

The Integration of Climate Change Topic into Nursing Education in Nursing Faculties Hemşirelik Fakültelerinde İklim Değişikliği Konusunun Hemşirelik Eğitime Entegrasyonu

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Abstract

This study was conducted as a descriptive study between July 1 and November 30, 2022, to describe the integration of climate change into nursing education in nursing faculties in Türkiye. For the sample of the research, it was found that 106 school administrators should be included in the research by using the known population sampling method. However, the research was completed with 70 volunteer academics who answered the survey and participated in the research. The data of the study was collected by sending it to the e-mail addresses of the participants using a Google form developed by the researcher in line with the literature. 94.3.7% of the participants stated that they did not have a model to integrate health and climate change into undergraduate education programs, and 84.3% did not have a program. 60% of the participants stated that during their nursing education, they mainly focused on the concept of environment, which is one of the four nursing theories, 56.7% stated that they discussed climate change and health issues in class. When the distribution of the roles that the participants expect from their students in the fight against climate change is examined, the role of researcher (94.2%), the role of social educator (92.9%), participation in health policies (81.4%), advocacy (67.1%) and health. They stated that they need to improve their nursing roles during nursing education, such as training for their employees (57%). To ensure that the issue of climate change can be included in the nursing curriculum, it is recommended that the barriers and opportunities to developing a coherent curriculum be discussed and that nursing leaders include the issue on.

Keywords: Climate change, curriculum, integration, nursing, nursing education

Özet

Bu çalışma, Türkiye'deki hemşirelik fakültelerinde iklim değişikliğinin hemşirelik eğitime entegrasyon durumunu tanımlamak amacıyla 1 Temmuz-30 Kasım 2022 tarihleri arasında tanımlayıcı olarak yapıldı. Araştırmanın örneklemini için bilinen evrenden örnekleme yöntemi kullanılarak 106 okul yöneticisinin araştırmaya dahil edilmesi gerektiği tespit edilmiştir. Ancak anketi yanıtlayan ve araştırmaya katılan 70 gönüllü akademisyen ile araştırma tamamlanmıştır. Araştırmanın verileri araştırmacı tarafından literatür doğrultusunda geliştirilen Google form ile katılımcıların mail adreslerine gönderilerek toplanmıştır. Katılımcıların %94,3'sinin sağlık ve iklim değişikliği konusunu lisans eğitimi programına entegre edecek bir modellerinin, %84,3'sinin ise bir programlarının olmadığını belirtmiştir. Katılımcıların %60'si hemşirelik eğitimi sırasında öğrencilerine dört hemşirelik kuramından biri olan çevre kavramına odaklandığını, %56,7'si iklim değişikliği ve sağlık konularını derste tartıştıklarını ifade etmiştir. Katılımcıların iklim değişikliğiyle mücadelede öğrencilerinden bekledikleri rollerin dağılımı incelendiğinde araştırmacı rolü (%94,2), toplum eğitimcisi rolü (%92,9), sağlık politikalarına katılma (%81,4), savunuculuk (%67,1) ve sağlık çalışanlarına yönelik eğitim (%57) gibi hemşirelik rollerini hemşirelik eğitim sırasında geliştirmeleri gerektiğini belirtmişlerdir. İklim değişikliği konusunun hemşirelik müfredatına dahil edilebilmesi için tutarlı bir müfredat geliştirmenin önündeki engellerin, fırsatların tartışılması ve hemşirelik liderlerinin konuyu gündemlerine alması önerilir.

Anahtar Kelimeler: Entegrasyon, hemşirelik, hemşirelik eğitimi, iklim değişikliği, müfredat

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1. Introduction

Climate change is one of the most important health threats of the 21st century. The increase in global warming continues to affect all societies physically, spiritually, and socially. The main concerns are mainly weather events, storms, forest fires, air pollution, drought, heat waves, allergies, newly identified vector-borne diseases, difficulties in accessing food, depletion of water resources, heat waves, and forced migrations (Benfield., 2021; Diallo et al., 2023). These global changes have an impact on specifically vulnerable communities. The changes will also affect older adults, children, pregnant women, those with current or chronic health problems or disabilities, and immigrant groups, who are among the most vulnerable (Barna et al., 2012; Watts et al., 2017; Kotcher et al., 2021).

