

Yoğun Bakım ve Palyatif Bakım Veren Hemşirelerde Merhamet Yorgunluğunun Belirlenmesi: Bir Ölçek Geliştirme Çalışması

Determination of Compassion Fatigue in Intensive Care and Palliative Care Nurses: A Scale Development Study

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ÖZ

Giriş: Bu araştırma, onkoloji, yoğun bakım ve palyatif bakım veren hemşirelerde merhamet yorgunluğunu belirlemek için bir ölçüm aracı geliştirmek, geliştirilen ölçüm aracının geçerlik ve güvenirlik çalışmasını yapmak amacıyla planlandı.

Yöntem: Karma desen kullanılarak metodolojik tipte gerçekleştirilen bu araştırma, iki eğitim araştırma ve bir devlet hastanesinin onkoloji, yoğun bakım, palyatif bakım Karma desen kullanılarak metodolojik tipte gerçekleştirilen bu araştırma, iki eğitim araştırma ve bir devlet hastanesinin onkoloji, yoğun bakım, palyatif bakım veren servislerinde çalışan 313 hemşire ile gerçekleştirildi. Ölçeğin madde havuzu 81 maddeden oluşturularak uzmanın görüşüne sunuldu. Kapsam geçerliği sonucunda aday ölçek 45 maddeden oluşturuldu. Verilerin nitel yöntemde; içerik analizi, nicel yöntemde; normallik testleri, açımlayıcı faktör analizi, maksimum likelihood, varimax rotasyonu, Pearson Korelasyon testi uygulandı. Güvenirlik için Cronbach alfa iç tutarlılık katsayısı kullanıldı.

Bulgular: Katılımcıların %66'sının 26-31 yaş aralığında, %61'inin kadın, %94'ünün lisans mezunu olduğu belirlendi. Açıklayıcı faktör analizi sonucunda ölçekte toplam 27 madde ile fiziksel etki, çalışma koşulları, bakım, psikolojik etki, sosyal-manevi etki olarak 5 faktörlü yapı belirlendi. Ölçeğin kapsam geçerlik indeksi 0,79, toplam varyansı %41,498, madde-toplam test korelasyon değerleri 0,330 ile 0,673 olduğu tespit edildi. Cronbach alfa güvenirlik katsayısının ölçek genelinde 0,782, alt boyutlarda 0,613-0,827 arasında değiştiği, omega katsayısı 0,781 ve CR'in 0,830 olduğu hesaplandı.

Sonuç: Yapılan analizler sonucu Yoğun Bakım ve Palyatif Bakım Veren Hemşirelerde Merhamet Yorgunluğu Ölçeğinin onkoloji, yoğun bakım, palyatif bakım veren hemşirelerin merhamet yorgunluğu düzeylerinin belirlenmesinde kullanılmak üzere geçerli ve güvenilir bir ölçüm aracı olduğu saptandı.

Anahtar Kelimeler: hemşire, merhamet yorgunluğu, ölçek geliştirme

ABSTRACT

Objective: This research was planned to develop a measurement tool to determine compassion fatigue in nurses to provide intensive care, oncology and palliative care and to conduct a validity and reliability study of the developed measurement tool.

Method: The study was conducted using a mixed-method design, with 313 nurses working in oncology, intensive care, and palliative care departments at two training hospitals and one state hospital. The item pool for the scale consisted of 81 items, which were reviewed by experts. After the content validity process, the candidate scale was reduced to 45 items. Data were analyzed using qualitative methods (content analysis) and quantitative methods, including normality tests, exploratory factor analysis, maximum likelihood, varimax rotation, Pearson correlation test, and Cronbach's alpha internal consistency coefficient.

Results: It was found that 66% of the participants were aged between 26 and 31, 61% were female, and 94% had a bachelor's degree. The exploratory factor analysis revealed a 5-factor structure with 27 items: physical impact, working conditions, care, psychological impact, and social-spiritual impact. The scale's content validity index was 0.79, the total variance explained was 41.498%, and item-total correlation values ranged from 0.330 to 0.673. The Cronbach's alpha reliability coefficient for the scale was 0.782, omega was 0.781, and CR (composite reliability) was 0.830.

Conclusion: The analysis found that the "Compassion Fatigue Scale Intensive Care and Palliative Care Nurses is a valid and reliable measurement tool to determine the compassion fatigue levels of intensive care, oncology and palliative care nurses.

Keywords: nurse, compassion fatigue, development scale

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INTRODUCTION

Compassion is the moral and spiritual empowerment inherent in nursing and is considered the most valuable asset of a nurse's identity (1). Although compassionate care is the cornerstone of the nursing profession and quality health care, they may experience compassion fatigue, which is the negative aspect of care resulting from frequent exposure to patients who suffer during the care relationship, stressful work environments, and self-sacrifice (2,3,4). Compassion fatigue is the deterioration process in nursing care and care-related functions (5).

It is stated in the literature that compassion fatigue is more common in nurses providing end-of-life care due to frequent encounters with death, caring for patients who are under life threat, constantly changing and complex health problems, conflicts within the team, time pressure, intense workload, lack of staff, excessive stressors caused by both individual and professional working conditions, such as extreme emotional expectations of patient families (6,7). Developing compassion fatigue causes physical, psychological, social, spiritual, and intellectual symptoms, as well as occupational and organizational consequences. In this process, a decrease in patient satisfaction and productivity, medical error, burnout, job dissatisfaction, and an increase in worker circulation rate occur with the quality of patient care (7,8). While compassion fatigue observed in nurses manifests itself with a decrease in the ability to provide care in the initial periods, it will cause a permanent loss of the ability to provide compassionate care in the subsequent periods (9). Therefore, determining compassion fatigue early and implementing coping strategies is essential to avoid negative consequences (5).

