

Compassion Fatigue, Empathy, and Emotional Contagion in Nursing Students

Abstract

Background: Health professionals accompany patients with pain and suffering on their journey. Understanding the effect of empathy and emotional contagion, which is supposed to affect this journey, on compassion fatigue can help determine strategies to protect health professionals.

Aim: The purpose of this study is to determine the relationship and effect level among compassion fatigue, empathy, and emotional contagion in fourth-year nursing students.

Methods: The study was carried out between March 03, 2021, and March 15, 2021, with 207 students. In addition, it was carried out using the cross-sectional design, which is included in the scope of quantitative research methods. In the study, a further sample selection was not conducted and it was aimed to reach the entire population. Necessary permissions for the study have been obtained. The data were collected using "Introductory Information Form," "The Compassion Fatigue-Short Scale," "The Toronto Empathy Scale," and "The emotional contagion scale." The data were analyzed by Kolmogorov-Smirnov, kurtosis, skewness, Mann-Whitney *U* test, Kruskal-Wallis test, and Spearman test. In addition, regression tests were applied for relational questions.

Results: About 91.8% of the participants were women and the average age was 22.10 ± 1.27 . While compassion fatigue had a significant relationship with emotional contagion ($P < .001$), it does not have a significant relationship with empathy ($P > .05$). There is a significant relationship between emotional contagion and empathy. Empathy and emotional contagion had a significant effect on compassion fatigue ($r=0.411$, $P < .001$). In addition, it was seen that 10.9% of the variance in compassion fatigue was explained by these 2 variables.

Conclusion: It was revealed that nursing students experienced compassion fatigue as a result of interaction with patients and their relatives during their clinical practice. Therefore, it is thought that empathic communication skills should be improved in nursing students without being under the effect of emotional contagion and without being harmed.

Keywords: Compassion fatigue, emotional contagion, empathy, nursing student

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Introduction

Nursing, which is in a constant relationship with the individual, is a profession in which interpersonal relationships are experienced intensively.¹ It is important for nurses to use communication skills effectively so that they can understand the patient and the patient's relatives, colleagues, other health members, and other groups in society and meet the individual's needs during the care and treatment process.² The place and importance of empathy, which is the basic component of nurse-patient communication, in nursing practices cannot be denied.^{3,4} It is known that empathy is an important skill for nursing students as well as nurses and is protective against negative situations.^{3,5} Empathy is triggered by compassion, which revives the motivation to help the individual and is one of the social emotions.⁶ Compassion, which is the desire to alleviate the suffering of others, is an emotion developed toward an individual or group in a tough situation.^{7,8} It is also reported that virtues such as charity, humility, compassion, and empathy are particularly important from a professional point of view for health professionals, especially nurses.^{4,9} The principle of compassion, known as valuing the individual opposite the nurse and caring for his well-being, forms the basis of modern nursing practices.¹⁰ For this reason, compassion and empathy are among the most important values that facilitate the care provided by health professionals.^{11,12}

Cite this article as: Evli M. Compassion fatigue, empathy, and emotional contagion in nursing students. *J Educ Res Nurs*. 2023;20(2):105-110.

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Received: April 27, 2021
Accepted: July 30, 2021
Publication Date: June 1, 2023



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It is stated that in addition to increasing the quality of care, which includes compassion and empathy, it increases patient satisfaction, reduces the rate of making mistakes, and has positive physiologic and psychological effects on the patient.^{12,13} However, sometimes compassion fatigue (CF) may develop due to the stress associated with empathetic listening and sensations.^{14,15} Compassion fatigue is known as psychosocial exhaustion and causes a decrease in work-related skills and energy due to the trauma that occurs as a result of the caregiver's willingness to approach and care for individuals in need of care with empathy.¹⁶ It is stated that the prevalence of CF is high in all health workers, especially nurses.¹⁷ It is reported that this type of tendency is also observed in nursing students, and it is recommended that nursing students conduct research on this subject.¹⁸ Compassion fatigue can cause the caregiver to feel tired, overwhelmed, helpless, and hopeless about the situation or life they are in individually.¹⁹ Such emotions that nurses experience while fulfilling their roles and responsibilities cause them to be physically and spiritually tired.²⁰ Here, how empathy is perceived and defined becomes important. It is important to be influenced by the feelings of others (emotional contagion) to want them to be well and to be able to do this without experiencing their feelings and without suffering.¹⁰ Like empathy, emotional contagion is related to situations in which the emotional state of the empathized individual reflects on the empathetic individual. However, emotional contagion is an automatic process involving being affected by the emotions of the sender, and understanding the individual is not at the forefront.²¹ Emotions affect an individual's behavior, interpretation, and motivation level.²² Emotional contagion can cause the individual to become alienated from herself or himself and the work environment, leading to negative situations such as mental problems.²³ It is possible to divide emotional states into positive emotions such as happiness and hope and negative emotions such as anger and hatred. While positive emotions make an individual feel good, negative emotions serve the opposite function.²⁴ While this situation is obvious, it is reported that negative emotions are at the forefront of emotional contagion.²¹