Health professionals have a key role at several levels in addressing the health impacts of climate change. These roles are community leadership in health education, advocacy, and health policy development (Rosa et al., 2021). Nurses are in the ideal position to lead the way to raising awareness about the effects of climate change on health. It is stated in the literature that nursing education can offer an important leadership role in combating climate change and addressing adaptation and resilience strategies (Leffers et al., 2017; Cruz et al., 2018; Neal-Boylan et al., 2019; Butterfield et al., 2021).

The integration of the climate change topic into the curriculum at all levels of nursing education necessitates addressing the requirements and challenges of this issue in the future. Nursing education can help influence climate change issues at the individual, societal, national, and global practice levels of the profession. Many researchers in the literature call nurses and nursing organizations to act on behalf of policymakers as the health effects of climate change have already emerged and are expected to increase over time. These calls can now respond to the harmful health effects of global climate change through research, advocacy, and education (Barna et al., 2012; Nicolas et al., 2017; Ergin et al., 2021; Cadet et al., 2022).

Challenges to the development and implementation of climate change competencies and nursing education content are predominantly related to the lack of climate change-related involvement in nursing practice. Currently, there is limited focus on nurses' roles in adaptation and resilience strategies. These challenges need to be addressed and discussed to facilitate the effective inclusion of climate change in nursing education and practice. In addition, it has been reported that necessary competencies should be developed to facilitate the education needs of nursing students and nurses working in the clinic (Barna et al., 2012; Xioa et al., 2016).

Nursing leaders who deal with climate and health-related issues today encourage nurses to address climate impacts in their education curricula (Barna et al., 2012; Richardson et al., 2014). It has been stated that a specific model is needed to integrate the topic into undergraduate and graduate nursing education (Leffers et al., 2015). However, although many nursing academics have emphasized the

importance of education and advocacy on climate change in nursing education, many nursing students are not adequately prepared for the health effects of climate change and the response of the nursing profession (Harris et al.,2022). On the other hand, very few studies have addressed the integration of climate change into education (Leffers et al., 2015; Diallo et al., 2023). Therefore, more research is needed. It remains unclear whether climate change and health will be included in the undergraduate and graduate programs of nursing faculties in Türkiye. Because there is no clear guide or program on how to address the climate change problem in the nursing education curriculum in Türkiye.

Nurse educators have an important role in achieving the educational preparation of current and future generations of health professionals to address the effects of climate change on health. There are no studies on the integration of climate change into nursing education in Türkiye. It is thought that this study will contribute to the preparation of the nursing education curriculum on this subject. In this context, this study was planned to both prepare for the problems that climate change will create and raise awareness about the subject during nursing education while aiming to determine the integration status of climate change into existing nursing education.

2. Method

2.1. Study Aim

The aim of the study is to define the status of the integration of climate change into nursing education in nursing faculties and the expected roles of nurses in combating climate change. A descriptive study design was used.

2.2. Research Questions

What is the status of the integration of climate change into nursing education in nursing faculties and departments?

2.3. Participants and Setting

This study was conducted as a descriptive study between July 1 and November 30, 2022, to describe the integration of climate change into nursing education in nursing faculties in Türkiye. The administrative academics who worked in nursing faculties and agreed to participate in the research formed the sample of this study. For the sample of the research, it was found that 106 school administrators should be included in the research by using the known population sampling method. However, the research was completed with 70 volunteer academics who answered the survey and participated in the research (Karaser.,2014). In Türkiye, undergraduate nursing education is given in 145 nursing schools in 127 universities as of 2023 (<https://istatistik.yok.gov.tr/> Date of access 7.07.2023).

2.4. Criteria For Inclusion in The Research

Volunteering for research and working as an administrator at a faculty of nursing or a nursing school.

2.5. Data Collection

The data were collected with the Google survey form developed by the researcher in line with the literature. The purpose of the research was explained to the participants by sending a Google form to their official school e-mails, and they were expected to participate in the research voluntarily. In the form, participants were asked questions about climate change-related disasters in the region where they work, the roles they most frequently expect from their students regarding climate change during nursing education, integrating the issue of climate change into education as a leader, and their practices on this issue at school and in society.

