

# Oncology Nurses' Needs Respecting Healthy Work Environment in Iran: A Descriptive Exploratory Study

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## ABSTRACT

**Objective:** The work environment of oncology nurses is often unpleasant due to the complexities of cancer treatment and care. Yet, there is limited information about their perspectives on healthy work environment (HWE) and their HWE-related needs. This study aimed to explore oncology nurses' HWE-related needs. **Methods:** This descriptive exploratory qualitative study was conducted in 2018–2019. Participants were 52 nurses and 11 oncology specialists, nursing instructors and managers, and occupational and environmental health experts, who had the experience of promoting nurses' work conditions. They were recruited from eight teaching specialty cancer treatment centers in different cities of Iran (Tehran, Isfahan, Mashhad, Shiraz, and Babolsar). Data were collected via semi-structured

interviews. Data were analyzed via conventional content analysis. **Results:** Oncology nurses' HWE-related needs were grouped into the four main categories of physical–structural improvement, mental health improvement in work environment, organizational improvement, and sociocultural improvement. **Conclusions:** A wide range of physical–structural, mental health, organizational, and sociocultural improvements should be made to oncology nurses' work environment in order to fulfill their HWE-related needs. Health-care managers can use the findings of the present study to create HWE for oncology nurses.

**Key words:** Cancer, occupational health, oncology nurse, qualitative study

## Introduction

Nurses face different challenges and health threats in their work environment and hence, experience different health-related problems.<sup>[1,2]</sup> They also experience problems and shortages respecting organizational support, salary, job description, staffing, and working hours.<sup>[3,4]</sup>

Problems related to nurses' work environment are more

serious in oncology wards. Treatment of patients with cancer is complex and challenging<sup>[5]</sup> and hence, working in oncology wards is usually more difficult than that of other clinical settings.<sup>[6]</sup> Studies showed that oncology nurses experience problems such as equipment shortage,

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heavy workload, limited financial support, limited leaves,<sup>[6,7]</sup> job burnout, occupational stress, work–life conflict, death anxiety, and emotional fatigue.<sup>[7-9]</sup> They also face occupational safety hazards due to their exposure to chemotherapy agents.<sup>[10,11]</sup>

Problems and challenges related to work environment and care delivery to cancer patients can impose heavy physical, mental, and spiritual strains on oncology nurses.<sup>[12]</sup> These problems and challenges can bring them disappointment, give them the feeling of inefficiency, foster negative attitudes toward work and life, and affect their willingness for remaining in the profession.<sup>[13,14]</sup>

Creation of a healthy work environment (HWE) is one of the strategies for managing nurses' work-related problems.<sup>[3]</sup> A HWE is an environment in which policies and procedures aim at helping staff achieve organizational goals, provide quality care, and feel efficiency and satisfaction.<sup>[15]</sup> Based on the definition of HWE provided by the World Health Organization, the components of HWE are physical environment, psychosocial environment, social contribution, and personal health resources.<sup>[16]</sup> A HWE for oncology nurses includes not only physical or structural components but also components such as culture, evaluation, leadership, and organizational climate.<sup>[5]</sup> HWE prevents disappointment, depression, anxiety, stress, and job burnout;<sup>[17]</sup> promotes nurses' health and well-being;<sup>[16]</sup> and positively affects nurses' satisfaction and organizational commitment and patients' satisfaction, safety, and length of hospital stay.<sup>[18,19]</sup> In fact, HWE has positive outcomes for nurses, patients, nursing profession, and health-care organizations.<sup>[5,20]</sup>

A systematic review showed that the indicators of a HWE include stress management programs, collaboration and teamwork, personal development, accessible and fair leadership, autonomy and empowerment, skilled communication, and safe physical work.<sup>[21]</sup> Health-care providers in another study recommended strategies to create a HWE which included improvement of communication, management, recreational facilities, and staffing; creation of a healthy mental environment; prevention of infection; and provision of in-service training.<sup>[22]</sup> Similarly, managers in a study highlighted that the creation of a HWE needs positive relationships with staff and their involvement in decision-making.<sup>[23]</sup> Another study reported that the improvement of the physical structure of work environment can improve the work environment of aging nurses.<sup>[24]</sup>

Previous studies into the components and indicators of HWE focused on some aspects of HWE and did not present a holistic view about it.<sup>[19]</sup> Moreover, studies showed the paucity of data into the components of HWE in developing countries. Limited knowledge about the components of

HWE is a major barrier to the creation of HWE,<sup>[17]</sup> while evaluating nurses' perspectives and needs in relation to HWE can broaden nurse managers' views about HWE and help them create a HWE for their staff.<sup>[5,25]</sup> In addition, to the best of our knowledge, none of the previous studies evaluated the components of HWE based on nurses' own perspectives and needs, while their perspectives and needs are important to the creation of HWE for them.<sup>[19]</sup> The present study was conducted to fill these gaps. The aim of the study was to explore oncology nurses' needs respecting HWE.

