Routledge
Taylor & Francis Group

Archives of Environmental & Occupational Health

ISSN: 1933-8244 (Print) 2154-4700 (Online) Journal homepage: www.tandfonline.com/journals/vaeh20

Quality of work life and working conditions among oncology nurses: A national online descriptive cross-sectional study

Ayşe Arıkan Dönmez, Özlem Ovayolu, Nimet Ovayolu, Sakine Yılmaz, Özgül Karayurt, Gülsüm Nihal Çürük, Canan Pörücü, Hafize Güllü & Zeynep Yılmaz

To cite this article: Ayşe Arıkan Dönmez, Özlem Ovayolu, Nimet Ovayolu, Sakine Yılmaz, Özgül Karayurt, Gülsüm Nihal Çürük, Canan Pörücü, Hafize Güllü & Zeynep Yılmaz (2023) Quality of work life and working conditions among oncology nurses: A national online descriptive cross-sectional study, Archives of Environmental & Occupational Health, 78:3, 131-141, DOI: 10.1080/19338244.2022.2063240

To link to this article: https://doi.org/10.1080/19338244.2022.2063240

Published online: 12 Apr 2022.

ARCHIVES OF ENVIRONMENTAL & OCCUPATIONAL HEALTH
2023, VOL. 78, NO. 3, 131–141
https://doi.org/10.1080/19338244.2022.2063240

Quality of work life and working conditions among oncology nurses: A national online descriptive cross-sectional study

Ayşe Arıkan Dönmez[a], Özlem Ovayolu[b], Nimet Ovayolu[c], Sakine Yılmaz[d], Özgül Karayurt[e], Gülsüm Nihal Çürük[e], Canan Pörücü[f], Hafize Güllü[g], and Zeynep Yılmaz[h]

[a]Faculty of Nursing, Department of Internal Medicine Nursing, Hacettepe University, Ankara, Turkey; [b]Faculty of Health Sciences, Department of Internal Medicine Nursing, Gaziantep University, Gaziantep, Turkey; [c]Faculty of Health Sciences, Department of Internal Medicine Nursing, SANKO University, Gaziantep, Turkey; [d]Faculty of Health Sciences, Department of Midwifery, Çankırı Karatekin University, Çankırı, Turkey; [e]Faculty of Health Sciences, Department of Nursing, İzmir University of Economics, İzmir, Turkey; [f]Medical Oncology Clinic, University of Health Sciences, Gulhane Training and Research Hospital, Ankara, Turkey; [g]Hacettepe University, Oncology Hospital, Ankara, Turkey; [h]Vocational School of Health Services, Bilecik Şeyh Edebali University, Bilecik, Turkey

ABSTRACT

The aim of this study was to examine the quality of work life (QoWL) and working conditions of oncology nurses in Turkey. The study utilized a descriptive cross-sectional design. The data were collected via the introductory information form and Brooks' Quality of Nursing Work Life Survey. The study was completed with 138 nurses. The factors affecting QoWL were determined using stepwise multiple linear regression. Nurses had a moderate QoWL, and age, duration of working in nursing, the number of nurses, and the working style were significantly associated with QoWL. To improve the QoWL, the nurses' sociodemographic factors should be considered and working conditions should be improved. Furthermore, well-designed institutional policies should be developed to improve the patient-nurse ratio and provide a quality healthcare.

WHAT THIS PAPER ADDS?

- In the current study, Turkish oncology nurses had a moderate quality of work life.
- Age, duration of working in the nursing, the number of nurses in the unit and the working style were linked to work-related quality of life in oncology nurses.
- Well-designed institutional policies should be developed to improve the working conditions and to increase work-related quality of life in oncology nurses.

ARTICLE HISTORY
Received 19 December 2021
Accepted 1 April 2022

KEYWORDS
Quality of work life; working conditions; oncology nurse; nursing interventions; cross-sectional study; workers; chemical exposure; adults; occupational diseases

Introduction

Increasing cancer rates on a global scale have brought with increased demands on oncology nurses (ONs).[1–3] They are essential healthcare team members in many areas, such as cancer screening, early diagnosis, evaluation, patient education, treatment implementation, symptom management, supportive, palliative and end-of-life care.[4] However, they face many occupational challenges, such as managing serious side effects of treatment, establishing close and ongoing communication with patients experiencing severe pain, distress and fear of death, providing terminal care, coping with patients' and their relatives' emotional difficulties, and in-team conflicts. These challenges have an impact on ONs' work environment and work life.[5]

Oncology nurses are responsible for the treatment and care of patients with more special needs than other units in the hospital environment.[6] Providing nursing care for cancer patients is defined as a stressful job that requires dedication and energy.[7–9] The stress and emotional exhaustion levels of nurses are affected by working with patients who frequently experience psychological problems, vulnerability, anxiety, fear and depression due to illness and this is one of the challenges faced by ONs.[6,10] Among the other challenges faced by ONs are some situations that require difficult ethical decision making, lack of knowledge and experience regarding end-of-life care, and management of difficult issues such as grief and death.[6,10–12] In addition, since ONs are mainly responsible for the preparation and administration of

CONTACT Ayşe Arıkan Dönmez aysearikan8585@gmail.com Hacettepe University, Faculty of Nursing, Department of Internal Medicine Nursing, Sihhiye Campus, Ankara 06100, Turkey.

antineoplastic agents, they are exposed to potential risks.[13,14] They may experience a range of problems such as hair loss, infertility, abortion, genetic changes and DNA damage due to occupational exposure. Apart from all these, they are exposed to unfavorable working conditions such as excessive workload, due to inadequate protective measures in the preparation of antineoplastic agents, insufficient number of staffs, and high number of patients. For these reasons, their working conditions and QoWL may differ from other nurses.[1,6]

As it is known, work life constitutes a large and important part of a person's daily life.[15] The concept of quality of work life (QoWL) includes the quality and harmony of the relationship between the employee and working conditions and environment.[16,17] Several personal, external, and organizational factors have been shown to affect a person's QoWL.[18,19] These factors include personal age, health and well-being, physical condition of the work environment, workload, communication between employees, promotion opportunities, training and professional development opportunities, remuneration, and stress.[18,20,21]

