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Examining the knowledge of nurses regarding pupil assessment*

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ABSTRACT

Aims: This study was conducted to examine the knowledge of nurses regarding pupil assessment.

Methods: This descriptive cross-sectional study was carried out using an online questionnaire distributed via a virtual snowball sampling method. The study was conducted with 114 nurses who voluntarily agreed to participate between September 1 and December 1, 2023. Descriptive statistics were used in the data analysis. The study was reported in accordance with the STROBE guidelines.

Results: The mean age of the participants was 29.46±5.89 years; 73.7% were female and 74.6% had a bachelor's degree. Of the nurses, 67.5% had between 1 and 5 years of professional experience, and 44.7% were working in an intensive care unit. A total of 51.8% of the participants reported having received training related to pupil assessment. The mean score obtained from the pupil assessment knowledge form was 17.94±4.91.

Conclusion: Nurses' knowledge levels regarding pupil assessment were found to be at a moderate level. Including practical, topic-specific content in training programs may contribute to clinical decision-making processes and enhance patient safety.

Keywords: Consciousness, neurologic examination, nursing education, pupils

This study was presented as an oral presentation at the 6th International 7th National Oncology Nursing Congress held in Ankara between 20-22 November 2024.

INTRODUCTION

Neurological and neurosurgical diseases encompass a wide spectrum of clinical disorders affecting the nervous system, ranging from benign to malignant and from acute to chronic conditions. These diseases significantly impact individuals' quality of life and are considered a global health concern, especially due to their higher prevalence in the elderly population (Dumurgier & Tzourio, 2020).

A comprehensive assessment is crucial for individuals presenting with neurological symptoms. Neurological examination is a multifaceted clinical assessment that includes history taking, evaluation of the level of consciousness, cranial nerve functions, and reflexes. Assessing the level of consciousness is one of the fundamental components of neurological examination and is commonly performed using the Glasgow Coma Scale (GCS) (Sepit, 2005; Mehta & Chinthapalli, 2019). In addition to evaluating eye opening, verbal, and motor responses with this scale, other parameters such as pupil activity and brainstem reflexes should also be considered (Mehta & Chinthapalli, 2019). The pupil's response, regulated by the autonomic nervous system, provides critical information regarding the functionality of the sympathetic and parasympathetic systems (Memetoğlu, 2022). In clinical assessment, four essential parameters should be routinely observed: pupil size, light reflex, shape, and the presence of

anisocoria (Kerr et al., 2016). Abnormal pupillary findings can be early indicators of life-threatening conditions such as increased intracranial pressure and serve as warning signs for further investigations (Kebapçı & Topçu, 2020). The reliability of pupil assessment directly depends on the knowledge and skill level of the healthcare professional performing the evaluation. The limited use of objective assessment devices increases dependence on subjective methods, which may lead to inter-observer inconsistencies (Kebapçı & Topçu, 2020). Studies have shown that nurses with lower levels of experience may encounter difficulties in neurological assessment and that knowledge deficits can adversely affect clinical decision-making processes (Kotani et al., 2021; Sharma et al., 2016). In a systematic review conducted by Chan et al. (2013), the challenges nurses face in assessing the level of consciousness were reported to be related to a lack of knowledge and insufficient experience. Similarly, Bae and Roh (2019), in a study conducted among Korean nurses, determined that there is a significant need for intensive training to improve neurological assessment skills.

In this context, determining nurses' knowledge levels regarding pupil assessment, which is an integral part of neurological examination, is crucial for guiding educational planning and enhancing patient safety. The aim of this study is to evaluate the knowledge levels of nurses concerning pupil assessment.

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METHODS

Ethics

Before starting the study, ethical approval was obtained from the Gülhane Scientific Researches Ethics Committee (Date: 22.08.2023, Decision No: 2023/219). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. At the beginning of the survey, participants were provided with information regarding the aim of the research and the voluntary nature of participation. Only those who consented to the digital informed consent form were included in the study.

Research Design and Population

This research is a descriptive and cross-sectional study conducted to determine the knowledge levels of nurses regarding pupil assessment. The study population consisted of nurses actively working across Türkiye. The sample comprised 114 nurses who voluntarily completed the online questionnaire and met the research criteria.

Inclusion Criteria

The inclusion criteria for participation in the study were determined as being over 18 years of age, able to speak Turkish, actively working in the field, working in adult services and voluntarily completing the online questionnaire. Nurses working exclusively in pediatric settings were excluded from the study, as pupillary evaluation in children differs from that in adults. Pupillary evaluation in pediatric patients differs from that in adults due to the ongoing development of the central nervous system, the prevalence of physiological variations, and limited cooperation (Kline & Bajandas, 2012; Wright & Strube, 2012). Since pupillary reactivity may not be fully developed in newborns, it is recommended to use indirect light sources during examination and to consider retinal sensitivity (Volpe, 2008). In addition, physiological anisocoria is frequently observed during childhood and is generally not clinically significant; however, it should be carefully evaluated in the differential diagnosis of pathological conditions (Wilhelm & Wilhelm, 2005). In this context, it is essential that healthcare professionals performing pediatric neurological examinations adopt a systematic approach appropriate to age and developmental stage (Berk & Yaman, 2007).

Data Collection Tools

A questionnaire consisting of two parts was prepared for data collection. The first part was a data collection form that gathered sociodemographic information (gender, age, educational status, years of experience, department, and level of education). The second part was a 27-item knowledge form developed by the researcher based on a review of the literature (Kebapçı & Topçu, 2020; Kerr et al., 2016; Kotani et al., 2021; Sharma et al., 2016; Tyukhova & Waters, 2018; Kramer et al., 2014; Larson & Behrends, 2015; Omburo et al., 2017; Bergamin et al., 1998; van Rij et al., 2019; Pedrotti et al., 2014; Memetoğlu, 2022; Lee et al., 2017). In this study, expert opinions were obtained to assess the content validity of the knowledge test developed by the researchers. The data were analyzed using the DAVIS technique. For each item, the Content Validity Index (CVI) was calculated, and items with a CVI value of 0.80 or higher were considered appropriate and included in the test. This knowledge form was used to examine nurses' knowledge levels regarding pupil assessment. Each correct answer was scored as 1 point, while incorrect and "no idea" responses were scored as 0 points. The total achievable score ranged from 0 to 27. To ensure that participants carefully read each item, control questions such as "This item is included to assess whether respondents are

reading the questions carefully. If you are reading this, please select 'yes.'" were inserted between questionnaire items.

Data Collection Process

Data were collected online between September 1 and December 1, 2023. During the data collection process, a questionnaire prepared using the Google Forms platform was shared via social media channels (WhatsApp, Twitter, Instagram, etc.) and distributed to the target group using a virtual snowball sampling method. Initially, 20 individuals were contacted, and the survey link was shared with them. Later participants who completed the survey facilitated its distribution by sharing it with their colleagues in their own institutions.

Statistical Analysis

The collected data were analyzed using IBM SPSS Statistics version 25.0. Descriptive statistics such as mean, standard deviation, and percentage were used in the data analysis.

RESULTS

The findings related to the nurses' demographic characteristics are presented in Table 1. The mean age of the 114 nurses who participated in this study was 29.46 ± 5.89 years; 73.7% were female and 26.3% were male. Of the participants, 74.6% held a bachelor's degree, 67.5% had 1–5 years of professional experience, and 44.7% were working in an intensive care unit. Additionally, 51.8% of the nurses reported that they had previously received training on pupil assessment.

Table 1. Descriptive characteristics of nurses (n=114)

Characteristics	n	%
Gender		
Female	84	73.7
Male	30	26.3
Age		
23-33	98	86
34-44	9	7.9
45-55	7	6.1
Education level		
High school	7	6.1
Associate degree	10	8.8
Licence	85	74.6
Master's degree	12	10.5
Working year		
Less than 1 year	6	5.3
1-5 years	77	67.5
6-10 years	12	10.5
11-15 years	14	12.3
More than 15 years	5	4.4
Department of study		
Intensive care unit	51	44.7
Internal clinic	16	14.0
Surgery clinic	19	16.7
Emergency unit	7	6.1
Operating room unit	13	11.5
Other*	8	7.0
Pupil evaluation status in the department worked		
It's not being done.	38	33.3
It is done 1-2 times a day.	25	21.9
It is done throughout the day at 2-3 hour intervals.	6	5.3
It is done according to the patient's condition.	29	25.4
It is performed on every patient for 24 hours.	13	11.4
Other	3	2.6
Previous receiving training on pupil assessment		
Yes	59	51.8
No	55	48.2

n: Number of people, %: Percentage, * Nursing home and blood bank

The nurses' responses to the statements regarding pupil assessment are presented in **Table 2**. Analysis of the 27 statements in the questionnaire revealed that the items with the highest percentage of correct answers were "In pupil evaluation, the light response of the pupils is evaluated." (96.49%) and "In pupil evaluation, the size of the pupils is evaluated. (92.98%). The items with the lowest percentage of correct answers were "In general, as age increases, the size of the pupils may decrease." (30.7%) and "Healthy people can also have anisocoria." (32.46%). When the scores obtained from the pupil assessment knowledge form were examined, the nurses' mean knowledge score was calculated as 17.94 ± 4.91 .

DISCUSSION

This study revealed that nurses' knowledge levels regarding pupil assessment, which is an important part of neurological examination, were at a moderate level. The majority of nurses answered questions correctly about environmental lighting, the power of the light source, and tools such as pupillometry. However, it was observed that correct response rates were lower for questions addressing pharmacological and physiological knowledge, such as 'stress dilates pupils,' 'pain stimuli dilate pupils,' and 'catecholamines dilate pupils.' These findings suggest that while nurses' practical knowledge of assessment techniques is adequate, there are gaps in their understanding

Table 2. Nurses' responses to statements related to pupil assessment (n=114)

Expressions	True % (n)	False % (n)	No idea % (n)	Correct response % (n)
Questions related to pupil physiology				
1. In general, as age increases, the size of the pupils may decrease.	30.70 (35)	21.05 (24)	48.25 (55)	30.70 (35)
2. When the eye focuses on a close point, the pupil narrows.	53.51 (61)	21.05 (24)	25.44 (29)	53.51 (61)
3. The majority of the pupillary response time is typically about 1 second.	39.47 (45)	9.65 (11)	50.88 (58)	39.47 (45)
4. Catecholamines dilate pupils.	45.61 (52)	7.89 (9)	46.49 (53)	45.61 (52)
5. The possibility of anisocoria increases with age.	41.23 (47)	22.81 (26)	36.96 (41)	41.23 (47)
6. Pain stimulus dilates the pupils.	46.49 (53)	18.42 (21)	35.09 (40)	46.49 (53)
7. The light reflex is lost in a person under deep anesthesia.	57.02 (65)	24.56 (28)	18.42 (21)	57.02 (65)
8. In cases of long-term hypoxia, the pupillary reflex may disappear.	84.21(96)	1.75 (2)	14.04 (16)	84.21(96)
9. Healthy people can also have anisocoria.	32.46 (37)	40.35 (46)	27.19 (31)	32.46 (37)
10. A light color of the evaluated eye makes it easier to evaluate pupillary reflexes.	44.74 (51)	30.7 (35)	24.56 (28)	44.74 (51)
11. Stress dilates pupils.	66.67 (76)	10.53 (12)	22.81 (26)	66.67 (76)
12. The duration of the light reflex is prolonged in patients experiencing Increased Intracranial Pressure Syndrome (IPR).	59.65 (68)	1.75 (2)	38.60 (44)	59.65 (68)
13. The patient's history of eye surgery and the presence of a neurological disease may affect pupillary reflexes.	86.84 (99)	1.75 (2)	11.41 (13)	86.84 (99)
14. Hypoglycemia causes the light reflex of the pupils to disappear and the pupils to dilate.	50% (57)	6.14 (7)	43.86 (50)	50% (57)
Expressions	True % (n)	False % (n)	No idea % (n)	Correct response % (n)
Questions related to the technique of pupillary reflex assessment				
1. Pupil evaluation is a subjective evaluation.	39.47 (45)	50.88 (58)	9.65 (11)	50.88 (45)
2. Experience affects pupillary evaluation.	88.60 (101)	10.53 (12)	0.88 (1)	88.60 (101)
3. In pupil evaluation, the size of the pupils is evaluated.	92.98 (106)	4.39 (5)	2.63 (3)	92.98 (106)
4. In pupil evaluation, the light response of the pupils is evaluated.	96.49 (110)	0.88 (1)	2.63 (3)	96.49 (110)
5. In pupil evaluation, the shape of the pupils is evaluated.	78.95 (90)	14.04 (16)	7.01 (8)	78.95 (90)
6. In pupil evaluation, anisocoria status is evaluated.	87.72 (100)	0	12.28 (14)	87.72 (100)
7. Assessment of the pupil light reflex is necessary for the diagnosis of factors such as brain stem lesions, effects of drugs, etc.	83.33 (95)	2.63 (3)	14.04 (16)	83.33 (95)
8. Pupil evaluation should be done by standing directly in front of the patient.	85.09 (97)	7.89 (9)	7.02 (8)	85.09 (97)
9. Measurement tools such as pupilla ruler and pupillometry can be used in pupil evaluation.	61.40 (70)	8.77 (10)	29.83 (34)	61.40 (70)
Expressions	True % (n)	False % (n)	No idea % (n)	Correct response % (n)
Questions related to the light source				
1. During pupil evaluation, excessive ambient lighting may reduce the pupil diameter.	85.09 (97)	10.53 (12)	4.38 (5)	85.09 (97)
2. Low battery power of the light source used may prevent the formation of adequate reflexes in the pupils.	84.21 (96)	4.38 (5)	11.41 (13)	84.21 (96)
3. As the distance between the light source and the pupil increases, it may cause the pupil diameter to be perceived as larger.	74.56 (85)	7.02 (8)	18.42 (21)	74.56 (85)
4. The fact that the light source used during pupil evaluation is not standardized affects the pupil evaluation because it emits light at different levels.	85.96 (98)	0	14.04 (16)	85.96 (98)

n: Number of people, %: Percentage

of pathophysiological mechanisms. The literature also shows that nurses tend to rely more on subjective observation methods and do not sufficiently use objective assessment tools (Kerr et al., 2016; Kebapçı & Topçu, 2020). Limited use of technological tools such as pupillometry may reduce nurses' ability to assess pupillary reflexes accurately and in a standardized manner. Studies by Kramer et al. (2014) and Anderson et al. (2018) have demonstrated that pupillometers provide more reliable results than traditional observation methods. However, the limited use of such devices in clinical practice due to cost and lack of training turns the assessment process from an objective procedure into a subjective one.

It is known that environmental and individual factors such as age, eye color, lighting conditions, and the tools used can affect pupil assessment results (Guillon et al., 2016; Tyukhova & Waters, 2018). According to the survey results, only about one-third of nurses (30.7%) correctly identified the statement 'in general, as age increases, the size of the pupils may decrease.' Similarly, nearly half of the participants (41.23%) correctly agreed with the statement 'the possibility of anisocoria increases with age'. Studies have shown that age affects pupil diameter, that pupils tend to become smaller with age, and that the likelihood of anisocoria increases in some older adults (Kerr et al., 2016; Kotani et al., 2021; Sharma et al., 2016; Guillon et al., 2016). In order to distinguish whether changes in pupil condition are due to neurological causes or normal aging, nurses must be able to make this differentiation. Based on this finding, it can be concluded that participating nurses have knowledge gaps on this topic. The statements 'during pupil evaluation, excessive ambient lighting may reduce the pupil diameter,' 'Low battery power of the light source used may prevent the formation of adequate reflexes in the pupils,' and 'the fact that the light source used during pupil evaluation is not standardized affects the pupil evaluation because it emits light at different levels,' were correctly identified by the majority of nurses (85.9%, 84.21%, and 85.96%, respectively). Another statement, 'as the distance between the light source and the pupil increases, it may cause the pupil diameter to be perceived as larger,' was correctly identified by most nurses (74.56%). The responses indicate that nurses generally have knowledge about ambient light and light sources used during pupil assessment, although about 10–15% lack sufficient information on this topic.

Environmental lighting and the light source used to trigger the reflex are two important factors affecting pupil assessment. Studies have indicated that excessive ambient lighting may trigger the light reflex, making it difficult for the assessor to observe the reflex correctly or leading to misinterpretation. Similarly, the amount of light emitted by the source affects the light reflex. Insufficient light output or an increased distance between the source and the pupil negatively impacts the light reflex (Sharma et al., 2016; Tyukhova & Waters, 2018; Kramer et al., 2014; Omburo et al., 2017; Guillon et al., 2016). Another study found significant differences in pupil assessment results among assessors using different light sources (Omburo et al., 2017).

According to the literature, individuals with light-colored (blue-green) irises have more easily detectable pupillary reflexes than those with dark-colored (brown-black) eyes, and light-colored eyes are more sensitive to light, producing faster

reflexes (Bergamin et al., 1998). Nearly half (44.74%) of the nurses correctly identified the statement 'a light color of the evaluated eye makes it easier to evaluate pupillary reflexes.'

The survey results also revealed that nurses have knowledge gaps regarding pharmacological effects (e.g., catecholamines, stress, anesthesia, hypoxia) and age-related physiological changes. The statement 'assessment of the pupil light reflex is necessary for the diagnosis of factors such as brain stem lesions, effects of drugs, etc.' was correctly identified by the majority of nurses (83.33%). This indicates that nurses recognize the importance of pupil assessment and understand when it should be performed (Kotani et al., 2021). Although the main purpose of pupil assessment is to detect abnormalities, nurses must first understand normal pupillary reflexes to recognize deviations. In this context, about half of the nurses (45.61%) correctly agreed with the statement 'catecholamines dilate pupils,' while more than half (66.67%) correctly identified that 'stress dilates pupils.' Approximately half (46.49%) of the nurses correctly responded to 'pain stimulus dilates the pupils,' and more than half (57.02%) correctly identified 'the light reflex is lost in a person under deep anesthesia.' The statement 'in cases of long-term hypoxia, the pupillary reflex may disappear,' was correctly identified by most nurses (84.21%). Pain and certain drugs can affect the pupillary reflex (Larson & Behrends, 2015; Vinclair et al., 2019; Knaggs et al., 2004).