## Methods

This descriptive, exploratory, qualitative study was conducted in 2018–2019. Participants were 52 nurses and 11 oncology specialists, nursing instructors and managers, and occupational and environmental health experts, who had the experience of promoting nurses' work conditions. They were recruited from eight teaching specialty cancer treatment centers in different cities of Iran (Tehran, Isfahan, Mashhad, Shiraz, and Babolsar). Sampling was performed purposively and with maximum variation in terms of age, gender, geographical location of work environment, marital status, educational level, work experience, organizational position, and work shift. Inclusion criteria for nurses were bachelor's degree or higher in nursing, work experience >1 year in oncology wards, and willingness for participation.

## Data collection

Data were collected through in-depth, semi-structured, face-to-face interviews held at the participants' work environment. An interview guide was used for all interviews to maintain coherence in data collection. The guide was revised after each interview based on participants' feedback. Interviews were started using a broad question and continued using specific questions related to the study aim. Table 1 shows examples of the interview questions. All interviews were held by the first author and were recorded using a digital voice recorder. The length of the interviews was 30–90 min with a mean of 45 min. Data collection was continued up to data saturation.

## Statistical analysis

The conventional content analysis approach proposed by Graneheim and Lundman was used for data analysis. This process uses mainly inductive reasoning, by which codes, categories, and themes emerge from raw data under careful examination and constant comparison.<sup>[26]</sup> After each interview, the first author listened to it and transcribed it word by word. Then, she identified sentences and statements related to HWE-related needs as meaning

Table 1: Example of interview questions

Participants	Interview questions
Nurses	<p>May you please explain about your experience of working in oncology wards and providing care to patients?</p> <p>May you please describe one of your work shifts in which you faced problems or challenges?</p> <p>As a nurse, what needs do you have in relation to HWE which you think authorities should address?</p> <p>When and where did you experience the fulfillment of your HWE-related needs?</p> <p>Which HWE-related needs did you address if you were a head nurse?</p>
Other key informants	<p>In your opinion, is working in oncology ward different from working in other wards?</p> <p>In your opinion, when an oncology nurse can be said to have a HWE?</p> <p>In your opinion, what factors should be considered to determine oncology nurses' needs respecting HWE?</p>
HWE: Healthy work environment	

units, condensed them, and coded them. After that, codes with conceptual similarity were grouped into subcategories. Subcategories with conceptual similarity were grouped into main categories. Throughout the process of analysis, open codes, subcategories, and main category that differed were discussed among the research team members, until consensus was reached. In fact, at the end of data analysis, the consistency of the analysis was ensured by the entire research team who cross-checked the findings emerged by additionally reading quotes extracted from the Interviews. Data were managed via the MAXQDA software version 10.0 (Udo Kuckartz, Berlin, Germany).

### Rigor

Lincoln and Guba's criteria were used to apply rigor to the study. Credibility was ensured through prolonged engagement with data collection and sampling with maximum variation. Moreover, several interview transcripts and their corresponding codes were provided to the participants, and they were asked to confirm the congruence between their own experiences and the generated codes. Codes which did not convey their experiences and perspectives were revised. To ensure confirmability, some interviews were independently analyzed by three authors. To ensure dependability, three external peers were provided with the data and the findings to check the accuracy of data analysis. Moreover, transferability was ensured through detailed description of participants' characteristics, sampling with maximum variation, and presenting some participants' quotations in the findings.

### Ethical approval

The present study is part of a nursing PhD. dissertation approved by the ethics committee of the Medical Research of the Isfahan University (Approval No. IR.MUI.REC.ARCH.REC.1397.234). Participating in the study was

completely voluntary, and the participants recognized that they had the right to withdraw at any time. The aims and the study methods were comprehensively explained to the participants before elicitation of informed signed consent. Written consent was obtained from all participants prior to the interview and no identifiable data was included in the transcripts.

## Results

Most participants were female (73.01%) and married (80.95%), and their age mean was 41.80 years. Table 2 shows their characteristics.

