

# Factors affecting occupational burnout in nurses working in a medical oncology clinic

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## ABSTRACT

**Objective:** To reveal the factors that may affect the burnout level of nurses working in a medical oncology clinic.

**Material and Method:** This study was a cross-sectional observational descriptive study conducted in a medical oncology clinic. The study included 29 female nurses who were currently working in a medical oncology clinic. Participants were assessed with sociodemographic information form and Turkish versions of the occupational fatigue exhaustion/recovery scale (OFER), the professional quality of life (ProQOL) scale, and the Beck depression inventory (BDI). Participants with a low burnout score and a high burnout score were identified as group A and group B and were compared about factors that could affect burnout.

**Results:** Group A and group B were similar in terms of sociodemographic parameters. OFER-chronic fatigue subscale median (IQR) scores for Group A and Group B were 43.0 (33.00-58.50) and 63.0 (50.0-83.0), respectively ( $p = 0.032$ ). OFER-inter-shift fatigue subscale median (IQR) scores for Group A and Group B were 50.0 (37.00-57.75) and 37.0 (20.00-43.00), respectively ( $p = 0.005$ ). Median scores of OFER-acute fatigue, ProQOL compassion satisfaction, and compassion fatigue, and BDI were similar between groups. In binary logistic regression analysis, the odds ratios of OFER-chronic fatigue and OFER-inter-shift fatigue were 1.027 (95% CI 0.980-1.077,  $p=0.263$ ) and 0.904 (95% CI 0.828-0.988,  $p=0.025$ ), respectively.

**Conclusion:** Our study revealed that the most crucial factor related to the occupational burnout of nurses might be inter-shift fatigue (recovery). Interventions to target inter-shift fatigue could potentially protect nurses from burnout.

**Keywords:** Occupational burnout, oncology nurses, occupational fatigue exhaustion/recovery scale, professional quality of life scale, Beck depression inventory, inter-shift fatigue

## INTRODUCTION

Cancer is a challenging disease for both patients and healthcare professionals. Nurses who are at the forefront in the care of cancer patients experience many physical and psychological difficulties (1,2). Helping people exposed to traumatic stressors have been associated with burnout and depression (3). A recent meta-analysis shows that ten percent of nurses worldwide have high burnout symptoms (4). Evidence indicates that oncology nurses are particularly vulnerable to occupational stress, and this can affect nurses' professional quality of life (5,6). Nurses' compassion satisfaction, burnout level, and compassion fatigue are important concepts affecting the quality of nursing care given to patients (7). Moreover, decreasing the level of burnout is associated with better patient care and patient satisfaction (8).

Compassion fatigue occurs when the caregiver cannot shield or save the individual from harm and results in feelings of guilt and distress (3,9). The levels of compassion fatigue and burnout, which are the most frequently reported work-related consequences for nurses, are particularly high for oncology nurses (10-12). Quality of care, nurses' performance, patients' outcomes, nurses' safety, and quality of communications with colleagues and patients can be negatively affected by a high level of compassion fatigue (13).

Characterized by hopelessness, reduced energy and strength, frustration, anger, and depression, burnout is often associated with a very high workload or an unsupportive work environment (3). Especially; healthcare professionals are among the riskiest job

groups in terms of burnout (9,14). Increased burnout levels and decreased job satisfaction in healthcare professionals negatively affect the employees' quality of life and impair nursing care and services quality (9,14).

Occupational fatigue is defined as mental or physical fatigue that prevents a person from functioning normally due to prolonged physical and/or mental exertion without sufficient time to rest and recover (15). Long working hours, multiple-night shifts, and insufficient rest between shifts are also associated with higher nurse fatigue (16). Occupational fatigue can be divided into three different types as acute fatigue, chronic fatigue, and inter-shift (recovery) fatigue (17). Acute occupational fatigue is defined as a feeling of lack of energy as a direct consequence of previous work activities (18). Chronic occupational fatigue results from high levels of acute fatigue in addition to insufficient recovery between work shifts which persists even on rest days (19). Chronic fatigue is correlated with more negative consequences on workers' health, well-being, and work performance than acute fatigue (20). The third type is recovery compassion fatigue that exists when nurses do not feel recovered from a previous shift at the start of the next shift (21). In studies, fatigue, especially in nurses returning shifts, was associated with poor job performance, needle sticks, musculoskeletal injuries, obesity, and depression (22,23).