Increased intracranial pressure may cause abnormal pupillary reflexes, such as prolonged light reflex time (Kotani et al., 2021). More than half of the participants (59.65%) correctly identified the statement 'the duration of the light reflex is prolonged in patients experiencing Increased Intracranial Pressure Syndrome (IPR).' The majority (86.84%) correctly agreed that 'the patient's history of eye surgery and the presence of a neurological disease may affect pupillary reflexes.' About half of the nurses correctly responded to the statement 'hypoglycemia causes the light reflex of the pupils to disappear and the pupils to dilate.'

These findings indicate that topics related to neurological assessment should be addressed more comprehensively and in greater depth in nursing curricula. Early identification of neurological reflexes in clinical decision-making is critical for patient safety.

Limitations

This study has certain methodological limitations. Firstly, the representativeness of the sample is limited due to the small number of nurses reached through the virtual snowball sampling method, which restricts the generalizability of the findings to the entire nursing population. The voluntary nature of participation may also increase the risk of self-selection bias within the sample. Additionally, since the data were collected via an online self-report questionnaire, there is a possibility of social desirability bias, which may have led participants to portray their knowledge levels differently than they actually are. Moreover, this study assessed only theoretical knowledge; no observational or practice-based performance measurements were conducted. As a result, it was not possible to objectively evaluate nurses' actual behavior and knowledge levels in the clinical setting.

CONCLUSION

The results of this study suggest that nurses possess a moderate level of knowledge concerning pupil assessment. Pupil assessment is a vital component of neurological examination and can provide early and critical information about a patient's level of consciousness and brainstem functions. Therefore, it is of great importance for nurses to have sufficient knowledge and to improve their assessment skills to ensure patient safety.

Based on these findings, the following recommendations are offered:

- **Development of training programs:** The scope of theoretical knowledge and clinical practice content related to pupil assessment should be expanded in undergraduate nursing curricula. In particular, simulation-based training programs should be incorporated to develop skills in assessing the pupillary light reflex under realistic conditions.
- **In-service training:** Regular in-person or online in-service training programs should be planned and implemented to keep the knowledge levels of nurses working in clinical settings up to date.
- **Use of objective assessment tools:** The use of objective assessment devices such as pupillometers should be encouraged, and training on the use of these devices should be provided.
- **Standard protocols:** Hospital-based standard protocols for pupil assessment should be developed to ensure that assessments are conducted systematically and reliably.
- **Further research:** Comparative studies with larger sample sizes in different regions will help to more comprehensively reveal nurses' knowledge levels regarding neurological assessment.

Contribution to the Field

To the best of our knowledge, no comprehensive study has previously been conducted on this subject. This study contributes to the limited body of research that examines nurses' knowledge regarding pupil assessment. The findings are expected to offer significant insights for nursing education, clinical practice, and the delivery of healthcare services.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study, ethical approval was obtained from the Gülhane Scientific Researches Ethics Committee (Date: 22.08.2023, Decision No: 2023/219).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights—including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

The authors received no financial support for the conduct or publication of this research.

Author Contributions

All authors contributed significantly to the study's conception, design, data acquisition, analysis, and interpretation. All authors reviewed and approved the final version of the manuscript.

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REFERENCES

- Anderson, M., Elmer, J., Shutter, L., Puccio, A., Alexander, S. (2018). Integrating quantitative pupillometry into regular care in a neurotrauma intensive care unit. *J Neurosci Nurs*, 50(1), 30-36. doi:10.1097/JNN.0000000000000333
- Bae, K.S., Roh, Y.S. (2019). Training needs analysis of Korean nurses' neurological assessment competency. *Nursing & health sciences*, 22(1), 99-107. doi:10.1111/nhs.12654
- Berk, A. T., & Yaman, A. (2007). Çocuklarda nöro-oftalmolojik değerlendirme. *Türk Oftalmoloji Dergisi*, 37(4), 243-249.
- Bergamin, O., Schoetza, A., Sugimoto, K., Zulauf, M. (1998). The influence of iris color on the pupillary light reflex. *Graefes's Archive for Clinical and Experimental Ophthalmology*, 36(8), 567-570. doi:10.1007/s004170050122
- Chan, M.F., Mattar, I., Taylor, B.J. (2013). Investigating factors that have an impact on nurses' performance of patients' conscious level assessment: a systematic review. *J Nurs Management*, 21(1), 31-46. doi:10.1111/j.1365-2834.2011.01344.x
- Dumurgier, J., Tzourio, C. (2020). Epidemiology of neurological diseases in older adults. *Revue Neurologique*, 176(9), 642-648. doi:10.1016/j.neurol.2020.01.356
- Guillon, M., Dumbleton, K., Theodoratos, P., Gobbe, M., Wooley, C.B., Moody, K. (2016). The effects of age, refractive status, and luminance on pupil size. *Optometry and Vision Science*, 93(9), 1093-1100. doi:10.1097/OPX.0000000000000893
- Kebapçı, A., Topçu, S. (2020). Interrater reliability in pupillary assessment among intensive care nurses. *Intensive & Critical Care Nursing*, 58, 102801. doi:10.1016/j.iccn.2020.102801
- Kerr, R., Bacon, A., Baker, L., Gehrke, J., Hahn, K., Lillegraven, C., ... & Spilman, S. (2016). Underestimation of pupil size by critical care and neurosurgical nurses. *Am J Crit Care*, 25(3), 213-219. doi:10.4037/ajcc.2016554
- Kline, L. B., & Bajandas, F. J. (2012). Neuro-ophthalmology: a symptomatic approach (3rd ed.). Elsevier.
- Knaggs, R.D., Crighton, I.M., Cobby, T., Fletcher, A.J.P., Hobbs, G.J. (2004). The pupillary effects of intravenous morphine, codeine, and tramadol in volunteers. *Anesthesia & Analgesia*, 99(1), 108-112. doi:10.1213/01.ANE.0000116924.16535.BA
- Kotani, J., Nakao, N., Yamada, I., Miyawaki, A., Mambo, N., Ono, Y. (2021). A novel method for measuring the pupil diameter and pupillary light reflex of healthy volunteers and patients with intracranial lesions using a newly developed pupilometer. *Front Med*, 8, 598791. doi:10.389/fmed.2021.598791
- Kramer, C., Rabinstein, A., Wijds, E., Hocker, S. (2014). Neurologist versus machine: is the pupillometer better than the naked eye in detecting pupillary reactivity? *Neurocritical Care*, 21, 309-311. doi:10.1007/s12028-014-9988-5
- Larson, M., Behrends, M. (2015). Portable infrared pupillometry: a review. *Anesthesia & Analgesia*, 120(6), 1242-1253. doi:10.1213/ANE.0000000000000314
- Mehta, R., Chinthapalli, K. (2019). Glasgow Coma Scale explained. *BMJ (Clinical Research Ed.)*, 365, 11296. doi:10.1136/bmj.11296

- Memetoğlu, M. (2022). Gözler beynin aynasıdır: pupilometri ve psikolojideki uygulamaları. *Türkiye Bütüncül Psikoterapi Dergisi*, 5 (10), 101-108.
- Omburo, L., Stutzman, S., Supnet, C., Choate, M., Olson, D. (2017). High variance in pupillary examination findings among postanesthesia care unit nurses. *J PeriAnesthesia Nursing*, 32(3), 219-224. doi:10.1016/j.jopan.2015.05.117
- Pedrotti, A., Mirzaei, M., Tedesco, A., Chardonnet, J., Marianne, F., Benedetto, S., Baccino, T. (2014). Automatic stress classification with pupil diameter analysis. *Int J Human-Computer Interaction*, 30(3), 220-236. doi:10.1080/10447318.2013.848320
- Sepit, D. (2005). Bilinç durumunun değerlendirilmesi ve Glasgow Koma Skalası. *Hemşirelikte Eğitim ve Araştırma Dergisi*, 2(1), 12-16.
- Sharma, S., Baskaran, M., Rukmini, A., Nongpiur, M., Htoon, H., Cheng, C., ... & Milea, D. (2016). Factors influencing the pupillary light reflex in healthy individuals. *Graefe's Archive for Clinical and Experimental Ophthalmology*, 254(7), 1353-1359. doi:10.1007/s00417-016-3311-4
- Tyukhova, Y., Waters, C. (2018). Subjective and pupil responses to discomfort glare from small, high-luminance light sources. *Lighting Research & Technology*, 0, 1-20. doi:10.1177/1477153518772000
- van Rij, J., Hendriks, P., van Rijn, H., Baayen, R.H., Wood, S.N. (2019). Analyzing the time course of pupillometric data. *Trends in Hearing*, 23, 1-22. doi:10.1177/2331216519832483
- Vinclair, M., Schilte, C., Roudaud, F., Lavolaine, J., Francony, G., Bouzat, P., ... & Payen, J.F. (2019). Using Pupillary Pain Index to assess nociception in sedated critically ill patients. *Anesthesia & Analgesia*, 129(6), 1540-1546. doi:10.1213/ANE.0000000000004173
- Volpe, J. J. (2008). *Neurology of the newborn* (5th ed.). Elsevier.
- Wilhelm, H., & Wilhelm, B. (2005). Clinical features of physiologic anisocoria. *J Neuro-Ophthalmol*, 25(4), 291-297.
- Wright, K. W., & Strube, Y. N. J. (2012). *Pediatric ophthalmology and strabismus* (3rd ed.). Oxford University Press.

Effect of a stress coping training on nurses' coping strategies and job satisfaction

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ABSTRACT

Aims: This study aimed to evaluate the impact of a structured stress management training program on coping strategies and job satisfaction among nurses.

Methods: A quasi-experimental pre-post single-group design was used. The sample included 23 nurses working at Van Training and Research Hospital and Dursun Odabaş Medical Center who completed a six-session psychoeducation program. Data were collected using a sociodemographic form, the Brief COPE Inventory, and the Nursing Job Satisfaction Scale. Paired samples t-tests and effect size analyses were conducted.

Results: Post-intervention results indicated a significant decrease in the maladaptive coping strategies related to substance use, with mean scores dropping from 4.08 (SD=0.99) to 2.56 (SD=1.19). Results also revealed a significant increase in positive reinterpretation, with mean scores rising from 4.69 (SD=0.97) to 5.95 (SD=1.36); $t(df)=-3.568$, $p=.001$, $\eta^2=.74$. However, no statistically significant change was found in job satisfaction scores.

Conclusion: The training effectively enhanced coping strategies but did not affect job satisfaction. These results emphasize the importance of integrating individual-level interventions with organizational efforts to improve nurses' well-being.

Keywords: Stress coping training, coping strategies, job satisfaction

INTRODUCTION

Nursing is a discipline that encompasses care services aimed at supporting individuals' physical, psychological, and social integrity. It plays a critical role in meeting health needs and requires a high level of knowledge, skill, and emotional labor. The challenges faced by nurses in the workplace stem not only from patient care responsibilities but also from long working hours, heavy workloads, emotional exhaustion, organizational pressures, and professional responsibilities (Yüksel Kaçan et al., 2016). These stressors negatively affect nurses' physical and mental health, often resulting in burnout, job dissatisfaction, and compassion fatigue (Çögenli & Erdal, 2018). Nurses working in high-stress environments such as emergency rooms, intensive care units, and oncology departments are particularly vulnerable to anxiety, depression, and burnout (Jachmann et al., 2025; Ramírez-Elvira et al., 2021; Salehi et al., 2025). Additionally, shift work has been shown to increase stress levels and promote helpless coping styles among nurses (Aksu & Erdim, 2018).

Persistent stress in the workplace can reduce job satisfaction and compromise the quality of patient care, thereby affecting the overall effectiveness of healthcare services (Fortney et

al., 2013). Wazqar et al. (2017) demonstrated a consistent negative correlation between workload and job satisfaction, emphasizing the critical importance of equipping nurses with effective coping mechanisms to enhance job performance and overall well-being.

Coping is a multidimensional process involving cognitive, emotional, and behavioral responses to stress-inducing events. Effective coping strategies are essential for nurses to manage the numerous challenges they face in their professional lives. Khamisa et al. (2016) reported that nurses exposed to lower levels of occupational stress had higher job satisfaction, suggesting that managing stress effectively directly influences motivation and job experience. Nurses with stronger coping skills demonstrate greater resilience to workplace stressors, which positively impacts the quality of patient care (Liu et al., 2025; Sağgaca et al., 2023; Zengin & Taş, 2023). Moreover, social support has been shown to enhance coping abilities and positively affect job satisfaction (Üstündağ et al., 2019).

Various intervention programs have been developed to strengthen nurses' coping skills, including cognitive-behavioral therapy-based approaches, mindfulness-based

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interventions, and psychoeducational training programs (Bagheri et al., 2019). These programs can support nurses in developing more adaptive coping strategies and improving psychological resilience (Yang et al., 2018). However, many existing studies focus on short-term interventions without evaluating long-term outcomes (Lin et al., 2019; Montanari et al., 2019; Sulosaari et al., 2022).

The existing literature suggests that structured stress management programs can enhance nurses' psychological resilience and reduce occupational stress (Erdilek Karabay, 2015; Liu et al., 2025; Sacgaca et al., 2023). Nevertheless, few studies have examined the feasibility and combined impact of such programs on both coping strategies and job satisfaction (Ghawadra et al., 2020; Lin et al., 2019).

This study aims to evaluate the effects of a structured stress coping training program on nurses' coping strategies and job satisfaction through a feasibility approach. The findings are expected to inform the development of sustainable and effective training programs that enhance nurses' professional quality of life and guide healthcare institutions in addressing burnout and improving workplace well-being.

In this context, the research questions are as follows:

Main research question:

1. What are the effects of a structured stress coping training program on nurses' coping strategies and job satisfaction?

Sub-questions:

1. Does the structured stress coping training program significantly improve nurses' coping strategies compared to baseline?
2. Does participation in the program significantly increase nurses' job satisfaction levels?
3. Is there a statistically significant relationship between changes in coping strategies and changes in job satisfaction following the training program?

METHODS

Ethics

The study received ethical approval from the Non-interventional Researches Ethics Committee of Van Yüzüncü Yıl University (Date: 10.11.2023, Decision No: 2023/11-23) and institutional permission from Dursun Odabaş Medical Center (Date: 25.12.2023, Decision No: E-54355720-302.14.01-464370). Nurses who volunteered to participate in the research filled out the relevant forms and the scale during data collection face-to-face. Permission was received via email from the individuals who performed the Turkish validity and reliability study of the scales. The ethical requirements specified in the Declaration of Helsinki were fulfilled throughout the study.

Study Design

This study employed a pre-post single-group quasi-experimental design. The design included pre-intervention and post-intervention assessments to evaluate the effects of the stress coping training program.

Participants

The study was announced through an informational poster distributed by education nurses within the participating hospitals. Following the announcement, 30 nurses expressed interest and completed the pre-test assessments. However, 7 participants were excluded due to irregular attendance or incomplete questionnaire responses. Thus, the final sample consisted of 23 nurses working at Van Training and Research Hospital and Dursun Odabaş Medical Center. These participants were recruited through purposive sampling based on their active employment and voluntary participation.

Inclusion Criteria

Participants were eligible for the study if they:

- Were employed as registered nurses at Van Training and Research Hospital or Dursun Odabaş Medical Center,
- Had at least six months of work experience,
- Agreed to participate voluntarily and provided informed consent,
- Attended all training sessions of the intervention,
- Completed both the pre-test and post-test questionnaires in a valid and reliable manner.

Exclusion Criteria

Participants were excluded if they:

- Failed to attend the full training program,
- Submitted incomplete or inconsistent questionnaire responses,
- Withdrew from the study at any point during the intervention period ([Table 1](#)).

Table 1. Sociodemographic characteristics of participants (n=23)

Variable	Category	n	%
Gender	Female	12	52.2
	Male	11	47.8
Marital status	Married	11	47.8
	Single	12	52.2
Satisfaction with working conditions	Yes	8	34.8
	No	15	65.2
Years of work experience	1–5 years	8	34.8
	6–10 years	9	39.1
	More than 10 years	6	26.1
Working pattern	Day shift	6	26.1
	Rotational shift	17	73.9
Enjoys the profession	Yes	17	73.9
	No	6	26.1
Perceives profession as contributing to personal development	Yes	17	73.9
	No	6	26.1
Income level	Income less than expenses	17	73.9
	Income equal to expenses	6	26.1
Educational level	High School	2	8.7
	Bachelor's degree	18	78.3
	Graduate education	3	13.0

Study Setting and Timeframe

The study was conducted at Dursun Odabaş Medical Center between February and March 2024. Data collection took place between January and March 2024, following the receipt of ethical approval and institutional permissions. Data were collected by the researchers using a self-report method through structured questionnaires.

All participants were formally informed about the purpose and procedures of the study in accordance with the principles outlined in the Declaration of Helsinki. Written and verbal informed consent was obtained from each participant prior to their inclusion in the study (Figure).



Figure. Flow diagram of study

Measures

Before the intervention, participants completed a pre-test that included a sociodemographic data form, the Brief COPE Inventory, and the Nursing Job Satisfaction Scale. The same instruments were re-administered as a post-test following the completion of the training program.