Compassion fatigue is challenging to measure because the concept cannot be fully defined, and its relationship with occupational stress has not been revealed (6). It is stated that the Professional Quality of Life Scale (ProQOL) is used in the vast majority of studies aimed at determining compassion fatigue (10). To evaluate compassion fatigue in nurses, usually, the Compassion Fatigue-Short Scale of Adams (2006) and the Secondary Traumatic Stress Scale of Bride et al. (2004), and the Professional Quality of Life Scale (ProQOL) of Stamm is used. Ledoux(11) notes that either the ProQOL or the Compassion Fatigue Personal Test is used to measure the compassion fatigue experienced by nurses, mentioning that both scales are derived from Figly's study. Even if these scales are used in nursing studies, it is stated that they are based on the experiences of therapists and counselors who work with clients traumatized by physical or psychological attacks, violent crimes, natural disasters, war, and similar reasons (11). In addition, when the scales are examined, evaluations are thought to be mainly made for the concept of burnout and Secondary Traumatic Stress (STS), so certain aspects of compassion fatigue are revealed (4,10,11). However, the care nurses give to the patient and their relationships with the patient differs from other caregivers and are unique to nursing. Compassion fatigue develops as a result of nurses' caring behaviors and may cause negative consequences for patients, nurses and the institution by affecting nurses' caring behaviors. Despite this, it was determined that there is no valid and reliable measurement tool that can measure compassion fatigue specific to nurses (11). It is thought that the development of standard measurement tools specific to nurses can be used to evaluate the impact of this concept on nurses to determine which areas are experiencing problems, especially in

end-of-life care clinics where compassion fatigue is known to be experienced more, will meet a critical need.

This research was planned to develop a measurement tool to determine compassion fatigue (MERY) in nurses providing intensive care, oncology and palliative care to conduct a validity and reliability study of the developed measurement tool.

MATERIALS AND METHODS

This study used the exploratory mixed pattern, which is thought to provide an advantage in scale development studies (12). Firstly, a qualitative research method was used to determine nurses' perceptions, understanding, emotions, information, and perspectives on events and experiences related to compassion fatigue. After the qualitative study using the phenomenological approach, the results were reported, combined with the literature, and a pool of items was created. Secondly, the quantitative research method of participation of 313 nurses was used by using a process that converts qualitative studies into quantitative studies (Figure 1).

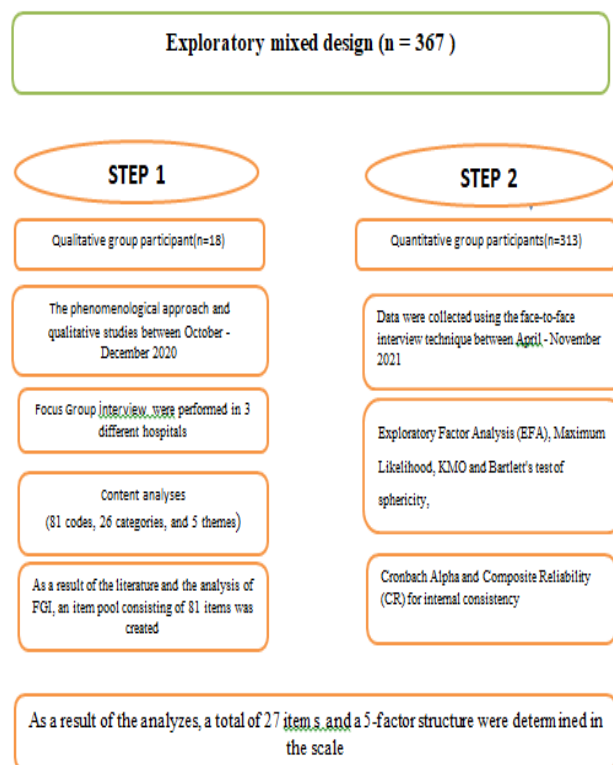


Figure 1. Flow diagram search strategy

1.Universe and Sample of the Research

The research was conducted with 367 intensive care, palliative care, and oncology nurses at three public hospitals between April 2020 and November 2022. The entire universe was accepted as a sample by not going to sample selection in the study. Nurses who have been working in the relevant services for at least six months and agreed to participate were included in the study. A focus group interview (FGI) was conducted in the qualitative part of the study. Using the analogous sampling method in FGI,

the group members' working conditions in clinics oncology, palliative care and intensive care, their ability to express themselves well, and their willingness to participate in the study were considered. In scale studies, it is important that the appropriate sample group and number represent the universe. Nunually (1978) stated that a sample of 300 people was sufficient for scale studies(13). In this study, since a sufficient number of samples could not be obtained in a single center, 3 different hospitals constituted the universe of the study (14).The study was conducted with nurses with experience working in end-of-life care services and agreed to participate. FGIs were performed in 3 different hospitals with 18 nurses working in intensive care, palliative care, and oncology services by identifying six people for each group.

The quantitative data collection in the study questionnaires was distributed to 367 nurses working in three hospitals' oncology, palliative, and intensive care units. 316 questionnaires that were filled in and returned were included in the study. But three were not included because of incomplete data and 313 questionnaires were accepted to the study.

2.Data Collection Tools

The "Nurse Introduction Form," the "Semi-Structured Interview Form" for focus group interviews, the Compassion Fatigue-Short Scale (9), and the MERY scale consisting of 45 items were used in the collection of research data.

Nurse Introduction Form

In this form created by the researchers, there are 23 questions containing demographic and professional information for nurses, such as age, gender, marital status, educational status, the unit where they work, working period, weekly working hours, and the number of patients they care.

Semi-Structured Focus Group Interview Questions

When creating a semi-structured interview form for focus group interviews (FGI), the literature (8,15) and expert opinions were consulted. Questions were determined at FGI as follows:

1-What does the concept of compassion mean to you? What would you say if you brought compassion and patient care together?

2-Can you tell us about what you experienced while caring for your patients? How does it make you feel to see that the pain and suffering of your patients are alleviated and relieved as a result of the care you provide?

3-How does it affect you that the patients you care for do not recover despite your long-term efforts and witness their deaths?

4-If you consider the working conditions of nurses and their relationships with other healthcare teams, what factors may trigger compassion fatigue in nurses?

5-What are the effects of compassion fatigue on nurses, according to you?