The necessity of empathy skills and high-stress levels in the nursing profession may cause nurses to experience negative experiences such as quitting their jobs and mental illnesses such as anxiety, depression, emotional exhaustion, and depersonalization. However, it is known that undergraduate nursing students are exposed to these problems especially during their clinically oriented education years (i.e., the third and fourth years).²⁵ The role of empathy and emotional contagion in this negative interaction is undeniable. In addition, considering that nursing students have a prominent level of compassion²⁶ and a moderate level of exhaustion and empathic tendency,²⁷ it can be said that students in this field are in the high-risk group in terms of CF. Nevertheless, studies on this subject are extremely limited.¹⁸ Otherwise, there have not been any studies on CF and emotional contagion in the literature. It is thought that the study will contribute to the literature in this aspect.

The Purpose of the Research

In this study, "Do nursing students' levels of CF, empathy, and emotional contagion change significantly according to sociodemographic variables?" "Is there a significant relationship between CF, empathy, and emotional contagion in nursing students?" and "Do empathy and emotional contagion significantly predict CF and its sub-dimensions in nursing students?" answers to the questions were sought.

Materials and Methods

Type of Research

This study was conducted as a descriptive and relationship-seeking study to determine the relationship and interaction levels of CF, empathy, and emotional contagion in nursing students.

Sampling

The study was conducted between March 03 and March 15, 2021, with 215 fourth-year nursing students studying at a state university in the 2020-2021 academic year. Nursing fourth-grade students, unlike other classes, are constantly collaborating with patients due to the fact that they are constantly in clinical practice. For this reason, it was considered appropriate to include nursing students studying only in the fourth grade in the study. The students were reached through the WhatsApp group, and the study was conducted with 207 students since 8 students did not accept the study.

Criteria for Inclusion in the Research

Students who received fourth-year practical training and approved the informed consent form (BGOF) were included in the study.

Data Collection Tools

Data were collected with the "Descriptive Information Form" the "Compassion Fatigue-Short Scale (CF-SS)," the "TES," and the "emotional contagion scale (ECS)." Data collection was conducted online due to the COVID-19 pandemic.

Introductory Information Form

This form, which was prepared by the researcher based on Özdelikara and Babur's²⁸ studies, includes a total of 8 questions about the age, gender, educational status, and occupation of the individuals.

Compassion Fatigue-Short Scale

The Turkish validity and reliability adaptation of the scale developed by Adams et al. was made by Dinç and Ekinci.^{29,30} The scale is a self-report scale that aims to reveal the participants' experiences of CF. The scale, which consists of 2 sub-dimensions and 13 items, is of the 10-point Likert type. The lowest 13 and the highest 130 points can be obtained from the scale, which has sub-dimensions of secondary trauma and occupational burnout. Higher scores indicate increased levels of CF. The Cronbach coefficient of the scale for the total was 0.87 and for the secondary trauma and occupational burnout sub-dimensions, 0.74 and 0.85, respectively.³⁰ In our study, these values were 0.89, 0.79, and 0.87, respectively.