Oncology clinics are among the clinics where nursing care is most needed, due to the large number of patients, and their dependence on the nurse for treatment and symptom management.[13] Due to the nature of cancer, the possible post-treatment complications and side effects, the care of the patients is more comprehensive and more time-consuming than other patient groups. When all these features are taken into consideration, it is clear that ONs, especially those in high-risk units, may experience various problems related to working conditions and QoWL. Moreover, healthcare professionals' working conditions and their QoWL may also affect the patient care and safety.[22] Tuna & Baykal[23] stated that ONs had a lot of stressful experiences, high workload outside of nursing, and experienced intense stress, emotional exhaustion and depersonalization.[23] In another study, ONs complained that they could not spend enough time with the patient due to their intense workload, their roles and responsibilities sometimes did not compromise with hospital conditions and treatment, and they had difficulties in this regard.[24] Similarly, in Turkey, it is reported that the working conditions and hours of ONs are heavy, they feel inadequate in terms of education, and they experience physical and emotional health problems.[1] In fact, according to the European Oncology Nursing Society Cancer Nursing Index 2020, it has been reported that the nurse/patient ratio in Turkey is 0/1000, advanced cancer nursing roles have not been established, and nurse-led cancer care is not adequately implemented.[25] When compared to other clinical wards (such as intensive care units, emergency services) with similar workloads and stressors, it is emphasized that ONs have higher emotional exhaustion and lower job satisfaction.[26] However, when nurses' job satisfaction is high, patient care and job quality, perceptions and feelings toward the patient and work are higher, and nurses are more attentive in terms of patient safety and care. In addition, it is reported that quality of nursing care will enhance with the improvement of institutional procedures in order to increase the job satisfaction of ONs.[27] Considering the inadequacy of the number of ONs, high patient rates, comprehensive and complex care needs of oncology patients and/or their relatives in the world and in Turkey, it is thought that their working conditions and QoWL will be affected.

There are several studies on the professional quality of life in ONs',[9,26,28] but these studies frequently evaluated sub-dimensions such as compassion fatigue, compassion satisfaction and burnout levels of ONs. It is clear that these variables have a considerable effect on the professional quality of life of ONs, but there are no studies examining ONs' working conditions, working life, working design, and investigating the relationship between these variables and the QoWL. Given the limited data on working conditions and QoWL, more research data for ONs are needed. Our research is an original first-time study on ONs' working conditions and their QoWL in Turkey. We anticipate that it will provide a basis for further research and help to establish strategies for improving working conditions of ONs and increase their QoWL and quality of care. In this direction, this study aimed to examine the working conditions and quality of nurses' work life in oncology clinics, and to develop recommendations accordingly.

Research questions

- What is the QoWL of nurses working in oncology clinics?
- Do socio-demographic characteristics of ONs affect their QoWL?
- Do working conditions of ONs affect their QoWL?

Methods

Study design

A descriptive, cross-sectional design was used to examine the working conditions and QoWL of ONs. This study was conducted with 138 ONs who were

members of the Oncology Nursing Association (ONA) in Turkey, between March 2019 and March 2020.

Study sample

Study participants were recruited using convenience sampling. There is only one ONA in Turkey where ONs are members. There are ONs who are members of the ONA from seven geographical regions of Turkey. Therefore, the study was carried out with the members of ONA in order to reach the target group. According to the information received from the ONA, it has 700 members in total. Of these, 200 are academic nurses, while the remaining 500 members work as clinical nurses in the field of oncology. To be eligible, participants had to be older than 18, able to speak and read Turkish, worked as a full-time registered nurse in oncology units of hospitals, and be willing to participate in the study. Since the study was conducted to examine the working conditions and quality of work life of ONs working in the oncology clinics, academic nurses (n = 200) who are the members of ONA were excluded. According to the formula equation which is used to calculate the sample size of cross-sectional study,[29] with a population size of 500 ONs from the oncology clinics, a confidence level of 80%, and a margin of error of 5%, the estimated sample size for this study was at least 124, which should be able to detect the expected effect sizes with sufficient statistical power.[30,31] Choosing a confidence interval (CI) range is a subjective decision. Although the 95% CI is traditionally the most used in the studies, confidence levels vary between 80% and 99%.[31] The particular choice of confidence level often depends on the type and field of the researcher' study. The CI of an estimated value is the probability range, based on the estimated value, that contains the true value. That is, if an estimated value is 50 and the CI of 80% is ±5%, then there is an 80% probability that the true value is between 45 and 55.[32] One of the most important disadvantages of online studies is that the response/return rate is very low, which is known to be at least 17% and at most 30%.[33] Considering that this study was an online study and was sent to nurses through the ONA, 80% CI was preferred in order to determine the minimum number of nurses who should be sampled at an acceptable level.

Data collection

Data were collected by online survey method via Google Forms through the ONA with which ONs were actively registered in Turkey. Data collection tools were sent to eligible nurses via the online survey link on the ONA web page, WhatsApp groups and e-mail addresses of the members. The data were collected using the introductory information form and the Brooks' quality of nursing work life survey. The average time to complete the surveys was about 15 minutes.

2.1.1. Introductory information form

A questionnaire consisting of items regarding personal variables, such as age, gender, marital status, education; and items on working conditions and practices regarding patient care roles, such as years of working, weekly working hours, the number of nurses in the unit, number of patients cared for per day, the number of daily prepared and applied chemotherapy, and initiatives for nursing care activity was used to collect participants' information. The survey had three multi-answer questions that the authors considered in the data analysis.

2.1.2. Turkish version of Brooks' quality of nursing work life survey (BQNWLS)

The Brooks' Quality of Nursing Work Life Survey (BQNWS) is a 42-item questionnaire and consists of four subscales: "home/work life", "work organization/design", "work conditions/contention", and "work world".[34] The Cronbach Alpha coefficient for the whole scale was 0.83. The Cronbach Alpha coefficients for the aforementioned sub-dimensions were respectively; $\alpha = 0.56$, $\alpha = 0.58$, $\alpha = 0.88$, $\alpha = 0.60$. Each item of the scale is graded in a 6-point Likert type ranging from "strongly disagree" (1 point) to "strongly agree" (6 points). The validity and reliability of the scale in Turkish was conducted by Sirin and Sokmen.[35] In calculating the scale score, items 3, 10, 14 and 18 are reverse scored. The lowest possible total score from the scale is 35, and the highest is 175. An increase in the total score indicates that the QoWL is high, and a decrease, that the quality is low.[35]

Data analysis

Data were analyzed using SPSS 23.0. Descriptive statistics (frequency, means, and standard deviations) were calculated for demographic characteristics and the mean scores for the whole and sub-dimensions of the BQNWS. Durbin Watson test, Collinearity analysis and Linear Regression analysis were used to compare scale mean scores with some variables. Results were considered significant at 95% confidence interval, $p < 0.05$.