Sociodemographic Data Form: This form was developed by the researchers based on a literature review (Bacanlı et al., 20213; Khamisa et al., 2016; Öztürk, 2021). It included items related to participants' age, gender, educational background, marital status, clinical unit, satisfaction with working conditions, years of professional experience, work schedule (day vs. rotational shifts), enjoyment of the profession, perceived contribution of the profession to personal development, and income level.

Brief COPE Inventory: The Brief COPE Inventory is a shortened version of the original COPE Inventory developed by Carver et al. (1989) and later adapted by Carver (1997) to assess individuals' coping responses to stress. The Turkish adaptation and psychometric validation were conducted by Bacanlı et al. (2013). The scale consists of 28 items covering

14 coping dimensions, with two items per dimension. The sub-dimensions as below: use of instrumental social support; humor; focusing on and expressing emotions; substance use; acceptance; disengagement from other activities; turning to religion; denial; behavioral disengagement; mental disengagement; self-restraint; positive reinterpretation; use of emotional social support; planning. Each item is rated on a 4-point Likert scale. Reported Cronbach's alpha coefficients for the subscales range between .39 and .92 (Bacanlı et al., 2013). In the present study, the overall Cronbach's alpha was found to be .669.

Nursing Job Satisfaction Scale: The Nursing Job Satisfaction Scale (NJSS) was originally developed in Japan by Muyo et al. (2014) to assess nurses' job satisfaction levels. The Turkish adaptation and validation were conducted by Yıldırım and Yılmaz (2016). The scale consists of 27 items and includes four subscales: (1) Positive feelings about the job, (2) Perceived support from supervisors, (3) Perceived importance in the workplace, and (4) Pleasant work environment. It uses a 5-point Likert-type response format, with items 7 and 21 reverse-scored. The total score ranges from 35 to 135, with no established cut-off value. The Cronbach's alpha for the original version was reported as .903 (Muyo et al., 2014), and the reliability coefficient in this study was .869.

Intervention

As part of the study, a structured psychoeducational stress management training program was implemented for the participating nurses. The training was delivered face-to-face over a period of three weeks, with two sessions per week, totalling six sessions. Each session lasted approximately 90 minutes and was conducted in a group format with 23 participants.

The training modules were developed based on a comprehensive literature review and finalized after receiving expert feedback to ensure content validity (Ceravolo & Raines, 2019; Dos Santos et al., 2016; Koç et al., 2017). The content of each session is outlined below (Table 2):

Table 2. The contents of sessions

Session	Content
Session 1	- Participant introductions - Definition and nature of stress (positive and negative aspects) - Stress-related emotions (e.g., anger, fear, anxiety), stressors, key symptoms, and consequences
Session 2	- Models of stress within biological, environmental, and person-environment interaction frameworks
Session 3	- Management of stressful situations and coping processes (definitions and scope)
Session 4	- Stress vulnerability and resilience
Session 5	- Relaxation techniques in stress management
Session 6	- Behavioral approaches in stress management

Data Collection

Data were collected at Dursun Odabaş Medical Center between January and March 2024, following the approval of the institutional ethics committee and administrative permissions. Before data collection, all participants were informed about the purpose and scope of the study, and both verbal and written informed consent were obtained in accordance with ethical research standards.

The data were collected using a self-report method through pre-test and post-test assessments administered before and after the stress coping training. Completing the questionnaires took approximately 15 minutes per session. Additional time was provided for participants to ask questions or share relevant comments. All completed forms were collected by the researchers.

Statistical Analysis

Descriptive statistics including means, standard deviations, frequencies, and percentages were used to summarize the data. To evaluate the effectiveness of the intervention, paired Samples t-tests were conducted to compare pre-test and post-test scores. In addition, eta squared (η^2) was calculated to determine the effect size of the intervention.

All statistical analyses were performed using SPSS version 26.0, and the level of statistical significance was set at $p < .05$.

RESULTS

Participants Characteristics

The participants consisted of 23 nurses, with a mean age of 30.21 years ($SD=5.56$). The majority of participants were female (52.2%) and single (52.2%). Most of the nurses reported dissatisfaction with their working conditions (65.2%) and worked in rotational shifts (73.9%). A large proportion indicated that they enjoyed their profession (73.9%) and perceived it as contributing to their personal development (73.9%). Regarding income, 73.9% stated that their income was less than their expenses. In terms of education, most participants held a bachelor's degree (78.3%), followed by graduate education (13.0%) and high school (8.7%). Nearly 40% had 6–10 years of work experience.

The Effect of A Structured Psychoeducational Stress Management Training Program on coping Strategies and Job Satisfaction

Paired Samples t-test results revealed a statistically significant decrease in substance use coping strategies following the intervention, with mean scores dropping from 4.08 ($SD=0.99$) to 2.56 ($SD=1.19$), $t(df)=-3.805$, $p=.001$, $\eta=.79$. Similarly, positive reinterpretation significantly increased post-intervention, with mean scores rising from 4.69 ($SD=0.97$) to 5.95 ($SD=1.36$), $t(df)=3.568$, $p=.001$, $\eta=.74$. These results indicate that the psychoeducational intervention had a large effect on reducing maladaptive coping (i.e., substance use) and enhancing adaptive coping (i.e., positive reinterpretation).

No statistically significant differences were observed in the remaining coping strategies, as all other comparisons yielded $p=1.00$ and $\eta=.00$, indicating no change in these domains (Table 3).

Paired samples t-tests revealed no statistically significant changes in job satisfaction scores following the stress coping training. The total score of the Job Satisfaction Scale remained stable from pre-test ($M=81.82$, $SD=10.31$) to post-test ($M=81.26$, $SD=12.80$), $p=.780$. Similarly, there were no significant differences across subdimensions: positive feelings about the job ($p=.533$), perceived support from supervisors ($p=.871$), perceived importance in the workplace ($p=.798$), and pleasant work environment ($p=.686$). These results suggest that the training did not lead to measurable changes in job satisfaction among the participants (Table 4).

Table 3. Pre- and post-test means, t-values, p-values, and effect sizes (η) for nurses' coping strategies before and after stress coping training

Coping strategy	Pre-test (M±SD)	Post-test (M±SD)	t/p	Eta (η)
Use of instrumental social support	5.91±1.23	5.91±1.23	.000/1.00	.00
Humor	4.43±1.87	4.73±1.88	.000/1.00	.00
Focusing on and expressing emotions	5.47±1.41	5.47±1.41	.000/1.00	.00
Substance use	4.08±0.99	2.56±1.19	-3.805/.001*	.79
Acceptance	6.04±1.39	6.04±1.39	.000/1.00	.00
Disengagement from other activities	5.30±1.01	5.30±1.01	.000/1.00	.00
Turning to religion	6.86±1.09	6.86±1.09	.000/1.00	.00
Denial	3.78±1.20	3.78±1.20	.000/1.00	.00
Behavioral disengagement	3.65±1.26	3.65±1.26	.000/1.00	.00
Mental disengagement	5.13±1.42	5.13±1.42	.000/1.00	.00
Self-restraint	5.26±1.05	5.26±1.05	.000/1.00	.00
Positive reinterpretation	4.69±0.97	5.95±1.36	-3.568/.001*	.74
Use of emotional social support	5.34±1.22	5.34±1.22	.000/1.00	.00
Planning	6.30±1.29	6.30±1.29	.000/1.00	.00

SD: Standard deviation, *Paired samples test

Table 4. Pre- and post-test means and p-values for job satisfaction and its subdimensions

Job satisfaction dimension	Pre-test (M±SD)	Post-test (M±SD)	p-value
Total score	81.82±10.31	81.26±12.80	.780
Positive feelings about the job	23.69±3.94	23.00±3.96	.533
Perceived support from supervisors	16.73±4.58	16.91±6.07	.871
Perceived importance in the workplace	27.78±2.82	27.91±2.69	.798
Pleasant work environment	13.60±2.99	13.43±3.35	.686

SD: Standard deviation

DISCUSSION

The findings of this quasi-experimental study indicate that a structured stress management training program provided to nurses yielded notable effects on their coping strategies, though it did not produce significant changes in job satisfaction levels.

Analysis of the Brief COPE Inventory results revealed significant changes in two specific subscales: a decrease in maladaptive coping through substance use and an increase in adaptive coping through positive reinterpretation. These findings support the effectiveness of psychoeducation-based interventions in enhancing nurses' emotional resilience and promoting healthier stress management behaviors. The training likely facilitated a greater awareness of stressors and encouraged constructive reframing of challenging situations, consistent with previous literature that emphasizes the benefits of positive reappraisal strategies in mitigating stress (Carver, 1997; Bacanlı et al., 2013).

Despite these gains in coping, no statistically significant differences were observed in job satisfaction levels before and after the intervention. While the baseline job satisfaction

scores were relatively high, the lack of post-intervention change may be attributed to several factors. First, job satisfaction is influenced by a wide array of external and organizational elements—such as administrative support, workplace culture, interpersonal dynamics, remuneration, and career advancement opportunities—which were not directly addressed by the individual-level intervention employed in this study (Fortney et al., 2013; Yüksel et al., 2016). The participants' reports of dissatisfaction with their working conditions and compensation likely further constrained any measurable improvement.

Moreover, the duration and scope of the training may have been insufficient to produce substantial change in job satisfaction. While coping skills can be taught and refined over short periods, job satisfaction tends to develop over time and often requires systemic changes within the workplace. Similar findings have been reported in previous studies suggesting that stress management interventions, although beneficial for psychological resilience, may not independently impact broader occupational outcomes without organizational-level reforms (Durmuş & Günay, 2007).

It is also worth noting that coping strategies are more proximal outcomes, which can be directly targeted and modified through training, whereas job satisfaction is a distal construct, mediated by more complex and enduring workplace dynamics. Thus, the present findings highlight the necessity of combining individual-level interventions with organizational strategies for a more comprehensive improvement in nurses' occupational well-being.

This study also underscores the importance of integrating stress management and emotional regulation techniques into nursing education curricula. For example, during the COVID-19 pandemic, similar interventions were found to be effective in enhancing psychological resilience among nursing students (Öztürk, 2021). Embedding such training into both undergraduate programs and in-service professional development could serve as a preventive measure against burnout and dissatisfaction.

In summary, while the stress management training program was effective in promoting adaptive coping and reducing reliance on maladaptive strategies, it did not significantly alter job satisfaction levels. These findings suggest that interventions aiming to improve nurses' occupational well-being should address both personal skill development and systemic organizational factors to achieve optimal results.

Limitations

This study has several limitations that should be acknowledged. First, the small sample size ($n=23$) limits the statistical power and generalizability of the findings. Second, the absence of a control group prevents the attribution of observed changes exclusively to the intervention. Third, the reliance on self-report measures may introduce response biases. Fourth, the short duration of the training may not have been sufficient to affect more complex, long-term outcomes such as job satisfaction. Lastly, the sample was restricted to nurses from two hospitals in a specific region, which may further limit the generalizability of the results. Future research should consider randomized controlled designs, larger samples, and longer follow-up periods to assess sustained effects and broader applicability.

CONCLUSION

This study demonstrated that a structured stress management training program positively influenced nurses' coping strategies by reducing maladaptive behaviors and enhancing adaptive responses such as positive reinterpretation. However, the training did not yield significant changes in job satisfaction. These findings suggest that while individual-level interventions can enhance emotional resilience and coping, improving job satisfaction may require more comprehensive, organizational-level reforms. Integrating stress management skills into routine training and professional development programs may serve as a preventive strategy to mitigate burnout and support nurses' psychological well-being. Future research should explore multi-level interventions that target both personal and systemic factors to improve nurses' overall occupational health.

Relevance to Clinical Practice

Nurses frequently experience high levels of occupational stress that can undermine their coping capacities and job satisfaction. This study highlights the potential of structured stress management training to promote healthier coping strategies among nurses. Although job satisfaction remained unchanged, the findings suggest that combining such interventions with organizational changes may yield more comprehensive improvements in staff well-being and the quality of patient care. Embedding stress management education into nursing curricula and continuing education programs may serve as a sustainable strategy to build psychological resilience and reduce burnout in clinical settings.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study received ethical approval from the Non-interventional Researches Ethics Committee of Van Yüzüncü Yıl University (Date: 10.11.2023, Decision No: 2023/11-23) and institutional permission from Dursun Odabaş Medical Center (Date: 25.12.2023, Decision No: E-54355720-302.14.01-464370).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights—including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

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Author Contributions

All authors contributed significantly to the study's conception, design, data acquisition, analysis, and interpretation. All authors reviewed and approved the final version of the manuscript.

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REFERENCES

- Bacanlı, H., İlhan, T., & Aslan, S. (2013). Başa Çıkma Stratejileri Ölçeği kısa formunun (COPE) Türkçeye uyarlanması: geçerlik ve güvenilirlik çalışması. *Eğitim ve Bilim*, 38(169), 346-357.
- Bagheri, T., Fatemi, M. J., Payandan, H., Skandari, A., & Momeni, M. (2019). The effects of stress-coping strategies and group cognitive-behavioral therapy on nurse burnout. *Annals of burns and fire disasters*, 32(3), 184.
- Ceravolo, D., & Raines, D. A. (2019). The impact of a mindfulness intervention for nurse managers. *J Holistic Nursing*, 37(1), 47-55. doi:10.1177/0898010118781620
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: consider the Brief COPE. *Int J Behavioral Med*, 4(1), 92-100. doi:10.1207/s15327558ijbm0401_6
- Çöğenli, M. Z., & Erdal, Y. (2018). Hemşirelerde iş stresi ve iş stresinin çalışma performansına etkileri: Sinop Atatürk Devlet Hastanesi örneği. *Business & Management Studies: An Int J*, 6(3), 497-515. doi:10.22139/jobs.741576_
- Dos Santos T. M, Kozasa E. H, Carmagnani I. S, Tanaka L. H, Lacerda S. S, Nogueira-Martins L. A (2021). Positive effects of a stress reduction program based on mindfulness meditation in Brazilian nursing professionals: qualitative and quantitative evaluation. *Explore. J Sci Healing*, 12(2); 90-99. doi:10.1016/j.explore.2015.12.005
- Durmuş, S., & Günay, O. (2007). Hemşirelerde iş doyum ve anksiyete düzeyini etkileyen faktörler. *Erciyes Tıp Dergisi*, 29(2), 139-146.
- Erdilek Karabay, M. (2015). Sağlık personelinin iş stresi, iş-aile çatışması ve iş-aile-hayat tatminlerine yönelik algılarının işten ayrılma niyeti üzerindeki etkilerinin belirlenmesi üzerine bir araştırma. *Yönetim Bilimleri Dergisi*, 13(26), 113-134.
- Ghawadra, S. F., Lim Abdullah, K., Choo, W. Y., Danaee, M., & Phang, C. K. (2020). The effect of mindfulness-based training on stress, anxiety, depression and job satisfaction among ward nurses: a randomized control trial. *J Nurs Manag*, 28(5), 1088-1097. doi:10.1111/jonm.13049
- Jachmann, A., Loser, A., Mettler, A., Exadaktylos, A., Müller, M., & Klingberg, K. (2025). Burnout, depression, and stress in emergency department nurses and physicians and the impact on private and work life: a systematic review. *JACEP Open*, 6(2), 100046. doi:10.1016/j.acepjo.2025.100046
- Khamisa, N., Peltzer, K., Ilic, D. & Oldenburg, B. (2016). Hemşirelerin iş kaynaklı stresi, tükenmişlik, iş tatmini ve genel sağlıkları: bir takip çalışması. *Uluslararası Hemşirelik Uygulamaları Dergisi*, 22(6), 538-545.
- Koç, S., Özkul, A. S., Özdemir Ürkmez, D., Özkul Özel, H., & Çelik Çevik, L. (2017). Bir sağlık kuruluşunda görev yapmakta olan hemşirelerin stres kaynaklarının ve düzeylerinin analizi. *Okmeydanı Tıp Dergisi*, 33(2):68-75. doi:10.5222/otd.2017.1100
- Lin, L., He, G., Yan, J., Gu, C., & Xie, J. (2019). The effects of a modified mindfulness-based stress reduction program for nurses: a randomized controlled trial. *Workplace Health Saf*, 67(3), 111-122. doi:10.1177/2165079918801633
- Liu, M., Yan, Z., & Wu, C. (2025). Comparative efficacy and acceptability of resilience-focused interventions for nurses: a systematic review and network meta-analysis of randomized controlled trials. *BMC Nursing*, 24(1), 418. doi:10.1186/s12912-025-03090-0
- Montanari, K. M., Bowe, C. L., Chesak, S. S., & Cutshall, S. M. (2019). Mindfulness: assessing the feasibility of a pilot intervention to reduce stress and burnout. *J Holist Nurs*, 37(2), 175-188. doi:10.1177/0898010118793465
- Muyo, T., Matsuda, N., & Suzuki, S. (2014). Development of the Nursing Job Satisfaction Scale. *J Nurs Management*, 22(6), 745-755.
- Öztürk, F. (2021). COVID-19 pandemi sürecinde verilen stresle baş etme teknikleri dersinin hemşirelik bölümü birinci sınıf öğrencilerinde psikolojik sağlamlık ve öz etkililik-yeterliğe etkisi. *Sted/Sürekli Tıp Eğitimi Dergisi*, 30(4), 269-277. doi:10.17942/sted.959908
- Ramírez-Elvira, S., Romero-Bejar, J. L., Suleiman-Martos, N., Gomez-Urquiza, J. L., Monsalve-Reyes, C., Canadas-De la Fuente, G. A., & Albendin-Garcia, L. (2021). Prevalence, risk factors and burnout levels in intensive care unit nurses: a systematic review and meta-analysis. *Int J Environ Res Public Health*, 18(21), 11432. doi:10.3390/ijerph182111432
- Sacgaca, L., Gonzales, A., Alkubati, S., Alrashidi, N., Alreshidi, M. S., Pasay-An, E., ... & Saguban, R. (2023). The impact of mental well-being, stress, and coping strategies on resilience among staff nurses during COVID-19 in Saudi Arabia: a structural equation model. *Healthcare*, 11(3), 368. doi:10.3390/healthcare11030368
- Salehi, M., Ghasemian, A., Najar, A. V., Nazari, H., & Hooshmand, E. (2025). From compassion to burnout: emotional labor in oncology nursing—a qualitative study. *BMC Nursing*, 24(1), 272. doi:10.1186/s12912-025-02928-x
- Sulosaari, V., Unal, E., & Cinar, F. I. (2022). The effectiveness of mindfulness-based interventions on the psychological well-being of nurses: a systematic review. *Appl Nurs Res*, 64, 151565. doi:10.1016/j.apnr.2022.151565
- Üstündağ, H., Bostanci, Z., & Aydoğan, B. (2019). Hemşirelik öğrencilerinin stresle baş etme düzeyleri ile algıladıkları sosyal destek arasındaki ilişki. *Sağlık Bilimleri Ve Meslekleri Dergisi*, 6(1), 71-80. doi:10.17681/hsp.466581
- Wazqar, D. Y, Kerr, M., Regan, S. ve Orchard, C. (2017). İş stresi ve başa çıkma stratejilerinin hemşirelerin mesleki yaşam kalitesi üzerindeki etkisinin bütüncüleştirici bir incelemesi. *Hemşirelik Yönetimi Dergisi*, 25(5), 385-396.
- Yang, J., Tang, S., Zhou, W. (2018). Effect Of mindfulness-based stress reduction therapy on work stress and mental health of psychiatric nurses. *Psychiatry Danubina*, 30(2), pp 189-196. doi:10.24869/psyd.2018.189
- Yıldırım, A., & Yılmaz, F. (2016). Hemşire İş Doyum Ölçeği'nin Türkçe geçerlilik ve güvenilirlik çalışması. *Türkiye Klinikleri Hemşirelik Bilimleri Dergisi*, 8(1), 45-52.
- Yüksel-Kaçan, C., Örsal, Ö., & Köşgeroğlu, N. (2016). Hemşirelerde iş doyumunun incelenmesi. *Hemşirelikte Araştırma Geliştirme Dergisi*, 18(2/3), 1-12. doi:10.69487/hemarge.696067
- Zengin, M. and TAŞ, R. (2023). Hemşirelik öğrencilerinin algıladıkları sosyal destek düzeyleri ile stres ve stresle baş etme davranışları arasındaki ilişki. *Balıkesir Med J*. 7(1), 15-24. doi:10.33716/bmedj.1239124