The Toronto Empathy Scale

The Turkish adaptation of the scale developed by Spreng et al. was done by Totan et al.^{31,32} The scale, consisting of a total of thirteen items, is evaluated in one dimension. On a 5-point Likert scale, the following values were assigned: 1- 3 -5 -7 -8 -9 -11- 12. Questions are evaluated in the opposite way. A score between 13 and 65 can be obtained from the scale, and an increase in the score indicates that the level of empathy increases. The Cronbach coefficient of the scale was found to be 0.79.³² This value was determined to be 0.80 in our study.

Emotional Contagion Scale

The scale developed by Doherty was adapted into Turkish by Akin et al.^{33,34} The scale, consisting of 15 items, is evaluated in one

dimension. As the scores obtained from the scale increase, the predisposition and sensitivity to emotional contagion increase. The scale, which is of the 5-point Likert type, is scored in the range of "(1) never to (5) always." The score that can be obtained from the scale varies between 15 and 75. An increase in the score obtained from the scale indicates an increase in emotional contagion predisposition and sensitivity. The Cronbach's coefficient of the scale was found to be 0.75.³⁴ In our study, this value was determined as 0.80.

Collection of Data

Data forms were delivered to student nurses through Google Form. The purpose of the research, the benefits to be obtained from the research were included in the Google Form, and by making necessary explanations about the study, care was taken not to put any pressure on whether or not to participate in the study. It took an average of 10-15 minutes to fill out the data collection forms. In addition, the "Informed Volunteering Consent Form" has been put on the Google Form, and the volunteering consent tab has been made mandatory.

Ethical Consideration

To carry out the study, Ethics Committee approval was obtained from the Erciyes University Social and Human Sciences (Approval Number: 93, Date: 23.02.2021) and Erciyes University Faculty of Health Sciences, Department of Mental Health and Disease Nursing. The permission of the academic board (Approval Number: 03, Date: 04.02.2021) was obtained from the department.

Statistical Analysis of Data

The data obtained from the research were evaluated in a computer environment. In the evaluation of the data, Kolmogorov-Smirnov, kurtosis, and skewness tests were applied in the evaluation of descriptive statistics for normal distribution, and it was determined that the data were not normally distributed. For this reason, the Mann-Whitney *U* test was applied for binary variables, and the Kruskal-Wallis test was applied for 3 or more variables. The Spearman test was used for correlation between variables. Relational questions were evaluated with regression analysis and $P < .05$ was considered statistically significant in comparisons.

Results

About 91.8% of the students are women, 94.2% are single, 58.0% say that they chose the profession willingly, 72.5% are satisfied with choosing the profession, and 66.7% say that they are moderately affected by the pain of the patient, they are caring for. The average age of the students is 22.10 ± 1.27 .

The average scores of the students participating in our study according to their sociodemographic variables are given in Table 1.

According to Table 1, it was found that the average occupational burnout score was high among nursing students who did not prefer the profession willingly ($P < .05$). Besides, it is observed that the averages of secondary trauma, occupational burnout, and CF scores of those who are dissatisfied with their occupational choice are higher compared to those who are satisfied ($P < .05$). In addition, it is observed that the average scores on all scales of those with an important level of influence on the condition of the patient they care for are high ($P < .05$).

The correlations between the variables are given in Table 2. There is a positive and statistically significant relationship between secondary

trauma and occupational exhaustion ($r=0.655, P < .001$), CF ($r=0.849, P < .001$), and emotional contagion ($r=0.290, P < .001$) in nursing students. A significant relationship was found between occupational exhaustion and CF ($r=0.956, P < .001$) and emotional contagion in a positive direction, empathy ($r=-0.183, P < .001$), and negative direction. A statistically significant positive correlation was found between CF and emotional contagion ($r=0.242, P < .001$). Similarly, there is a positive and significant relationship between empathy and emotional contagion ($r = 0.411, P < .001$). It was determined that there was no statistically significant relationship between CF and empathy ($r=-0.123, P > .05$).

