

Original Article

The Association Between Climate Change Awareness and Psychological Flexibility in Nursing Students

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Abstract

Background: Climate change-aware health professionals can emphasize the interrelationships of climate change and health, advocate for environmentally sustainable delivery of health services. Evidence suggests that psychological resilience can be useful in mitigating distress caused by climate change.

Methods: This study aims to determine the association between climate change awareness and psychological flexibility in nursing students. The sample of the study consisted of 411 nursing students. The data were gathered using the Personal Information Form, Climate Change Awareness Scale, and Psychological Flexibility Scale. Independent samples t-test and linear regression test were used in this study.

Results: The participants' total Climate Change Awareness Scale score was 217.72 ± 20.30 , and the total Psychological Flexibility Scale score was 121.84 ± 16.86 . Students who discussed climate change with their relatives, followed the news on this subject, believed that individuals could create impact climate change on its own, and thought that this issue should be included in the nursing curriculum were found to have higher awareness. The total score for psychological flexibility had a statistically significant effect on the total score for climate change awareness.

Conclusions: Nursing students' climate change awareness and psychological flexibility were above average. It is recommended that integrating the roles and responsibilities of nurses in this regard climate change into the nursing education curriculum, encouraging students to participate in scientific activities on this issue, supporting students to carry out studies/projects on climate change, and research on the effect of therapeutic interventions to increase psychological flexibility on climate change anxiety.

Keywords: Climate change; awareness; psychological flexibility; nursing students

Introduction

Climate change (CC) has major consequences for human health, affecting people worldwide, with a specific emphasis on disadvantaged populations and economically disadvantaged countries (Haines et al., 2006). The consequences of CC are diverse and include concrete effects such as heat-related ailments, infections transmitted by vectors,

illnesses caused by contaminated water and food, respiratory and allergy conditions, starvation, violence, and mental health disorders (Levy & Patz, 2015). In addition, CC can lead to secondary health effects such as forced migration, mental illnesses, atmospheric pollution, the proliferation of disease-carrying organisms, inadequate access to food, and malnourishment (Yang et

al., 2018). Hence, it is imperative to promote CC awareness in order to ensure that individuals and communities comprehend the pressing and grave nature of the situation, cultivate a feeling of accountability, and stimulate efforts to mitigate its consequences.

CC awareness encompasses comprehending the various aspects associated with CC, such as its origins, impacts, and possible remedies. Encouraging behavioral changes that are capable of minimizing the impacts of CC is paramount (Halady & Rao, 2010; Kousar et al., 2022). CC awareness is seen as crucial to improve the understanding and knowledge of CC among different populations, including farmers, students and communities (Ajuang et al., 2016; Mwanza et al., 2023; Ng'ombe et al., 2020). The Climate Action target, a key objective of the United Nations (UN) "Sustainable Development Goals", underscores the necessity for deliberate planning of research and awareness-raising activities (United Nations, 2023). Educational activities, specifically aimed at the younger generation, play an essential part in improving understanding of CC and can have a good impact on emotional and social well-being, as well as future prospects (Abdulqadir et al., 2022). Discussing CC awareness in the educational curriculum and promoting environmental activities can effectively raise awareness among lecturers and students (Dorji et al., 2021).

The objective of nursing education is to develop an educational and training program that addresses the worldwide need for action and promotes a skilled nursing workforce (Stănesu-Yadav & Lillekroken, 2023). Incorporating CC awareness into nursing education is essential for equipping nursing students with the necessary information and skills to effectively address the health consequences of CC. It is imperative that nursing students understand the fundamental link between CC and health, as well as the ecological impacts of healthcare (Richardson et al., 2017). Adding CC education into nursing curriculum can enable students to identify the detrimental health impacts of CC and equip them to tackle these impacts through policy advocacy and professional practice (Leffers et al., 2017; Tahkol & Ozturk Haney, 2024). Nurses play a vital part

in addressing the health effects of CC. Hence, it is imperative that nursing education integrates sustainability and CC information into both the curriculum (Amerson et al., 2022). It is essential to increase nursing students' understanding of CC in order to safeguard public health from the negative impacts of CC and to encourage efficient management of resources in healthcare (Incesu & Yas, 2024). According to Yang et al. (2018), understanding the reasons behind CC was found to be a strong predictor of heightened awareness regarding the adverse impacts of CC among students. Research has indicated that nursing students possess a satisfactory level of knowledge and concern regarding the health consequences of CC. However, they feel that their education does not adequately prepare them to effectively address or mitigate CC. This sentiment has been supported by various studies conducted by other studies (Aronsson et al., 2023; Ergin et al., 2021; Sayan & Kaya, 2016; Tuna et al., 2022). Furthermore, research conducted by Incesu and Yas (2024) revealed that participating in meetings focused on environmental matters proved to be a successful method for enhancing nursing students' understanding of CC (Incesu & Yas, 2024).