Table 1. Demographic characteristics of oncology nurses (n = 138).

Characteristics	$\bar{x}$±SS	Min-Max
Age (years)	30.45 ± 7.91	20–53
Duration of working in nursing (month)	96.75 ± 101.98	1–384
Duration of working in oncology unit (month)	57.67 ± 67.64	1–384
	n (%)	
Gender		
Female	127 (92.0)	
Male	11 (8.0)	
Education		
High school	9 (6.5)	
Bachelor's degree	106 (76.8)	
Master's degree	21 (15.2)	
Doctorate degree	2 (1.4)	
Marital status		
Single	80 (58.0)	
Married/divorced	58 (42.0)	

Ethical considerations

This study was approved by Ethics Committee of a university (approval number: 20.05.2019/17). Informed consent text was added to the online questionnaire to obtain participants' consent, which they approved by checking a box added to the consent form, after which they were able to access the questionnaire. To ensure anonymity, no other identifying information that could have revealed names or identities was collected. All data was kept secure and confidential, and was accessed by the research team only.

Results

Demographic characteristics

Table 1 shows the demographic characteristics of nurses. The average age was 30.45 ± 7.91 (Min-Max: 20–53), the mean months of nursing experience was 96.75 ± 101.98 (min-max: 1–384), and the mean months of oncology nursing experience was 57.67 ± 67.64 (min-max: 1–384). Nurses were predominately female (92.0%), and more than half (58.0%) were single. The majority (76.8%) had undergraduate academic degree.

Working features

Table 2 represents the characteristics of the working unit. The mean weekly working hour was 49.96 ± 9.88 (min-max: 40–105), the mean number of nurses in the units was 11.86 ± 5.53 (min-max: 1–36), the mean number of patients receiving daily care for these units was 16.58 ± 22.13 (min-max: 1–100), the mean number of chemotherapy preparation per day was 10.46 ± 28.25 (min-max: 0–180), and the mean

Table 2. Features of the working units (n = 138).

Variables	$\bar{x}$±SS	Min-Max
Working hours per week	49.96 ± 9.88	40–105
Number of nursing staff in the unit	11.86 ± 5.53	1–36
Number of patients receiving daily care by unit	16.58 ± 22.13	1–100
Number of preparing chemotherapy per day	10.46 ± 28.25	0–180
Number of chemotherapy administrations per day	12.12 ± 22.28	0–100
	n (%)	
Unit preferences status		
Yes	69 (50.0)	
No	69 (50.0)	
Position in the unit		
Head nurse	22 (15.9)	
Clinical nurse	103 (74.6)	
Outpatient nurse	13 (9.4)	
Working style		
Night shift	7 (5.1)	
Day shift	40 (29.0)	
Day + night shift	91 (65.9)	
Daily working hours		
8 hours	47 (34.1)	
12 hours	46 (33.3)	
16 hours	19 (13.8)	
24 hours	10 (7.2)	
Mixed	16 (11.6)	
Adequate number of nursing staff in the unit		
Sufficient	40 (29.0)	
Not sufficient	98 (71.0)	
Working unit		
Outpatient chemotherapy / day therapy unit	22 (15.9)	
Daily oncology	6 (4.3)	
Medical oncology	39 (28.3)	
Hematology	30 (21.7)	
Bone marrow transplantation unit	30 (21.7)	
Palliative care	5 (3.6)	
Other	6 (4.3)	
Procedures for the preparation of antineoplastic agents		
Absence	15 (10.9)	
Presence	123 (89.1)	
Responsible person for the preparation of antineoplastic agents		
Nurse	32 (23.2)	
Pharmacist	77 (55.8)	
Other	29 (21.0)	
Working institution / hospital		
University hospital	52 (37.7)	
Public hospital	33 (23.9)	
Private hospital	53 (38.4)	
Practices for nurses contaminated with antineoplastic agents*		
Spill kit	99 (71.7)	
Cleaning according to drug property	52 (37.7)	
Normal cleaning	20 (14.5)	
Practices related to medical waste management*		
Use of special waste bins	92 (66.7)	
Collection in special waste area	64 (46.4)	
Transport and storage by trained personnel	47 (34.1)	
Storage in special waste area	30 (21.7)	
Collection with other medical waste	10 (7.2)	
Other		
Barriers to fulfilling nursing roles and functions*		
High number of patients	96 (69.6)	
Inadequate physical conditions	53 (38.4)	
Lack of tools and equipment	44 (31.9)	
Lack of knowledge and experience	34 (24.6)	
Insufficient number of nursing staff	102 (73.9)	
Other *(unfair attitudes of the administration, intensive treatments and conditions of the patients - excessive care burden, busy working hours, low wages, feeling of burnout, emotional state of the patients, communication, patient relatives, system inadequacy-problems)*	15 (10.9)	

**More than one answer given by nurses.*

Table 3. Features of the working institutions (n = 138).

Features	Yes n (%)	No n (%)
Status of in-service training organization	132 (95.7)	6 (4.3)
Unit existence related to occupational health and safety	136 (98.6)	2 (1.4)
Participation in the scientific program for occupational health and safety	98 (71.0)	40 (29.0)
Vaccination status for employees	123 (89.1)	15 (10.9)
Status of health screening for employees	123 (89.1)	15 (10.9)
Satisfaction with the institution	80 (58.0)	58 (42.0)
Satisfaction with the unit	103 (74.6)	35 (25.4)
Conducting research on oncology nursing	69 (50.0)	69 (50.0)
Support of the institution in conducting research	75 (54.3)	63 (45.7)
Following scientific studies related to oncology nursing in the last year	89 (64.5)	49 (35.5)
Participation in professional congresses related to oncology in the last year	52 (37.7)	86 (62.3)
Unit existence where malpractices are monitored / recorded	85 (61.6)	53 (38.4)

number of chemotherapy administration per day was 12.12 ± 22.28. (min-max: 0–100).