The effect of breastfeeding counselling provided to primiparous mothers on postpartum breastfeeding outcomes and dyadic adjustment

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ABSTRACT

Aims: The aim of this study is to determine the effects of breastfeeding counselling provided to primiparous mothers on postnatal breastfeeding outcomes and dyadic adjustment.

Methods: This study was a randomised controlled trial. The study was conducted at a public hospital in Bursa between November 2023 and November 2024 with primiparous pregnant women. Mothers in the follow-up group received the hospital's routine breastfeeding education. Women in the experimental group received individual breastfeeding counselling eight times at specific intervals from the 28th to 35th week of pregnancy to the sixth month postpartum. Data were collected using an Information Form, the Adverse Childhood Experiences Scale, the Breastfeeding Support Scale, the Revised Dyadic Adjustment Scale, the LATCH Breastfeeding Assessment Scale, and the Girl and Boy Infant Percentile Curves. Data were assessed electronically.

Results: There was no difference between the couples' compatibility and partner support scores of mothers receiving individual breastfeeding counselling, and those in the follow-up group ($p>0.05$). Mothers who received individual breastfeeding counselling had higher LATCH score averages and a higher frequency of feeding their babies exclusively with breast milk at 6 months compared to women in the follow-up group ($p<0.05$).

Conclusion: Individual breastfeeding counselling has been found to be more effective than breastfeeding counselling provided as part of routine hospital care, positively affecting breastfeeding outcomes.

Keywords: Breastfeeding counselling, primiparous, adverse childhood experiences, dyadic adjustment

INTRODUCTION

Breastfeeding is one of the foundations of child health development and survival. Particularly in the absence of breastfeeding, malnutrition, diarrhoea and pneumonia are common causes of death in children under five years of age. Furthermore, breastfeeding helps reduce overweight and obesity worldwide and protects maternal health. Therefore, in line with the recommendations of the World Health Organisation (WHO), the Turkish Ministry of Health recommends starting breastfeeding immediately after childbirth, exclusively breastfeeding for the first 6 months, and continuing breastfeeding until 2 years of age and beyond, within the framework of the 'Breastfeeding Promotion and Baby-Friendly Health Facilities Programme'. (Turkish Ministry of Health, 2018; WHO, 2018).

Despite the many benefits of breastfeeding, the rate of exclusive breastfeeding in the initial six months is 41%

in Türkiye (Soyhan, 2020; TNSA, 2018; Zengin, 2023). Globally, the region with the highest prevalence of exclusive breastfeeding is South Asia (60%), while the lowest is North America (26%). Worldwide, this rate is 48% (UNICEF, 2022). Although breastfeeding is common worldwide, the rates have declined compared to previous years. The main reasons for the decline in breastfeeding rates are problems during the breastfeeding process and the mother's inability to access the social and professional support she needs following this period (Demirbağ, 2023; Onat, 2018).

Breastfeeding counselling should begin during the antenatal period with a holistic approach (Onat, 2018). The breastfeeding counsellor plays a vital role in assessing breastfeeding, correcting mistakes made during breastfeeding, and providing support to the mother. The breastfeeding counsellor's fundamental duties are not only to provide information to the

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mother but also to help her overcome the difficulties she faces, to empathise with her, and to be supportive. These duties continue throughout the breastfeeding period. In our country, breastfeeding counselling training is mostly provided by nurses and midwives (Turkish Ministry of Health, 2018).

When mothers do not receive breastfeeding support, the breastfeeding process may be negatively affected (Aksoy et al., 2016). Mothers' emotional state also plays a role in this process. A study found that depressed mothers were less likely to breastfeed than non-depressed mothers and were more likely to discontinue breastfeeding earlier (Jiang et al., 2022). Mothers experiencing depression may have difficulty initiating and continuing breastfeeding due to common fatigue, low mood, and difficulties forming an emotional bond with their babies (Beyene et al., 2025).

Even in the absence of a mental disorder diagnosis, one factor affecting mothers' mental well-being is reported to be their negative experiences during childhood (Shaikh et al., 2020; Watson et al., 2021). Adverse childhood experiences (ACE) encompass the effects of all types of neglect and abuse experienced by individuals in their family environments up to the age of 18 and cause individuals to encounter many psychological and physical problems in the future (Canbolat, 2023; Gündüz et al., 2018; Işık, 2023). Adverse childhood experiences also increase the risk of physical and mental health problems during pregnancy and after childbirth. Adverse childhood experiences may reduce mothers' likelihood of initiating and continuing breastfeeding. Furthermore, breastfeeding may trigger memories of childhood sexual abuse and symptoms of post-traumatic stress disorder, which may lead to the discontinuation of breastfeeding (Umar et al., 2025).

The support of partners, who are closest to mothers during breastfeeding, is also important. It has been reported that whether a woman has spousal support during breastfeeding is important for her adaptation to her maternal role (Isiguzo et al., 2022; Tucker, 2022; Ugurlu et al., 2023). It has been found that spousal support significantly affects maternal mental health; women with problematic relationships with their spouses experience these negative effects (Wall and Dempsey, 2023). Dyadic adjustment becomes more apparent during pregnancy and the postpartum period. Dyadic adjustment constitutes the emotional dimension of the importance couples attach to family concepts, their feelings of love, respect, and trust for each other, and their sense of belonging (Türkseven, 2020; Çolak, 2017; Yurtsal and Uslu, 2023). On the other hand, changes observed in dyadic adjustment that are parallel to the changes experienced during pregnancy and the postpartum period affect breastfeeding (Yurtsal and Uslu, 2023). It has been found that psychological problems increase due to disagreements and incompatibilities experienced by couples (Rodoplu, 2019). Furthermore, it has been reported that negative experiences in childhood may cause individuals to experience conflict with their spouses in adulthood and a decrease in marital satisfaction (Pehlivanlı and İkizer, 2020; Altıparmak, 2021).

Although there are publications suggesting that fathers may also play a role in the breastfeeding process (Kale, 2024), it has been reported that breastfeeding counselling improves breastfeeding outcomes in mothers, while the lack of breastfeeding counselling and social support reduces

breastfeeding rates in women. Therefore, it is recommended that mothers receive individual breastfeeding education (Gerhardsson et al., 2023).

A review of the literature revealed no studies examining the effect of breastfeeding counselling provided to primiparous mothers with adverse childhood experiences on postnatal breastfeeding outcomes and dyadic adjustment. Therefore, this study was designed to examine the effect of breastfeeding counselling provided to pregnant women with adverse childhood experiences on postnatal breastfeeding outcomes and dyadic adjustment.

Research Hypotheses

H1: The frequency of exclusive breastfeeding among pregnant women receiving individual breastfeeding counselling is higher than among pregnant women receiving routine care.

H2: The perceived dyadic adjustment among pregnant women receiving individual breastfeeding counselling is higher than among pregnant women receiving routine care.

METHODS

Ethics

For this study, permission was obtained from the Non-interventional Clinical Researches Ethics Committee of the Institute of Health Sciences at Marmara University (Date: 19.12.2023, Decision No: 117). Primiparous pregnant women who volunteered to participate in the study completed the relevant forms and scales face-to-face during data collection. Permission was obtained via email from the individuals who conducted the Turkish validity and reliability studies of the scales. Throughout the study, the ethical requirements outlined in the Declaration of Helsinki were adhered to. After the study was completed, the mothers in the follow-up group were provided with counselling on breastfeeding and infant nutrition for 0-2-year-olds, in line with their requests.

Setting and Procedure

The study was conducted at the Bursa Specialized Training and Research Hospital. The study population consisted of 207 primiparous women who attended the antenatal clinic between November 2023 and November 2024. The study was completed with 60 women, including 30 women who completed the individual breastfeeding counselling training, and 30 women in the follow-up group who completed the measurements.

Study Design

This study is a randomised controlled trial. Each pregnant woman attending the antenatal clinic was assigned a number from the start of the study in order of application, and randomised using the randomizer.org website.

Inclusion Criteria

Women with at least one adverse childhood experience, primiparous, with a singleton pregnancy, married and living with their spouse, aged 18-35 were included. They had not previously received psychiatric treatment, had not previously received breastfeeding and antenatal education, could speak and understand Turkish, and had at least a primary school education.

Exclusion Criteria

Women who gave childbirth prematurely (before 37 weeks), did not complete the programme, developed postpartum maternal complications, had a baby requiring neonatal intensive care after childbirth, did not complete the questionnaire forms, or wished to withdraw from the study.

In the follow-up group, participants attended routine antenatal classes and received breastfeeding counselling once in the maternity ward before being discharged from the hospital after childbirth.

Experimental group: In addition to routine antenatal classes, they received individual breastfeeding counselling based on the same curriculum used in the Ministry of Health's mother and baby-friendly hospitals program. Individual counselling sessions were conducted by the first author, Sedanur Balim. Within this scope, individual breastfeeding counselling consisting of a total of eight sessions, starting between 28 and 35 weeks of pregnancy, and continuing until the sixth month after delivery, was provided via WhatsApp/online video calls.

Preparation of Sessions

Breastfeeding counselling was conducted at the hospital's antenatal school. The antenatal school was equipped with soft cushions, pillows, comfortable chairs, and well-lit surroundings to ensure the comfort of the expectant mothers. Presentations were enriched with models of the uterus, breast, and toy babies. Visual materials, including slide shows, and video presentations from the Turkish Ministry of Health, were used.

Session Content

1st session: Conducted in person between the 28th and 35th weeks of pregnancy. Detailed information about the research was provided to the expectant mothers, and questionnaire forms were administered.

2nd session: Conducted face-to-face between the 35th and 36th weeks of pregnancy. Topics covered included 'the anatomy of the breast, breast milk composition, oxytocin hormone, breastfeeding positions, the importance of breastfeeding and skin-to-skin contact, and kangaroo care.' The session lasted 45-60 minutes.

3rd session: Conducted face-to-face between the 37th and 38th weeks of pregnancy. Topics such as breast milk expression methods, milk storage methods, breast-related problems, back massage, and relactation were discussed, with the discussion lasting 45-60 minutes.

4th session: A WhatsApp/online video consultation was held between the 1st and 2nd days after childbirth. Information and assessment were provided on the breastfeeding process, follow-up breastfeeding, the baby's urine and stool output, and signs of jaundice. It lasted 30-45 minutes.

5th session: A WhatsApp/online video consultation was held between 7-14 days postpartum. The breastfeeding process was evaluated, counselling was provided on topics where mothers needed support, and effective recommendations were made to increase milk supply.

6th session: 28-35 days postpartum, conducted via WhatsApp/online video call. The breastfeeding process was evaluated

counselling was provided on topics where mothers needed support, and effective advice was given to increase milk supply.

7th session: Between 90-97 days postpartum, a WhatsApp/online video consultation was conducted. The mother's management of the breastfeeding process was evaluated, breastfeeding counselling was provided on topics they needed, and support was given to the mother to continue breastfeeding. The aim was to support the mother's breastfeeding process, continuing it for at least 6 months.

8th session: Conducted face-to-face when the baby was 6 months old (± 7 days). Information was provided about complementary feeding and the importance of continuing breastfeeding until the age of two. Questionnaires were given for final measurements; and the babies' height and weight were measured.

Synchronised measurements were taken for the experimental and follow-up groups, and the results were compared.

Data Collection

Within the scope of the study, the initial and final measurements were collected face-to-face by the first author (SB) at the antenatal education class of the public hospital where the study was conducted. The scale forms were completed by the researcher. The anthropometric measurements of the infants were taken by the researcher.

Data Collection Tools

The Personal Information Form, Adverse Childhood Experiences Scale, Breastfeeding Support Scale, Revised Dyadic Adjustment Scale, LATCH Breastfeeding Assessment Scale, and Girl and Boy Infant Percentile Curves, prepared by the researchers in line with the literature, were used to collect research data.

Personal Information Form: The personal information form prepared by the researchers consisted of questions covering the socio-demographic characteristics (age, educational status, income level, etc.) and obstetric characteristics (mode of childbirth, first antenatal care week, etc.) of the individuals.

Adverse Childhood Experiences Scale (ACE): Developed in 1997 by the Centers for Disease Control (CDC) and Kaiser Permanente, its validity and reliability in Turkish were studied by Gündüz et al. (2018). This scale consists of 10 items that inquire about childhood traumas. The questions only include a "yes" option, otherwise, they are left blank. The CSEI-P total score ranges from 0 to 10. An increase in the score indicates an increase in adverse childhood experiences. In the validity and reliability study of the scale, Cronbach's alpha (α) reliability coefficient was found to be 0.74, whereas, in this study, it was found to be 0.77.

Dyadic Adjustment Scale (RDAS): Developed by Busby et al. (1995), its validity and reliability were studied in Turkish (Bayraktaroğlu and Çakıcı, 2017). It is a 14-item measure. They adapted it to their culture. The scale was developed to assess the quality of relationships in marriages or similar dyadic relationships. Items 7, 8, 9, and 10 of the scale are reverse-scored. The maximum score that can be obtained from the scale is 70 points, and the score obtained indicates the quality of the relationship. In the validity and reliability

study of the scale, Cronbach's alpha (α) reliability coefficient was found to be 0.88, and in this study, the Cronbach's alpha reliability coefficient was found to be 0.81.

Breastfeeding Assessment Scale: Developed by Moriwaki and Haku (2016) to assess the current status of breastfeeding support from the spouse. Its validity and reliability were studied in Turkish (Akgün, 2019). The scale consists of 14 questions and 3 factors. Each item that the woman describes as "present" is given a score of "1". The maximum score that can be obtained from the scale is 14, and the minimum score is 0. As the score increases, the breastfeeding support felt by women also increases. In the validity study of the scale, Cronbach's alpha (α) reliability coefficient was 0.68, and in this study, it was 0.79.

LATCH Breastfeeding Assessment Scale: LATCH was developed by Jensen and colleagues (1994) and has been validated and tested for reliability in Turkish (Yenal and Okumuş, 2003). LATCH is an assessment tool created based on the Apgar scoring system in terms of its scoring method. The maximum score that can be obtained from the scale is 10, and the minimum score is 0. Higher scores on the scale indicate successful breastfeeding. In the validity and reliability study of the LATCH Breastfeeding Assessment Tool, Cronbach's alpha (α) reliability coefficient was 0.95 (Yenal and Okumuş, 2003), whereas in this study it was found to be 0.65.

Statistical Analysis

The research data were analysed using SPSS (Statistical Package for the Social Sciences). Frequency and percentage distributions, and mean $\pm$ standard deviation (min-max) values were used in data evaluation. The Chi-square and Mann-Whitney U tests were used to evaluate the difference between the intervention group and the follow-up group

before and after the intervention. A p-value less than 0.05 was considered statistically significant.