In this study, we aimed to reveal the factors that may affect the burnout level of nurses working in a medical oncology clinic.

## MATERIAL AND METHOD

This study was a cross-sectional observational descriptive study conducted in the medical oncology clinic of a tertiary referral center. Nurses who did not have a physical or mental disability preventing them from understanding what they read and filling out questionnaires, who agreed to participate in the study, and who were currently working in the medical oncology clinic were included in the study. Sociodemographic information form and Turkish versions of the occupational fatigue exhaustion/recovery scale (OFER), the professional quality of life (ProQOL) scale, and the Beck depression inventory (BDI) were given to the nurses in print, and the participants were asked to complete them themselves. The study was conducted after the approval of the Ankara Onkoloji Training and Research Hospital Clinical Researchs Ethics Committee (Date: 21.04.2021, Decision No: 2021-04/1128). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

### Sociodemographic Information Form

A constructed demographic information form included questions about age, working time in the medical

oncology clinic, marital status (single or married), living alone or with other family members, comorbidities (i.e. diseases such as hypertension, diabetes mellitus, osteoarthritis, migraine), income level (what participants report as low, medium, or high, in their own opinion), exposure to verbal or physical violence at work, whether she likes her job or not, feeling of strain and history of psychiatric disorder and treatment.

### Occupational Fatigue Exhaustion/Recovery Scale

Winwood et al. (20) developed the occupational fatigue exhaustion/recovery scale to measure occupational fatigue. The scale consists of 15 items and includes three sub-dimensions: chronic fatigue, acute fatigue, and inter-shift fatigue (recovery). For scale responses, a 7-point Likert type scale with 6 points (0=Strongly Disagree, 1=Disagree, 2=Somewhat Disagree, 3=Neither Agree nor Disagree, 4=Somewhat Agree, 5=Agree, 6=Strongly Agree) is used. The scale does not have a total score, and it is calculated separately for each sub-dimension (item-total scores/30 ×100). A score between 0 and 100 is obtained for each sub-dimension. For the sub-dimensions chronic fatigue and acute fatigue, scoring 0-25 shows low fatigue, 25-50 medium/low fatigue, 50-75 medium/high fatigue, and 75-100 shows high fatigue. A high score in the inter-shift fatigue (recovery) sub-dimension indicates that there is recovery between shifts (24). In the validity and reliability studies conducted by Havlioğlu et al. (25) for the Turkish version of the scale, the Cronbach's alpha coefficient was 0.85 in the chronic fatigue sub-dimension, which was 0.67 in acute fatigue sub-dimension, and 0.68 in the recovery sub-dimension.

### Professional Quality of Life Scale, Version 5

The ProQOL is a 30-item self-report measure composed by three subscales (3). The first subscale measures compassion satisfaction, defined as the "pleasure derived from being able to do one's work (helping others) well" (10 items). Higher scores on this scale represent greater satisfaction. The second subscale measures burnout, defined as "feelings of hopelessness and difficulties in dealing with work or in doing one's job effectively" (10 items). The third subscale measures secondary traumatic stress, defined as "work-related, secondary exposure to people who have experienced extremely or traumatically stressful events" (10 items). Considering that the terms "compassion fatigue" and "secondary traumatic stress" are used interchangeably in the literature, we will use the term "compassion fatigue" to refer to this factor. Higher scores from these two subscales indicate higher levels of burnout and compassion fatigue, respectively. Respondents are instructed to indicate how frequently each item was experienced in the previous 30 days on a

5-item Likert scale (from 1=never to 5=very often). The score that can be obtained from each subscale varies between 0 and 50 (3). In the study for the reliability of the Turkish version of scale conducted by Yeşil et al, the Cronbach's alpha value of ProQOL was 0.848, and the Cronbach's alpha values of compassion satisfaction, burnout, and compassion fatigue subscales were 0.884, 0.575 and 0.841, respectively (26).

