, impaired concentration, and reduced emotional wellbeing (3,4,16,17,20). The present findings align particularly with studies suggesting that climate-related psychological burden in student populations often manifests not only as emotional concern but also as impairment in routine functioning, academic focus, and social wellbeing (10,11,16). The slightly higher functional impairment observed in this study is therefore noteworthy, as it suggests that the practical consequences of climate change concern may be more salient than overt emotional reactions in this population. This distinction is important for nursing education because disruptions in concentration, sleep, and academic task completion may adversely affect learning, clinical preparedness, and coping capacity during professional training (12,14,17).

The local context of Sindh may also help explain the observed pattern. Pakistan has experienced repeated climate-related adversities, including severe flooding, extreme heat, and environmental instability, all of which may intensify perceived vulnerability among young adults and students (15,19). For nursing students studying in such a setting, climate change may not be viewed as an abstract global issue but as an immediate public health and community concern. This may contribute to persistent worry and functional strain even in the absence of more severe affective manifestations such as crying or recurrent nightmares. The relatively higher mean scores for sleep difficulty, concentration problems, and reduced

enjoyment with family or friends support the interpretation that climate anxiety in this cohort may operate as a chronic cognitive and behavioral burden rather than an episodic emotional crisis. This is also compatible with contemporary conceptualizations of climate change anxiety as a multidimensional construct involving both internal distress and impairment in social and occupational functioning (10,11,20).

The item-level profile further strengthens the practical significance of these findings. The highest-scoring item in the present study related to difficulty having fun with family or friends because of climate concerns, followed closely by sleep disturbance and concentration difficulty. These results suggest that climate change anxiety may extend beyond worry into the social and academic routines of students. Such a pattern is especially relevant in nursing education, where sustained attention, emotional regulation, and effective interpersonal functioning are essential for academic progression and professional identity formation. Concerns about sustainability, climate hazards, and environmental decline may therefore influence not only mental wellbeing but also the educational experience and resilience of future nurses (4,12,16,18). At the same time, the comparatively lower scores for crying and nightmares indicate that the distress observed in this study was generally moderate and may not have reached the level of severe psychological decompensation in most participants.

These findings should be interpreted in light of several limitations. The study was conducted in a single institution and used non-probability convenience sampling, which limits generalizability beyond the sampled college. The all-female composition of the sample reflects the study setting and prevents sex-based comparison. In addition, the data were based on self-report, which may be influenced by response style, social desirability, and recall bias. Because the design was cross-sectional and descriptive, the study cannot determine causality or identify factors independently associated with greater climate change anxiety. The absence of qualitative exploration also limits understanding of how students interpret climate threats in their personal, academic, and community lives. Nevertheless, the study provides useful preliminary evidence from an under-researched setting and highlights the need to consider climate-related psychological burden within nursing education in Pakistan.

Overall, the findings indicate that climate change anxiety among undergraduate nursing students in Mirpurkhas is present at a moderate level and is expressed more prominently through functional disruption than through overt emotional symptoms. This suggests that educational institutions should move beyond general climate awareness alone and consider supportive strategies that also address student wellbeing, coping, and resilience in the context of environmental uncertainty. Future multicenter studies with broader sampling frames and analytic assessment of associated demographic, academic, and psychosocial factors would help clarify the magnitude, determinants, and educational implications of climate-related anxiety among nursing students in Pakistan.

CONCLUSION

Undergraduate nursing students at the College of Nursing Female Mirpurkhas demonstrated a moderate level of climate change anxiety, with greater impact on functional aspects of daily life than on overt cognitive-emotional symptoms. The highest burden was observed in relation to difficulty enjoying time with family or friends, sleep disturbance, impaired concentration, and reduced work potential, indicating that climate-related concern in this cohort was expressed primarily through social and academic disruption. These findings underscore the importance of recognizing climate change anxiety as a relevant student mental health issue within nursing education and support the need for context-sensitive awareness, psychosocial support, and further multicenter research in similar settings.

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