In 3, it is seen that the predictive effects of empathy and emotional contagion on CF in nursing students and the results of the multiple regression model analysis results are statistically significant. According to Model 1, emotional contagion ($t=4.69, P=.001$) has a significant effect on secondary trauma, while empathy ($t = -1.74, P=.082$) does not have a statistically significant effect. It is seen that the value of R^2 is 0.089. This result shows that the variance changes in secondary trauma at a rate of 8.9% are explained by the established model. According to Model 2, empathy ($t=-4.31, P=.001$) and emotional contagion ($t=4.31, P=.001$) have significant effects on occupational burnout. Empathy and emotional contagion explain 10.6% of the variance in occupational burnout. Likewise, it is seen that empathy ($t = -3.71, P=.001$) and emotional contagion ($t=4.87, P=.001$) have a significant effect on CF in Model 3, and 10.9% of the variance in CF is explained by this model.

Discussion

It is stated that empathy has a significant role in the nursing profession.^{3,4} It is known that empathy, which has a protective property against negative situations, has a stimulating effect on CF in both nurses and nursing students.^{3,5,6} While using the empathy skill, the nurse should be able to apply this skill without being exposed to CF. Furthermore, it is important to practice this skill without emotional contagion, that is, without suffering, when empathizing.¹⁰

It was found that the empathy levels of nursing students whose level of influence on the condition of the woman participating in our study and the patient they cared for was moderate and high were statistically significantly higher ($P < .05$) (Table 1). In the study conducted by Akgün and Çetin, it was also reported that the empathy levels of female participants were high and emotional empathy was closely related to communication skills.³⁵ Similarly, in the study conducted by Marcysiak et al, it was stated that the empathy scores of nurses who can feel the experiences of others are high.³⁶ However, it is stated in many studies that the empathy levels of nursing students do not differ according to gender.^{1,5,27,28} In addition, in our study, it was observed that CF increases in nursing students who are dissatisfied with choosing a profession and have an elevated level of influence on the condition of the patient they are caring for. It has been found that emotional contagion increases only in nursing students who have a high level of influence on the condition of the patient they are caring for (Table 1). It is known that situations such as choosing the nursing profession without a specific purpose, dissatisfaction with the choice, a lot of workloads, a feeling of inadequacy and an inability to keep up, and being affected by the suffering of the individuals being cared for pose a risk for CF.³⁷ CF, which occurs as a result of empathetically listening to the troubles of individuals, can also be affected by negative emotions, namely, emotional contagion.^{14,21} The fact that

Table 1. Compassion Fatigue, Empathy, and Emotional Contagion Scale Scores According to Nursing Students' Descriptive Characteristics (n=207)					
Variables	ST	JB	Scales Median (minimum-maximum)		
			CF	E	EC
Gender					
Woman	18.00 (5.00-47.00)	34.00 (8.00-76.00)	50.00 (16.00-117.00)	59.00 (40.00-65.00)	57.00 (26.00-73.00)
Male	16.00 (8.00-35.00)	26.00 (9.00-55.00)	44.00 (27.00-92.00)	55.00 (40.00-65.00)	56.00 (27.00-64.00)
Statistical analysis	Z* -.836 P=.403	Z* -1.345 P=.179	Z* -1.287 P=.198	Z* -2.259 P=.024	Z* -1.407 P=.159
Marital status					
Single	18.00 (5.00-47.00)	32.00 (8.00-76.00)	49.00 (17.00-117.00)	59.00 (36.00-65.00)	57.00 (26.00-73.00)
Married	18.00 (7.00-32.00)	34.00 (9.00-50.00)	52.50 (16.00-71.00)	59.00 (46.00-64.00)	57.00 (48.00-68.00)
Statistical analysis	Z* -.495 P=.621	Z* -.405 P=.686	Z* .147 P=.884	Z* .886 P=.375	Z* .368 P=.713
The status of willfully preferring the profession					
No	19.00 (5.00-47.00)	37.00 (9.00-76.00)	56.00 (16.00-117.00)	58.00 (36.00-65.00)	57.00 (27.00-72.00)
Yes	17.00 (5.00-39.00)	30.00 (8.00-66.00)	47.50 (17.00-96.00)	59.00 (40.00-65.00)	57.00 (26.00-73.00)
Statistical analysis	Z* -.073 P=.942	Z* -2.325 P=.020	Z* -1.772 P=.076	Z* .679 P=.497	Z* -.697 P=.486
The status of satisfaction with choosing the profession					
No	21.00 (5.00-47.00)	44.00 (18.00-76.00)	69.00 (26.00-117.00)	58.00 (36.00-65.00)	57.00 (40.00-72.00)
Yes	17.00 (5.00-43.00)	28.00 (8.00-69.00)	44.50 (16.00-94.00)	59.00 (37.00-65.00)	57.00 (26.00-73.00)
Statistical analysis	Z* -2.787 P=.005	Z* -6.502 P=.001	Z* -5.624 P=.001	Z* .333 P=.739	Z* -1.099 P=.272
Level affected by the condition of the patient he/she cares					
Low	12.00 ^a (5.00-41.00)	34.00 ^{a,b} (9.00-76.00)	49.00 ^{a,b} (19.00-117.00)	55.00 ^a (36.00-63.00)	55.00 ^a (40.00-66.00)
Middle	18.00 ^{a,b} (5.00-43.00)	30.00 ^a (8.00-66.00)	47.00 ^a (17.00-94.00)	58.50 ^b (40.00-65.00)	57.00 ^{a,b} (26.00-73.00)
High	19.50 ^b (7.00-47.00)	41.50 ^b (9.00-58.00)	64.00 ^b (16.00-99.00)	59.00 ^b (37.00-65.00)	61.00 ^b (42.00-72.00)
Statistical analysis	KW**10.131 P=.006	KW**6.595 P=.037	KW**7.700 P=.021	KW**10.814 P=.004	KW**11.906 P=.003