The comprehensibility, effectiveness, and clarity of the interview questions were tested with the pilot study.

Compassion Fatigue-Short Scale (CF-SS)

This scale, developed by Adams et al. (2006) and for which Turkish validity and reliability studies were conducted by Dinç and Ekinci(9),

consists of 24 items and is accepted as a self-report evaluation tool. The scale, which ranges from one to ten and rarely/never to very often, is rated with a decimal Likert type and consists of two sub-factors: occupational burnout and secondary trauma. The items named "a, b, d, f, g, i, k, m" in the scale indicate occupational burnout. The items named "c, e, h, j, l" indicate the items measuring secondary trauma. After this measurement, the average of the total score is calculated. As the total score obtained from the scale increases, the level of compassion also increases. The Cronbach Alpha value of the scale was found to be 0.87 (9). In this study, the Cronbach Alpha value was calculated as 0.899.

MERY Scale

A candidate scale form consisting of 45 items and 5 dimensions (Care, Nature of Work, Physical Impact, Psychological Impact, and Social-Spiritual Impact) developed by the researchers was used.

3.Methods of Data Collection

In the study where the phenomenological approach, one of the qualitative research methods, was used, FGI, often preferred in academic studies as a data collection method, was chosen. While planning the FGI, a seven-stage process was used for the research, such as determining interview questions, inviting participants to identify, designing the technology and location to be used, conducting a pilot trial of the process, implementing a focus group study, and finally analyzing, organizing and presenting the data in the form of a report. Data were collected by the researcher, experienced in clinical and qualitative studies between October - December 2020. The "data saturation" principle has been adopted to terminate FGI. It was conducted on the appropriate day and time for the interviews and by providing a convenient physical environment. In the interviews, codes were given to both sessions and participants, and the codes given instead of names were used (example: 1. O./1.Nurse).

At FGI, participants were informed about the purpose of the study and informed that the data would be kept confidential, a voice recorder would be used during the interview, and the voices would be recorded; they can turn off the device at any time, leave the interview if they wish, or the session can be continued in writing. Five sessions lasting 40-50 minutes were conducted by obtaining the consent of the participants who agreed to participate in the study.

The quantitative data were collected using the face-to-face interview technique between April - November 2021. Pandemic conditions were complied with during the survey work.

4.Analysis of the Data

In the qualitative part of the study, content analysis was performed using the induction method to reach categories, codes, and themes. The content analysis process includes reporting interviews, obtaining and organizing codes, categories, and themes from the data, defining, interpreting the findings, and reporting the results (16). For this purpose, the interview recordings were made into a report and evaluated by the researchers. In the content analysis made from qualitative research, concepts that can explain compassion fatigue and categories, codes, and themes were created for the relationships between concepts. For the reliability of the data, the codes were evaluated independently by a faculty member who used a qualitative research method in his studies and was an

expert in this field. By comparing the generated codes, the agreed and non-agreed codes were determined. A compromise was achieved for different codes, and code reliability was ensured. According to the data obtained, 81 codes, 26 categories, and 5 themes were determined. Finally, a table was created containing the specified categories and themes (Table 1). The quantitative part of the research was analyzed using a computer program (SPSS 25.0). All statistical significance levels were accepted as 0.05. Normality tests, capacity validity index, structure validity analyses, and criterion-related validity analyses were performed. Exploratory Factor Analysis (EFA), Maximum Likelihood, and Varimax rotation methods were used to evaluate the analyses for structure validity. In order to test the compliance of the obtained data with the EFA, KMO and Bartlett's test of sphericity was performed. In the reliability analyzes of the scale, Cronbach Alpha and Composite Reliability (CR) for internal consistency, Pearson correlation coefficient for item analyses, 27% group mean t-test to determine the discriminative power of each item, and Pearson's product-moment correlation coefficient was used for time invariance.

Table 1. Themes and Categories Related to the Concept of Compassion Fatigue	
Themes	Categories
Care	Empathic Relationship
	Long-term, continuous, and intense exposure
	Expand a high level of energy
	Cumulative progress
	Overuse of Yourself/ Do more than your best
	Mechanization/ Desensitization
	Become a routine of care (/Routine/ Mechanization)
	To be Witness
Nature of The Work	Factors Related to the Profession
	Factors Related to Teamwork
	Factors Related to Health Care Policies
	Factors Related to Management
	Factors Related to the Patient and His Relatives
Physical Impact	Nutritional disorder
	Pain
	Tiredness
	Digestive System Problems
	Disruption of sleep patterns
	Using stimulants
Psychological Impact	Recurrence of trauma
	Avoiding from Reminders
	Arousal
	Burnout Mental impact
Social-Spiritual Impact	Social Impact Spirituality

RESULTS

This section includes the validity and reliability analysis results of the measurement tool developed to determine compassion fatigue in intensive care and palliative care nurses within the research scope.

1. Findings Related to the Qualitative Method

In the qualitative research part of the study, it was determined that 66% (12) of the nurses participating in FGI were between the ages of 26-31, 61% (11) were female, 94% (17) were undergraduate graduates, 61% (11) were single, 66% (12) did not have a health problem, and 83% (11) health problems did not affect their life. It was determined that 83% of the nurses participating in the study worked for 1-8 years, 77 of them had 3-5 years of intensive care and palliative care experience, 44% of them worked voluntarily in intensive care and palliative care units, 94% of them satisfied with the situation and 56% thought that their working conditions were as they should be. In addition, it was determined that 33% of nurses work between 48-55 hours per week and provide care to an average of 2 patients.

The data obtained from FGI were reported in a computer environment, and content analysis was performed to reach the codes, categories, and themes related to compassion fatigue. According to the data, 5 themes and 26 categories were determined as care, the nature of work, physical impact, psychological impact, and social-spiritual impact (Table 1).

Theme 1.Care:

24 Codes were generated from the participants' statements about the concept of care, and 8 categories were created (Table 1).