Psychological flexibility is a fundamental psychological construct that plays a crucial role in individuals' responses to various challenges, including CC awareness. Psychological flexibility is "a broad construct that describes an individual's ability to respond appropriately to environmental demands and internal experiences in service of his or her goals" (Williams et al., 2012). Psychological flexibility is the central objective of Acceptance and Commitment Therapy (ACT). In ACT, the goal is to increase psychological flexibility, which consists of six components, by accepting emotions, thoughts, and past events without trying to change them, being aware of the present moment, and engaging in value-consistent behaviors (Hayes et al., 2006). These six components are "acceptance", "defusion", "present moment awareness", "self-as-context", "committed action" and "values". Acceptance involves acknowledging and making space for uncomfortable thoughts and feelings.

Defusion focuses on distancing oneself from unhelpful thoughts. Present moment awareness emphasizes being fully engaged in the present. Self-as-context involves recognizing the fleeting nature of thoughts and emotions. Committed action is actively pursuing objectives that hold significance, whereas values encompass the process of identifying what is genuinely significant and purposeful in one's life (Hayes et al., 2006). These components work synergistically to enhance psychological flexibility, enabling individuals to adapt to challenging circumstances, manage stress effectively, and participate in actions that align with their principles and objectives. By cultivating these components, individuals can improve their mental health, well-being and overall quality of life (Chong et al., 2021; Ding & Zheng, 2022).

Positive mental health outcomes are linked to psychological flexibility (Guerrini Usubini et al., 2021; Lucas & Moore, 2020; Pyszkowska & Rönnlund, 2021) and resilience (Bryan et al., 2015). Therefore, those who possess elevated degrees of psychological flexibility are more likely to effectively handle the emotional difficulties associated with CC awareness. This, in turn, results in decreased psychological distress and enhanced mental health outcomes (Gloster et al., 2017). According to Feather and Williams (2022), those who exhibit higher levels of psychological inflexibility may be more susceptible to experiencing distress symptoms associated to CC. This is especially true for those who express larger levels of concern about CC (Feather & Williams, 2022). While there is evidence suggesting that psychological flexibility can be beneficial in reducing CC suffering (Seth et al., 2023), there is a lack of research exploring its connection with CC awareness.

Material and Method

Type and Purpose of the Research: The study was carried out as a cross-sectional study. The objective of this study was to determine the association between CC awareness and psychological flexibility in nursing students.

Samples and Settings: The study population comprised students who were enrolled in the public university located in Istanbul (N:

1020). The study sample was calculated using a process that calculates the sample size based on a 99% confidence interval and a 5% margin of error. The study was planned to occur with the participation of at least 403 students. The study was conducted with the involvement of 411 students, aged 18 and above, who were currently enrolled in the Nursing Faculty during the 2023-2024 academic year at specific institutions. These students willingly engaged in the study.

Measurements

Personal information form: The form was produced through a comprehensive literature review conducted by the researchers (Akay et al., 2020; Er et al., 2024; Ergin et al., 2017; Gok & Firat Kilic, 2021; Kucuk Bicer & Acar Vaizoglu, 2015; Uzun, 2021) and contains a total of 15 questions.

Climate change awareness scale (CCAS): Atakli and Kuran (2022) developed a scale to measure individuals' level of awareness on climate change in Turkish. The scale comprises 52 items and encompasses 5 subscales. The scale utilized in this study is a four-point likert scale, with a score range of 52 to 260. High scores indicate a strong level of awareness regarding climate change. The Cronbach's alpha coefficient was found to be 0.92 in Atakli and Kuran (2023) and 0.94 in this study.