RESULTS

A total of 60 women participated in the study, comprising study and follow-up groups. The mean age of the participants was 28.50 ± 3.15 . It was determined that 88.3% of the women lived in a small family, 63.3% had a monthly income equal to their expenses, 88.3% were university or college graduates, and 41.7% were not working. When comparing the individual characteristics of the women in the follow-up and study groups, no statistically significant difference was found between them ($p>0.05$). The characteristics of the participants are presented in [Table 1](#).

When examining the couple's compatibility at the beginning and end of the study, no significant difference was found between the study and follow-up groups ($p>0.05$). When comparing the breastfeeding support levels of fathers after childbirth to a control group or mean score level, no significant difference was found ($p>0.05$). It was determined that the mean LATCH breastfeeding assessment score of women in the experimental group was higher than that of women in the follow-up group, and when the mean of scores was compared, this difference was found to be significant ($p<0.005$). The participants' scale scores are presented in [Table 2](#). When the weight, height, head circumference, and percentile curves of the infants of the women included in the study were compared at the 6-month follow-up, no difference was found between the study and follow-up groups ($p>0.05$). When the feeding patterns of the infants of women in the study group at 6 months were examined, it was determined that there were more infants exclusively breastfed compared to the infants of women in the follow-up group. This difference was statistically significant ($p<0.001$) ([Table 3](#)).

Table 1. Demographic characteristics of participants

Demographic characteristic		Experimental group (n=30)		Follow-up group (n=30)		Analysis
		Number (n) mean $\pm$ SD	Percentage %	Number (n) mean $\pm$ SD	Percentage	
Age		28.67 ± 3.17		28.33 ± 3.17		t=-0.406 p=0.686
Family type	Small	26	86.7	27	90.0	$\chi^2=0.162$ p=0.688
	Extended	4	13.3	3	10	
Educational status	Primary school	-	-	-	-	$\chi^2=0.352$ p=0.839
	Secondary school	1	3.3	2	6.7	
	High school	2	6.7	2	6.7	
	University	27	90.0	26	86.7	
Spouse's educational status	Primary school	-	-	-	-	$\chi^2=2.274$ p=0.321
	Secondary school	3	10.0	1	3.3	
	High school	8	26.7	5	16.7	
	University	19	63.3	24	80	
Employment status	Working	16	53.3	19	54.3	$\chi^2=0.0686$ p=0.7935
	Not working	14	46.7	11	36.7	
Economic situation	Income is less than expenditure	1	3.3	-	-	$\chi^2=1.534$ p=0.464
	Income equals expenditure	20	66.7	18	60.0	
	Revenue exceeds expenditure	9	30.0	12	40.0	
ACE score	0-3 points	-	-	30	100	$\chi^2=60.000$ p<0.001
	4-10 points	30	100	-	-	

SD: Standard deviation, ACE: Adverse Childhood Experiences Scale, χ^2 : Chi-square tests, **t: Independent samples test

Table 2. Participants's total scale scores after the session

		Experimental group (n=30) mean±SD	Follow-up group (n=30) mean±SD	
Dyadic adjustment score	Pre-childbirth	52.56±6.95	55.40±7.42	p=0.133 t=1.525
	6 months postpartum	50.60±6.87	53.4±7.4	p= 0.135 t= 1.515
Fathers' level of breastfeeding support		9.53± 3.5	9.06±2.85	p= 0.574 t= -0.566
Midwives's Latch breastfeeding assessment		7.96±1.58	6.66±1.84	p<0.005 t = -2.927

SD: Standard deviation, *χ²: Chi-square tests, **t: Independent samples test**Table 3.** 6 month follow-up findings for infants

		Experimental group (n=30) mean±SD	Percentage	Follow-up group (n=30) mean±SD	Percentage	Total	Analysis
Baby's weight		8.23± 0.56		8.15± 0.404			p=0.120 t = -0.709
Baby's height		66.90±1.95		65.93±2.89			p=0.135 t= -1.514
Baby's head circumference		44.40±0.58		44.37±0.74			p=0.135 t= -1.514
Height percentil	15-50 per	4	13.3	3	10	11.7	p= 0.838 t= -0.205
	50-85 per	16	53.3	19	63.3	58.3	
	85-97 per	10	33.3	8	26.7	30	
Weight percntil	0-3 per	-	-	1	3.3	1.7	p=0.292 t=-1.063
	3-15 per	5	16.7	9	30	23.3	
	15-50 per	7	23.3	8	26.7	25	
	50-85 per	14	46.7	5	16.7	31.7	
	85-97 per	4	13.3	7	23.3	18.3	
Baby's feeding method	Exclusively breast milk	16	53.3	4	13.3	33.3	χ ² =14.958 p<0.001
SD: Standard deviation, *χ2: Chi-square tests, **t: Independent samples test							

SD: Standard deviation, *χ²: Chi-square tests, **t: Independent samples test

DISCUSSION

Breastfeeding is not only an essential source of nutrition for the baby's development, growth, protection from various bacteria, and survival, but it also has a physical and psychological healing effect on the mother. For this reason, it is important to feed the baby only breast milk for the first 6 months. According to World Health Organization data, the rate of infants exclusively breastfed for 6 months is 48% (WHO, 2023). According to the Turkish Population Health Survey (2018), this rate is 14% in Türkiye. In this study, by providing individual breastfeeding support, the rate of exclusive breastfeeding was found to be 53.3% in the study group and 33.3% in the total study and follow-up group. Breastfeeding is noted to have an important restorative function, particularly for mothers with a history of trauma, as it alleviates symptoms associated with traumatic experiences, supports mental health, and reduces the risk of mothers exhibiting negative parenting behaviours towards their children (Kendall-Tackett, 2022; Watson, 2021). Indeed, studies show that women with a history of ACE have higher rates of breastfeeding than women who have not experienced ACE (Watson, 2021). The study commenced with 207 women. The study group comprised 30 women and the follow-up group comprised 30 women, totalling 60 women who completed all stages of the study and for whom data was collected in full. At the end of the study, it was observed that the ACE scores of the women included in the analysis differed. Although this study was planned and conducted as a randomised controlled trial, it was terminated due to participant dropouts and time

constraints arising from it being a thesis study. Despite this, the study found that women who had higher childhood adverse life experience scores and received one-to-one breastfeeding counselling were more likely to exclusively breastfeed their babies at the six-month postnatal follow-up.

It has been reported that ACE has long-term and multifaceted effects on both romantic relationships and motherhood. Therefore, comprehensive approaches that include not only individual psychological support but also breastfeeding counselling, couple counselling, and social support mechanisms should be developed for these individuals. In particular, it is argued that the widespread implementation of counselling practices during the breastfeeding process could play an important role in extending these individuals' breastfeeding periods and supporting bonding processes (Lorenc et al., 2020). Childbirth can affect mothers' breastfeeding experiences in complex ways, both psychologically and physiologically; for example, mental health issues such as post-traumatic stress disorder (PTSD) can negatively affect the sustainability of breastfeeding, and the dysregulation of stress hormones can affect milk production (Eagen-Torkko et al., 2017; Kendall-Tackett, 2022; Matyas et al., 2024). Therefore, breastfeeding counselling is critical to support mothers with a history of ACE in achieving their breastfeeding goals and helping them cope with potential difficulties (Walker-Mao et al., 2024; Johnson et al., 2023). This counselling should include understanding how mothers' past traumas affect their breastfeeding experiences,

providing a safe and supportive environment, enhancing self-efficacy, and supporting mental health. Such counselling can help mothers understand how their past traumas impact breastfeeding.

The mantra 'what doesn't kill you makes you stronger' resonates with many people and can be associated with a compelling general belief that hardship can be a source of strength and opportunity for post-traumatic growth. Nietzsche's renowned writings on this subject, as well as songs by contemporary popular musicians such as Kelly Clarkson and Taylor Swift, are widely known in society (Jayawickreme et al., 2021). Tedeschi and Calhoun (2004), who first used the term post-traumatic growth, defined positive post-traumatic changes as psychological changes experienced after coping with traumatic events or situations. Adapting to the postpartum period and the relationship established with the baby are thought to be important in the regression of PTSD symptoms. Indeed, in a study examining 685 women, it was found that the mother-baby relationship in the postpartum period showed a positive correlation with the child's mental health and a negative correlation with the mother's mental symptoms (Dekel, 2019). The mother's recovery from childhood abuse may increase her motivation to breastfeed and lead to higher breastfeeding outcomes due to lower anxiety and depression (Watson et al., 2021).

A study (Kale, 2024) found that primiparous women, or women giving birth for the first time, had lower breastfeeding self-efficacy and needed more support and breastfeeding counselling throughout the process. In addition, it was found that primiparous mothers experienced more breastfeeding problems, and researchers concluded that they needed breastfeeding education. This situation demonstrates how much more individualised breastfeeding counselling is needed. The importance of breastfeeding education provided in hospitals cannot be denied, but a review of the literature suggests that one-to-one breastfeeding counselling can positively affect breastfeeding outcomes (Kale, 2024). Indeed, it was found that in this study, individual breastfeeding counselling provided in addition to routine antenatal classes and routine care offered at the hospital had a more positive effect on the rate of exclusive breastfeeding at 6 months.

Fathers were not included in the breastfeeding counselling training within the scope of this study. Considering that data loss might occur, and as fathers rarely participated in the antenatal classes at the hospital where the research was conducted, it was decided to follow-up only the results of breastfeeding counselling provided to mothers. At the end of the research, it was found that breastfeeding counselling provided only to mothers did not affect fathers' support during the breastfeeding process. However, the literature reports that fathers' attitudes towards breastfeeding, their knowledge, and the practical and emotional support they provide have a direct impact on both the initiation and continuation of breastfeeding. Academic studies show that fathers' education and positive attitudes towards breastfeeding increase the likelihood of mothers initiating and continuing breastfeeding (Agrawal et al., 2022). For example, fathers' participation in night-time baby care can positively affect breastfeeding outcomes by allowing mothers to rest, while their emotional support during pregnancy strengthens the mother's breastfeeding self-efficacy. However, deficiencies in fathers' participation in the breastfeeding process may be observed

due to sociocultural factors and lack of knowledge. Therefore, including fathers in breastfeeding education and developing support programmes for them, is of great importance in increasing breastfeeding rates and duration (Zhou et al., 2024).

Mothers with a history of Adverse Childhood Experiences (ACE) tend to experience mental health problems such as stress, anxiety, depression, and PTSD (Kendall-Tackett, 2022). These conditions can negatively affect mothers' emotional regulation skills, increasing parenting stress and limiting their ability to provide sensitive and responsive care to their children (Hanetz-Gamliel & Sagi-Schwartz, 2022). The triggering of past traumas may cause mothers to relive their own childhood experiences, which can lead to difficulties in parent-child interactions. Research indicates that mothers who experienced adversity in childhood are more likely to adopt problematic parenting styles with their children. These styles, on the part of parents, may include low parental responsiveness, difficulty setting boundaries, high aggression, and a tendency to reject others (Herbell, 2020; Lotto & Altafim, 2023). A study by Luo et al. (2023) revealed an intergenerational relationship between maternal ACE and behavioural problems in preschool children, mediated by maternal rejection styles (Luo et al., 2023). Such parenting behaviours may increase children's risk of developing behavioural problems. To prevent such situations, supporting mother-infant bonding from the beginning of life and strengthening infants' mental health through breastfeeding is crucial.

Such parenting behaviours may increase the risk of children developing behavioural problems. Supporting the mother-infant bond from the very beginning of life and promoting breastfeeding can be important protective factors in preventing such situations and strengthening the infant's mental health. Breastfeeding counselling is an individualised and equitable approach, particularly aimed at breastfeeding mothers and their families. This process includes clinical management, guidance and health education. This method aims to increase the individual's knowledge and confidence regarding breastfeeding. Previous studies have also shown that when breastfeeding women receive appropriate support, both they and their environment are positively affected. However, despite the strong recommendation of the World Health Organization, the number of mothers benefiting from breastfeeding counselling remains low, at approximately 33 percent (Ruiz et al., 2025; Tucker et al., 2022). As recommended by the World Health Organization and UNICEF, investment should be made in breastfeeding counselling to initiate and sustain breastfeeding early and thereby improve maternal and infant health (Yurtsal and Uslu, 2023).

Limitations

The scale assessments presented in this study are based on women's self-assessments. Furthermore, the study is limited to primiparous pregnant women attending a maternity school at a public hospital.

CONCLUSION

This study found that the rates of exclusive breastfeeding among mothers who received individual breastfeeding counselling were significantly higher than the rates in the follow-up group. In this study, the LATCH Breastfeeding

Assessment Scale scores of mothers who received individual breastfeeding counselling, were found to be significantly higher than those of mothers in the follow-up group.

No difference was found when the couple's compatibility scores were compared between the experimental and follow-up groups. As fathers were not included in the education programme in this study, it is recommended that fathers be included in breastfeeding education programmes in future studies.

In line with the findings, as individual breastfeeding counselling may be effective in increasing breastfeeding success, the widespread implementation of individual breastfeeding counselling practices may contribute significantly to increasing breastfeeding rates.

ETHICAL DECLARATIONS

Ethics Committee Approval

For this study, permission was obtained from the Non-interventional Clinical Researches Ethics Committee of the Institute of Health Sciences at Marmara University (Date: 19.12.2023, Decision No: 117).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights—including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

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Author Contributions

All authors contributed significantly to the study's conception, design, data acquisition, analysis, and interpretation. All authors reviewed and approved the final version of the manuscript.

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REFERENCES

- Akgün, P., & Taştekin, A. (2019). Turkish adaptation study of the Breastfeeding Support Scale. *Contemporary Educational Research: Theory and Practice in Education*. Frankfurt am Main, Germany.
- Altıparmak, S., Yılmaz, A. N., & Derya, Y. A. (2021). The effect of marital adjustment on mother-infant attachment and breastfeeding self-efficacy levels. *Med Science*, 10(1), 174-178. doi:10.5455/medscience.2020.10.224
- Aslan Işık, N. (2023). The effect of early adverse childhood experiences on separation-individuation level and life satisfaction: a sample of university students. *Gümüşhane University J Health Sci*, 12(1), 240-249. doi:10.37989/gumussagbil.1226695
- Bayraktaroğlu, H. T., & Çakıcı, E. T. (2017). Psychometric properties of the revised form of the dual adjustment scale in a sample from Northern Cyprus. *Int J Educ Sci*, 19(2-3), 113-119. doi:10.1080/09751122.2017.1393954
- Beyene, B. N., Wako, W. G., Moti, D., Edin, A., & Debela, D. E. (2025). Early initiation of postnatal counselling promotes exclusive breastfeeding: a randomized controlled trial. *Front Nutr*, 12, 1473086. doi:10.3389/fnut.2025.1473086
- Çerçer, Z., & Nazik, E. (2023). Effects of a breastfeeding problems management model on breastfeeding problems, breastfeeding motivation, and breastfeeding success: a randomised controlled trial. *J Paediatr Nurs*, 73, e116-e124. doi:10.1016/j.pedn.2023.07.021
- Dekel, S., Thiel, F., Dishy, G., & Ashenfarb, A. L. (2019). Is birth-related PTSD associated with low maternal attachment? *Archives of Women's Mental Health*, 22(1), 119-122. doi:10.1007/s00737-018-0853-y
- Demirbağ, C., & Aluş Tokat, M. (2023). The most enjoyable way to support breastfeeding: complementary and alternative medicine practices. *J Women's Health Nurs (KASHED)*, 9(special issue-1), 27-31.
- Dye, C. K., Alschuler, D. M., Wu, H., Duarte, C., Monk, C., Belsky, D. W., ... & Scorza, P. (2024). Maternal adverse childhood experiences and biological ageing during pregnancy and in newborns. *JAMA Network Open*, 7(8), e2427063. doi:10.1001/jamanetworkopen.2024.27063
- Eagen-Torkko, M., Low, L. K., Zielinski, R., & Seng, J. S. (2017). Prevalence and determinants of breastfeeding after childhood maltreatment. *J Obstet, Gynecol Neonatal Nurs*, 46(3), 465-479. doi:10.1016/j.jogn.2017.01.002
- Erkal Aksoy, Y., Ünal, F., İnçke, G., Çil, G., Oruç, K., Yılmaz, T., ... & Dereli Yılmaz, S. (2016). The effect of postpartum depression on breastfeeding. *Gümüşhane University J Health Sci*, 5(3), 90-96.
- Gerhardsson, E., Oras, P., Mattsson, E., Blomqvist, Y. T., & Funkquist, E. L. (2023). Health professionals report positive experiences from a breastfeeding education programme based on the Baby-Friendly Hospital Initiative for Neonatal Intensive Care. *J Neonatal Nurs*, 29, 75-80. doi:10.1016/j.jnn.2022.02.008
- Gunduz, A., Yasar, A. B., Gundogmus, I., Savran, C., & Konuk, E. (2018). Validity and reliability study of the Turkish version of the Childhood Adverse Experiences Scale. *Anadolu J Psychiatr*, 19, 68-76.
- Hanetz-Gamliel, K., & Sagi-Schwartz, A. (2022). Links between mothers' ACEs, psychopathology, and parenting and their children's behavioural problems—a mediation model. *Front Psychiatr*, 13, 1064915.
- Isiguzo, C., Mendez, D. D., Demirci, J. R., Youk, A., Mendez, G., Davis, E. M., & Documet, P. (2023). Stress, social support, and racial differences: the predominant factors in exclusive breastfeeding. *Maternal & Child Nutrition*, 19(2), e13459. doi:10.1111/mcn.13459
- Jayawickreme, E., Infurna, F. J., Alajak, K., Blackie, L. E., Chopik, W. J., Chung, J. M., ... & Zonneveld, R. (2021). Post-traumatic growth as positive personality change: challenges, opportunities, and recommendations. *J Personality*, 89(1), 145-165. doi:10.1111/jopy.12591
- Jiang, Q., Zhang, E., Cohen, N., Ohtori, M., Zhu, S., Guo, Y., ... & Rozelle, S. D. (2022). Postpartum mental health, breastfeeding beliefs, and breastfeeding practices in rural China. *International J Breastfeeding Health Promotion*, 17, 60. doi:10.1186/s13006-022-00504-6
- Johnson, S., Kasparian, N. A., Cullum, A. S., Flanagan, T., Ponting, C., Kowalewski, L., & Main, E. K. (2023). Addressing adverse childhood and adult experiences during antenatal care. *Obstet Gynaecol*, 141(5), 1072-1087.
- Kahraman, S., Yaztürk, Z., & Havlıoğlu, S. (2025). Breastfeeding status of infants from birth to one year of age and the influence of fathers in communities with traditional cultural structures. *Turkish J Public Health Nurs*, 7(2), 77-86. doi:10.54061/jphn.1613693
- Kale, B. Y. (2024). The effect of father involvement on breastfeeding (Doctoral thesis, Marmara University). Council of Higher Education Thesis Center.
- Kendall-Tackett, K. (2022). Psychological trauma and breastfeeding: what we know so far. *Archives Med Res*, 10(11). doi:10.18103/mra.v10i11.3288
- Lorenc, T., Lester, S., Sutcliffe, K., Stansfield, C., & Thomas, J. (2020). Interventions to support people exposed to adverse childhood experiences: systematic review of systematic reviews. *BMC Public Health*, 20(1), 657. doi:10.1186/s12889-020-08789-0
- Luo, S., Chen, D., Li, C., Lin, L., Chen, W., Ren, Y., ... & Guo, V. Y. (2023). Maternal adverse childhood experiences and behavioral problems in preschool offspring: the mediation role of parenting styles. *Child Adolesc Psychiatry Ment Health*, 17(1), 95. doi:10.1186/s13034-023-00646-3
- Onat, G. (2018). Practices facilitating breastfeeding and lactational care. *Turkey Clinics Journal of Women's Health and Diseases Nursing-Special Topics*, 4(2), 131-146.