"It contains a sense of conscience and pity; compassion evokes these. They are in much pain; they are constantly moaning, screaming; I think they are in much pain; that is how I see it. I had a normal birth; I know that her pain is also too much, but this pain is different; you know that the labor pain will end, but what kind of pain is oncological pain? I can't describe this pain. It's a very high-level pain. You know your pain, but you also know that it won't get better; maybe it affects them more. The pain they feel physically is different from the one they feel psychologically is different, they are aware that they will die, they will not recover, and they experience the fear of death more." (1.O/3.Nurse)

Theme 2. Nature of The Work

25 Codes and 5 categories were created from the expressions related to the concept of the nature of work.

"For the first 8 hours, I go to the patient every time he calls, but after a while, when the patient calls 5 times, I go because I get tired of work. I want a cup of tea; sometimes, I come out of Intensive Care saying that's enough." (2.O/1. Nurse)

"Our profession is different from other professions; for example, the more a civil engineer works, the more beautifully he can build a building, but our job is not like that, no matter how many patients we take care of; after all, there is such a thing as fate, we can't prevent it. If he's going to die, he's going to die; we can't change this ending no matter what we do"(2.O/1.Nurse)

Theme 3. Physical Impact

13 Code 5 categories were created from the statements of the study participants regarding the concept of physical impact.

"We are physically tired. As soon as we got off duty, we took a shower and went to bed; we used to be able to stay up a little when we got off duty. Now this is not possible at all. Our sleeping hours are decreasing, and we sleep like a fox's sleep."(3.O/5.Nurse)

"We sometimes have headaches and joint pains after shifts, and we attribute this to shift fatigue. We have to be constantly on the alert; we should not miss when something happens to the patient."(2.O/5.Nurse)

"Physically, loss of appetite, fatigue, depressed, sometimes our face falls, eyebrows frown, people at home ask what happened, did something happen, but it affects our children and our friendship relationships."(3.O/1.Nurse)

"Physically, the belly is coming out; I was in good shape when I started my profession. Shifts and overwork increase weight gain. We eat at irregular hours. Not sleeping, constantly taking caffeine, drinking tea, increases cigarette use."(2.O/6. Nurse)

Theme 4. Psychological Impact

28 codes and 5 categories were created from the participants' statements about the concept of psychological impact.

"Patients come to our mind sometimes. Sometimes we compare some patients to our deceased patients. We're talking about the similarities of the patient. Our memories come to mind, and we are going through the same things again. At first, the deaths affected me a lot. I was waking up from my sleep; the patient was entering my dream. I was afraid. Then it became a habit for me."(3.O/2.Nurse)

"And when I come home, I also stay alone. Constantly the sound of alarms, the sound of cpap-bibaps, comes to my ear. I feel like I can hear the sound of the devices we call Pump. I can't even rest in my sleep."(3.O/6.Nurse)

"The moaning and screaming of patients make me very unhappy; I feel helpless. I go home, I think about it at home, and sometimes when I go to sleep and wake up, I feel like I'm hearing that voice. I even see it in my sleep."(3.O/3.Nurse)

Theme 5. Social Impact

16 Codes and 2 categories were created from the participants' statements about social-spiritual impact.

"I feel strong, spiritually. The more I see my older friends in intensive care, the stronger I feel with their energy. I started praying. I didn't think about working in other services. Intensive care is an environment where I came willingly, constantly improving myself, and I don't want to leave here." (3.O/6.Nurse)

"We have friends who distanced themselves from God spiritually and rebelled against him, as well as those who got closer to God, prayed more, and accepted this situation. Some say let's start praying. However, some of our friends drank alcohol and came to the morning shift drunk."(2.O/6.Nurse)

As a result of the literature and the analysis of FGI, an item pool consisting of 81 items was created. The factors causing CF were considered the nature of care and work, and the symptoms of compassion fatigue were considered physical, psychological, and social-spiritual impacts. 23 Items on the scale were designed as reverse items (1,12,13,14,17,18,19,28,29,31,35,43,44,57,60,63,64,69,71,74,77,78, 81).

2. Findings Related to the Quantitative Method

It was determined that 45% of the participants were in the age range of 26-31, 72.8% were female, 27.2% were male, 73.5% had a bachelor's degree, and 56.5% were married. It was found that 58.8% of the participants had 1-7 years of work experience, 39% had worked in IC/Palliative/Oncology services between 6 months and 3 years, 65.2% willingly worked in IC/Palliative/Oncology services, and 87.5% were satisfied with working in these services. It was determined that 40.3% of the participants worked 40-48 hours a week, and 58.8% provided care to an average of 3-4 patients (Table 2).

Graphical and test methods were used to investigate the suitability of the data for normal distribution (15). It was determined that the data were in accordance with the normal distribution.

Validity Studies:

The "Expert Evaluation Form," developed in accordance with the Lawshe Technique, was used to determine the content validity ratio (CVR) of the MERY Scale. 30 experts working on compassion fatigue, end-of-life care, and scale development were reached by e-mail. Eight items determined to be less than $CVR=0.42$ (9,14,15,22,25,30,63) were removed from the item pool by performing a scope validity analysis with the opinions of 20 experts returned to the e-mail (Alpar, 2018). The scale's scope validity index (SVI) was calculated as 0.79. When $SVI \geq CVR$ or $SVI / CVR \geq 0$ ($0.79 \geq 0.42$) was provided, the validity of the scope of the study was found to be statistically significant at the significance level of $p < 0.05$, ensuring the validity of the scope of the study. As a result of the validity of the scope, the scale items consisting of 81 expressions were rearranged, and a scale consisting of 45 items and 5 dimensions was determined.

As a result of the pilot study conducted with 30 participants for the validity of the MERY Scale, the Cronbach Alpha value of the applied candidate scale form was calculated as 0.845. After this stage, each item in the scale was arranged in a 5-point Likert type as "I Strongly Disagree," "I Disagree," "I am Undecided," "I Agree," and "I Completely Agree." Then, the candidate scale was given its final form.