2.6. Ethical Considerations

Participants were informed that this research was conducted for scientific purposes and that the data obtained would not be shared with third parties outside the research, and then their written consent was obtained. Permission was obtained from the Marmara University Non-Invasive Clinical Practices Ethics Committee to conduct the study (30.06. 2022/75). This study continued to be collected (with 60 participants) after it was presented at the public health congress. After 70 volunteer participants, data collection was stopped because there was no data flow. The data of this article was evaluated with 70 participants.

2.7. Limitations of the Research

The results of this research are based solely on the self-report of school administrators who participated in this research. It is not valid for all nursing faculties and departments in Türkiye.

2.8. Data Analysis

Numbers and percentages were used to analyze the data obtained.

3. Results

As seen in the table, 93.3% of the participants in the study were female, and 93.3% had graduated from the nursing department. Of the participants, 77.6% described a climate change event occurring in their region, which included floods (32.8), forest fires (14), and drought (30) (Table 1).

Table 1. Disasters occurring in the past year in the region where the participants lived and their types

Disasters occurring in the past year in the region and their types	n	%
Yes	54	77.6
No	16	22.4
Type of the disasters	n	%
Drought and extreme heat	21	30
Flood and hail	23	32.8
Forest fires	10	14

n= Number, %= Percentage.

As seen in the table, 84.3% of the participants stated that they do not have a program on climate change, 94.3% do not have a new guide on climate change, and 51.4% stated that they may have the authorized to integrate health and climate issues into nursing education (Table 2).

Table 2. Status of whether participants had a program, a model, or authority for the integration of climate change topic

Status of having a program currently to guide climate change	n	%
Yes	11	15.7
No	59	84.3
Status of having a report now to guide climate change	n	%
Yes	3	4.3
No	66	94.3
Status of being authorized to integrate health and climate issues into nursing education	n	%
Yes	36	51.4
No	34	48.6

n= Number, %= Percentage.

When the distribution of the roles that participants expected from their students in the fight against climate change was examined, it was found that they wanted the following roles to be developed: researcher role in the first place (94.2%), community educator in the second place (92.9%), the role of participating in health policies in the third place (81.4%), the role of advocacy (67.1%) in the fourth place, health profession in the fifth place (57%), and the role of educating the members of the (Table 3).

Table 3. Distribution of the roles that participants expected their students to have in the fight against climate change

Roles that students need to have in the fight against climate change	n	%
Researcher role	66	94.2
Advocacy role	47	67.1
Educator role in society	65	92.9
Direct patient care role	30	42.9
Education of health care professionals	40	57
Health policy development role	57	81.4

n= Number, %= Percentage.

As seen in the table, participants stated that they mostly focused on the concept of environment, which is one of the four theories of nursing, during classes (60 %), supported recycling in the institution (60%), and participated in debates on climate (56.7%). While almost all of the participants stated that there should be integration, only three of them mentioned that the integration of climate change could be difficult, and that the curriculum was already intense. Only two of the participants stated that they had courses on climate change in their graduate program. According to eight of the participants, climate change could be taught as an elective course (Table 4).

Table 4. Distribution of participants' activities in their schools for combating climate change

Distribution of participants' activities in their schools for combating climate change	n	%
Graduate course	10	14.3
Organizing courses for graduate students	3	4.3
Bringing students together with scientists about the environment	16	22.9
Creating environments for discussion on environment and climate	39	56.7
To explain the misapplications on climate and health in society	28	40
Presenting the effects of environment and climate change on infectious and chronic diseases	28	40
Developing new materials to explain the concepts of environment and climate change	8	11.4
Benefitting from peer education	12	17.1
Raising awareness about greenhouse gases and global warming / presenting evidence	20	28.6
Conducting group discussions	20	28.6
Explaining that the environment is one of the four concepts of nursing	42	60
Supporting recycling in the organization	42	60
Taking part in/supporting joint projects with institutions such as TUBITAK.	5	7.1
I provide awareness training on climate change to the employees in the institution I work for.	8	11.4
I introduce environmental organizations to my students.	23	32.9
I organize training programs for the public on climate change and health.	8	11.4

n= Number, %= Percentage, * Participants gave more than one answer.