Psychological flexibility scale (PFS): The scale was developed by Francis, Dawson and Golijani-Moghaddam (2016) to evaluate the psychological flexibility level of individuals. Turkish validity and reliability study was carried out by Karakus and Akbay (2020). The Turkish scale comprises 28 items and encompasses 5 subscales. The scale is a 7-point likert scale. The range of the scale scores is from 28 to 196. High scores reflect high level of psychological flexibility. Items numbered 2, 3, 5, 6, 8, 14, 18, 20, 22, 23, 24 and 25 are reverse scored. The Cronbach's alpha coefficient was found to be 0.79 in Karakus and Akbay (2020) and 0.81 in this study.

Data analysis: The statistical analysis was done using the SPSS (IBM Statistical Package for Social Sciences v.28 NY, New York) software. The frequency (n) and percentage (%) values obtained from the descriptive statistics were examined. An examination of the normal distribution involved assessing the

kurtosis and skewness values (Shao, 2002). The study included independent samples t-test and linear regression analysis. The statistical significance level was determined as a 95% confidence interval and $p < 0.05$.

Ethical consideration: The study was approved by the Istanbul University-Cerrahpasa Non-Interventional Clinical

Research Ethics Committee (Date: 19.09.2023, 785913), and the necessary institutional approvals were obtained from the faculty (Date: 10.10.2023, 805864). Also, this study was funded by Scientific Research Projects Coordination Unit of Istanbul University-Cerrahpasa (Project number: 37593). In addition, participants provided their consent.

Table 1 Participants’ descriptive characteristics (N= 411)

	Mean±SD		
Age	20.48±2.59 (min:17 max: 26)		
		n	%
Gender	Female	342	83.2
	Male	69	16.8
Grade	1 st Grade	140	34.1
	2 nd Grade	83	20.2
	3 rd Grade	111	27.0
	4 th Grade	77	18.7
Do you discuss climate change and its consequences with your family and/or friends?	Yes	279	72.3
	No	114	27.7
How often do you follow news and information about climate change in your daily life?	Sometimes	350	85.2
	Often	61	14.8
How much do you believe that individuals can create impact climate change on their own?	Highly	215	52.3
	Moderate	196	47.7
Do you know about the convention related to climate change?	Yes	66	16.1
	No	345	89.9
Do you participate in scientific activities related to climate change?	Yes	153	37.2
	No	258	62.8
Do you think the course of climate change and its effects should be included in the nursing curriculum?	Yes	277	67.4
	No	134	32.6
Do you believe that the health consequences of climate change can be reduced by nursing interventions?	Yes	318	77.4
	No	93	22.6

Table 2: Descriptive statistics of climate change awareness scale and psychological flexibility scale

	Mean \pm SD	Min - Max
Climate Change Awareness	217.72\pm20.30	116.00-260.00
Climate change awareness subscale	32.83 \pm 4.41	15.00-45.00
Perception of the problem subscale	19.47 \pm 3.16	10.00-25.00
Information on climate change causes subscale	39.59 \pm 4.77	15.00-45.00
Climate change anxiety subscale	48.16 \pm 5.61	22.00-55.00
Behaviors and expectations from policies subscale	77.65 \pm 7.98	43.00-90.00
Psychological Flexibility Scale	121.84\pm16.86	57.00-178.00
Behavior in line with values subscale	49.77 \pm 9.57	15.00-70.00
Instant subscale	31.54 \pm 8.07	7.00-49.00
Acceptance subscale	17.68 \pm 5.32	5.00-33.00
Contextual self subscale	11.69 \pm 3.47	3.00-21.00
Dissociation subscale	11.15 \pm 3.38	3.00-21.00

SD: Standard deviation, Min: Minimum values, Max: Maximum values

Table 3 The comparison of the Climate Change Awareness Scale scores according to the students' descriptive characteristics (N= 411)