Half of the nurses (50%) had chosen the unit they worked in. The majority of them (respectively; 74.6%, 65.9%) were clinic nurse, and were working as shifts + daytime. A large proportion of nurses (34.1%) worked 8 hours a day. The considerable majority (71.0%) stated that the number of nursing staff in their unit was insufficient. The 89.1% of the sample had a procedure for the preparation of antineoplastic agents in their institution, and over half (55.8%) were responsible for preparing these. The most of nurses (respectively; 71.7%, 66.7%) indicated that they used spill kits for nurses contaminated with antineoplastic agents, and they used special bins in waste management. Of the nurses, 73.9% highlighted the insufficient number of nursing staff required to fulfill nursing roles and functions and they (69.6%) complained about the high number of patients.

Table 3 shows the characteristics of the institution where the nurses work. Almost all institutions organized in-service training (95.7%) and there was a unit related to occupational health and safety (98.6%). Although half of the nurses had conducted research on oncology nursing, 62.3% attended any scientific congress in the last year.

The interventions of nurses regarding the patient care roles are included in Table 4. The three most common nursing interventions were; (1) administering drug therapy (99.3%), (2) monitoring vital signs (97.1%), (3) informing the patient and/or his/her family about preventing infection(s) and pain management (94.9%). The least three interventions were; (1) proposing family planning (33.3%), (2) measuring central venous pressure (37.0%), (3) providing sexual counseling to the patient and his/her partner they needed (38.4%).

Mean BQNWLS and subscale scores

Table 5 shows the mean score of the total BQNWLS and the mean scores of the subscales of BQNWLS. The mean scores of the subscales of BQNWLS ranged from 12.76 ± 4.04 to 26.83 ± 5.60, and the mean score of the total BQNWLS was 106.86 ± 25.11.

Multiple linear regression analyses

A summary of multiple linear stepwise regression analysis for variables correlated with four subscales of BQNWLS is presented in Table 6. When the factors affecting the ONs' QoWL were examined, the model was found to be significant (p = 0.000). All of the variables included in the model explained 23.3% of their QoWL. When the variables were examined, age (= −1.130), duration of working in the profession (= 1.006), the number of nurses in the unit (= −0.235) and the working style (= −0.205) significantly affected QoWL (p < 0,05). It was concluded that other variables alone did not significantly affect the QoWL (p > 0.05).

Discussion

The present study revealed that Turkish ONs had a moderate QoWL. The findings provided a deeper understanding and insight into their working conditions and the QoWL. The study highlighted that their QoWL was affected by various factors, such as age, duration of employment, the number of nursing staff in the unit, and working style.

The QoWL generally includes the improvement of working conditions, considering not only physical needs, but also employees' mental, psychological and social needs. A focus on the QoWL is considered as a management approach that aims to provide better quality working conditions, to increase the physical and psychological well-being of the employees, to create changes in the corporate culture, and consequently, to increase the value of all employees in the business. Previous research involving ONs found that they often experienced high level of work-related burnout due to their exposure to natural stress factors,

Table 4. Interventions of oncology nurses regarding the patient care roles (n = 138).

Care interventions	Yes n (%)	Sometimes n (%)	No n (%)
Adapting the patient to the clinic	129 (93.5)	9 (6.5)	–
Collaborating and communicating with the patient and patient family	130 (94.2)	8 (5.8)	–
Observing signs and symptoms of infection	129 (93.5)	9 (6.5)	–
Informing the patient to prevent infections	129 (93.5)	9 (6.5)	–
Informing the patient's family to prevent infections	131 (94.9)	7 (5.1)	–
Oral care	102 (73.9)	22 (15.9)	14 (10.1)
Informing about oral care	128 (92.8)	10 (7.2)	–
Preventing accidents and bleeding	124 (89.9)	12 (8.7)	2 (1.4)
Informing the patient about bleeding and accidents	127 (92.0)	10 (7.2)	1 (0.7)
Informing the patient and family about diagnosis, treatment, complications, rehabilitation, home care	116 (84.1)	18 (13.0)	4 (2.9)
Providing sexual education to the patient and his/her spouse	53 (38.4)	45 (32.6)	40 (29.0)
Suggesting family planning	46 (33.3)	48 (34.8)	44 (31.9)
Leg / arm elevation	114 (82.6)	16 (11.6)	8 (5.8)
Wearing compression stockings	63 (45.7)	38 (27.5)	37 (26.8)
Monitoring of laboratory results	116 (84.1)	14 (10.1)	8 (5.8)
Oxygen therapy	118 (85.5)	19 (13.8)	1 (0.7)
Monitoring of saturation	124 (89.9)	13 (9.4)	1 (0.7)
Positioning	114 (82.6)	21 (15.2)	3 (2.2)
Exercising breathing-coughing and applying steam-postural drainage-aspiration	99 (71.7)	31 (22.5)	8 (5.8)
Monitoring of vital signs	134 (97.1)	3 (2.2)	1 (0.7)
Taking medication	137 (99.3)	–	1 (0.7)
Listening and evaluating bowel sounds	73 (52.9)	38 (27.5)	27 (19.6)
Skin care	97 (70.3)	27 (19.6)	14 (10.1)
Making necessary preparations for emergency response	132 (95.7)	5 (3.6)	1 (0.7)
ECG capture and monitoring	117 (84.8)	14 (10.1)	7 (5.1)
Maintaining appropriate activity	126 (91.3)	10 (7.2)	2 (1.4)
Frequent mobilization of the patient	113 (81.9)	18 (13.0)	7 (5.1)
Monitoring / maintaining fluid - electrolyte balance	121 (87.7)	9 (6.5)	8 (5.8)
Monitoring of fluid intake/output	117 (84.8)	11 (8.0)	10 (7.2)
Measuring central venous pressure	51 (37.0)	33 (23.4)	54 (39.1)
Body weight monitoring	119 (86.2)	14 (10.1)	5 (3.6)
Edema monitoring	119 (86.2)	12 (8.7)	7 (5.1)
Massage for the edematous area	67 (48.6)	44 (31.9)	27 (19.6)
Adjusting the diet	85 (61.6)	26 (18.8)	27 (19.6)
Cooperating with physicians, dieticians and patient relatives in providing the appropriate diet	115 (83.3)	14 (10.1)	9 (6.5)
Informing the patient about nutrition	125 (90.6)	12 (8.7)	1 (0.7)
Promoting food intake	120 (87.0)	14 (10.1)	4 (2.9)
Providing parenteral and enteral nutrition	114 (82.6)	13 (9.4)	11 (8.0)
Monitoring nutritional status	119 (86.2)	12 (8.7)	7 (5.1)
Evaluation of pressure injuries	113 (81.9)	14 (10.1)	11 (8.0)
Enema, insert urethral catheter, give laxatives / diuretics	97 (70.3)	22 (15.9)	19 (13.8)
Psychological support	113 (81.9)	25 (18.1)	–
Symptom management	128 (92.8)	8 (5.8)	2 (1.4)
Informing about the causes of fatigue	120 (87.0)	16 (11.6)	2 (1.4)
Pain management	131 (94.9)	6 (4.3)	1 (0.7)
Organizing the physical environment	125 (90.6)	11 (8.0)	2 (1.4)
Getting enough sleep	116 (84.1)	14 (10.1)	8 (5.8)
Active - passive exercise	89 (64.5)	35 (25.4)	14 (10.1)
Supporting in performing daily life activities	123 (89.1)	13 (9.4)	2 (1.4)
Conversation with the patient and family about death	61 (44.2)	51 (37.0)	26 (18.8)
Being sensitive to the spiritual needs and cultural values of the patient	119 (86.2)	16 (11.6)	3 (2.2)
Paying attention to ethical principles in end-of-life care practices	121 (87.7)	12 (8.7)	5 (3.6)
Supporting the family in the mourning process	94 (68.1)	29 (21.0)	15 (10.9)