*Mann-Whitney U test, **Kruskal-Wallis test.
 CF, Compassion fatigue; E, empathy; EC: emotional contagion; JB, job burnout; ST, secondary trauma.

the majority (91.8%) of the nursing students participating in our study were women may have influenced these results. In fact, it is known that levels of empathy, emotional contagion, and CF are statistically significantly higher in women.^{26,35,38-40}

Regarding the other questions of our study, a positive and significant relationship was found between CF and emotional contagion, one of the study variables. It seems that CF is negatively related to empathy, but it is not statistically significant. In addition, a positive

Table 2. Relationship, Mean, and SD Values Between Study Variables (n=207)							
Variables	Mean (SD)	1.	2.	3.	4.	5.	6.
ST	18.83 (8.18)	1					
JB	34.39 (14.68)	0.655**	1				
CF	53.23 (20.98)	0.849**	0.956**	1			
E	57.38 (5.98)	0.013	-0.184**	-0.123	1		
EC	57.14 (7.96)	0.290**	0.183**	0.242**	0.411**	1	
Age	22.10 (1.27)	0.093	-0.087	-0.025	0.112	0.118	1

*P < .01, **P < .001
 CF, compassion fatigue; E, empathy; EC, emotional contagion; JB, job burnout; ST, secondary trauma.

Table 3. The Predictive Effect of Empathy and Emotional Contagion on Compassion Fatigue

Variables	B	Standard Error	β	t	P
Model 1 ST	R=0.313	R ² =0.098	Adjusted R ² :0.089	F _(2*204) :11.045	P < .001
E	-0.174	0.100	-0.128	-1.749	.082
EC	0.352	0.100	0.343	4.696	.001
Model 2 JB	R=0.338	R ² =0.114	Adjusted R ² :0.106	F _(2*204) :13.181	P < .001
E	-0.765	0.177	-0.312	-4.315	.001
EC	0.574	0.133	0.312	4.311	.001
Model 3 CF	R=0.344	R ² =0.118	Adjusted R ² :0.109	F _(2*204) :13.652	P < .001
E	-0.939	0.253	-0.268	-3.716	.001
EC	0.927	0.190	0.352	4.877	.001

*P < .05.