- Ozşahin, Z. (2020). The effects of adverse childhood experiences on pregnancy-related anxiety and acceptance of motherhood role. *African Health Sciences*, 20(3), 1217-1228. doi:10.4314/ahs.v20i3.25
- Ozşahin, Z., & Güven Santur, S. (2021). Examining the relationship between childhood adverse experiences and postpartum depression and breastfeeding self-efficacy using structural equation modeling. *J Samsun Health Sci*, 6(2), 285-301. doi:10.47115/jshs.934868
- Pehlivanlı, E., & İkizer, G. (2020). Marriage in rural or urban areas: an examination of marital satisfaction and early maladaptive schemas. *Uludağ University Faculty of Arts and Sciences Journal of Social Sciences*, 21(38), 361-395. doi:10.21550/sosbilder.593401
- Rodoplu, A. (2019). An examination of the relationship between marital adjustment and sexual satisfaction among married couples (Master's thesis, Istanbul Gelisim University). Council of Higher Education Thesis Center.
- Ruiz, M. T., da Conceição Rodrigues, E., Christoffel, M. M., de Resende, C. V., Cavalcanti, M. C., Ferreira, M. G., ... & Linares, A. M. (2025). Effectiveness of individualized breastfeeding counseling during the dyad's stay in rooming-in: a randomized, multicenter, open and parallel study. *Int Breastfeed J*, 20(1), 41. doi:10.1186/s13006-025-00710-y
- Shaikh, K., Premji, S. S., Lalani, S., Forchheh, N., Dosani, A., Yim, I. S., ... & Letourneau, N. (2020). Ethnic disparity and exposure to supplements rather than adverse childhood experiences linked to preterm birth in Pakistani women. *J Affective Disord*, 267, 49-56. doi:10.1016/j.jad.2020.01.180
- Soyhan, F., & Demirci, N. (2020). Breastfeeding counseling in Turkey and the world. *J Women's Health Nurs*, 6(2), 101-114.
- Ministry of Health of the Republic of Turkey. (2015). Breastfeeding counselling practitioner's handbook. Ankara: Özyurt
- Tedeschi, R. G., & Calhoun, L. G. (2004). Post-traumatic growth: conceptual foundations and empirical evidence. *Psychological Research*, 15(1), 1-18. doi:10.1207/s15327965pli1501_01
- Tucker, Z., O'Malley, C. (2022) Mental health benefits of breastfeeding: a literature review. *J Cureus*, 14(9): e29199. doi:10.7759/cureus.29199
- Turkey Population and Health Survey. (2018). Turkey Population and Health Survey 2018. Hacettepe
- University Institute of Population Studies. https://hips.hacettepe.edu.tr/tr/2018_tnsa_analiz_ve_rapor-56
- Türkseven, A., Söylemez, İ., & Dursun, P. (2020). The relationship between sexual dysfunction and marital adjustment. *J Crisis*, 28(1), 9-20.
- Umar, M., Mustajab, M., Fatima, Z., Richard, R. M., Qureshi, S. R., Muneer, S. U., ... & Basalilah, A. F. M. (2025). The effect of adverse childhood experiences on the development of post-traumatic stress disorder in adults aged 18 and over: a systematic review. *J BMC Psychiatry*, 25, 759. doi:10.1186/s12888-025-07090-x
- United Nations Children's Fund (UNICEF). (2022). Global Breastfeeding Scorecard 2022: protecting breastfeeding through more investment and policy action. <https://www.unicef.org/globalbreastfeedingcollective/media/1921/file>
- Walker-Mao, C., Veda, C. V., Nagle-Yang, S., Blackwell, S., & Leiferman, J. A. (2024). Adverse childhood experiences predict parenting anxiety in the postpartum and early childhood periods. *J Psychosomatic Obstet Gynaecol*, 45(1), 2410203. doi:10.1080/0167482X.2024.2410203
- Wall, S., & Dempsey, M. (2022). The impact of COVID-19 lockdowns on women's perinatal mental health: a systematic review. *J Women Birth*, 36(1), 47-55. doi:10.1016/j.wombi.2022.06.005
- Watson, C., Wei, J., Varnado, N., Rios, N., Flanagan, T., Alabaster, A., ... & Young-Wolff, K. C. (2021). Adverse childhood experiences and early and sustained breastfeeding: findings from an integrated health services delivery system. *J Women's Health*, 30(3). doi:10.1089/jwh.2020.8697
- World Health Organization (WHO). (2018). Counselling women to improve breastfeeding practices. Geneva, Switzerland. <https://www.who.int/publications/i/item/9789241550468>
- World Health Organization (WHO). (2019). Adverse Childhood Experiences (ACE) Study. Belgrade. [https://www.unicef.org/serbia/media/10726/file/Adverse%20Childhood%20Experiences%20\(ACE...\)](https://www.unicef.org/serbia/media/10726/file/Adverse%20Childhood%20Experiences%20(ACE...))
- World Health Organization (WHO). (2023, 29 December). Global Breastfeeding Scorecard 2023: Breastfeeding rates are increasing worldwide with improved protection and support (Technical Document No. HO/HEP/NFS/23.17). <https://www.who.int/publications/i/item/WHO-HEP-NFS-23.17>
- Yenal, K. and Okumuş, H. (2003). A study examining the reliability of the LATCH breastfeeding assessment tool. *J Nurs Res*, 5(1), 38-44.
- Yurtsal, Z. B., & Uslu, D. (2023). The sexual aspects of breastfeeding. In S. Geuens, A. Polona Mivšek, & W. Gianotten (Eds.), *Midwifery and sexuality* (pp. 1-15). Springer. doi:10.1007/978-3-031-18432-1_9
- Zengin, H., Tiryaki, Ö., Bafalı, İ. O., & Çınar, N. (2025). Health professionals' views on breastfeeding during pregnancy and tandem breastfeeding. *Ege Nursing Faculty J*, 41(1), 78-87. doi:10.53490/eghehemsire.1405313

Illness uncertainty as a determinant of self-efficacy among adults with chronic diseases

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ABSTRACT

Aims: This study aimed to determine the relationship between illness uncertainty and self-efficacy levels among adults with chronic diseases.

Methods: This descriptive and cross-sectional study was conducted with 220 adult inpatients aged 18 years and older who were hospitalized in the internal medicine department of a training and research hospital. Data were collected using the Patient Information Form, Mishel Uncertainty in Illness Scale (MUIS), and the 6-Item Self-Efficacy for Managing Chronic Disease Scale. Statistical analyses included descriptive statistics, correlation, and multiple regression tests, with a significance level of $p < 0.05$.

Results: The mean age of the participants was 68.30 ± 14.15 years; 51.4% were male, and 58.2% had a diagnosis of hypertension. The mean MUIS score was 48.80 ± 12.98 , and the mean self-efficacy score was 4.85 ± 1.81 . Regression analysis demonstrated a significant negative relationship between illness uncertainty and self-efficacy ($\beta = -0.467$, $p < 0.001$), explaining 21.4% of the variance (Adjusted $R^2 = 0.214$, $p < 0.001$). In the extended model, lower education and income levels, higher hospitalization frequency, comorbidities, polypharmacy, and higher MUIS scores negatively predicted self-efficacy, while employment, smoking cessation, longer disease duration, and regular medical follow-up were positive predictors. The final model explained 62.9% of the variance (Adjusted $R^2 = 0.629$, $p < 0.001$).

Conclusion: As illness uncertainty increases, self-efficacy decreases among adults with chronic diseases. These findings emphasize the importance of nursing interventions aimed at reducing uncertainty, enhancing self-efficacy, and supporting effective chronic disease management.

Keywords: Chronic disease, uncertainty in illness, self-efficacy, nursing, patient compliance, disease management

INTRODUCTION

Chronic diseases are long-term health conditions that require continuous treatment and care, permanently affecting an individual's lifestyle and functionality. The World Health Organization (WHO) reports that chronic diseases such as cardiovascular diseases, diabetes, chronic respiratory diseases, and cancer are the leading causes of global mortality (WHO, 2025). These illnesses not only have profound effects on physical health but also exert significant psychological and social impacts (Shakya, 2018). Individuals diagnosed with chronic diseases often face uncertainty regarding the course of the illness, treatment outcomes, and their future, which may lead to substantial changes in quality of life and psychological adjustment (Arslan, 2024).

Illness uncertainty refers to an individual's inability to fully comprehend their illness and treatment process or to predict

its progression. This uncertainty may result in psychological consequences such as anxiety, stress, and depression, thereby negatively influencing quality of life (Verduzco-Aguirre et al., 2021; Skojec et al., 2025). In this context, Mishel's Uncertainty in Illness Theory serves as a significant nursing framework that explains the uncertainty experienced by individuals during the course of illness and its psychological consequences. According to Mishel, uncertainty arises when individuals are unable to interpret the meaning of illness-related events or predict their outcomes. The theory conceptualizes uncertainty through four key components: ambiguity regarding illness, complexity of treatment and care, inconsistency or insufficiency of illness-related information, and unpredictability of the disease trajectory (Mishel, 1988; Hwang et al., 2023; Skojec et al., 2025). This uncertainty may be perceived either as a threat or as an opportunity. When

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perceived as a threat, it may lead to adverse psychological reactions such as anxiety, stress, and depression (Skojec et al., 2025). Conversely, individuals who interpret uncertainty as an opportunity may view it as a chance to make positive changes in their lifestyle, relationships, or careers (Hwang et al., 2023). Mishel's theory is therefore a critical tool for understanding how uncertainty shapes coping strategies and provides guidance for developing interventions aimed at managing uncertainty (Zhang et al., 2015; Skojec et al., 2025). Such guidance can, in turn, enhance individuals' self-efficacy by improving their ability to manage their illness effectively.

Self-efficacy refers to an individual's belief in their own ability to cope with and effectively manage their illness. Individuals with high self-efficacy tend to be more successful in controlling their illness, adhering to treatment, and maintaining lifestyle modifications (Farley, 2020). In the management of chronic diseases, self-efficacy is considered a crucial psychosocial resource that enables individuals to adhere to treatment plans, monitor symptoms, sustain self-care behaviors, and maintain psychological resilience (Kuijjer & De Ridder, 2003). In a study by Shakya (2018), individuals with higher levels of self-efficacy were found to use more effective coping strategies, exhibit better treatment adherence, and show greater commitment to maintaining self-care behaviors. Conversely, individuals with low self-efficacy demonstrated greater resistance to treatment, lack of motivation, and feelings of helplessness (Farley, 2020). These findings suggest that self-efficacy is a key determinant of psychological adaptation and successful disease management among individuals with chronic conditions.

Although several studies have examined illness uncertainty and self-efficacy among patients with cancer (Zhang et al., 2015; Hwang et al., 2023), no studies have been found addressing these variables in the context of general chronic diseases. Therefore, the present study aims to investigate the relationship between illness uncertainty and self-efficacy among individuals with chronic diseases, thereby contributing valuable insights to the existing literature.

METHODS

Ethics

Permission to use the Turkish validated versions of the scales was obtained via email from the authors who conducted their validity and reliability studies. Ethical approval for the research was obtained from the Bandırma Onyedi Eylül University Non-interventional Researches Ethics Committee (Date: 05.07.2024, Decision No: 2024-150). Additionally, written institutional permission was granted by the relevant hospital (Date: 25.11.2024). Participants were informed about the purpose of the study, and written informed consent was obtained from those who voluntarily agreed to participate. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Aims

This study was conducted as a descriptive and cross-sectional study to examine the relationship between illness uncertainty and self-efficacy levels in individuals with chronic diseases.

Research Questions

- What is the level of illness uncertainty among adults with chronic diseases?

- What is the level of self-efficacy among adults with chronic diseases?
- Is there a relationship between illness uncertainty and self-efficacy levels in adults with chronic diseases?
- Is the level of illness uncertainty a predictor of self-efficacy in adults with chronic diseases?

Population and Sample

The population of this study consisted of adults with chronic diseases who were hospitalized in the Internal Medicine Clinic of Bandırma Training and Research Hospital. A convenience sampling method was used to recruit 220 patients who met the inclusion and exclusion criteria between December 2024 and April 2025.

The inclusion criteria were as follows: being 18 years of age or older, being hospitalized due to a chronic disease, willingness to participate in the study, ability to speak Turkish, and ability to communicate. Patients who were taking any sleep or psychiatric medication or who had been diagnosed with a psychiatric disorder by a physician were excluded from the study.

According to the post hoc power analysis conducted using the G*power 3.1.9.2 program, the effect size (ρ) was 0.467, the type I error (α) was 0.05, and the power of the study ($1-\beta$) was found to be greater than 99%.

Data Collection Process and Instruments

Participants who met the inclusion criteria were informed about the purpose and content of the study. Those who agreed to participate and met the inclusion criteria were asked to sign an informed consent form. The data collection instruments were administered to the participants by the researchers through face-to-face interviews, which lasted approximately 10–15 minutes for each participant.

Individual Identification Form: This form was developed by the researchers based on relevant literature (Ceyhan & Ünsal, 2018; Bakan & İnci, 2021) and consists of a total of 14 questions. Six of these items address sociodemographic characteristics (age, gender, educational status, marital status, employment status, and perceived income level), while eight items concern disease-related information (smoking habits, reason for hospitalization, length of hospital stay, year of diagnosis, total number of hospitalizations, regular follow-up visits, presence and type of other chronic diseases, and number of medications used daily).

Mishel Uncertainty in Illness Scale (MUIS): Developed by Mishel and Epstein in 1997 and adapted into Turkish by Cal and Aydin Avci (2021), this scale measures the level of uncertainty experienced by individuals with chronic diseases (Mishel & Epstein, 1997; Cal & Aydin Avci, 2021). The Turkish version consists of 20 items and evaluates three subdimensions: perception of the current situation, comprehension, and uncertainty, as well as the total score. Items 1–4, 6, 8, 10–13, and 17 assess the perception of the current situation; items 5, 7, 19, and 20 assess comprehension; and items 9, 14–16, and 18 assess uncertainty. Each item is rated on a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Items 5, 7, 19, and 20 are reverse-scored. The total possible score ranges from 20 to 100, with higher scores indicating a higher level of illness uncertainty. The Cronbach's alpha

coefficient was reported as 0.79 in the Turkish adaptation (Cal & Aydin Avci, 2021), while it was found to be 0.882 in the present study.

Six-Item Self-Efficacy Scale for Chronic Disease Management: This scale was developed by Lorig et al. (2001) and adapted into Turkish by İncirkuş and Nahcivan (2020). It is an easy-to-use and effective instrument for assessing self-efficacy levels in patients with chronic diseases. Each item is rated on a 10-point scale ranging from “not at all confident” (1 point) to “totally confident” (10 points). The total score is calculated as the mean of the six items, ranging between 1 and 10, with higher scores indicating greater self-efficacy. In the Turkish validity and reliability study, the Cronbach’s alpha coefficient was 0.95 (İncirkuş & Nahcivan, 2020), while in the present study it was found to be 0.895.

Morisky Medication Adherence Scale: The Morisky Medication Adherence Scale was developed by Donald E. Morisky, and its validity and reliability were first tested by Morisky et al. (1986). The scale is designed to assess individuals’ level of adherence to medication therapy and consists of four self-reported items answered as “yes” or “no.” Answering “no” to all items indicates a high level of medication adherence, one or two “yes” responses indicate a moderate level, and three or four “yes” responses indicate a low level of adherence. In the original study, the Cronbach’s alpha reliability coefficient was reported as 0.61 (Morisky et al., 1986). The Turkish validity and reliability study was conducted by Bahar et al. (2014), who reported a Cronbach’s alpha of 0.625. In the present study, the Cronbach’s alpha reliability coefficient was found to be 0.777.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 23. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the data. The normality of data distribution was assessed using the Kolmogorov-Smirnov test. Depending on the distribution characteristics, Pearson or Spearman correlation analyses were conducted to examine relationships between variables. Multiple linear regression analysis was employed to evaluate the effects of participants’ sociodemographic and health/disease-related characteristics, and illness uncertainty scores on self-efficacy. A p-value of <0.05 was considered statistically significant.