Table 5. Mean BQNWLS and subscale scores of oncology nurses (n = 138).

BQNWLS total and subscale	Total possible scores	$\bar{x}$±SD	Range in sample
Total BQNWLS	35-175	106.86 ± 25.11	48–166
Work environment	9-45	25.83 ± 8.90	9–44
Relations with managers	5-25	17.08 ± 5.37	5–25
Work conditions	10-50	26.83 ± 5.60	16–42
Job perception	7-35	24.34 ± 6.56	7–35
Support services	4-20	12.76 ± 4.04	4–20

such as caring for individuals with life-threatening diseases.[36,37] In our study, similarly, the QoWL was affected by various work-related factors. Accordingly, it can be considered that work-related stress or tension and difficult working conditions are caused by various factors such as intense workload, caring for serious and terminally ill patients, and having to provide emotional support to patients and their relatives.

This study revealed that the weekly working hours of ONs were higher than those specified in the

Table 6. Summary of multiple stepwise regression for variables contributing to BQNWLS of oncology nurses (n = 138).

Variables	B	SE	β	t	p*
Constant	258.388	33.227		7.776	.000
Age (years)	−3.585	1.062	−1.130	−3.377	**.001**
Duration of working in nursing (month)	.248	.081	1.006	3.043	**.003**
Duration of working in oncology unit (month)	-.067	.055	-.180	−1.216	.226
Gender	−3.015	7.854	-.033	-.384	.702
Marital status	−5.285	5.552	-.104	-.952	.343
Education	4.872	3.442	.133	1.415	.159
Position in unit	−3.537	4.391	-.071	-.806	.422
Working style	−8.794	4.256	-.205	−2.066	**.041**
Daily working hours	-.627	1.760	-.033	-.356	.722
Working unit	.465	1.481	.029	.314	.754
Number of nursing staff in the unit	−12.958	4.924	-.235	−2.632	**.010**
Procedures for the preparation of antineoplastic agents	−10.950	6.740	-.136	−1.625	.107
R	.483				
R^2	.233				
F	2.896				
P	.001				
DW (1.5-2.5)	1.952				

*p < .05; β: Beta; DW: Durbin-Watson.

circular issued by the Republic of Turkey Ministry of Health and the Civil Servants Law. Working conditions in health institutions are key factors in determining the quality and reliability of health services. The characteristics of the working environment and long working hours are major sources of stress for healthcare workers.[38] In particular, providing care for cancer patients, meeting their and relatives' emotional needs and prolonged intense workloads not only negatively affect ONs' health status, but also increase the risk of burnout and work-related hazards.[26] However, when the literature is examined, it is seen that weekly working hours of nurses exceed 40 hours, as in this study.[39–41] Long working hours cause insufficient sleep quality, irregular eating habits and fatigue[42] as well as predisposal to chronic diseases in the long term. In addition, nurses' inability to devote sufficient time for their family and social lives due to working hours is another stress factor affecting the QoWL.[39] As a result, patient and/or occupational safety is endangered and the incidence of burnout, fatigue and stress increase among nurses.[40] It is clear that all of these factors negatively affect the QoWL, consistent with a study reported a negative relationship between nurses' working hours and QoWL.[43]

One of the challenges faced by nurses in providing quality care, and one of the factors affecting the QoWL, is the high number of patients receiving nursing care.[44] Compatible with the relevant literature, this study elicited a high number of patients receiving nursing care from ONs. Similarly Kumaş et al.[36] reported that as the number of patients receiving care increased, there were corresponding increases in ONs' workload and work stress, which were closely related to the QoWL.[36,41] It is thought that the increase in the number of patients may exacerbate nurses' workload density and as a result, nurses may feel inadequate due to perceptions that they are unable to provide adequate care and spare enough time for the patients, leading to work-related stress.[45] Moreover, it is mentioned that without proper prevention and management of work-related stress, patient care would be at risk and there would be an increase in leaving the job among nurses.[46] Due to the negative working conditions, not only patient care but also the occupational health and safety of nurses, will be adversely affected.[47] Kramer et al.[48] reported that as the number of patients receiving care increased, nurses' job satisfaction decreased and burnout increased.[48] In addition, it is stated that in order to increase nurses' QoWL, it is necessary to create more efficient and safe working conditions by reducing the workload with both institutional and legal regulations.[45]

In this study, recommending family planning and providing sexual counseling to patients and spouses were the least interventions by ONs. Similarly, previous studies reported that sexual counseling was among the least common practices. However, cancer patients can experience a lot of sexual problems during or after treatment and have difficulties in discussing these problems.[49] The reasons why nurses cannot adequately deal with these problems experienced by patients include a lack of expertise in dealing with sexual problems, and hesitation about dealing with privacy issues.[50] In addition, there may not be sufficient number of nurses to give individual attention to a large number of patients.[41] Considering all these reasons together, it can be said that the work life quality of nurses may be negatively affected.