CF, compassion fatigue; E, empathy, EC, emotional contagion; JB, job burnout; ST, secondary trauma.

and significant relationship was found between empathy and emotional contagion (Table 2). Again, it has been seen that empathy and emotional contagion predict CF and occupational burnout, which are sub-dimensions, both separately and together. In this interaction, empathy has a positive effect and emotional contagion has a negative effect. Although this type of effect can be mentioned in secondary trauma, which is the other sub-dimension of CF, it is seen that empathy alone does not have an effect (Table 3). It has been reported that there is a positive relationship between empathy and CF, but the direct effect of empathy on CF is close to zero.^{41,42} It is known that individual differences in empathy are associated with sensitivity to the feelings of others. The predisposition of empathetic individuals to emotional contagion has also been proven by physiological and brain imaging data.⁴³ In addition, it is reported that individuals with high empathy skills increase their attention to emotional information and their ability to understand the emotional states of others.⁴³⁻⁴⁵ In addition, it is known that there is a relationship between empathy and emotional contagion, and emotional contagion affects empathy.⁴⁶ For this reason, it is thought that nursing students should use this skill while using empathy skills without being affected and harmed by emotional contagion.

In our study, it was determined that there is a positive relationship between emotional contagion and CF, and that emotional contagion predicts CF. In the thesis study conducted by Jackson-Koku in 2020, it was stated that individual emotional intelligence is associated with CF and is an important determinant of CF.⁴⁷ In this context, it can be thought that nursing students are more affected by the feelings of sick individuals with suffering and negative emotions in front of them; that is, experiencing emotional contagion increases the students' CF levels.

Limitations of the Study

The present study was conducted as a single-centered study. The answers given by the participants to the study questions are limited by the scale items used. In addition, the lack of studies on emotional contagion and CF limits the comparison of study results. For this reason, it is thought that further studies on this subject, considering the above limitations, will contribute to the nursing literature.

Conclusion

As a result of this study, the empathy levels of female senior nursing students are higher. In addition, students who are dissatisfied with choosing the nursing profession have a higher level of CF. In addition, it was determined that the students who were highly affected by the condition of the patient they cared for had elevated levels of empathy, emotional contagion, and CF. It has been found that emotional contagion is associated with both CF and empathy, but there is no relationship between CF and empathy. Finally, it was determined that emotional contagion predicted CF and its sub-dimensions, while empathy predicted occupational exhaustion and CF. In this context, it is thought that the skills of empathic communication should be developed in nursing students without being affected by emotional contagion and without being harmed.

Ethics Committee Approval: Approval for this study was obtained from Ethics Committee of Erciyes University Social and Human Sciences (Approval number: 93, Date: 23.02.2021).

Informed Consent: Verbal/written informed consent was obtained from the patients/patient who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – M.E.; Design – M.E.; Supervision – M.E.; Materials – M.E.; Data Collection and/or Processing – M.E.; Analysis and/or Interpretation – M.E.; Literature Search – M.E.; Writing – M.E.; Critical Review – M.E.

Acknowledgment: I would like to thank Assistant Professor Nuray ŞİMŞEK for her contributions.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

References

1. Uncu F, Açık Y, Deveci SE, Çelebi E, Oğuzöncül AF, Ulaş B. Determining of Empathic Tendencies and Empathic Skill Levels of the Nursing Students Studying in Health College Yıldırım Beyazıt University Faculty of Health Sciences Nursing E-journal. 2015;3.
2. Gedük EA. Developing roles of the nursing profession. *J Health Sci Prof.* 2018;5(2):253-258.
3. Dinkins CS. Helping nursing students unblock empathy: A big idea from William James. *Nurse Educ Today.* 2018;61:194-196. [CrossRef]