Kaiser-Meyer-Olkin (KMO) test was applied to test whether the data were suitable for factor analysis. As a result of the analysis of the candidate MERY Scale, the KMO value was 0.769, and Bartlett's Test of Sphericity was determined as $\chi^2(351) = 2771,598$ at the $p < 0.05$ significance level. When the analysis results were evaluated, it was seen that the chi-square value was at an acceptable level, and the p-value was significant. It was determined that the KMO value (0.769) was in accordance with the EFA.

In order to determine the factor structure of the scale that corresponds to the normal distribution, maximum likelihood analysis and the Varimax rotation method were used among the factorization methods. For the factor structure in the scale, forced to five factors based on conformity to the

dimensions created by the researcher with the help of qualitative method and literature, items of the dimensions, overlapping, and having a factor load of less than 0.30 were excluded from the analysis. Items were removed one by one, especially the overlapping items. After the items were removed, the factor pattern in Table 3 was obtained. No items were removed in the physical impact and working conditions sub-dimension, 27,29,30,31,32,33,34th items were removed from the psychological impact dimension, 1,2,6,8,10,12,13,14th items were removed from the care dimension, and 39,43, 44th items were removed in the social-spiritual impact dimension. The contribution of the factors to the total variance was calculated as 12.643%, 9.143%, 588%, and 5.902%, subsequently. The explained variance value was determined to be 41.423%. No inverse item was detected in the scale (Table 3).

3. Criterion-Dependent Validity (Concurrent Scale Validity): In this study, CF-SC(Compassion Fatigue Short Scale), which was developed by Adams et al. (2006) and used as a data collection tool in many studies on compassion fatigue, was used for concurrent scale validity. Another reason for using CF-SC is that its adaptation to Turkish was carried out by Dinç and Ekinci(9) with nurses. In this study, the Cronbach Alpha values of CF-SC were determined as 0.899 on the scale. A statistically moderately significant positive correlation was determined between the mean MERY Scale total scores and the mean CF-SC scores ($r=0.484$; $p<0.01$) (16).

It was determined that the independent group t-test and item-total correlation values, which indicate the discriminating potential of all items in the MERY scale, varied between 0.330 and 0.673 and that all items were related. In order to determine the discriminating power of the items in the candidate scale, the scores obtained from the candidate scale were ordered from the smallest to the biggest, and the mean scores of the items in the upper 27% and lower 27% groups were compared with the independent group t-test. As a result of the comparison, it was found that there was a significant difference between the upper and lower group item score averages based on the $p<0.05$ level. Based on this, it was determined that the candidate MERY Scale items were discriminative in measuring the quality of the desired subject (Table 4).

While Cronbach's alpha coefficient for the overall scale and sub-dimensions was between 0.613 and 0.827, the composite reliability coefficient (CR) was between 0.660 and 0.830. The internal consistency of the scale used for this study was quite reliable.

Two weeks after the first test was applied to the MERY Scale, the second test application was performed. Pearson's product-moment correlation coefficient was used to analyze the time invariance criterion (Table 5).

The test of whether the scale showed stability in the intervening time was examined by retesting. When the results were examined, it was determined that there was a statistically significant relationship between the first and second measurements of the scale, and there was no statistically significant difference between the mean scores of the first and second measurements. According to these results, it can be said that the scale is stable ($p<0.05$).

Table 2. Findings Related to Socio-Demographic Characteristics of Nurses (N=313)

Socio-demographic Characteristics		n	%
Age	20-25	81	25.9
	26-31	141	45.0
	32-37	45	14.4
	38-43	21	6.7
	44-49	25	8.0
Gender	Female	228	72.8
	Male	85	27.2
Education Status	Health Vocational High School	40	12.8
	Licence	230	73.5
	Master Degree	41	13.1
	Ph.D	2	0.6
Marital Status	Married	177	56.5
	Single	136	43.5
Work Experience	1-7	184	58.8
	8-14	74	23.6
	15-21	28	8.9
	22-28	22	7.0
	29 +	5	1.6
How many years have you been providing palliative and intensive care?	6 month-3 years	122	39.0
	4-6	104	33.2
	7-9	46	14.7
	10 years+	41	13.1
Satisfaction of working with palliative and intensive care patients	Yes	274	87.5
	No	39	12.5
Weekly working hours	40-48	126	40.3
	49-56	72	23.0
	57-64	58	18.5
	65 +	57	18.2
Average number of patients cared for	1-2	88	28.1
	3-4	184	58.8
	5-6	18	5.8
	7-8	14	4.5
	9 +	9	2.9

DISCUSSION

This research was planned to develop a valid and reliable measurement tool that determines compassion fatigue specific to intensive care, palliative care, and oncology nurses. This section discusses the findings related to the validity and reliability analyses of the MERY scale, whose structure is determined with 27 items and 5 factors.

In the qualitative part of the study, the factors affecting the formation

of compassion fatigue in nurses were determined, and the consequences of compassion fatigue, including its effects on the quality of life of nurses, were evaluated. The effects of compassion fatigue on the quality of life of

nurses were evaluated under the name of physical, psychological, and social-spiritual impacts caused by the care and working conditions caused by compassion fatigue.