Oncology nurses' HWE-related needs were grouped into four main categories, namely physical–structural improvement, mental health improvement in work environment, organizational improvement, and sociocultural improvement. These four categories included 17 subcategories as shown in Table 3 and explained in what follows.

### Physical–structural improvement

Physical–structural improvement was one of the main HWE-related needs of oncology nurses. Environmental beautification, improvement of environmental decoration, lighting and ventilation, reduction of negative environmental stimulations, and appropriate use of technology can help create HWE. This main category included three subcategories, namely appropriate physical conditions, consideration of designing standards in the physical structure and equipment, and using technology in work environment. Most participants noted that appropriate physical conditions (consisted of appropriate lighting, temperature, ventilation, and cleanliness) are important to maintain nurses' health.

*For instance, adequate environmental lighting is needed where a nurse wants to insert an IV line. But, lighting is poor here and hence, we really have problem and difficulty while inserting an IV line. Insertion of an IV line at nights is even more difficult (participant 39, a head nurse).*

Moreover, participants pointed to the inappropriateness of their physical environment and non-consideration of architectural and ergonomic standards for designing the physical structure of hospital wards. They noted that the physical structure of hospital wards should be designed based on the principles and standards of architectural engineering and ergonomics. They also highlighted the necessity of specific rooms, structures, and equipment for preparing and administering hazardous medications in order to ensure their occupational safety. Yet, some of them reported the inaccessibility of such structures and equipment.

*One of our concerns is the lack of a standard physical work environment. As we work with chemotherapy agents, we need a*

specific room for their preparation equipped with personal protective equipment and adequate ventilation (participant 50, a nurse).

Using technology in work environment was the third subcategory of the physical–structural improvement main category. According to the participants, nurses need to have access to closed-circuit television camera for critically

ill patients as well as advanced equipment for transferring patients. They also noted that using hospital information system, electronic patient medical records, and patient education websites can save nurses' time and energy.

### Mental health improvement in work environment

Participants considered mental health improvement in the work environment as one of the key components of creating HWE and highlighted the importance of creating a calm and non-stressful work environment. In their opinion, factors such as professional support, lack of discrimination and conflict among staff, and a pleasant work climate can help improve mental health in the work environment. The five subcategories of this category were paying attention to occupational stressors, paying attention to psycho-emotional reactions in the work environment, creating a confident and supportive climate in the work environment, eliminating discriminations and promoting justice in the work environment, and creating a happy and soothing work environment.

According to the participants, nurses face different occupational stressors such as patients' death, concern over harming patients during patient care, exposure to chemotherapy agents, patients' and their families' negative psychological reactions, fear over developing cancer, problems during starting a potent intravenous line, heavy workload, and fear over medication errors. Consequently, some of them reported developing problems such as negative emotional reactions such as anxiety and depression as well as behavioral and personality disorders such as irritability, pessimism, peevishness, emotional isolation from patients, and desire for isolation. Moreover, they reported problems such as reduced hope for the future;

Table 2: Participants' characteristics

Characteristics	n (%)
Age (years)	
20-30	6 (9.52)
31-40	24 (38.09)
41-50	20 (31.74)
>50	13 (20.63)
Job type	
Nurse	52 (82.53)
Oncologist	6 (9.52)
Nursing instructor	1 (1.58)
Occupational health expert	2 (3.17)
Environmental health expert	1 (1.58)
Nurse manager	1 (1.58)
Gender	
Male	17 (26.98)
Female	46 (73.01)
Marital status	
Single	12 (19.04)
Married	51 (80.95)
Nurses' educational level	
Bachelor's	49 (94.23)
Master's	3 (5.76)
Physicians and nurses' work experience in oncology care (years)	
1-5	11 (18.96)
6-10	22 (37.93)
11-15	8 (13.79)
16-20	11 (18.96)
21-25	6 (10.34)

Table 3: Oncology nurses' healthy work environment-related needs

Subcategories	Main categories
Appropriate physical conditions	Physical-structural improvement
Consideration of designing standards in the physical structure and equipment	
Using technology in the work environment	
Paying attention to occupational stressors	Mental health improvement in the work environment
Paying attention to psycho-emotional reactions in the work environment	
Creating a confident and supportive climate in the work environment	
Eliminating discriminations and promoting justice in the work environment	
Creating a happy and soothing work environment	
Implementation of coherent policies	Organizational improvement
Improving welfare services	
Adequate staffing	
Informational empowerment of nurses	Sociocultural improvement
Fostering interdisciplinary collaboration	
Institutionalization of safety culture in health-care organizations	
Promoting public knowledge about the roles of oncology nurses	
Establishment of scientific oncology nursing associations	
Family support and empathy for oncology nurses	

insufficiency and frustration due to treatment failure; and feelings of emptiness, sadness, and grief due to patients' death.