### Beck Depression Inventory

The Beck depression inventory consists of 21 questions, each of which scores between 0 and 3 (27). High scores on this scale indicate an increase in the severity of depressive complaints (27). Hisli et al. (28) demonstrated the validity and reliability of the Turkish version of the BDI with a Cronbach alpha coefficient of 0.80.

### Statistical Analysis

Statistical analysis was performed using SPSS software (SPSS for Windows, version 24.0., SPSS Inc., Chicago, USA). Numeric data were presented as median (interquartile range-IQR), and categorical data were presented as frequency (percentage). The participants were divided into two subgroups according to ProQOL-burnout subscale scores. Participants with a low burnout score (ProQOL-burnout subscale score lower than median) and a high burnout score (ProQOL-burnout subscale score higher than median) were identified as group A, and group B. Group A and group B were compared by using Pearson's chi-square test and Mann-Whitney U test for categorical data and nonparametric numerical data, respectively. Multivariate logistic regression analysis was performed using variables with a p-value below 0.05 due to univariate analysis to determine independent factors predicting high ProQOL-burnout subscale scores. All statistical tests were two-sided, and p-values of <0.05 were considered statistically significant.

## RESULTS

### Study Population

The study included 29 female nurses with a median age of 28.0 (IQR, 24.5-41.0) and currently working in a medical oncology clinic. Seventeen (58%) of the participants worked in the medical oncology clinic for at least three years, and 19 (65.5) were on night shifts. Eleven (37.9%) nurses were single, 18 (62.1%) were married, and six (20.7%) nurses were living alone. Eighteen (62.1%) participants had children. Eighteen (62.1%) and 11 (37.9%) participants stated their income levels as moderate and high, respectively. Seven (24.1%) participants had comorbidities, and only one of them (3.4%) was receiving psychiatric treatment for depression.

Thirteen (44.8%) nurses were subjected to verbal or physical violence while doing their job. The number of nurses who had difficulties while doing their job and who had no job satisfaction were 19 (65.5%) and three (10.3%), respectively. Median OFER chronic fatigue, acute fatigue, and inter-shift (recovery) fatigue subscale scores were 57.0 (IQR, 40.0-70.0), 73.0 (IQR, 63.0-80.0), and 43.0 (IQR, 33.0-53.0), respectively. Median ProQOL compassion satisfaction, burnout, and compassion fatigue subscale scores were 31.0 (IQR, 26.0-38.5), 19.0 (IQR, 16.0-25.0), and 19.0 (IQR, 12.0-26.5), respectively. Median BDI score was 11.0 (IQR, 4.0-19.5).

### Comparison of Groups Formed According to Burnout Level

Twenty-nine participants were divided into two groups: those with ProQOL-burnout scores less than median (Group A, n=14) and those with equal or greater than median (Group B, n=15). Both groups were similar in terms of main sociodemographic parameters (Table 1).