RESULTS

Participant Characteristics

The mean age of the participants was 68.30±14.15 years, with an age range of 40–91 years. Of the participants, 63.2% were aged 65 years and older, 51.4% were male, 75% were primary school graduates, 82.7% were married, and 45.9% were retired. Additionally, 73.6% of the participants reported having a moderate- or poor-income level, while 64.1% stated that they did not smoke (Table 1).

The most common chronic disease among the participants was hypertension, reported by 58.2% of them. It was found that 47.7% of the participants had been diagnosed less than one year ago, 39.1% had been hospitalized three to four times, 54.1% had comorbidities, and 30% experienced polypharmacy. Additionally, 70.5% of the participants reported attending regular medical check-ups. According to the Morisky

Table 1. Sociodemographic characteristics of the participants (n=220)

Characteristics	Mean±SD (min–max)	
Age	68.30 ± 14.15 (40–91)	
Age group	n	%
<65 years	81	36.8
≥65 years	139	63.2
Gender		
Male	113	51.4
Female	107	48.6
Educational status		
Literate	21	9.5
Primary school	165	75.0
High school ≤	34	15.5
Marital status		
Single	38	17.3
Married	182	82.7
Employment status		
Employed	22	10.0
Unemployed	97	44.1
Retired	101	45.9
Perceived income level		
Moderate–poor	152	73.6
Good	58	26.4
Smoking habit		
Smoker	43	19.5
Non-smoker	141	64.1
Former smoker	36	16.4
Total	220	100.0

SD: Standard deviation, Min: Minimum, Max: Maximum

Medication Adherence Scale, 36.8% of the participants demonstrated a moderate level of adherence (Table 2).

Scale Scores

The mean score on the MUIS was 48.80±12.98 (range: 20–73), while the mean score on the Self-Efficacy Scale was 4.85±1.81 (range: 1.83–9.17) (Table 3).

Regression Analysis

In this study, a multiple linear regression analysis was conducted to identify the variables predicting self-efficacy levels among individuals with chronic diseases. The analysis was performed using two models.

According to the regression model established for the primary aim of the study (model 1), there was a moderate, negative relationship between illness uncertainty and self-efficacy ($\beta=-0.467$; $p<0.001$). A one-point increase in the MUIS score was associated with a 0.391-point decrease in the Self-Efficacy Scale score ($B=-0.391$). The explanatory power of model 1 was calculated as 21.4% (Adjusted $R^2=0.214$), and the model was found to be statistically significant ($F=60.719$; $p<0.001$) (Table 4).

In model 2, which was developed to examine the factors affecting self-efficacy among adults with chronic diseases, sociodemographic and clinical variables were added to the model along with the MUIS variable. The explanatory power of this model increased to 62.9% (Adjusted $R^2=0.629$; $F=24.173$; $p<0.001$). In this context, higher MUIS scores ($B=-$

Table 2. Health- and disease-related characteristics of the participants (n=220)

Characteristics	n	%
Chronic diseases*		
Hypertension (HT)	128	58.2
Diabetes mellitus	84	38.2
Cardiovascular diseases (other than HT)	105	47.7
Respiratory diseases	67	30.5
Urinary system diseases	49	22.3
Other	70	31.8
Year of diagnosis		
<1 year	105	47.7
1–5 years	68	30.9
≥6 years	47	21.4
Number of hospitalizations		
1–2 times	70	31.8
3–4 times	86	39.1
≥5 times	64	29.1
Comorbidity		
None (1 disease)	101	45.9
Present (≥2 diseases)	119	54.1
Polypharmacy		
None (<5 medications)	154	70.0
Present (≥5 medications)	66	30.0
Regular medical follow-up		
No	65	29.5
Yes	155	70.5
Morisky Medication Adherence Scale		
Low adherence (0–1 points)	67	30.5
Moderate adherence (2–3 points)	81	36.8
High adherence (4 points)	72	32.7
Total	220	100.0

*Multiple responses were allowed

Table 3. Mean scores of the scales

Scale	Mean	SD	Minimum	Maximum
Mishel Uncertainty in Illness Scale	48.80	12.98	20	73
Self-Efficacy Scale	4.85	1.81	1.83	9.17

SD: Standard deviation

0.032), being literate (B=-1.023), having a moderate or poor income level (B=-0.963), a higher number of hospitalizations (B=-0.230), the presence of comorbidities (B=-1.349), and the presence of polypharmacy (B=-0.570) were identified as negative predictors of self-efficacy ($p<0.05$).

Conversely, being employed (B=2.275), having quit smoking (B=0.696), having a longer duration since diagnosis (B=0.037), and attending regular medical check-ups (B=1.309) were found to be significantly associated with higher self-efficacy levels ($p<0.05$). However, age, gender, primary education level, marital status, unemployment, and non-smoking status were not found to have a significant effect on self-efficacy ($p>0.05$) (Table 4).

Table 4. Multiple linear regression analysis of variables affecting self-efficacy

Models/variables	B	95.0% CI	β	t	p
Model 1. self-efficacy					
MUIS	-0.391	-0.490, -0.292	-0.467	-7.792	<0.001
DW:2.507	Adjusted R ² : 0.214		F: 60.719	p<0.001	
Model 2. self-efficacy					
MUIS	-0.032	-0.047, -0.018	-0.231	-4.430	<0.001
Age	0.006	-0.009, 0.022	0.051	0.803	0.423
Gender (ref. male)					
Female	-0.427	-0.920, 0.066	-0.118	-1.708	0.089
Educational level (ref. high school ≤)					
Literate	-1.023	-1.738, -0.309	-0.166	-2.823	0.005
Primary school	-0.502	-1.023, 0.020	-0.120	-1.897	0.059
Marital status (ref. single)					
Married	0.090	-0.381, 0.560	0.019	0.375	0.708
Employment status (ref. retired)					
Employed	2.275	1.555, 2.995	0.377	6.230	<0.001
Unemployed	-0.005	-0.450, 0.441	-0.001	-0.020	0.984
Income level (ref. good)					
Moderate/poor	-0.963	-1.433, -0.494	-0.234	-4.044	<0.001
Smoking habit (ref. smoker)					
Non-smoker	0.155	-0.327, 0.637	0.041	0.633	0.527
Quit smoking	0.696	0.096, 1.295	0.142	2.286	0.023
Year of diagnosis	0.037	0.016, 0.059	0.156	3.417	0.001
Number of hospitalizations	-0.230	-0.317, -0.142	-0.304	-5.183	<0.001
Comorbidity (ref. none)					
Present	-1.349	-1.769, -0.929	-0.371	-6.338	<0.001
Polypharmacy (ref. none)					
Present	-0.570	-1.043, 0.098	-0.144	-2.380	0.018
Regular medical follow-up (ref. no)					
Yes	1.309	0.892, 1.727	0.330	6.189	<0.001
DW: 2.063	Adjusted R ² : 0.629, F: 24.173, p<0.001				
MUIS: Mishel Uncertainty in Illness Scale, B: Unstandardized coefficient, CI: Confidence interval, β: Standardized regression coefficient, R ² : Coefficient of determination, DW: Durbin-Watson autocorrelation coefficient.					

MUIS: Mishel Uncertainty in Illness Scale, B: Unstandardized coefficient, CI: Confidence interval, β : Standardized regression coefficient, R²: Coefficient of determination, DW: Durbin-Watson autocorrelation coefficient.

DISCUSSION

This study was conducted to examine the relationship between illness uncertainty and self-efficacy among adults with chronic diseases. The mean age of the participants was 68.30 ± 14.15 years, with more than half being aged 65 and older. Approximately half of the participants were male, the majority had low educational and income levels, were married, and reported that they did not smoke. These characteristics are consistent with findings from previous studies conducted with individuals living with chronic diseases in Türkiye (Ceyhan & Ünsal, 2018; Bakan & İnci, 2021).

More than half of the participants in this study had hypertension, and nearly half had cardiovascular diseases other than hypertension; diabetes was the next most common chronic condition. Since the present study included only individuals with chronic diseases, the distribution of disease types was similar to that reported by Dünya et al. (2025) in Türkiye. Nearly half of the participants had received their

diagnosis within the past year, and most had been hospitalized multiple times. Çınar et al. (2020) reported that about one-third of individuals with chronic diseases were hospitalized at least once during the first year after diagnosis, and the frequency of hospitalization increased as the duration of illness extended. Similarly, Demirbaş & Kutlu (2020) found that nearly half of the participants with chronic diseases visited the hospital two or more times annually. These findings are consistent with the present study, in which frequent hospitalizations were common among participants.

With respect to comorbidity, it is well known that individuals with chronic illnesses often experience multiple conditions simultaneously, and the results of this study align with the literature (Ceyhan & Ünsal, 2018; Demirbaş & Kutlu, 2020). Regarding polypharmacy, Kaynak (2022) reported a prevalence of 25–35% among individuals with chronic diseases, consistent with the findings of this study. Given that the majority of participants were older adults, it is expected that comorbidity and polypharmacy would increase with age. The short duration since diagnosis, high hospitalization frequency, and presence of comorbidities and polypharmacy in this study may reflect the complexity of chronic disease burden and challenges in treatment adherence. Indeed, two-thirds of the participants demonstrated low or moderate medication adherence. Ceyhan & Ünsal (2018), who also used the Morisky Medication Adherence Scale, similarly reported that only about one-third of individuals with chronic diseases had high adherence levels. Demirbaş & Kutlu (2020) likewise found that medication adherence was lower among individuals with multiple medications and comorbidities. Literature suggests that poor adherence may heighten the unpredictability of treatment outcomes, reinforcing a sense of uncertainty and subsequently increasing illness uncertainty (Farley, 2020; Brown et al., 2020).

The concept of illness uncertainty is a mid-range nursing theory that explains individuals' experiences of ambiguity, unpredictability, and loss of control during illness. According to Mishel's Uncertainty in Illness Theory, uncertainty arises when individuals lack sufficient information about the course, treatment, or outcomes of their disease, which may adversely affect their psychological adjustment (Mishel, 1988). In this study, the mean score on the MUIS (48.80 ± 12.98) indicated a moderate-to-low level of uncertainty, lower than the levels reported in previous studies (Ali et al., 2025; Uğuz & Doğan, 2025). For example, Ali et al. (2025) found a mean uncertainty score of 63.35 ± 3.04 among patients with type 2 diabetes, and Uğuz & Doğan (2025) reported a mean of 63.25 ± 10.25 among young women with breast cancer. Compared to these findings, participants in the current study experienced lower levels of uncertainty regarding their illness process. This difference may be attributed to the predominance of older adults in the sample, longer illness experience, and high rates of regular physician follow-up, which may contribute to greater disease familiarity and predictability.

The mean self-efficacy score of the participants (4.85 ± 1.81) indicated a moderate level of self-efficacy. This suggests that individuals with chronic diseases possess a moderate sense of confidence and competence in managing their illness, implying that while they can assume some responsibility for treatment and self-care, they may still require guidance and external support in certain areas. Similar findings have been reported in studies using the same instrument among

older adults and individuals with chronic diseases in Türkiye (Güney & Basit, 2023; İncirkuş, 2024). These results highlight the importance of interventions by healthcare professionals, particularly nurses, to strengthen self-efficacy through patient education, motivational support, and individualized counseling.

Regression analysis results revealed a moderate negative relationship between illness uncertainty and self-efficacy, with each one-point increase in uncertainty corresponding to a 0.391-point decrease in self-efficacy. Illness uncertainty explained 21.4% of the variance in self-efficacy. This finding underscores that a higher perception of uncertainty adversely affects individuals' self-efficacy in managing chronic diseases. Hwang et al. (2023) similarly reported a moderate negative correlation ($r = -0.460$) between uncertainty and self-efficacy among older adults with lung cancer, with illness uncertainty explaining 39.2% of the variance in quality of life. Likewise, Zhang et al. (2015) found that both uncertainty and self-efficacy independently predicted self-care behaviors among women with breast cancer, explaining 18.2% of the variance. Both Hwang et al. (2023) and Zhang et al. (2015) noted that higher levels of uncertainty diminish individuals' sense of control, reduce adherence to treatment, and weaken self-care behaviors, ultimately lowering self-efficacy. Farley (2019) also emphasized that uncertainty amplifies feelings of unpredictability and insecurity, undermining individuals' confidence in managing their health and triggering indecision and helplessness. The results of this study are consistent with Mishel's (1988) theoretical framework, which posits that uncertainty in illness reduces one's perceived control and consequently decreases self-efficacy. Thus, the negative relationship identified in this study suggests that individuals experiencing uncertainty may require greater psychological and educational support to effectively manage their illness.

Self-efficacy refers to an individual's belief in their own ability to perform behaviors or manage specific situations. In the context of chronic diseases, self-efficacy is closely associated with one's capacity to manage illness, adhere to treatment, and sustain lifestyle modifications (Bakan & İnci, 2021). In the present study, several sociodemographic and clinical factors were found to influence self-efficacy. Higher illness uncertainty scores, lower education and income levels, more frequent hospitalizations, the presence of comorbidities, and polypharmacy were identified as negative predictors of self-efficacy. Conversely, being employed, having quit smoking, and attending regular medical check-ups were associated with higher self-efficacy. Bakan & İnci (2021) emphasized that self-efficacy is a key determinant of coping, treatment adherence, and quality of life among individuals with chronic diseases. Similarly, Ceyhan & Ünsal (2018) reported that education strengthens self-care behaviors, while lower socioeconomic status diminishes self-efficacy. Demirbaş & Kutlu (2020) noted that frequent hospitalizations and comorbidities weaken individuals' sense of control, reducing self-efficacy. Kaynak (2022) also stated that polypharmacy complicates treatment management and decreases self-care capacity, negatively affecting self-efficacy. From a psychosocial perspective, Farley (2020) and Shakya (2018) demonstrated that self-efficacy is linked to psychological resilience, stress management, and positive health behaviors in chronic illness. Shakya (2018) found that individuals who are employed, socially active, and regularly attend medical check-ups tend to have higher self-

efficacy. Similarly, Kuijer and De Ridder (2003) emphasized that self-efficacy directly influences disease management efforts, treatment adherence, and life satisfaction, reinforcing self-care behaviors. Hwang et al. (2023) also found that self-efficacy in chronic illness is strongly related to social support, patient-provider interaction, and individuals' perception of their own role in managing the disease.

Taken together, these findings demonstrate that self-efficacy is not merely an individual trait but a multidimensional construct influenced by socioeconomic, clinical, and behavioral factors. This highlights the critical role of nurses in strengthening self-efficacy among individuals with chronic illnesses. Given that factors such as low education and income, comorbidity, polypharmacy, and frequent hospitalizations decrease self-efficacy, nurses should enhance their educational, informational, and counseling interventions for these individuals. By increasing patients' knowledge about their condition, nurses can reduce illness uncertainty, support treatment adherence, and promote self-care behaviors. Encouraging regular medical follow-ups and healthy behaviors—such as smoking cessation—can further improve individuals' perception of self-efficacy. Therefore, nursing practices should incorporate evidence-based education, continuous monitoring, and psychosocial support strategies.

Limitations

This study contributes to the literature by examining the relationship between illness uncertainty and self-efficacy among adults with chronic diseases, a topic that has not been extensively explored in this population. The use of validated and reliable measurement tools, a sufficient sample size ensuring high statistical power, and face-to-face data collection methods that minimized missing data are notable strengths of the study. However, its single-center and cross-sectional design limits the generalizability of the findings and precludes the establishment of causal relationships.

CONCLUSION

This study demonstrated a moderate negative relationship between illness uncertainty and self-efficacy among adults with chronic diseases, indicating that higher illness uncertainty is associated with lower perceived self-efficacy. Factors such as low education and income levels, comorbidity, polypharmacy, and frequent hospitalizations were found to negatively affect self-efficacy, while employment, smoking cessation, and regular physician follow-ups served as positive predictors.

These findings suggest that reducing illness uncertainty may enhance self-efficacy in managing chronic diseases. Accordingly, nurses play a crucial role in addressing patients' informational gaps, improving treatment adherence, and strengthening self-care capacities. Educational, counseling, and psychosocial support interventions that reduce perceptions of uncertainty can enhance individuals' ability to cope with their illness.

In conclusion, self-efficacy in chronic disease management is a multidimensional construct influenced by socioeconomic, clinical, and behavioral determinants. Therefore, nursing care should adopt a holistic, person-centered approach aimed at

reducing uncertainty and empowering patients to manage their health more effectively.

ETHICAL DECLARATIONS

Ethics Committee Approval

Ethical approval for the research was obtained from the Bandırma Onyedi Eylül University Non-interventional Researches Ethics Committee (Date: 05.07.2024, Decision No: 2024-150).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights—including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

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Author Contributions

All authors contributed significantly to the study's conception, design, data acquisition, analysis, and interpretation. All authors reviewed and approved the final version of the manuscript.