Variables	n	Climate change awareness subscale		Perception of the problem subscale		Information on climate change causes subscale		Climate change anxiety subscale		Behaviors and expectations from policies subscale		Climate Change Awareness Scale	
		Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p
Do you discuss climate change and its consequences with your family and/or friends?													
Yes	279	33.59±3.98	t=5.421	19.68±3.18	t=2.109	39.72±4.55	t=0.886	48.55±5.36	t=2.265	78.35±7.57	t=2.876	219.90±19.24	t=3.566
No	114	30.83±4.85	p<0.001	18.94±3.07	p=0.036	39.25±5.31	p=0.376	47.15±6.12	p=0.024	75.84±8.74	p=0.004	212.03±21.92	p=0.001
How often do you follow news and information about climate change in your daily life?													
Sometimes	350	32.24±4.29	t=-6.760	19.27±3.20	t=-3.185	39.43±4.85	t=-1.628	47.85±5.72	t=-2.687	77.38±8.02	t=-1.656	216.19±20.43	t=-3.712
Quite Often	61	36.18±3.52	p<0.001	20.65±2.66	p=0.002	40.50±4.21	p=0.104	49.93±4.60	p=0.008	79.21±7.61	p=0.099	226.49±17.20	p<0.001
How much do you believe that individuals can create impact climate change on their own?													
Moderate	196	31.76±4.35	t=-4.826	19.06±3.30	t=-2.526	38.79±5.14	t=-3.261	47.09±6.03	t=-3.742	76.18±8.07	t=-3.618	212.90±21.10	t=-4.709
Very Much	215	33.80±4.24	p<0.001	19.85±2.99	p=0.012	40.31±4.29	p=0.001	49.13±5.01	p<0.001	78.99±7.67	p<0.001	222.11±18.53	p<0.001
Do you know about the convention related to climate change?													
Yes	66	35.95±4.28	t=6.588	20.69±3.32	t=3.461	39.65±4.32	t=0.112	49.07±5.46	t=1.440	78.93±8.32	t=1.429	221.31±19.99	t=2.907
No	345	32.23±4.18	p<0.001	19.24±3.08	p=0.001	39.57±4.86	p=0.911	47.99±5.63	p=0.151	77.40±7.90	p=0.154	216.45±20.14	p=0.004
Do you participate in scientific activities related to climate change?													
Yes	153	34.33±4.28	t=5.495	19.92±3.03	t=2.202	39.87±4.33	t=0.930	48.60±5.24	t=1.231	77.96±7.89	t=0.611	220.70±18.57	t=2.307
No	258	31.94±4.25	p<0.001	19.21±3.22	p=0.028	39.42±5.01	p=0.353	47.90±5.81	p=0.219	77.46±8.04	p=0.541	215.94±21.10	p=0.022
Do you think the course of climate change and its effects should be included in the nursing curriculum?													
Yes	277	33.54±4.21	t=4.809	19.72±3.16	t=2.335	40.20±4.18	t=3.789	48.85±5.10	t=3.636	78.72±7.42	t=3.980	221.05±18.31	t=4.919
No	134	31.36±4.46	p<0.001	18.95±3.10	p=0.020	38.32±5.62	p<0.001	46.73±6.31	p<0.001	75.44±8.65	p<0.001	210.82±22.44	p<0.001
Do you believe that the health consequences of climate change can be reduced by nursing interventions?													
Yes	318	33.17±4.33	t=2.949	19.58±3.18	t=1.317	39.84±4.56	t=2.031	48.53±5.43	t=2.459	78.27±7.65	t=2.918	219.41±19.46	t=3.163
No	93	31.65±4.50	p=0.003	19.09±3.10	p=0.189	38.70±5.36	p=0.043	46.91±6.05	p=0.014	75.54±8.73	p=0.004	211.92±22.09	p=0.002

t=Independent samples t test, p<0.05

Table 4 The comparison of the Psychological Flexibility Scale scores according to the students' descriptive characteristics (N= 411)