*I have frequently witnessed nurses who were crying during cardiopulmonary resuscitation. After a patient's death, staff stay there and cry. I also cry in these situations despite a work experience of 23 years. Sometimes, we even attend our patients' burial ceremony (participant 17, a nurse supervisor).*

Most participants highlighted the need for receiving support from their colleagues and managers. They noted that they needed not only financial support but also respect, appreciation, and rational organizational expectations. According to them, a confident climate and confident relationships among nurses and their colleagues, managers, and patients are necessary.

*Senior managers should support nurses. I don't mean financial support; rather, they should listen to nurses' talks and sorrows and support them in critical conditions which happen for nurses (participant 22, a nurse with a work experience of 14 years).*

The participants also highlighted the importance of justice, fair performance evaluation, and fair job description in the work environment. In addition, they noted that because of the sad and stressful climate of their work environment, conflicts among staff should be prevented and a happy and soothing environment should be created for them.

### Organizational improvement

Organizational improvement was another HWE-related need of oncology nurses. According to the participants, HWE is an environment in which organizational policies support care delivery and care providers; fulfill their financial, educational, and health-related needs; and minimize their work-related problems such as staff shortage, long working hours, limited leaves, and lack of interdisciplinary collaboration. This main category included five subcategories, namely implementation of coherent policies, improving welfare services, adequate staffing, informational empowerment of nurses, and fostering interdisciplinary collaboration.

Most participants highlighted the significant effects of organizational factors, mainly coherent policies, on HWE. They also emphasized the importance of periodic health assessment services for monitoring nurses' health.

*We need screening and laboratory tests to be performed for us at least once or twice a year. All nurses have health-related records; but screening tests and examinations for cancer should be performed for oncology nurses (participant 9, a nurse).*

The participants also noted that oncology nurses need reduction in their working hours, change of their working ward, work schedules based on their personal preferences, career advancement opportunities, competence-based staff

management, effective performance evaluation system to employ and retain competent oncology nurses, and support for pregnant or breastfeeding nurses in order to reduce their exposure to chemotherapy agents. They also highlighted the need for welfare services and financial support by their organizations in order to reduce their financial and livelihood concerns and problems.

*The organization certainly needs to support nurses through providing them with financial support, reducing their working hours, granting them more leaves, and providing them with recreational facilities such as trips (participant 42, a physician).*

Participating nurses also noted that they needed a work environment with adequate staffing proportionate to the number of patients in order to have lighter workload. Another organizational need of the participants was informational empowerment. The participants noted that they needed to improve their care-related knowledge and skills, particularly in areas such as chemotherapy, communication with patients, stress management, and occupational safety. Accordingly, they highlighted the need for specialized courses and adequate educational opportunities for improving oncology nurses' knowledge and skills. Their other HWE-related organizational need was the need for interdisciplinary collaboration. According to the participants, cancer patients have a wide variety of complex needs, the fulfillment of which necessitates teamwork and interdisciplinary collaboration. They highlighted that interdisciplinary approaches facilitate care delivery and reduce workload.

### Sociocultural improvement

The other main HWE-related need of oncology nurses was sociocultural improvement. Cultural improvement refers to modifications in health-care organizations in order to improve occupational safety and revere nurses' specialty roles, while social improvement refers to the establishment of oncology nursing scientific associations to support and empower oncology nurses. Psycho-emotional support for nurses by family members was another aspect of social improvement. The four subcategories of this category were institutionalization of safety culture in health-care organizations, promoting public knowledge about the roles of oncology nurses, establishment of scientific oncology nursing associations, and family support and empathy for oncology nurses.

Institutionalization of safety culture in health-care organizations encourages staff for closer adherence to safety standards. Such institutionalization can be performed through the assessment and control of health risks in work environment, close managerial supervision of staff adherence to safety standards, and provision of safety-related educations. The participants noted that despite

their awareness of the risks of exposure to chemotherapy agents, they did not closely adhere to the safety standards related to their preparation and administration. Adherence to safety standards should be emphasized so strongly that it turns into a part of organizational culture.