4. Discussion

As part of the healthcare team, nurses have significant opportunities to develop leadership to reduce carbon emissions in the hospital setting and community and lead climate justice (Shaner-McRae et al., 2007; Barna et al., 2012; Diallo et al., 2023). By choosing the theme "Nurses: a voice to lead - achieving the sustainable development goal" for International Nurses Day in 2017, ICN tried to raise awareness of nurses with case examples from around the world (ICN, 2017; Rosa et al., 2020). The United Nations (UN) recommends integrating climate change into education curricula as a key action in reducing global climate change by 2050. Nurses, who are among health professionals in the fight against climate change, have great potential to develop effective interventions. However, nurses need to be trained on the subject to create climate-resilient health systems and take urgent actions (Yang et al., 2018; Cook et al., 2019; Lopez et al., 2019).

In this study, which was conducted in nursing faculties in Türkiye, almost all of the academics stated that they did not have a model or guidelines to integrate the topics of health and climate into undergraduate curriculum. Climate change is seen as an important threat to human health in nursing education throughout the life cycle, and it has been argued that nurses can play an important role in mitigating climate change and adaptation and resilience strategies (McDermott-Levy et al., 2019;

Leffers et al., 2017). However, according to the literature on the topic, nurses experience uncertainties about how they will integrate the topic into education (Kalogirou et al., 2020). In a study conducted by Amerson et al. in 21 nursing schools, 81% of the participants stated that they had not taken any courses on the effects of climate change on health during their education and 67% on the effects of sustainability on health. This shows that schools providing nursing education need to change their curricula regarding these subjects (Amerson et al., 2022).

In Türkiye, academic nurses, who play an active role in nursing education, want to emphasize their active participation in efforts to mitigate the impact of climate change and increase resilience. However, from a wider perspective, it is necessary today to emphasize the importance of meeting the health needs of the world's peoples, as part of the role of nursing. This is because human health should be handled globally within a framework of political, cultural, social, economic, and environmental relations and nurses should be educated in this regard (Nicholas et al., 2017). Recently, significant weather events showing the effects of climate change have occurred in the regions or provinces where the participants in this study lived. They stated that there were climate change-related disasters, such as floods, forest fires, and droughts, in their regions. Today, we know that as a result of climate change, some new infectious diseases (such as Dengue Fever, West Nile Virus, etc.), deterioration of air quality, and especially heat waves affect health physically and mentally. Diseases and disasters can contribute to increased hospital stays and associated healthcare costs (Suwanbamrung et al., 2020; Rosa et al., 2021). Therefore, nursing students should be locally involved in the implementation of early warning systems and procedures for emergency and disaster response to mitigate the effects of climate change (Bell et al., 2019). At the same time, students need to be encouraged, empowered, and led in heat waves-related issues and how to ensure good air quality. They should be educated in some areas, such as the prevention of infrastructure damage, achieving the continuity of primary healthcare services for disadvantaged groups after a disaster, designing proactive action plans for disasters that are likely to occur in the region, and responding to health needs (Woodhall et al., 2021; Griffin et al., 2022; Harris et al., 2022; Mat., 2022). In this study, 40% of the nurse academics stated that they presented the effects of environment and climate change on infectious diseases and chronic diseases to their students by using evidence. This is a positive effort in the fight against climate change, especially in terms of protecting disadvantaged groups.