Table 3. Findings Related to the Explanatory Factor Analysis of the MERY Scale					
Expressions	Factors				
	Physical Impact	Working Conditions	Care	Psychological Impact	Social Spiritual Influence
Thenegativities I experiencedduringthepatientcareprocessincreasedmydigestivesystemcomplaints.	0.811				
Thenegativities I haveexperiencedduringthepatientcareprocessmake me losemysleep(Negativepatientexperiences.devicealarms.etc.)	0.692				
I feltiredallthe time duetotheintensity of myworkingconditions.	0.666				
Thefatigue I experiencedduringthepatientcareprocessnegativelyaffectsmy self-care.	0.642				
Duetothe stress. I experiencedduringthepatientcareprocess. I increasemyuse of caffeinatedbeverages/stimulantsubstances tofeelbetter.	0.547				
Duetothe fatigue. I experiencedduringthepatientcareprocess. I oftentake time offandtrytostayawayfromwork.	0.542				
Duetothe fatigue I experiencedduringthepatientcareprocess. I oftenexperiencepainproblems. (headaches.musclepain.etc.)	0.489				
Working in harmony as a teampositivelyaffectsthepatientcare I provide.		0.830			
Sharingmypatientcareproblemswithmyteammatesmotivates me.		0.727			
Duringthecareprocess,therelatives of thepatients' negativeandviolentapproaches.makes me unhappy.		0.590			
Appreciation of myworkbythemanagementincreasesmyworkmotivation		0.531			
Inthepatientcareprocess. I feellike I'm at a deadendbecause of thehedownhssystem.		0.471			
Keeping on guardallthe time negativelyaffectsmypatientcareprocess.		0.447			
Knowingthatnomatterwhat I do.mypatientwilldiere ducesmydesiretocare.			0.669		
I feelthatmymotivationtocareforpatients has decreasedcomparedtopreviousyears.			0.633		
I workwithoutempathizingwithpatientsbecause it upsets me toempathizewithpatientsduringcare.			0.614		
I prefer not tocommunicateverballyornon-verballywithpatientsduringcare. as thesuffering of patientsmakes me sad.			0.548		
Tryingtokeepmyemotionsundercontrolduringcaremakes me tired.			0.505		
I feellike a failurewhenthepatients I carefordon'tgetbetter.			0.474		
I feel exhaustedbecause of thework I do.				0.728	
I feelmentallywornoutfromworkingwithpatientsreceivingend-of-life care.				0.587	
Witnessingthedeath.pain.orsuffering of patientsdepersonalizes me.				0.511	
Traumatic events for other people.such as death. seem commonplace to me because I encounter them frequently.				0.500	
I takeuphobbiestocopewiththestresscausedbymyjob.					0.758
I tryto do moresocialactivitiestogetrid of workstress.					0.511
My experienceswithmypatientsstrengthenmyspiritualfeelings.					0.463
Witnessingthehardshipspatientshavetodealwithallows me to be tolerant in myinteractionwithpeople.					0.394
Alpha	0.827	0.750	0.754	0.700	0.613
Omega	0.832	0.774	0.757	0.703	0.620
Explained Variance	12.64	9.143	8.588	5.920	5.129
Eigenvalue (Λ)	4.798	3.346	2.210	1.989	1.989
KMO= 0.769; $\chi^2(351) = 2771.598$; Bartlett's test of sphericity (p) = 0.000 Cronbach's Alpha=0.782. Omega=0.781 CR=0.830					

Table 4. Findings Related to Item Analysis of the MERY Scale

		Group	Ort±SS	r	tvalue	pvalue
Physical Impact	Due to the fatigue, I experienced during the patient care process. I often take time off and try to stay away from work.	Upper group	3.32±1.25	0.517	11.677	0.000 *
		Subgroup	1.52±0.68			
	I feel tired all the time due to the intensity of my working conditions	Upper group	4.59±0.54	0.608	12.877	0.000 *
		Subgroup	2.78±1.18			
	The fatigue I experienced during the patient care process negatively affects my self-care.	Upper group	4.36±0.7	0.601	14.929	0.000 *
		Subgroup	2.28±1.08			
	Then the negativities I experienced during the patient care process increased my digestive system complaints.	Upper group	4.28±0.7	0.703	22.179	0.000 *
		Subgroup	1.84±0.74			
	Then the negativities I have experienced during the patient care process make me lose my sleep (Negative patient experiences, device alarms, etc.)	Upper group	4.12±0.84	0.658	17.487	0.000 *
		Subgroup	1.86±0.85			
Working Conditions	Due to the stress, I experienced during the patient care process. I increase my use of caffeinated beverages/stimulants to feel better.	Upper group	3.96±1.06	0.520	13.088	0.000 *
		Subgroup	1.95±0.94			
	Due to the fatigue I experienced during the patient care process. I often experience pain problems. (headaches, muscle pain, etc.)	Upper group	4.41±0.54	0.411	10.825	0.000 *
		Subgroup	2.64±1.41			
	Working in harmony as a team positively affects the patient care I provide.	Upper group	4.87±0.34	0.673	10.583	0.000 *
		Subgroup	3.64±1.02			
	Sharing my patient care problems with my teammates motivates me.	Upper group	4.71±0.53	0.581	9.904	0.000 *
		Subgroup	3.54±0.95			
	Keeping on guard all the time negatively affects my patient care process.	Upper group	4.74±0.49	0.410	15.496	0.000 *
		Subgroup	2.84±1.02			
Care	In the patient care process, I feel like I'm at a dead end because of the headwinds system.	Upper group	4.59±0.56	0.445	10.487	0.000 *
		Subgroup	3.13±1.15			
	Appreciation of my work by the management increases my work motivation	Upper group	4.71±0.53	0.446	11.141	0.000 *
		Subgroup	3.22±1.11			
	During the care process, the relatives of the patients' negative and violent approaches make me unhappy	Upper group	4.62±0.51	0.459	8.440	0.000 *
		Subgroup	3.51±1.11			
	I feel that my motivation to care for patients has decreased compared to previous years.	Upper group	4.06±0.84	0.507	15.951	0.000 *
		Subgroup	1.81±0.99			
	Knowing that no matter what I do, my patient will die reduces my desire to care.	Upper group	3.39±1.13	0.581	14.656	0.000 *
		Subgroup	1.34±0.61			
Psychological Impact	I work without empathizing with patients because it upsets me to empathize with patients during care.	Upper group	3.18±1.03	0.497	13.473	0.000 *
		Subgroup	1.44±0.61			
	I prefer not to communicate verbally or non-verbally with patients during care, as the suffering of patients makes me sad.	Upper group	2.79±1.16	0.471	10.611	0.000 *
		Subgroup	1.33±0.52			
	I feel like a failure when the patients I care for don't get better.	Upper group	3.12±0.96	0.443	11.460	0.000 *
		Subgroup	1.6±0.76			
	Trying to keep my emotions under control during care makes me tired.	Upper group	3.81±0.88	0.475	13.690	0.000 *
		Subgroup	1.88±0.96			
	I feel exhausted because of the work I do.	Upper group	4.32±0.71	0.539	12.850	0.000 *
		Subgroup	2.48±1.11			
Social Spiritual Influence	Traumatic events for other people, such as death, seem commonplace to me because I encounter them frequently.	Upper group	4.28±0.59	0.410	14.411	0.000 *
		Subgroup	2.65±1.18			
	Witnessing the death, pain, or suffering of patients de-personalizes me.	Upper group	4.07±0.69	0.501	18.589	0.000 *
		Subgroup	1.91±0.83			
	I feel mentally worn out from working with patients receiving end-of-life care.	Upper group	4.21±0.73	0.489	14.672	0.000 *
		Subgroup	2.26±0.99			
	Witnessing the hardships patients have to deal with allows me to be tolerant in my interaction with people.	Upper group	4.09±0.63	0.367	9.921	0.000 *
		Subgroup	2.84±0.99			
	I take up hobbies to cope with the stress caused by my job.	Upper group	4.27±0.56	0.496	17.965	0.000 *
		Subgroup	2.25±0.87			
Social Spiritual Influence	My experiences with my patients strengthen my spiritual feelings.	Upper group	4.32±0.52	0.389	10.505	0.000 *
		Subgroup	2.98±1.06			
	I try to do more social activities to get rid of work stress.	Upper group	4.16±0.86	0.330	11.995	0.000 *
		Subgroup	2.54±0.91			