*The safety culture should be institutionalized. Some safety-related educations should be provided frequently. Managers should also supervise occupational safety and require nurses to adhere to safety standards so that adherence to safety turns into a part of organizational culture (participant 35, an occupational health expert).*

The participants also emphasized the necessity of improving public knowledge about oncology nurses' roles and believed that patients and their families should trust oncology nurses, avoid intervening in their care delivery, respect their dignity and decisions, and have rational expectations from them. Moreover, some participants highlighted the necessity of establishing nationwide oncology nursing scientific associations in order to develop cancer-related clinical guidelines and protocols and perform research activities in collaboration with other high education centers. The other sociocultural HWE-related need of oncology nurses was the need for receiving psycho-emotional support from spouse and other family members in order to balance between work and life. Participants, particularly female participants, noted that work-related problems and concerns can disturb daily life and family relationships and hence, highlighted the necessity of family members' support and understanding for reducing work-life conflicts.

## Discussion

This study explored HWE-related needs among oncology nurses. These needs included the four main categories of physical-structural improvement, mental health improvement in work environment, organizational improvement, and sociocultural improvement.

Physical-structural improvement of work environment was one of the main needs of oncology nurses in the present study. This finding might have been due to the nonstandard physical environment and inadequate equipment for chemotherapy in the study setting. Several earlier studies also reported nurses' dissatisfaction with their inappropriate work environment and limited space of treatment rooms.<sup>[6,27,28]</sup> Oncology nurses are exposed to hazardous chemotherapy agents and hence, their work environment is considered to be unsafe.<sup>[6]</sup> Although personal protective equipment is one of the strategies to reduce nurses' exposure to hazardous drugs, most nurses do not have access to standard chemotherapy rooms and personal protective equipment.<sup>[29]</sup> Such shortage of space and equipment can

cause occupational stress and job burnout for nurses.<sup>[13,30]</sup> Contrarily, a well-designed physical work environment can positively affect nurses' health and safety.<sup>[31]</sup>

The study findings revealed mental health improvement in work environment as the second main HWE-related need of oncology nurses. Because of occupational stressors such as physical health threats, care-related challenges, fear over cancer development, and fear over medication errors, most participants considered their work environment as a stressful environment. In line with these findings, former studies reported that oncology nurses experience moderate-to-high levels of occupational stress due to factors such as heavy workload, limited organizational support, poor social status and support, their patients' critical conditions and death,<sup>[15,32]</sup> chemotherapy-induced complications for patients, risk of chemotherapy agent extravasation, and risk of medication errors.<sup>[28]</sup> In contradiction with these findings, oncology nurses in another study did not consider their work to be stressful and had low levels of occupational stress.<sup>[33]</sup> This contradiction may be due to differences among different nurses respecting their personal characteristics, professional characteristics, and work environment characteristics.<sup>[33,34]</sup>

Our participants also reported negative feelings such as insufficiency and frustration; limited hope for the future; and feelings of emptiness, sadness, and grief due to stressors such as treatment failure and patients' death. A former study likened oncology nurses' sadness and grief caused by patients' death to a powder keg which is likely to explode at any time, though nurses are unaware of their negative effects on their health.<sup>[9]</sup> Moreover, witnessing patients' death gives nurses feelings such as anger, mental fatigue, despair, concern, and desperation due to understanding the finitude of life. They also commiserate with family members over their painful patient-related experiences, have limited formal opportunities for showing reactions after patients' death, and hence, need to receive professional support and get ready to manage their emotions and feelings after patients' death.<sup>[35,36]</sup>

Our participants also reported emotional attachment to their patients due to their frequent hospitalizations and hence, reported emotional problems following their patients' death. Subsequently, they highlighted the need for changing their working ward, psychological counseling, and creation of a happy and soothing environment. Previous studies also reported that oncology nurses face emotional demands at work, establish close relationships with patients and their families, and, hence, experience deep sadness and grief after treatment failure or patients' death.<sup>[9,14]</sup> Studies had highlighted the need for psychological support and counseling for nurses, improvement of their working

ward environment, and periodical change of their working wards.<sup>[36,37]</sup> As oncology nurses face different emotional hazards (such as burnout, emotional fatigue, moral distress, sadness, and grief) in their work environment,<sup>[38]</sup> management of their emotional reactions is one of their HWE-related needs.