In the literature, three main important features have been reported for the leadership of nurses in climate change (WHO, 2020; Butterfield et al., 2022). The first of these is that nurses make up approximately 60% of health workers, and they work with more disadvantaged groups as reliable and primary healthcare providers (Suwanbamrung et al., 2020). These characteristics make nurses ideal individuals to disseminate and explain the necessary information about climate change to society. The academics participating in this study stated that the roles of their students in the fight against climate change, as researchers in the first place, community educators in the second place, and participants in health policies in the third place, should be developed. These views of academics are in line with the messages of ICN and other nursing organizations on the subject. Similarly, in the United States, several training programs emphasize the advocacy and policy-making roles of nurses in line with the

principles of reducing health inequalities and promoting health to achieve the United Nations' 2030 goals (Yang et al., 2018; Rosa et al., 2021; Harris et al., 2022). This notion is an important effort today to address the underlying causes of the health effects of climate change, and when these roles are developed, the leadership roles of nurses will be enhanced, too. Another role that academic nurses want their students to develop is the education of health professionals. Today, it is not enough to address the concept of environment alone in nursing education. Now, nurses need to assume a more global role outside of the classical environmental understanding. Nursing academics may consider the preparation of courses, seminars, and other teaching strategies for professionals who focus on promoting behavior change in their students and other professionals. It is thought that nurse academics can motivate themselves and their students to use educational strategies. In this study, academics stated that the education they offered to society was one of the least frequently done activities. However, most academics thought that the researcher's role needed to be developed in the first place in their students.

Nurses can improve both the health system and social/global health, especially in hospitals. Hospitals contribute to climate change through material consumption, especially by using energy and producing waste. It is estimated that health institutions in the UK and America contribute 3-8% to the carbon footprint (Richardson et al., 2016). There is no evidence to show how much healthcare workers contribute to the carbon footprint in Türkiye. As a matter of fact, in one study, it was reported that nurses had moderate awareness about climate change but that they were more concerned about climate change. Only a few of the nurses, who had high concerns about clean air, water, and the future, had been motivated to reduce greenhouse gas emissions. Therefore, it is thought that student nurses should be informed and motivated on the topic during their education (Schenk et al., 2021). In Türkiye, there is no official curriculum covering the climate change topic in nursing faculties. Various challenges for the integration of the topic into education have been noted in the literature. One of these difficulties is the intensity of the curriculum. Also, it has been stated that many nurses resist this issue or do not receive training on climate change and do not show the necessary attention (Barna et al., 2012; Butterfield et al., 2014; Diallo et al., 2023). However, participants in this study can consider this an opportunity as they focus on knowledge and practice both as professionals and as representatives of academic institutions. As a matter of fact, half of the academics stated that they may have authority on this issue. This is a positive development for building leadership.

In recent years, the climate change topic has been discussed in some meetings/seminars in nursing faculties in Türkiye. In these meetings, the impact of climate change on human health was emphasized. However, these efforts have had little impact on nursing education so far since it is still thought that the priority of many nurse leaders is to train nurses with clinical skills in subjects such as clinical and patient care. However, the nursing field does not only include biomedical-oriented care today. In this study, while almost all of the participants stated that climate change needed to be integrated into nursing education, only three participants mentioned that integration might be difficult as the curriculum was already very dense. Only two of the academic nurses stated that they gave lectures on climate change in their graduate program. Only eight of the participants stated that it could

be taught as an elective course (Table 4). However, both local and international studies have shown that before and after graduation, students, academics, and nurses should be introduced to various roles they can play in the management of climate change. In nursing education, it is argued that this education may present some difficulties in both undergraduate and graduate programs (Polivka et al., 2012; Diallo et al., 2023). However, it is thought that the main problem may have arisen from the fact that academics who do not already have education on climate change have limited resources and have not been educated about how to do this.