Quality of work life is affected by many internal and external factors.[15,51] Factors that reduce job satisfaction and increase work stress, especially for ONs, reduce the QoWL.[28] Changes in the QoWL can seriously affect nurses, leading to inadequate nursing care.[15,51] The present study showed that QoWL of ONs was significantly affected by factors such as age, duration of work, working style, and the number of nurses. Especially, as the number of nurses decreased, their QoWL decreased. In accordance with the results reported from the studies of Almalki et al.[52] and Suleiman et al.,[15] the number of nurses was insufficient and the workload, rather heavy, and they were not particularly satisfied with their working style.[15,52] According to the European Oncology Nursing Society Cancer Nursing Index 2020, it has been reported that the number of ONs in Turkey is lower than in most other countries. It is striking that these numbers in the report are behind the expected target numbers.[25] The number of nurses and the physical and environmental factors related to occupational environment adversely affect not only the QoWL, but also occupational health and safety.[2]

Moreover, as the age increased, the QoWL decreased, and insufficient number of nurses, heavy workload and working style were the most important factors that negatively affected the QoWL.[51,53] It is emphasized that even physical and psychosocial age-related factors, such as forgetfulness, sleep disorders, anxiety and fatigue, negatively affect the QoWL.[51,53] It is also stated that as physical and cognitive functions decrease with age, this may affect the job performance and quality of work life of nurses.[53] However, contrary to these results, there are some studies stating that there is no effect of age, duration of work and working style on the QoWL of nurses.[54,55] In a recent study conducted by Piotrkowska et al.[56] it was reported that older nurses had a higher level of satisfaction with their work life because they had more patience, experience and knowledge than younger nurses.[56] In addition, it was stated in another study that with the increase of age and work experience, professional knowledge skills and expertise could be improved, possibly leading to promotion and increased salary, positively affecting the QoWL.[57] Since nurses in cancer care settings are faced with biological, physical, ergonomic, chemical and psychosocial hazards and risks, it is important to create healthy and safe occupational environment in terms of both quality of care and employee health.[2] Considering all these results obtained from the research, it is believed that while developing new methods and practices to improve nurses' work conditions and quality of their work life, the following are important: consideration of demographic and work-related factors, development of new strategies by the institution and manager nurses, and the creation of optimal work programs for occupational health and safety.[51]

Limitations

The study had some limitations. First, although there were nurses who were the members of ONA from seven regions of Turkey, since the study was an online study, it was not known how many people the questionnaires reached in total, but a total of 138 ONs answered. In addition, although the data do not reflect the whole of Turkey, they do reflect the vast majority. This and the fact that the current study conducted by the online survey, implied that findings cannot be generalized of all the cities in Turkey, working conditions or QoWL. Further research should be carried out to access a wider range of ONs working across cities and even different countries and in different oncology hospitals. Second, as the online questionnaire was published on the ONA website, WhatsApp groups, and via e-mail, there may be have been nurses who were not aware of the study because they were not members of ONA. Finally, a survey design to explore working conditions and QoWL whilst giving a valuable insight, does not provide an in-depth understanding nurses' experiences or perceptions. Further qualitative studies are needed to explore the experiences and perceptions of ONs.

Implications

This study is important in terms of examining the working conditions of ONs and the effect of these conditions on the QoWL, that has not been analyzed in detail before. Considering many factors such as the increasing number of cancer patients[6] but the decrease of nursing staff[58,59] and the application of hazardous medications[5,13] working conditions and QoWL have become one of the important issues for ONs. Nursing administrators should be aware of the working conditions in oncology units and the effect of these conditions on the QoWL. They should assess the working conditions, occupational safety, the nurses' needs or demands and develop strategies to improve these factors. Well-designed institutional policies should be developed to improve the patient-nurse ratio and provide a quality nursing care.

Conclusion

Turkish ONs had a moderate QoWL and some variables affected it. Age, duration of working in the nursing, the number of nurses in the unit and the working style influenced the QoWL. These variables were responsible for approximately one-fourth of the change in QoWL. In addition, older nurses had a low-level QoWL. Nursing staff shortages and working in shifts seem to have an effect on reducing the QoWL. Therefore, socio-demographic factors and working conditions should be considered to increase or improve the QoWL.

Acknowledgments

The authors would like to thank all oncology nurses who agreed to participate in the study and Turkish Oncology Nursing Association for their support in delivering the questionnaire to oncology nurses. The authors also express sincere thanks to the team at the İzmir University of Economics for their advanced language editing service.

Disclosure statement

All authors declare no conflict of interest and financial support in this study.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Sources of support in the form of grants

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

CRediT authorship contribution statement

Ayşe Arı kan Dönmez: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, review & editing. **Özlem Ovayolu:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, review & editing. **Nimet Ovayolu:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft. **Sakine Yı lmaz:** Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft **Özgül Karayurt:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft. **Gülsüm Nihal Çürük:** Conceptualization, Data curation, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft, review & editing. **Canan Pörücü:** Data curation, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft. **Hafize Güllü:** Data curation, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft. **Zeynep Yı lmaz:** Data curation, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft.

References

1. Baykal U, Seren S, Sokmen S. A description of oncology nurses' working conditions in Turkey. *Eur J Oncol Nurs*. 2009;13(5):368–375. doi:10.1016/j.ejon.2009.04.004.
2. Çı nar D, Karadakovan A. Investigation of occupational safety in oncology nurses. *Int J Occup Saf Ergon*. 2021:1–6. doi:10.1080/10803548.2021.1928405.
3. Yu H, Jiang A, Shen J. Prevalence and predictors of compassion fatigue, burnout and compassion satisfaction among oncology nurses: A cross-sectional survey. *Int J Nurs Stud*. 2016;57:28–38. doi:10.1016/j.ijnurstu.2016.01.012.
4. Charalambous A, Wells M, Campbell P, et al. A scoping review of trials of interventions led or delivered by cancer nurses. *Int J Nurs Stud*. 2018;86:36–43. doi:10.1016/j.ijnurstu.2018.05.014.
5. Duarte J, Pinto-Gouveia J. Effectiveness of a mindfulness-based intervention on oncology nurses' burnout and compassion fatigue symptoms: A non-randomized study. *Int J Nurs Stud*. 2016;64:98–107. doi:10.1016/j.ijnurstu.2016.10.002.
6. Emilia I, Gómez-Urquiza JL, Cañadas GR, Albendín-García L, Ortega-Campos E, Cañadas-De la Fuente GA. Burnout and its relationship with personality factors in oncology nurses. *Eur J Oncol Nurs*. 2017;30:91–96. doi:10.1016/j.ejon.2017.08.004.
7. Guo Q, Zheng R. Assessing oncology nurses' attitudes towards death and the prevalence of burnout: A cross-sectional study. *Eur J Oncol Nurs*. 2019;42:69–75. doi:10.1016/j.ejon.2019.08.002.
8. Samson T, Shvartzman P. Association between level of exposure to death and dying and professional quality of life among palliative care workers. *Palliat Support Care*. 2018;16(4):442–451. doi:10.1017/S1478951517000487.
9. Yılmaz G, Üstün B, Günüşen NP. Effect of a nurse-led intervention programme on professional quality of life and post-traumatic growth in oncology nurses. *Int J Nurs Pract*. 2018;24(6):e12687.
10. Kubota Y, Okuyama T, Uchida M, et al. Effectiveness of a psycho-oncology training program for oncology nurses: a randomized controlled trial. *Psychooncology*. 2016;25(6):712–718. doi:10.1002/pon.4000.
11. Ko W, Kiser-Larson N. Stress levels of nurses in oncology outpatient units. *Clin J Oncol Nurs*. 2016;20(2):158–164. doi:10.1188/16.CJON.158-164.