The study findings also showed that the creation of a confident and supportive climate in work environment is necessary for the creation of HWE. Positive relationships with other nurses, managers, and physicians play a significant role in improving the quality of oncology nurses' work environment.<sup>[5]</sup> Receiving support from colleagues and sharing experiences with them are strategies for relieving job burnout<sup>[37]</sup> and occupational stress.<sup>[35]</sup> Contrarily, weak relationships and conflicts with other health-care providers, particularly physicians, are the most significant stressor for nurses.<sup>[7]</sup>

The third main need of oncology nurses in the present study was the need for organizational improvement. According to our participants, health-care organizations need to have coherent policies which ensure nurses' health, reduce staff shortage, and provide them with financial support and welfare services. Similarly, a former study showed that health-care organizations need to provide financial support and periodical health screening and assessment services to nurses who are exposed to antineoplastic agents.<sup>[6]</sup> Yet, despite their more difficult work conditions, oncology nurses' income is not higher than that of other nurses.<sup>[27]</sup>

The need for informational empowerment was another HWE-related organizational need of oncology nurses in the present study. Cancer care is a complex task, and communicating with cancer patients and their families is difficult. Therefore, oncology nurses should specifically be trained through specialized cancer nursing education courses<sup>[5,32]</sup> and in-service training courses on different aspects of care such as communication with patients, psycho-emotional support provision to patients,<sup>[37,39]</sup> personal protection techniques, and safety standards.<sup>[6]</sup> We also found fostering interdisciplinary collaboration as another HWE-related organizational need of oncology nurses. Effective interdisciplinary collaboration can improve nurses' ability to cope with the sadness and grief caused by patients' death<sup>[35]</sup> and create a HWE for them.<sup>[19]</sup> Other strategies for improving oncology nurses' work environment may include reducing their number of working hours and workload, changing their work environment in case of pregnancy or breastfeeding, giving them more leaves, boosting their income,<sup>[6]</sup> and providing them with opportunities to engage in recreational and sport activities.<sup>[37]</sup>

The fourth main HWE-related need of oncology nurses in the present study was the need for sociocultural improvement. Institutionalization of safety culture in health-care organizations was one of the subcategories of this need. Nurses in the present study noted that despite having adequate knowledge about the risks associated with exposure to chemotherapy agents, they sometimes did not closely adhere to safety guidelines related to the preparation and administration of these medications. Studies showed a wide gap between nurses' professional knowledge and practice in the area of using personal protective equipment.<sup>[10,11]</sup> Therefore, continuing education programs, active encouragement for adhering to safety standards, and correcting unsafe approaches to care delivery can help create a safe environment for nurses.<sup>[40]</sup>

The study findings also showed promotion of public knowledge about the roles of oncology nurses as another need of these nurses. Our participants noted that they needed their clients' respect, appreciation, and collaboration. In the Iranian society, nursing has not yet achieved a high social position and hence, nurses are at risk for the negative effects of poor public image of their profession on their own professional self-image.<sup>[25]</sup> Moreover, they sometimes experience their clients' non-respectful behaviors in their work environment.<sup>[41]</sup> Similarly, a study reported that clients of oncology nurses in some countries are agitated and aggressive, have limited knowledge about oncology nurses' specialized roles, may interfere with their work, and, hence, may cause them some levels of occupational stress.<sup>[14]</sup>

Our participants also highlighted that because of the lack of specialized cancer nursing courses in Iran, establishment of scientific oncology nursing associations is necessary for designing and offering such courses and improving oncology nurses' knowledge and skills. Similarly, a former study highlighted the need for establishing oncology nursing organizations in developing countries to provide oncology nurses with specialized cancer-related educations.<sup>[32]</sup>

The last subcategory of the sociocultural improvement main category was the need for family support and empathy. Our participants noted that they needed family support and empathy in order to maintain and improve work-life balance. The work environment of oncology nurses may cause them work-life imbalance.<sup>[8]</sup> Moreover, nurses, particularly female nurses, experience occupational stress due to the multiplicity of their household and professional roles.<sup>[30]</sup> Therefore, their family members need to help them manage conflicts in their personal and professional lives, thereby maintaining the work-life balance.

## Conclusions

This study shows that physical–structural improvement, mental health improvement in work environment, organizational improvement, and sociocultural improvement are necessary for the creation of HWE for oncology nurses. The study findings can be used to develop occupational safety and health assessment guidelines and scales for oncology nurses. Nurse managers can also use findings to identify problems in oncology nurses' work environment, improve their health, and, thereby, improve the quality of their care services.

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## Conflicts of interest

There are no conflicts of interest.

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