Parameter	Group A (n=14)	Group B (n=15)	p-value
Age, median (IQR)	33.0 (27.75-41.50)	25.0 (24.00-36.00)	0.130
Working time			0.264
<3 years	4 (28.6)	8 (53.3)	
≥3 years	10 (71.4)	7 (46.7)	
Marital status			0.128
Single	3 (21.4)	8 (53.3)	
Married	11 (78.6)	7 (46.7)	
Lives alone			0.169
No	13 (92.9)	10 (66.7)	
Yes	1 (7.1)	5 (33.3)	
Have a child			0.450
No	4 (28.6)	7 (46.7)	
Yes	10 (71.4)	8 (53.3)	
Night shift			0.700
No	4 (28.6)	6 (40.0)	
Yes	10 (71.4)	9 (60.0)	
Income status			0.710
Moderate	8 (57.1)	10 (66.7)	
High	6 (42.9)	5 (33.3)	
Comorbidity			0.215
No	9 (64.3)	13 (86.7)	
Yes	5 (35.7)	2 (13.3)	
Feeling strained			1.000
No	5 (35.7)	5 (33.3)	
Yes	9 (64.3)	10 (66.7)	
Exposure to violence			0.715
No	7 (50.0)	9 (60.0)	
Yes	7 (50.0)	6 (40.0)	
Job satisfaction			0.598
No	2 (14.3)	1 (6.7)	
Yes	12 (85.7)	14 (93.3)	

IQR, interquartile range. Results for all parameters except age are given as n (%).

OFER-chronic fatigue subscale median (IQR) scores for Group A and Group B were 43.0 (33.00-58.50) and 63.0 (50.0-83.0), respectively (p=0.032). OFER-inter-shift fatigue subscale median (IQR) scores for Group A and Group B were 50.0 (37.00-57.75) and 37.0 (20.00-43.00), respectively (p=0.005). OFER-acute fatigue, ProQOL-compassion satisfaction, ProQOL-compassion fatigue, BDI scores were similar in both groups (Table 2).

**Table 2.** Comparison of Group A and Group B in terms of study scale scores

Parameter	Group A (n=14)	Group B (n=15)	p-value
OFER-chronic fatigue	43.0 (33.00-58.50)	63.0 (50.00-83.00)	0.032
OFER-acute fatigue	73.0 (61.50-77.75)	80.0 (63.00-83.00)	0.323
OFER-inter-shift fatigue	50.0 (37.00-57.75)	37.0 (20.00-43.00)	0.005
ProQOL-compassion satisfaction	36.5 (27.75-43.25)	30.0 (24.00-32.00)	0.110
ProQOL-compassion fatigue	16.0 (11.50-21.75)	20.0 (12.00-34.00)	0.382
BDI	10.0 (4.00-17.00)	15.0 (4.00-27.00)	0.405

OFER, occupational fatigue exhaustion/recovery scale; ProQOL, professional quality of life; BDI, Beck depression inventory

In binary logistic regression analysis, which included parameters with a statistically significant difference in univariate analysis between Group A and Group B, the odds ratios of OFER-chronic fatigue and OFER-inter-shift fatigue were 1.027 (95% CI 0.980-1.077, p=0.263) and 0.904 (95% CI 0.828-0.988, p=0.025), respectively (Table 3).

**Table 3.** Binary logistic regression analysis of parameters that could affect burnout levels

Parameter	OR	95% CI		p-value
		Lower	Upper	
OFER-chronic fatigue	1.027	0.980	1.077	0.263
OFER-inter-shift fatigue	0.904	0.828	0.988	0.025

OFER, occupational fatigue exhaustion/recovery scale; OR, odds ratio

## DISCUSSION

In the current study we conducted with oncology nurses whose burnout level is expected to be high, we found that inter-shift fatigue (recovery) is the only independent predictive factor that affects burnout. To the best of our knowledge, there is no study in the literature investigating the relationship between inter-shift fatigue (recovery) and burnout in oncology nurses. Our study is valuable because it is the first study to draw attention to this issue.