Variables	n	Behavior in line with values subscale		Instant subscale		Acceptance subscale		Contextual self subscale		Dissociation subscale		Psychological Flexibility Scale	
		Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p	Mean ± SD	t value p
Do you discuss climate change and its consequences with your family and/or friends?													
Yes	279	50.21±9.33	t=1.509	32.24±8.13	t=2.890	17.69±5.39	t=0.076	11.79±3.47	t=0.921	11.14±3.43	t=-0.138	123.08±16.71	t=2.427
No	114	48.62±10.12	p=0.132	29.70±7.64	p=0.004	17.64±5.15	p=0.940	11.43±3.46	p=0.358	11.19±3.28	p=0.890	118.60±16.88	p=0.016
How often do you follow news and information about climate change in your daily life?													
Sometimes	350	49.87±9.29	t=0.536	31.52±8.18	t=-0.084	17.68±5.31	t=0.041	11.70±3.46	t=0.092	11.18±3.35	t=0.430	121.97±16.77	t=0.382
Quite Often	61	49.16±11.09	p=0.592	31.62±7.46	p=0.933	17.65±5.41	p=0.968	11.65±3.53	p=0.927	10.98±3.59	p=0.668	121.08±17.49	p=0.703
How much do you believe that individuals can create impact climate change on their own?													
Moderate	196	48.86±9.60	t=-1.833	30.41±7.85	t=-2.729	17.68±5.10	t=0.027	11.63±3.44	t=-	11.25±3.36	t=0.538	119.85±14.56	t=-2.293
Very Much	215	50.59±9.49	p=0.068	32.57±8.14	p=0.007	17.67±5.53	p=0.978	11.74±3.51	0.310 p=0.757	11.06±3.41	p=0.591	123.65±18.56	p=0.022
Do you know about the convention related to climate change?													
Yes	66	50.42±10.53	t=0.604	30.53±8.25	t=-1.112	17.56±5.39	t=-0.201	11.34±4.03	t=-	10.90±3.58	t=-0.645	120.77±20.73	t=-0.563
No	345	49.64±9.39	p=0.546	31.73±8.03	p=0.267	17.70±5.31	p=0.841	11.75±3.36	0.880 p=0.380	11.20±3.35	p=0.519	122.04±16.04	p=0.574
Do you participate in scientific activities related to climate change?													
Yes	153	50.05±10.35	t=0.458	31.55±8.10	t=0.025	17.67±5.24	t=-0.024	11.57±3.46	t=-	11.00±3.29	t=-0.687	121.86±15.29	t=0.017
No	258	49.60±9.09	p=0.647	31.53±8.07	p=0.980	17.68±5.38	p=0.981	11.76±3.48	0.531 p=0.596	11.24±3.44	p=0.492	121.83±17.75	p=0.986
Do you think the course of climate change and its effects should be included in the nursing curriculum?													
Yes	277	50.53±9.21	t=2.335	31.98±8.37	t=1.616	17.85±5.33	t=0.974	11.79±3.61	t=0.845	11.00±3.28	t=-1.310	123.18±17.85	t=2.322
No	134	48.19±10.13	p=0.020	30.61±7.35	p=0.107	17.31±5.31	p=0.331	11.48±3.18	p=0.399	11.47±3.58	p=0.191	119.08±14.28	p=0.021
Do you believe that the health consequences of climate change can be reduced by nursing interventions?													
Yes	318	50.31±9.24	t=2.148	31.91±8.13	t=1.734	17.84±5.28	t=1.137	11.67±3.44	t=-	11.16±3.28	t=0.121	122.91±16.93	t=2.401
No	93	47.90±10.44	p=0.046	30.26±7.76	p=0.084	17.12±5.45	p=0.256	11.75±3.58	0.187 p=0.852	11.11±3.73	p=0.904	118.17±16.18	p=0.017

t=Independent samples t test, p<0.05

Table 5 The Effect of Psychosocial Flexibility on Climate Change Awareness (N= 411)

Dependent Variable	Independent Variable	β_1	t	p	F	Model (p)
Climate Change Awareness Scale Total Score	Constant	198.902	27.385	<0.001		
	Psychological Flexibility Scale Total Score	0.154	2.615	0.009	6.841	0.009

Discussion

In this study, which examined the relationship between CC awareness and psychological flexibility in nursing students, it was found that there was a difference in terms of students' descriptive characteristics, and psychological flexibility had a significant effect on CC awareness.

When analyzing the descriptive characteristics of the students about CC, it was found that all of them had no information about CC before undergraduate education. Similarly, a study of 1387 medical students by Liao et al., (2019) found that the majority of the students did not have enough knowledge about the CC, especially in terms of interventions. In another study conducted by Uzun (2021) on 310 university students, it was found that more than half of the students had no information about CC before their undergraduate education. In this study, it can be said that nursing students' awareness of CC prior to undergraduate education is low. Nurses are in close contact with groups that are vulnerable to CC, such as infants, the elderly, people with chronic diseases, people living in hot climates and/or prone to endemic diseases. (Bowman et al., 2010; Er et al., 2024; Liao et al., 2019). As nurses play a key role in raising awareness of CC in society, it is considered important that nursing students have a high level of awareness. Therefore, undergraduate education should be seen as an opportunity to address CC and pro-climate behaviors.