12. Pavlish C, Brown-Saltzman K, Fine A, Jakel P. A culture of avoidance: voices from inside ethically difficult clinical situations. *CJON*. 2015;19(2):159–165. doi:10.1188/15.CJON.19-02AP.
13. Al Zoubi AM, Saifan AR, Alrimawi I, Aljabery MA. Challenges facing oncology nurses in Jordan: A qualitative study. *Int J Health Plann Manage*. 2020;35(1):247–261. doi:10.1002/hpm.2901.
14. Beckstrand RL, Moore J, Callister L, Bond AE. Oncology nurses' perceptions of obstacles and supportive behaviors at the end of life. *Oncol Nurs Forum*. 2009;36(4):446–453. doi:10.1188/09.ONF.446-453.
15. Suleiman K, Hijazi Z, Al Kalaldeh M, Sharour LA. Quality of nursing work life and related factors among emergency nurses in Jordan. *J Occup Health*. 2019;61(5):398–406. doi:10.1002/1348-9585.12068.
16. Lee YW, Dai YT, Chang MY, Chang YC, Yao KG, Liu MC. Quality of work life, nurses' intention to leave the profession, and nurses leaving the profession: A one-year prospective survey. *J Nurs Scholarsh*. 2017;49(4):438–444. doi:10.1111/jnu.12301.
17. Mosadeghrad AM, Ferlie E, Rosenberg D. A study of relationship between job stress, quality of working life and turnover intention among hospital employees. *Health Serv Manage Res*. 2011;24(4):170–181. doi:10.1258/hsmr.2011.011009.
18. Chen YC, Li TC, Chang YW, Liao HC, Huang HM, Huang LC. Exploring the relationships among professional quality of life, personal quality of life and resignation in the nursing profession. *J Adv Nurs*. 2021;77(6):2689–2699. doi:10.1111/jan.14770.
19. Sukut O, Sahin-Bayindir G, Ayhan-Balik CH, Albal E. Professional quality of life and psychological resilience among psychiatric nurses. *Perspect Psychiatr Care*. 2022;58:330–338. doi:10.1111/ppc.12791.
20. Alharbi MF, Alahmadi BA, Alali M, Alsaedi S. Quality of nursing work life among hospital nurses in Saudi Arabia: A cross-sectional study. *J Nurs Manag*. 2019;27(8):1722–1730. doi:10.1111/jonm.12863.
21. Fu X, Xu J, Song LI, et al. Validation of the Chinese version of the quality of nursing work life scale. *PLoS One*. 2015;10(5):e0121150. doi:10.1371/journal.pone.0121150.
22. Başoğul C, Baysan Arabaci L, Mutlu Satı l E, Büyükbayram Aslan A. Professional values and professional quality of life among mental health nurses: A cross-sectional study. *Nurs Health Sci*. 2021;23(2):362–371. doi:10.1111/nhs.12811.
23. Tuna R, Baykal U. The relationship between job stress and burnout levels of oncology nurses. *Asia Pac J Oncol Nurs*. 2014;1(1):33–39. doi:10.4103/2347-5625.135818.
24. Farrell C, Molassiotis A, Beaver K, Heaven C. Exploring the scope of oncology specialist nurses' practice in the UK. *Eur J Oncol Nurs*. 2011;15(2):160–166. doi:10.1016/j.ejon.2010.07.009.
25. EONS Cancer Nursing Index 2020 © National profile: Turkey. 2020. EONS Advocacy Working Group, 2020. [cited 2021 May 20]. Available from: https://cancernurse.eu/advocacy/eons-cancer-nursing-index2020/.
26. Yı lmaz G, Üstün B. Sociodemographic and professional factors influencing the professional quality of life and post-traumatic growth of oncology nurses. *J Psychiatr Nurs*. 2019;10(4):241–250. doi:10.14744/phd.2019.43255.
27. Cidón EU, Martín FC, Villaizán MH, Lara FL. A pilot study of satisfaction in oncology nursing care: an indirect predictor of quality of care. *Int J Health Care Qual Assur*. 2012;25(2):106–117. doi:10.1108/09526861211198272.
28. Jang I, Kim Y, Kim K. Professionalism and professional quality of life for oncology nurses. *J Clin Nurs*. 2016;25(19–20):2835–2845. doi:10.1111/jocn.13330.
29. SurveyMonkey. 2019. Available at: https://www.surveymonkey.com/mp/sample-size-calculator/?ut_source=help_center. (Accessed on 14 March 2019)
30. Faul F, Erdfelder E, Lang AG, Buchner A. G*Power 3: A flexible statistical power analysis program for the social. *Behav Res Methods*. 2007;39(2):175–191.
31. Rumsey DJ. 2016. Choosing a confidence level for a population sample. Rumsey, D. J. (editor). *Statistics for Dummies*. 2nd ed. Indianapolis, Indiana: Wiley Publishing, Inc.
32. Kiang Y-H. 2018. Model development and validation methodology. In *Fuel Property Estimation and Combustion Process Characterization* (pp. 11–39). Cambridge, MA, USA: Elsevier. doi:10.1016/B978-0-12-813473-3.00002-7.
33. Kato T, Miura T. The impact of questionnaire length on the accuracy rate of online surveys. *J Market Anal*. 2021;9(2):83–98. doi:10.1057/s41270-021-00105-y.
34. Brooks BA. 2001. *Development of an instrument to measure quality of nursing work life* (dissertation). Chicago (IL): University of Illinois at Chicago.
35. Sirin M, Sokmen SM. Quality of nursing work life scale: The psychometric evaluation of the Turkish version. *Int J Caring Sci*. 2015;8(3):543–554.
36. Kumaş G, Yalçı n SÖ, Öztunç G. Level of burns and job satisfaction of oncology nurses: Adana case. *Lokman Hekim Dergisi*. 2019;9(2):256–265. doi:10.31020/mutftd.550272.
37. Shang J, R, Friese C, Wu E, H Aiken L. Nursing practice environment and outcomes for oncology nursing. *Cancer Nurs*. 2013;36(3):206–212. doi:10.1097/NCC.0b013e31825e4293.
38. Alan H, Yıldırım A. Hemşirelerin iş yaşam kalitesi ve etkileyen faktörlerin incelenmesi (The quality of work life of nurses and influential factors factors). *J Health Nurs Manag*. 2016;2(3):86–98. doi:10.5222/SHYD.2016.086.
39. Rajan D. Negative impacts of long working hours: A comparative study among nurses. *MOJABB*. 2017;1(2):60–67. doi:10.15406/mojabb.2017.01.00010.
40. Son YJ, Lee EK, Ko Y. Association of working hours and patient safety competencies with adverse nurse outcomes: a cross-sectional study. *IJERPH*. 2019;16(21):4083. doi:10.3390/ijerph16214083.
41. Ünlü H, Karadağ A, Taşkı n L, Terzioğlu F. Onkoloji alanında çalışan hemşirelerin yerine getirdikleri rol ve işlevler (Roles and functions of carried out by the oncology nurses). *Hemşirelikte Araştı rma Geliştirme*