Mn = 313, n1 = n2 = 85; * Significant values for $p < 0.05$; t : Lower 27%**-Upper 27%** statistical value p : Lower 27%**-Upper 27%** probability value; r: Item Total Score Correlation

Table 5. Findings Related to Test-Retest Mean, Standard Deviation, T-test, and Correlation Analysis

	Order of Measurement	Mean±SD	t test /p	Correlation / p
Physical Impact	1	22.32±5.67	0.512 / 0.613	0.756 / 0.000**
	2	21.93±5.92		
Working Conditions	1	24.07±4.14	-1.343 / 0.190	0.849 / 0.000**
	2	24.64±4.05		
Care	1	14.29±4.97	0.441 / 0.663	0.733 / 0.000**
	2	14.0±4.24		
Psychological Impact	1	12.71±3.48	-2.012 / 0.054	0.499 / 0.007**
	2	14.04±3.46		
Social Spiritual Influence	1	14.04±1.99	0.583 / 0.565	0.521 / 0.004**
	2	13.79±2.54		
Compassion Fatigue	1	87.43±13.18	-618 / 0.542	0.805 / 0.000**
	2	88.39±13.25		
p<0.05*p<0.01**				

When qualitative studies related to compassion fatigue in the literature are examined, Gustafsson and Hemberg's (19) study examines the effects of compassion fatigue on nurses personally and professionally. In the study where compassion fatigue is considered into 5 categories, empathy, the professional/special effects of compassion fatigue on nurses, compassion fatigue as a crisis experienced, self-care, and self-focus are categorized as multifaceted factors arising from life itself. Berg (20) identifies four categories: positive aspects of work, stress triggers, stress symptoms, and coping with stress. It is seen in the literature that the concept of compassion fatigue is formed as a result of care and working conditions and impairs the personal and professional quality of life of nurses. This study considers the findings related to compassion fatigue holistically, and the effect of working conditions and the quality of work on compassion fatigue is evaluated. The literature results support this study.

Before the validity of the scope is determined, the articles created should be written to cover all aspects of the subject developed in the scale (21), and it should be tried to include high-powered, effective expressions that represent the subject being studied. It is stated in the literature that it is necessary to obtain expert opinions between 5-40 in order to ensure the validity of the scope (22). The fact that the number of experts is sufficient is important in terms of the high validity of the scale, and the expertise of the experts is important in terms of the consistency and impartiality of the results. (23). After CVR values containing "0" or negative values are removed from the candidate scale items, it is necessary to evaluate the items with positive CVR values in terms of statistical significance according to the CVR(18). In order to ensure the scope validity of the MERY Scale, a process was followed that transformed qualitative studies containing expert opinions into quantitative studies. According to the literature, it was determined that the MERY Scale provides scope validity and represents the area to be measured.

In order to reveal the internal validity of the scale and the compatibility of each of the items with the whole scale, it is necessary to conduct a pilot application in scale development studies for item selection (21,24). Pilot implementation of the scale with a sample structure suitable for actual conditions and resembles an accurate sample provides opportunities for evaluating the developed scale and making necessary adjustments (21). Evci and Aylar (25) report that reaching about 5% of

the target audience will be sufficient when determining samples in pilot studies. Seker and Gençdoğan (26) report that 30 and 50 participants representing the target audience are sufficient. In the pilot study, it is recommended that the Cronbach alpha coefficient of the scale should be 0.70 and above (18). These studies support that the MERY Scale provides surface validity.

In the case of structural validity, the scale items must be similar to each other or homogeneous. The best way to determine the validity of the structure is to conduct a factor analysis. The main goal of factor analysis is to determine how many factors the items/variables included in a measurement tool can be grouped under and the type of relationship between each other (21). The high KMO value, which can be explained by Bartlett's Test of Sphericity in order to determine whether the sample group is sufficient before factor analysis is performed, and to determine the suitability of the sample group for factor analysis, means that each variable on the scale can be predicted perfectly by other variables (27). Büyüköztürk (23) states that it is necessary to look at the KMO coefficient to evaluate the suitability of the data set for factor analysis and that the KMO value for factorability is expected to be higher than 0.60.

Regarding the KMO value, Kaiser (1974) classifies 0.5-0.7 as moderate, 0.7-0.8 as good, 0.8-0.9 as very good, and above 0.9 as excellent. This study determined the KMO value as 0.769, interpreted as good. The determination of Bartlett's Test of Sphericity as significant at the p<0.05 level shows that the data set is suitable for factor analysis; in other words, the data set is suitable for factor analysis (25). Bartlett's Test of Sphericity test results for the MERY Scale was determined as $\chi^2(351)=2771.598$ at a significance level of p<0.05. The fact that this finding is significant shows that the sample size is good, and the correlation matrix is appropriate for factor analysis.