It was found that most of the students discussed CC and its consequences with their relatives and followed the news. When the studies conducted are examined, it is seen that

individuals hear about CC from the internet or television (Akay et al., 2020; Demir et al., 2024; Er et al., 2024; Ergin et al., 2017; Kucuk Bicer & Acar Vaizoglu, 2015; Tahkol & Ozturk Haney, 2024). The media has an essential function in enhancing public awareness regarding CC (Akay et al., 2020; Kucuk Bicer & Acar Vaizoglu, 2015; Tahkol & Ozturk Haney, 2024). Media tools have an important responsibility to raise public awareness and facilitate access to accurate information (Demir et al., 2024). This result shows that social media and the internet can be used to increase knowledge about CC.

More than half of the students did not participate in scientific activities such as congresses, seminars, and conferences on CC. Similar studies show that students have low awareness of global organizations and conventions on CC and do not participate in scientific activities (Ergin et al., 2017; Yuce Yoruk & Varer Akpinar, 2023). In a study conducted with university students, high awareness of CC was associated with participation in scientific activities related to CC and with knowledge about CC (Filho et al., 2023). This study found that students who participated in scientific activities related to CC had higher levels of awareness. Participation in scientific activities related to CC is cited as an indicator of recognition of the problem and taking responsibility for what can be done individually (Uzun, 2021). In particular, given the health impacts of CC, it is important to protect public health and ensure that healthcare professionals can provide appropriate and high-quality services on the health impacts of CC (Akay et al., 2020). Considering the importance of

participation in scientific activities in terms of awareness, it is important that activities and campaigns are organized by national organizations and associations related to CC and environmental problems in universities. In this sense, it is recommended that universities plan discussion sessions on CC, its effects on health, and initiatives to combat it at the individual and societal levels and support the participation of students.

The majority of the students were found to be unaware of the conventions about CC. It is emphasized that in order to raise awareness in the society, it is necessary to increase the level of knowledge of young people, who will be in decision-making roles in the future, about global organizations and policies related to CC in order to prepare, implement and supervise the legal infrastructure (Wang et al., 2017; Yuce Yoruk & Varer Akpınar, 2023). International public health organizations are calling on healthcare professionals to take action to reduce the health sector's carbon footprint (Lavey, 2019). Strategies to reduce greenhouse gases and policies to reduce carbon footprints, particularly in hospitals, will be important. Nurses have a crucial role to play in raising awareness among policy makers and the public (Anderko, 2017). Thus, it is indispensable to motivate nurses to effectively carry out their professional responsibilities, including advocating for patients and actively participating in policy development (Ergin et al., 2021). This study found that students who were knowledgeable about the conventions on CC had a higher level of awareness. In this direction, it is important to plan activities at universities to increase knowledge and awareness about global organizations and conventions.

It was determined that all students embraced in the term of CC and more than half of them believed that individuals could create impact CC on their own. The results of the survey of university students show that most students believe in CC, that CC can be prevented or mitigated, and that individual action can be effective (Ergin et al., 2017; Filho et al., 2023; Kucuk Bicer & Acar Vaizoglu, 2015; Tahkol & Ozturk Haney, 2024; Uzun, 2021). Nurses have the ability to educate society regarding CC, its ramifications on health, and both individual and collective approaches to address CC. Additionally, they can

collaborate with other healthcare professionals to formulate effective initiatives (Er et al., 2024). Nursing students who are sensitive and aware of environmental issues are more likely to warn people who pollute the environment (Gok & Firat Kilic, 2021). An important result of this study is that students believe they can influence CC through individual actions. The organization of seminars for students by national professional organizations on individual and societal action and the role of healthcare professionals in the fight against CC will help to raise awareness.