Gluschkoff et al. (29) in a cross-sectional study of Finnish primary school teachers, showed that both job stress and inadequate recovery have contributed to the development of burnout. However, the role of recovery as an intermediary

mechanism linking work stress to burnout has not been adequately addressed in this trial (29). In a cross-sectional survey with 573 cancer workers, where oncology nurses represent the most prominent professional group (n=211), the two recovery experiences of psychological detachment and relaxation had a strong negative association to burnout and psychological well-being (30). In another study examining the mediating effect of recovery experience on burnout and quality of life in female nurses in China, as a mediating factor, recovery experience has been shown to alleviate the impact of job burnout on quality of life (31). In a multicentre study by Fauzi et al. (32) where they included Malaysian public hospital doctors, acute and chronic fatigue were correlated, and both were negatively correlated with inter-shift recovery. Rumination on being scolded/violated was found to be negatively associated with recovery in this study (32). Work-related ruminations during the non-work time were typical and associated with poor fatigue and recovery outcomes (32). Nurses working in 12-hour shifts have experienced moderate to high levels of acute fatigue, moderate chronic fatigue and recovery between shifts, and an unhealthy fatigue recovery period (21). Consistent with previous studies, in another study, high levels of professional fatigue among nurses and poor recovery between shifts were associated with lack of care (33). Our findings and literature data suggest that the most determining factor for burnout in oncology nurses may be inter-shift fatigue (recovery).

There is insufficient literature data on evaluating the relationship between chronic fatigue and burnout in nurses. Rahman et al. (34) showed a statistically significant relationship between chronic fatigue and burnout in the simple linear regression model in their study with 201 emergency and intensive care nurses. However, the statistical significance of this relationship did not continue in the multiple linear regression model analysis (34). Similarly, in our study, although chronic fatigue is not an independent predictive factor for burnout, chronic fatigue was significantly higher in the group with high burnout than those with low burnout. Based on this finding, we think that chronic fatigue level may be a determining factor for burnout.

Previous research has found strong links between burnout and depression (35,36). In a study by Duan-Porter et al. (37) there was a positive relationship between mental disorder symptoms and burnout among nurses, and burnout was significantly associated with higher levels of anxiety, stress, and depression. Similarly, in a study designed to predict burnout levels among Canadian nurses (n=3257; 94.3% women), participants with clinically significant burnout were more likely to screen positive for all mental disorders, particularly major depressive disorder with a 43 fold risk, than participants

without burnout (38). A quantitative, descriptive, cross-sectional study involving 91 intensive care nurses, 10.98% of the nurses had depression symptoms and 14.29% burnout, showed that there is a positive correlation between the burnout dimension score and the BDI score (39). In our study, median BDI score was numerically higher in the group with a high burnout score than the group with a low burnout score. However, this difference was not statistically significant, possibly due to the low number of participants in the current study. Significant literature data support showing the relationship between depression and burnout made us think that the numerical difference in the BDI score in our study is remarkable.

The main limitation of our study is that it was conducted in a single center and with a limited number of participants. Studies with larger numbers of participants and multi-center studies can both increase the statistical power and reveal whether there is a difference between the centers in terms of burnout of oncology nurses.

## CONCLUSION

Our study revealed that the most crucial factor related to the occupational burnout of nurses might be inter-shift fatigue (recovery). Chronic fatigue may also have an effect on occupational burnout. It should also be kept in mind that occupational burnout can lead to psychiatric illnesses such as depression. Understanding the relationship between burnout and inter-shift fatigue (recovery) may allow interventions to be made to prevent the work environment from being a trigger for burnout. Adding regulations on recovery to improvement programs regarding working conditions in nurses may prevent the path to burnout. New studies, such as comparative intervention studies (i.e., group therapies, occupational therapies) aimed at inter-shift fatigue (recovery), with a larger number of participants, are needed.

## ETHICAL DECLARATIONS

**Ethics Committee Approval:** The study was conducted after the approval of the Ankara Onkoloji Training and Research Hospital Clinical Researchs Ethics Committee (Date: 21.04.2021, Decision No: 2021-04/1128).

**Informed Consent:** All patients signed the free and informed consent form.

**Referee Evaluation Process:** Externally peer-reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

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**Author Contributions:** All of the authors declare that they have all participated in the design, execution, and analysis of the paper and approved the final version.

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