In this study, academics stated that they did recycling practices in their institutions. In a study on waste management, Richardson et al. (2014) determined that student nurses had limited knowledge about natural resources (such as petroleum or wood products) used in the production of materials utilized in health services and had problems separating them. For this reason, it is thought that students can be given education to raise awareness about the benefits of recycling practices to reduce the undesirable effects on the environment both at school, in the hospital, and at home, encourage them to be sensitive to their natural environment, and help other environmental practices. Rosa et al. (2020) cited nursing theories as a useful starting point for nurse researchers to develop climate change-focused research. In this context, there is not enough information about how Florence Nightingale's environmental theory on climate change is adequate for nursing students. In this study, academics stated that they mostly focused on the concept of environment, which is one of the four theories of nursing, during lessons and contributed to the discussions on climate change. Schenk et al. (2021) found that nurses discussed climate and health issues with their friends or family more often than with their colleagues. Participants in the same study stated that nurses (63%) never talked to their leaders or to elected officials about climate change (Schenk et al., 2021). However, it is thought that creating more frequent discussion opportunities with nurse leaders, managers, and academics can be an important step in raising sensitivity and awareness. The concept of environment is not new in nursing. Nurse academics have been emphasizing the nursing profession, beyond community and public health nursing practices, to consider the impact of the natural environment on human health, and theoretically how the natural environment affects all areas of nursing in their education for many years (Zborowsky, 2014). However, today, nurses need to develop their knowledge, views, and practices at a global level to protect and improve health (Potter, 2019) because the issue of climate change is thought to be too sensitive and important to be evaluated only with the level of knowledge. There is a need for studies to increase scientific knowledge about climate change. In this study, few of the academics stated that they supported research projects. However, one of the roles that nurse academics wanted their students to develop the most in the fight against climate change was the role of a researcher. There is a gap between nursing policies and competencies that guide nursing actions related to climate change and environmental health throughout Türkiye. However, there are opportunities to conduct nursing research on environment, climate change and health during undergraduate and graduate education in the nursing profession (Dündar et al., 2020) From this point of view, it is thought that it is necessary to determine the situations that prevent doing research, to support projects and research activities in schools economically, to allocate enough budget, and to

provide mentorship support to researchers. ICN emphasizes the need to reduce climate-based infectious diseases, establish health programs and care models, and improve the response capacity of the health workforce (ICN <https://www.icn.ch/news/international-council-nurses-calls-increased-nursing-leadership-combat-effects-climate-change>). To do this, it is thought that it is necessary to engage in sustainable practices in the health sector, take part in health and climate research, and participate in intersectoral policy and management interventions.

In this study, 48.6% of the academics thought that they did not have the authority to integrate health and climate issues into nursing education. This is due to the lack of national consensus on this issue. It is thought that educators known for their presentations to public health and medicine programs at universities in Türkiye can come together and discuss and examine the design and presentation of climate change content.

Implications and future lines of action

The issue of climate change in nursing faculties in Türkiye has not yet been dealt with desirably. Nurse academics refer to environmental theory in the first years of nursing education and they think that the topic of climate change should be integrated into education. Participants are aware of the need to equip both undergraduate and graduate students with cognitive and behavioral skills. To do this, nursing leaders and other nursing institutions and associations in the country should come together to reach a consensus and prepare a guide on the subject. The effects of climate change on women, children, the elderly, and chronic patients can be integrated into basic nursing courses during undergraduate and graduate education. Further research on the impact of climate change on health will be beneficial. Time and resource barriers to developing a consistent curriculum and the role of senior nursing leaders can be highlighted to ensure that the topic of climate change can be included in the health field. Nursing academics can develop leadership through their universities by collaborating with policymakers and other stakeholders of the community, as well as advocacy associations and institutions.

5. Conclusion

Scientific evidence necessitates educating nurses at all levels of academic and professional education to achieve competency to mitigate climate change and address adaptation and resilience strategies. Although many nurse academics in Türkiye have mentioned the importance of education, advocacy, research, participation in policies, and leadership in the field of climate change in nursing education, they are not prepared enough about the effects of climate change on health and the response of the nursing profession. This is because there is no clear guide on how to deal with the climate issue in nursing education curriculum in Türkiye. According to the results of this study, nurse academics have started preparations, albeit a little, about climate change. However, this requires the preparation of a broad-based curriculum and the determination of interdisciplinary approaches. Barriers to and opportunities for curriculum creation or integration can be identified and discussed. Education needs to be specific to the target audience and start with clear learning objectives. Key climate issues should

be addressed when setting goals. It is thought that it will be important to take a model as a basis and to consider the effects of climate change and the social determinants of health together, to focus on age groups and disadvantaged groups, and have nurses adopt the advocacy and leadership roles.

Authors Contributions

Topic selection: NK; Design: NK; Planning: NK Data collection and analysis: NK; Writing of the article: NK; Critical review: NK

Conflict of Interest

There is no conflict of interest between the authors.

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