Dergisi. 2010;12(1):13–28. https://dergipark.org.tr/tr/download/article-file/984296
42. La Fuente-Solana D, Inmaculada E, Pradas-Hernández L, et al. Burnout syndrome in paediatric oncology nurses: A systematic review and meta-analysis. *Healthcare*. 2020;8(3):309–321. doi:10.3390/healthcare8030309.
43. Gyllensten K, Andersson G, Muller H. Experiences of reduced work hours for nurses and assistant nurses at a surgical department: a qualitative study. *BMC Nurs*. 2017;16(1):16–12. doi:10.1186/s12912-017-0210-x.
44. Kı lı ç SS, Avcı İA, İsmailoğlu AA, Yazar S. Identification of clinical nurse in the work hours and hours of work load. *Gümüşhane Univ J Health Sci*. 2014;3(4):1032–1044. https://dergipark.org.tr/tr/download/article-file/220117
45. Denigris J, Fisher K, Maley M, Nolan E. Perceived quality of work life and risk for compassion fatigue among oncology nurses: A mixed-methods study. *Oncol Nurs Forum*. 2016;43(3):E121–31. doi:10.1188/16.ONF.E121-E131.
46. Hecktman HM. Stress in pediatric oncology nurses. *J Pediatr Oncol Nurs*. 2012;29(6):356–361. doi:10.1177/1043454212458367.
47. Türkmen E. The relationship between nurse staffing and patient, nurse and organizational outcomes: Nurse workforce planning at acute care hospitals. *J Hacettepe Univ Fac Nurs*. 2015;2(3):69–80.
48. Kramer M, Maguire P, Brewer BB. Clinical nurses in Magnet hospitals confirm productive, healthy unit work environments. *J Nurs Manag*. 2011;19(1):5–17. doi:10.1111/j.1365-2834.2010.01211.x.
49. Annerstedt CF, Glasdam S. Nurses' attitudes towards support for and communication about sexual health – A qualitative study from the perspectives of oncological nurses. *J Clin Nurs*. 2019;28(19–20):3556–3566. doi:10.1111/jocn.14949.
50. Afiyanti Y. Attitudes, belief, and barriers of Indonesian oncology nurses on providing assistance to overcome sexuality problem. *Nurs Med J Nursing*. 2017;7(1):15–23. doi:10.14710/nmjn.v7i1.15124.
51. Wang Q-Q, Lv W-J, Qian R-L, Zhang Y-H. Job burnout and quality of working life among Chinese nurses: A cross-sectional study. *J Nurs Manag*. 2019;27(8):1835–1844. doi:10.1111/jonm.12884.
52. Almalki M, FitzGerald G, Clark M. Quality of work life among primary health care nurses in the Jazan region, Saudi Arabia: A cross-sectional study. *Hum Resour Health*. 2012;10(3):30–13. doi:10.1186/1478-4491-10-30.
53. Abbasi M, Zakerian A, Mehri A, et al. Investigation into effects of work-related quality of life and some related factors on cognitive failures among nurses. *Int J Occup Saf Ergon*. 2017;23(3):386–392. doi:10.1080/10803548.2016.1216991.
54. Hemanathan R, Sreelekha S, Prakasam P, Golda M. Quality of work life among nurses in a tertiary care hospital. *Nurs Health Care*. 2017;5(4):1–8. doi:10.19080/JOJNHC.2017.05.555667.
55. Moradi T, Maghaminejad F, Azizi-Fini I. Quality of working life of nurses and its related factors. *Nurs Midwifery Stud*. 2014;3(2):1–6. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4228533/pdf/nms-03-19450.pdf
56. Piotrkowska R, Jarzynkowski P, Książek J, Mędrzycka-Dąbrowska W. Satisfaction with life of oncology nurses in Poland. *Int Nurs Rev*. 2019;66(3):374–380. doi:10.1111/inr.12521.
57. Kim K, Han Y, Kwak Y, Kim J. Professional quality of life and clinical competencies among Korean nurses. *Asian Nurs Res (Korean Soc Nurs Sci)*. 2015;9(3):200–206. doi:10.1016/j.anr.2015.03.002.
58. Aiken LH, Cimiotti JP, Sloane DM, Smith HL, Flynn L, Neff DF. The effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. *Med Care*. 2011;49(12):1047–1053. doi:10.1097/MLR.0b013e3182330b6e.
59. Barrientos-Trigo S, Vega-Vázquez L, De Diego-Cordero R, Badanta-Romero B, Porcel-Gálvez AM. Interventions to improve working conditions of nursing staff in acute care hospitals: Scoping review. *J Nurs Manag*. 2018;26(2):94–107. doi:10.1111/jonm.12538.