Furthermore, the majority of students expressed the view that the nursing curriculum should incorporate CC and its impacts. They also held the belief that nursing interventions have the potential to mitigate the health repercussions of CC. Students who take courses on CC as part of their higher education are more likely to embrace in the term of CC and have a higher level of awareness (Álvarez-Nieto et al., 2022; Uzun, 2021). It is also noted that healthcare professionals are not prepared to intervene and need training in this area (Akay et al., 2020; Liao et al., 2019). According to Álvarez-Nieto et al., (2022), the participation of nursing students in trainings resulted in a significant improvement in their awareness and attitudes towards environmental issues. Most CC courses offered in colleges are often found in the fields of engineering, social and natural sciences (Lavey, 2019). The National Core Nursing Education Program (HUCEP) includes the basic subjects/skills that should be included in the educational programs of all schools providing nursing education in Turkey. One of the main topics in HUCEP is the environment. In this context, "Participating in social responsibility projects related to the effects of the environment on human health" is stated as a basic skill (Council of Higher Education, 2023). A review of nursing curriculum in Turkey shows that there are courses related to environmental health and nursing, but courses directly related to CC and its impact on health are limited. In this study, all students reported that they had not taken any courses on CC during their university education. However, it is an important result that they believe that CC can be mitigated through nursing

interventions. Integrating CC and sustainability into the nursing curriculum facilitates the development of students into global citizens. Furthermore, there is a strong emphasis on incorporating CC and sustainability courses into the curriculum as a crucial step in enhancing students' awareness and transforming their attitudes (Álvarez-Nieto et al., 2022; Gok & Firat Kilic, 2021). In order to achieve this objective, nurse educators should have a proactive role in incorporating CC into the nursing curriculum.

In addition, students' CC awareness was above average. In a study conducted by Yuce Yoruk and Varer Akpınar (2023) determined that students' CC awareness was at a moderate level. Researchers commonly assess the amount of knowledge and awareness of CC as a combined measure. Among university students, the level of knowledge and awareness is higher than average (Álvarez-Nieto et al., 2022; Ergin et al., 2017; Incesu & Yas, 2024; Kucuk Bicer & Acar Vaizoglu, 2015; Tahkol & Ozturk Haney, 2024). This study revealed that prior to higher education, students possessed no understanding of CC. The majority of students were unaware of the conventions pertaining to CC, and over half of them did not engage in activities such as congresses, seminars, and conferences that revolved around CC. Nevertheless, it may be asserted that students possess knowledge regarding CC. This could be attributed to the fact that students enroll in university courses that specifically examine the influence of the environment on human health. Due to the possible ramifications of CC on health, it is crucial for nurses to possess a heightened level of awareness. University students are an important segment of society and efforts to address CC at their universities can have a significant impact on shaping individuals' awareness, attitudes, and behavior (Álvarez-Nieto et al., 2022; Filho et al., 2023; Gok & Firat Kilic, 2021; Tahkol & Ozturk Haney, 2024).

The results revealed that students who discussed CC with their relatives, followed the news at a high level in their daily lives and believed that individuals can influence CC on their own had a profound levels of CC awareness. A study conducted by Tahkol and Ozturk Haney (2024) on 481 nursing students revealed that individuals who alerted others

about environmental pollution, actively monitored news related to environmental issues, and made measures to combat CC exhibited more favorable attitudes towards sustainable development. According to this study, students who have a high level of awareness are more perceptive to the impact of CC on their daily lives. In addition, in this study, students who discussed CC with their relatives, followed the news and believed that individuals could influence CC had higher mean scores on the “perception of the problem” and “climate change anxiety” subscales. In a study conducted by Ramírez-López, Rosetti and Poma (2022) on 461 university students, it was found that individuals who spent more time reading CC news sites, had more information and engaged in environmental protection behaviors had CC anxiety. As with anxiety in general, CC anxiety was found to have an adaptive function (Feather & Williams, 2022). CC anxiety can serve as a catalyst for behavioral modification by inspiring individuals to adopt more ecologically responsible practices, such as trash reduction (Ojala et al., 2021). In this study, it can be said that students who are anxious about CC are highly aware and sensitive to CC. It is suggested that the emotions generated by CC should be framed in a way that motivates pro-environmental behavior (Er et al., 2024; Feather & Williams, 2022).