4. Moreno-Poyato AR, Rodríguez-Nogueira Ó; MiRTCIME. CAT working group. The association between empathy and the nurse-patient therapeutic relationship in mental health units: a cross-sectional study. *J Psychiatr Ment Health Nurs.* 2020;13.
5. Li CQ, Ma Q, Liu YY, Jing KJ. Are parental rearing patterns and learning burnout correlated with empathy amongst undergraduate nursing students? *Int J Nurs Sci.* 2018;5(4):409-413. [\[CrossRef\]](#)
6. Palgi S, Klein E, Shamay-Tsoory SG. Intranasal administration of oxytocin increases compassion toward women. *Soc Cogn Affect Neurosci.* 2015;10(3):311-317. [\[CrossRef\]](#)
7. Akin ŞH. The concept of compassion and the comparison of schopenhauer's approach to compassion with the ideas of other philosophers. *Turk J Bioeth.* 2018;5(3):126-131.
8. Harris C, Quinn MT. Nursing on empty: compassion fatigue signs, symptoms, and system interventions. *J Christ Nurs.* 2015;32(2):81-87.
9. Altun I. Nursing values. In: Callara L. E, ed. *Nursing Education Challenges in the 21st Century.* Nova Science Publishers, Inc, New York; 2008:243-270. https://www.researchgate.net/publication/290046014_Nursing_Values
10. Bloom P. Empathy and its discontents. *Trends Cogn Sci.* 2017;21(1):24-31. [\[CrossRef\]](#)
11. Dalgali B, Gürses İ. Nature and importance of compassion in health care. *Sinop Univ J Soc Sci.* 2018;2(1):181-201.
12. Moudatsou M, Stavropoulou A, Philalithis A, Koukouli S. The role of empathy in health and social care professionals. *Healthcare (Basel).* 2020;8(1):26. [\[CrossRef\]](#)
13. Uğurlu AK, Eti Aslan F. Compassion and nursing: can compassion be Measured?: Review. *Türkiye Klinikleri J Nurs Sci.* 2017;9(3):233-238. [\[CrossRef\]](#)
14. Cuartero ME, Campos-Vidal JF. Self-care behaviours and their relationship with Satisfaction and Compassion Fatigue levels among social workers. *Soc Work Health Care.* 2019;58(3):274-290. [\[CrossRef\]](#)
15. Figley CR. Compassion fatigue: psychotherapists' chronic lack of self care. *J Clin Psychol.* 2002;58(11):1433-1441. [\[CrossRef\]](#)
16. <https://www.stress.org/military/for-practitionersleaders/compassion-fatigue> Accessed October 2021.
17. Ortega-Campos E, Vargas-Román K, Velando-Soriano A, et al. Compassion fatigue, compassion satisfaction, and burnout in oncology nurses: A systematic review and meta-analysis. *Sustainability.* 2020;12(1):72. [\[CrossRef\]](#)
18. Michalec B, Diefenbeck C, Mahoney M. The calm before the storm? Burnout and compassion fatigue among undergraduate nursing students. *Nurse Educ Today.* 2013;33(4):314-320. [\[CrossRef\]](#)
19. Sorenson C, Bolick B, Wright K, Hamilton R. An evolutionary concept analysis of compassion fatigue. *J Nurs Scholarsh.* 2017;49(5):557-563. [\[CrossRef\]](#)
20. Şirin M, Yurttaş A. Cost of nursing care: compassion fatigue. *DEUHFED.* 2015;8(2):123-130.
21. Hatfield E, Cacioppo JT, Rapson RL. *Emotional Contagion.* New York: Cambridge University Press;1993:7-44.
22. Akçay C, Çoruk A. Emotions and their management in working life: A conceptual analysis. *J Policy Anal Educ.* 2012;1(1):3-25.
23. Tatarlar CD, Çangarlı GB, Atabay GR. Examination of the Existence, Types and Consequences of the Concept of Contagion in the Organizational Context. 27. National Governance and Organization Kong. 2019:468-475.
24. Yıldırım E, Akin M. Relationships between exclusion, cynicism and positive-negative affectivity in organizations: the mediating role of positive and negative affectivity. *Int J Manag Econ Bus.* 2018;14(2):427-449.
25. Deary IJ, Watson R, Hogston R. A longitudinal cohort study of burnout and attrition in nursing students. *J Adv Nurs.* 2003;43(1):71-81. [\[CrossRef\]](#)
26. Çingöl N, Çelebi E, Zengin S, Karakaş M. Investigation of compassion levels of nursing department students of a health school. *J Clin Psychiatry.* 2018; 21(1):61-67. [\[CrossRef\]](#)