In this study, the scale was designed as a factor of 5 based on qualitative research methods and field literature. EFA was used to analyze the construct validity and factor structure. In the literature, factoring the items in the scale and reducing the number of items in the EFA, it is necessary to pay attention to the fact that the factor load value of each item is higher than 0.30, the items have a high load value under a single factor, the items are not included under any factor together, and the common factor variance they explain is high. It was determined that

all the items included in the scale had factor loads above 0.30 and were found to be distributed under a factor of 5 with the lowest factor load of 0.394. In multi-factor patterns, it is considered sufficient if the explained variance is above 50%. Tavşancıl(28) explains the strength of the scale structure by the high variance ratios obtained as a result of factor analysis, while Büyüköztürk (23) states that 40%-60% of the variance ratio described in multifactorial structures can be accepted. In this study, it was seen that the factors explained 41.498% of the total variance. As a result, it was determined that the five-factor version of the scale was ideal and within acceptable limits.

In the correlation test performed to ensure Criterion Dependent Validity, 0.00-0.19 will be ignored, 0.20-0.39 weak (low), 0.40-0.69 moderate, 0.70-0.89 strong (high) was interpreted based on very strong correlation levels of 0.90-1.00 (18).A moderately significant positive relationship was determined by providing a correlation between the total score averages of the MERY Scale and the MY-KÖ score averages ($r=0.484$; $p<0.01$). This result shows that the MERY Scale provides criterion-dependent validity.

Item analysis/item-total score correlation coefficient determines whether the item measures the desired property based on the obtained data by measuring the respondents' responses to the items in the measurement tool (18,29). As the r value obtained by Pearson Product-Moment Correlation approaches +1, it is accepted that the reliability is high. Item-total score analysis is accepted as a validity (internal consistency) indicator and reliability, and it is reported that the scale also reflects the validity of the structure (30). Although there are different values in the literature, 0.20 is usually taken as the lowest level; it is reported that items with a reliability coefficient between 0.30-0.40 are good; items above 0.40 were found to be highly discriminating and, therefore, reliable (28). Determining the distinguishing feature of each expression included in the scale is one of the methods used for scale validity. It is requested that the difference between these groups in terms of item discrimination turns out to be statistically significant, and the t values should not be marked (-) (18). This information supports our work. In the study, it can be said that the scale item-total correlation ranged between 0.330-0.703 and that the total score correlations of all items were distinctive in measuring the desired quality.

The Cronbach alpha coefficient is focused on the internal consistency of the items that make up the scale. The Cronbach alpha coefficient depends on the number of items. When the number of items is low, it will affect the reliability and reduce the reliability level of the scale. If the Cronbach Alpha coefficient is higher than 0.60, the scale is considered reliable; if higher than 0.80, the scale is considered quite reliable (18). The composite reliability (CR) is conceptually similar to Cronbach Alpha in that it represents the ratio of the estimated actual score difference according to the total variance of the scale. However, it accepts the possibility of heterogeneous item-structure relationships. It differs from Cronbach Alpha by estimating the actual score difference as a function of item score loads in the matrix (31). Since Cronbach Alpha is a statistic that tends to give high values when there are many variables, the CR value is used as an alternative to the alpha value or as a control tool. CR values also indicate good reliability above 0.70, just like the Cronbach alpha coefficient (32). This study analyzed the Cronbach Alpha value as 0.782, and CR was 0.830 across the scale. This result shows that the internal consistency of the MERY Scale is ensured, and the scale is quite reliable.

In the test-retest method performed for the consistency of the scales, it is recommended that there should be a period of at least two, no more than six weeks between the two measurements, and the number of people participating in the measurement should be at least 30 (18). In both applications, the researcher who makes the observation, the applied processes, and the elements such as time and space should be similar (30). In order to determine the degree of stability of a measurement tool, the correlation coefficient should be examined. The closer the correlation coefficient between the two applications is to +1, the higher the reliability. They report that the test-retest correlation coefficient of 0.70 may be sufficient in the field literature (30). These results support the study. It can be said that the MERY Scale ($r=0.805$) can give consistent results, its invariance power concerning time is good, and the scale is stable.

This research is limited to nurses in three public hospitals' intensive care, palliative care, and oncology services ($N=367$).The Covid-19 pandemic was considered one of the limitations of this study. Nurses providing end-of-life care during the pandemic experienced a wide range of problems, such as unknown treatment of the disease, changes in working systems, increased workloads, increased risk of transmission, and insufficient protective equipment. They had to work to fight these problems. In addition, this process made it mandatory for nurses to enter a new learning process by updating their professional knowledge. In the study, nurses' unwillingness to answer questionnaires due to excessive workload or answering questions without fully understanding and evaluating them is seen as another limitation.

CONCLUSION

As a result of this study, the MERY Scale can be used to determine the compassion fatigue of nurses working in oncology, intensive care, and palliative care. The scale can contribute to developing strategies and programs for coping with compassion fatigue. At the same time, it is considered an effective data-providing tool for administrators in establishing clinical practice policies that reduce the development and possible consequences of compassion fatigue by determining nurses' compassion fatigue. It may be recommended to conduct studies that test the validity and reliability of the scale in different and larger samples. This research conducted during the Covid-19 pandemic considered a limitation of the study, can be planned to be renewed with confirmatory factor analysis after the pandemic. Developing a scale to determine compassion fatigue in all nurses can be suggested.

This study was prepared based on the findings of Şenay Şener PhD thesis study titled " Determination Of Compassion Fatigue In Intensive Care And Palliative Care Nurses: A Scale Development Study" (Sakarya: Sakarya University; 2023).

Ethics Committee Approval: This research was conducted in accordance with the principles of the Helsinki Declaration. In order to conduct the study, ethics committee approval dated 26.June.2020 and numbered 71522473/050.01.04/353 was obtained from the ethics committee of non-interventional clinical research of a university.

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