It was found that students who believed that CC and its effects should be included in the nursing curriculum had higher levels of CC awareness. It was also found that these students had higher mean scores on the subscales of “information on climate change causes”, “climate change anxiety” and “behaviors and expectations from policies”. Training on CC or courses integrated into the curriculum were found to increase students' knowledge and awareness (Álvarez-Nieto et al., 2022; Filho et al., 2023; Ramírez-López et al., 2022). In a study, it was found that students' attitudes and behaviors towards CC depend on their level of awareness and knowledge about CC (Akrofi et al., 2019). The literature suggests including CC courses into the curriculum to enhance awareness. Additionally, it advocates for students' active involvement in workshops, courses, campaigns, and environmental club

memberships (Akrofi et al., 2019; Álvarez-Nieto et al., 2022; Tahkol & Ozturk Haney, 2024). However, it is also stated that CC should not only be addressed at the level of knowledge and that the development of positive attitudes is important in raising awareness and consciousness. Awareness of CC is also expected to have a positive impact on individual behavior (Kucuk Bicer & Acar Vaizoglu, 2015). The nursing curriculum of many universities in Turkey includes courses on social awareness projects or project-based learning. In addition to opening courses on CC and nursing, it is recommended to support students to conduct studies or projects related to CC in project-based courses to raise awareness.

Moreover, students' level of psychological flexibility was above average and that the total score for psychological flexibility had a statistically significant effect on the total score for CC awareness. Psychological flexibility means that the individual is not stuck in the past and the future but is in touch with the present moment. At the same time, an individual's ability to behave in a way that is consistent with his or her values and to adapt to changing situations is an indicator of psychological flexibility (Karakus & Akbay, 2020). It is emphasized that psychological flexibility can play an important role in taking action against CC. Psychological flexibility may influence how individuals perceive and respond to CC (Feather & Williams, 2022). This study discovered that students who possessed a strong sense of psychological flexibility engaged in conversations on CC with their family members. Additionally, they held the belief that individuals have the power to impact CC and acknowledged that nursing interventions could mitigate the health effects of CC. CC awareness and its repercussions can induce anxiety in individuals, so impacting their mental health. While worrying about CC has an adaptive function, worrying too much and too often can lead to a pathologization of the situation. This can also prevent individuals from taking action to mitigate CC (Clayton, 2020; Feather & Williams, 2022). It is argued that meaning-focused coping and psychological flexibility should be enhanced to manage stress and anxiety related to CC (Seth et al., 2023). Psychological flexibility supports effective

dealing with the challenges of CC, including pro-climate behavior (Chapman et al., 2018; Koger et al., 2011; Seth et al., 2023). It was found that therapeutic practices, such as ACT, that enhance psychological flexibility may be effective in the reduction of CC anxiety (Feather & Williams, 2022). It is advisable to perform additional studies on this subject to comprehend the correlation between psychological flexibility and CC anxiety, and to foster a conducive setting for further discourse.

Limitations and Strengths: This study has several limitations. First, this study was conducted with nursing students enrolled in a public university. Therefore, the generalizability of the findings to their own population is limited. Conducting this research in institutions in different regions might increase the generalizability. Secondly, the results of the study are based on self-reports of the students. Thirdly, due to design of the study, it should be taken into account that the relationships between the scales do not demonstrate causality. However, this study has several strengths. It was observed that the number of studies investigating the level of awareness and its relationship with psychological flexibility among university students is limited. In this sense, the results of this study are considered to contribute to the literature. The results of the study are also important in terms of reflecting the level of CC awareness and the factors influencing it among nursing students, who will be the decision-makers of the future. In addition, these results may contribute to the understanding of individual differences in psychological flexibility in CC awareness.

Conclusion: The study concluded that nursing students had an above-average level of awareness regarding CC. In addition, students who discussed CC with their relatives, followed the news on this issue, believed that individuals could influence CC on its own, and thought that this issue should be included in the nursing curriculum were found to have higher awareness. The study found that the total score of psychological flexibility had a statistically significant effect on the total score of CC awareness. In order to enhance awareness of the potential health problems that are expected to arise from CC, it is advisable to incorporate courses on CC,

its impact on individual and community health, and the specific duties and obligations of nurses in relation to this issue into the nursing curriculum. Planning activities such as various seminars, congresses, conferences, symposiums, and discussion sessions on CC in universities and encouraging students to participate in them can help raise awareness. Facilitating students' engagement in CC studies/projects within project-based learning courses can contribute to increasing awareness and fostering constructive attitudes and behaviors. Additionally, it is advisable to strategically design experimental studies to examine the impact of therapeutic therapies aimed at enhancing psychological flexibility on CC anxiety and pro-climate behaviors.

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