27. Turan N, Kaya H, Özşaban A, Özdemir-Aydın G, Özçelik K, Güneş E. Investigation of the relationship between empathy and burnout levels of nursing students. *Florence Nightingale Hemsire Derg.* 2019;27(2):119-132. [\[CrossRef\]](#)
28. Özdelikara A, Babur S. The relationship between nursing students' compassion level and empathic tendency. *Acibadem Univ J Health Sci.* 2020;11(2):342-349.
29. Adams RE, Boscarino JA, Figley CR. Compassion fatigue and psychological distress among social workers: a validation study. *Am J Orthopsychiatry.* 2006;76(1):103-108. [\[CrossRef\]](#)
30. Dinç S, Ekinci M. Adaptation, validity and reliability of the compassion fatigue short scale into Turkish. *Curr Approach Psychiatry.* 2019;11(Ek1):192-202.
31. Spreng RN, McKinnon MC, Mar RA, Levine B. The Toronto Empathy Questionnaire: scale development and initial validation of a factoranalytic solution to multiple empathy measures. *J Pers Assess.* 2009;91(1):62-71. [\[CrossRef\]](#)
32. Totan T, Doğan T, Sapmaz F. The Toronto Empathy Questionnaire: evaluation of psychometric properties among Turkish university students. *Egitim Arastirmaları Eurasian J Educ Res.* 2012;46:179-198.
33. Doherty RW. The Emotional Contagion Scale: A measure of individual differences. *J Nonverbal Behav.* 1997;21(2):131-154. [\[CrossRef\]](#)
34. Akin A, Uysal R, Akin Ü. The validity and reliability of the Turkish version of the Emotional Contagion Scale. *J Soc Sci Mus Alparslan University.* 2015;3(2):97-104.
35. Akgün R, Çetin H. Determining the communication skills and empathy levels of university students. *MJSS.* 2018;7(3):103-117.
36. Marcysiak M, Dąbrowska O, Marcysiak MB. Understanding the concept of empathy in relation to nursing. *Prog Health Sci.* 2014;4(2):75-81.
37. Dikmen Y, Aydın Y. Compassion fatigue in nurses: what? How? What to Do? *J Hum Rhythm.* 2016;2(1):13-21.
38. Jarrad R, Hammad S, Shawashi T, Mahmoud N. Compassion fatigue and substance use among nurses. *Ann Gen Psychiatry.* 2018;17:13. [\[CrossRef\]](#)
39. Al Barmawi MA, Subih M, Salameh O, Sayyah Yousef Sayyah N, Shoqirat N, Abdel-Azeez Eid Abu Jebbeh R. Coping strategies as moderating factors to compassion fatigue among critical care nurses. *Brain Behav.* 2019;9(4):e01264. [\[CrossRef\]](#)
40. Limon S. Emotional contagion and work motivation in healthcare institutions: an application on medical secretaries. *Bucak Business Faculty [journal].* 2019;2(2):224-441.
41. Duarte J, Pinto-Gouveia J. Empathy and feelings of guilt experienced by nurses: A cross-sectional study of their role in burnout and compassion fatigue symptoms. *Appl Nurs Res.* 2017;35:42-47. [\[CrossRef\]](#)
42. Hunt P, Denieffe S, Gooney M. Running on empathy: relationship of empathy to compassion satisfaction and compassion fatigue in cancer healthcare professionals. *Eur J Cancer Care (Engl).* 2019;28(5):e13124. [\[CrossRef\]](#)
43. Dimberg U, Andréasson P, Thunberg M. Emotional empathy and facial reactions to facial expressions. *J Psychophysiol.* 2011;25(1):26-31. [\[CrossRef\]](#)
44. Hofelich AJ, Preston SD. The meaning in empathy: distinguishing conceptual encoding from facial mimicry, trait empathy, and attention to emotion. *Cogn Emot.* 2012;26(1):119-128. [\[CrossRef\]](#)
45. Baron-Cohen S, Wheelwright S, Hill J, Raste Y, Plumb I. The "Reading the Mind in the Eyes" Test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism. *J Child Psychol Psychiatry.* 2001;42(2):241-251.
46. Stavrova O, Meckel A. Perceiving emotion in non-social targets: the effect of trait empathy on emotional contagion through art. *Motiv Emot.* 2017;41(4):492-509. [\[CrossRef\]](#)
47. Gordon J-K. *An exploratory study of the role of emotion regulation and emotional intelligence in compassion satisfaction and fatigue among doctors and nurses;* 2020. <https://eprints.lancs.ac.uk/id/eprint/148431/1/2020JacksonKokuphd.pdf> Accessed: March 2021.