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REFERENCES

- Ali, M. M. M., Çelik, S., Er, S., & Anataca, G. (2025). Bridging illness uncertainty and self-care: the role of cognitive emotion regulation in type 2 diabetes management. *Prim Care Diabetes*, 19(4), 375–382. doi:10.1016/j.pcd.2025.04.001
- Arslan, B. (2024). İç hastalıkları hemşirelerinin sık karşılaştığı bir gerçek; "belirsizlik" kavramına kuramsal bakış. *Hitit Sağlık Dergisi*, (2), 40-54.
- Bahar, G., Savaş, H. A., Ünal, A., Savaş, E., Kaya, H., & Bahar, A. (2014). Morisky Tedavi Uyum Ölçeğinin iki uçlu duygudurum bozukluğu için geçerlilik ve güvenilirlik çalışması. *Anadolu Psikiyatri Dergisi*, 15(2), 141-149.
- Bakan, G., & İnci, F. H. (2021). Predictor of self-efficacy in individuals with chronic disease: stress-coping strategies. *J Clin Nurs*, 30(5-6), 874-881. doi:10.1111/jocn.15633
- Brown, A., Hayden, S., Klingman, K., & Hussey, L. C. (2020). Managing uncertainty in chronic illness from patient perspectives. *J Excellence Nurs Healthcare Pract*, 2(1), 1. doi:10.5590/JENHP.2020.2.1.01
- Cal, A., & Aydın Avci, I. (2021). Turkish adaptation of the Mishel uncertainty in illness scale-community form. *Perspect Psychiatr Care*, 57(4), 2006-2013. doi:10.1111/ppc.12874
- Ceyhan, Y. Ş., & Ünsal, A. (2018). Farklı kronik hastalığı olan bireylerin öz-etkililik düzeylerinin karşılaştırılması. *DEUHFED*, 11(4), 263-273.
- Çınar, D., Yıldırım, Y., & Aykar, F. Ş. (2020). Kanser tanılı hastanın Merley Mishel'in hastalıkta belirsizlik kuramına göre hemşirelik bakımı. *Acıbadem Üniversitesi Sağlık Bilimleri Dergisi*, 11(3), 553–559. doi:10.31067/0.2020.306

- Demirbaş, N., & Kutlu, R. (2020). Çoklu ilaç kullanan yetişkin bireylerin tedaviye uyumu ve öz-etkililik düzeyleri. *Ankara Medical Journal*, 20(2), 269-280. doi:10.5505/amj.2020.16362
- Dünya, C. P., Çelik, M., & Çelik, S. (2025). Kronik hastalığa sahip bireylerde hastalığa uyum, ilaç uyumu, acil servis ziyaret sıklığı ve yaşam kalitesi arasındaki ilişki. *Med J West Black Sea*, 9(1), 68-75. doi:10.29058/mjwbs.1503892
- Farley, H. (2020). Promoting self-efficacy in patients with chronic disease beyond traditional education: a literature review. *Nursing Open*, 7(1), 30-41. doi:10.1002/nop2.382
- Güney, A., & Basit, G. (2023). Relationship between disease adaptation and self-efficacy for disease management in individuals with multiple chronic diseases. *Gevher Nesibe J Med& Health Sci*, 8(4), 1191-1201. doi:10.5281/zenodo.10049232
- Hwang, M. K., Kim, H. K., & Lee, K. H. (2023). Effects of uncertainty, appraisal of uncertainty, and self-efficacy on the quality of life of elderly patients with lung cancer receiving chemotherapy: based on Mishel's theory of uncertainty. *Medicina (Kaunas)*, 59(6), 1051. doi:10.3390/medicina59061051
- İncirkuş, K. (2024). Uyku kalitesi ve kronik hastalık yönetimi için öz-etkililik: Edirne ilindeki yaşlı popülasyonu üzerine kesitsel bir çalışma. *Turkish J Family Med Primary Care*, 18(2), 126-132. doi:10.21763/tjfmprc.1387989
- İncirkuş, K., & Nahcivan, N. (2020). Validity and reliability study of the Turkish version of the self-efficacy for managing chronic disease 6-item scale. *Turkish J Med Sci*, 50(5), 1254-1261. doi:10.3906/sag-1910-13
- Kaynak, G. K. (2022). Kronik hastalıklarda öz yeterlilik algısı: Türkiye'de gerçekleştirilen çalışmalar üzerine bir derleme. *Oltu Beşeri ve Sosyal Bilimler Fakültesi Dergisi*, 3(2), 79-86. doi:10.5152/OJFHSS.2022.22714
- Kuijter, R. G., & De Ridder, D. T. (2003). Discrepancy in illness-related goals and quality of life in chronically ill patients: the role of self-efficacy. *Psychology & Health*, 18(3), 313-330. doi:10.1080/0887044031000146815
- Lorig, K. R., Sobel, D. S., Ritter, P. L., Laurent, D., & Hobbs, M. (2001). Effect of a self-management program on patients with chronic disease. *Eff Clin Pract*, 4(6), 256-262.
- Mishel, M. H. (1988). Uncertainty in illness. *Image: The Journal of Nursing Scholarship*, 20(4), 225-232. doi:10.1111/j.1547-5069.1988.tb00082.x
- Mishel, M. H., & Epstein, D. (1997). Uncertainty in illness scales manual (pp. 4-9). University of North Carolina.
- Morisky, D. E., Green, L. W., & Levine, D. M. (1986). Concurrent and predictive validity of a self-reported measure of medication adherence. *Medical Care*, 24(1), 67-74.
- Shakya, D. (2018). Self-efficacy among patients with chronic diseases and its associated factors. *J Kathmandu Med College*, 7(3), 82-88.
- Skojec, T. A., Davidson, T. M., & Kelechi, T. J. (2025). The relationship between uncertainty in illness and psychological adjustment to chronic illness. *J Health Psychol*, 30(4), 622-637. doi:10.1177/13591053241249861
- Uğuz, Ö., & Doğan, S. (2025). Relationship between posttraumatic growth and illness uncertainty in young women with breast cancer: the mediating role of self-compassion. *Cancer Nursing*. Advance online publication. doi:10.1097/NCC.0000000000001434
- Verduzco-Aguirre, H. C., Babu, D., Mohile, S. G., Bautista, J., Xu, H., Culakova, E., ... & Loh, K. P. (2021). Associations of uncertainty with psychological health and quality of life in older adults with advanced cancer. *J Pain Symptom Management*, 61(2), 369-376. doi:10.1016/j.jpainsymman.2020.08.012
- World Health Organization. (2025, September 25). Noncommunicable diseases [Fact sheet]. Retrieved October 17, 2025, from <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>
- Zhang, Y., Kwekkeboom, K., & Petrini, M. (2015). Uncertainty, self-efficacy, and self-care behavior in patients with breast cancer undergoing chemotherapy in China. *Cancer Nursing*, 38(3), E19-E26. doi:10.1097/NCC.0000000000000165

The effect of psychosocial interventions on depression in individuals undergoing hemodialysis treatment: a review

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ABSTRACT

Hemodialysis is one of the most widely treatment modalities used for chronic kidney disease. Although medical advances have enabled individuals to live longer, complications and symptoms associated with the treatment process can significantly affect their lives. Individuals undergoing hemodialysis treatment experience not only physical symptoms but also economic, social, and psychological challenges, with depression being one of the most prominent psychological problems. Depression and depressive symptoms in hemodialysis patients are associated with longer hospital stays, increased healthcare costs, and higher mortality risk. Moreover, depression profoundly impacts daily life by reducing treatment adherence and lowering quality of life. Pharmacological approaches are commonly used to manage depression; however, they are often insufficient due to potential drug interactions and adverse effects. Consequently, psychosocial interventions, such as cognitive behavioral therapy, group therapy, psychoeducation, music therapy, mindfulness practices, tele-nursing programs, and other complementary methods, have gained importance. This review aims to evaluate the effectiveness of psychosocial interventions in alleviating depression among individuals receiving hemodialysis treatment. To achieve this, relevant literature on psychosocial interventions for depression management in hemodialysis patients was analyzed, and evidence-based recommendations for clinical care were presented.

Keywords: Hemodialysis, chronic kidney disease, psychosocial interventions, depression, nursing, nursing care

INTRODUCTION

Increased life expectancy has contributed to a rising prevalence of chronic diseases worldwide. Among these, chronic kidney disease (CKD) has emerged as a significant public health concern, both in Türkiye and globally (Seyahi et al., 2025). CKD is now recognized as one of the fastest-growing causes of death worldwide, accounting for approximately 2.4 million deaths annually. Importantly, it is the only noncommunicable disease with a consistently rising age-adjusted mortality rate (World Health Organization [WHO], 2024). According to the WHO (2024), CKD-related deaths increased by 95% between 2000 and 2021.

Renal replacement therapies, particularly hemodialysis (HD) treatment, play a crucial role in prolonging the life expectancy of patients with advanced CKD. HD is the most widely treatment modality used for CKD both in Türkiye and globally, with the primary goals of prolonging survival and improving quality of life in individuals with acute and end-stage kidney disease. According to data from the Turkish Society of Nephrology (2023), HD is the predominant renal replacement therapy in end-stage renal disease, accounting for 70.88% of clinical cases, with 63.454 patients receiving HD treatment

(Seyahi et al., 2025). Individuals undergoing HD treatment face numerous biopsychosocial challenges throughout the process, which can significantly compromise their health status, daily life experiences, and overall quality of life (Bello et al., 2022). Similarly, the study by Ok and Işıl (2019) found higher psychological symptom scores among patients without public insurance, those separated from their partners, and those experiencing loneliness. Common difficulties included body image, self-esteem, sexual problems, and social isolation. These findings emphasise the significant correlation between sociodemographic vulnerability and psychological distress within this patient group.

HD treatment not only supports biological functions but also imposes a significant psychosocial burden due to its unique psychological challenges. Individuals with CKD have a considerably higher prevalence of psychiatric disorders than the general population. Commonly reported mental health problems in this population include depression, anxiety, hopelessness, psychosis, personality disorders, cognitive decline, delirium, and substance dependence (Carswell et al., 2023; Ok & Kutlu, 2020). A study reported a significant

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relationship between levels of hopelessness, anxiety, and depression in individuals undergoing HD treatment, and treatment compliance parameters. This further emphasizes the reciprocal relationship between psychological distress and treatment compliance in individuals receiving HD treatment (Ok & Kutlu, 2019). Following the acute phase, major depression is among the most common psychiatric disorders in individuals with CKD, with prevalence rates reported to be three to six times higher than in the general population (Adejumo et al., 2024). In this context, depression has been linked to several negative outcomes, such as increased hospitalizations and visits to the emergency department, non-adherence to treatment, an increased risk of suicide, and an overall decrease in quality of life and sleep patterns (Chopra et al., 2021).

DEPRESSION IN INDIVIDUALS UNDERGOING HD TREATMENT

Depression is one of the most common mood disorders experienced by individuals undergoing HD treatment. The reported incidence of depression among HD patients varies widely, ranging from 5% to 60%. Depression negatively affects patients' physical and mental capacities, disrupting their social and occupational roles and contributing to sexual dysfunction. This further increases the overall disease burden (Goh & Griva, 2018). A review of the literature highlights an important distinction between depression and depressive symptoms. Depressive symptoms typically include low mood, slowed thoughts, speech, and movements, lethargy, feelings of weakness and worthlessness, lack of energy, pessimism, and reduced physiological functioning. In contrast, the diagnostic and statistical manual of mental disorders (DSM-5) defines depression as a mood state characterized by deep sadness, sometimes accompanied by anxiety, which persists for at least two weeks and represents a change from previous functioning (APA, 2013). Clinical depression is also characterized by psychomotor retardation, slowed thinking and talking, a lack of motivation, feelings of inadequacy, and pervasive pessimistic thoughts. For individuals diagnosed with CKD, depressive symptoms are often influenced by fears of losing health, physical strength, sexual function, independence, productivity, and overall well-being. There is a clear relationship between declining physical health and the severity of depressive symptoms. Depressive symptoms are frequently reported among individuals undergoing HD treatment. These symptoms are understood as psychological responses to the various losses these individuals experience (Chopra et al., 2021). Both pharmacological, such as antidepressants, and non-pharmacological interventions, such as cognitive behavioral therapy, group therapy, physical exercise, relaxation techniques, social support, network support groups, tele-nursing programs, and educational programs, can be used to treat depression in individuals undergoing HD treatment (Gerogianni et al., 2019).

Psychosocial interventions aim to provide psychological, emotional, and social support to individuals without the use of medication. In some cases, these interventions can reduce the need for pharmacological treatment or enhance its therapeutic effects. They can help to alleviate distressing symptoms, improve coping skills, strengthen social relationships, address disease-specific challenges, and reduce anxiety and stress (Gerogianni et al., 2019). However, there

is no standardized method or universally accepted protocol for psychotherapeutic practices, and the duration, intensity, and level of interaction with the therapist or support provider can vary considerably. Given the potential pharmacological interactions and side effects associated with antidepressant therapy, psychosocial interventions are an important alternative for patients with CKD. Depressive symptoms in this population can impair treatment adherence, decrease functional capacity, and increase hospitalization rates (Hedayati et al., 2010). Consequently, numerous randomized controlled trials (RCTs) and meta-analyses have been conducted to investigate the effectiveness of psychosocial interventions in managing depression in individuals with CKD (Chopra et al., 2021; Yang et al., 2024).

PSYCHOSOCIAL INTERVENTIONS

A review of the literature indicates that antidepressants are the preferred pharmacological treatment for depression in individuals undergoing HD treatment. However, their use is often limited in this population due to the risk of drug interactions associated with polypharmacy, as well as the accumulation of toxic metabolites resulting from reduced glomerular filtration (Gerogianni et al., 2019). In this context, psychosocial interventions represent an important alternative. These include cognitive behavioral therapy and relaxation techniques (e.g., Benson relaxation exercises), mindfulness-based techniques, guided imagery, educational programs, group therapies, laughter therapy, music therapy, self-management strategies, problem-solving training, and psychosocial support groups (Gerogianni et al., 2019; Chopra et al., 2021; Yang et al., 2024). Psychosocial interventions are generally recommended for individuals with mild depressive symptoms, while a combination of pharmacological treatment and cognitive behavioral therapy is advised for those with moderate to severe depression (Chopra et al., 2021; Yang et al., 2024). This review aims to evaluate the effectiveness of psychosocial interventions in managing depression in individuals undergoing HD treatment, and to discuss their potential contributions to clinical nursing practice (Table).

Psychotherapy and Counseling-Based Interventions

Psychotherapy and counseling-based interventions are among the most used methods for treating depression in people undergoing HD treatment (Chopra et al., 2021; Yang et al., 2024). These interventions aim to alleviate negative emotional states by restructuring maladaptive thoughts, and behavioral patterns. There is evidence that short-term cognitive behavioral therapies and group-based programs can significantly reduce depressive symptoms, improve treatment adherence, and increase hope (Duarte et al., 2009; Lerma et al., 2017). Furthermore, psychoeducational programs can contribute to the development of coping skills by increasing patients' knowledge and self-awareness (Chopra et al., 2021).

Cognitive behavioral therapies: Cognitive behavioral therapy (CBT) is a form of psychotherapy that explores the relationship between thoughts, feelings, and behaviors. It is an effective treatment for a variety of mental health conditions and other psychological problems. Behavioral interventions within CBT are based on the systematic application of learning principles to identify and correct maladaptive behaviors. CBT incorporates various techniques, such as relaxation exercises, cognitive restructuring, and exposure therapy. In the context

Table. Effects of psychosocial interventions on depression in hemodialysis patients

Intervention type	Study design	Main findings on depression	Notes/implications
Cognitive behavioral therapy (CBT)	RCTs, 5-10 weeks CBT programs	Significant reduction in depressive symptoms; improved treatment adherence, hope, and QoL, restructuring negative thoughts	Effective short-term; larger long-term studies needed
Group therapy	RCTs & quasi-experimental, 5-12 sessions	Decreased depression, improved coping, hope, and QoL, reducing psychological distress	Accessible, cost-effective
Psychoeducation	RCTs (patients & families)	Reduced depression, improved treatment and fluid adherence; effects sustained up to 6 months	Family involvement strengthens outcomes
Tele-nursing programs including psychosocial interventions	Quasi-experimental, structured calls	Lower depression and anxiety; improved symptom management	Supports continuity of care
Mindfulness-based interventions	RCTs, pilot trials	Reduced depression, anxiety, and stress; improved well-being, fostering self-awareness	Promising; requires standardized protocols
Benson's relaxation techniques	RCTs	No significant effects	Evidence remains inconsistent; further high-quality RCTs with standardized protocols are needed
Laughter yoga	RCTs	Decreased depression; improved mood	Simple, low-cost complementary approach
Music therapy	RCTs	Significant reduction in depressive symptoms; better QoL, reducing fatigue and anxiety	Effective adjunct during HD sessions
Social support	RCTs	Reduced depression; enhanced treatment adherence	Strong evidence indicates that family and social support reduce depressive symptoms and improve adherence; interventions should prioritize strengthening support networks
Spiritual/religious interventions	RCTs, observational studies	Reduced depression; improved coping, reducing negative thoughts,	Culturally sensitive, context-dependent

RCT: Randomized controlled trial, HD: Hemodialysis

of HD, CBT approaches have been found to reduce depressive symptoms, improve treatment adherence, and lower suicide risk. They have also been shown to alleviate the overall burden of disease and enhance quality of life. Improvements have been documented in areas such as social relationships, sleep quality, general health, and psychological well-being (Chopra et al., 2021). Lerma et al. (2017) also reported that a short-term, five-week CBT program was effective in alleviating depressive symptoms among individuals undergoing HD treatment. Meta-analyses and systematic reviews provide further evidence of the effectiveness of CBT for individuals undergoing HD treatment. These studies indicate that CBT alleviates depressive symptoms, reduces anxiety, improves quality of life, and enhances treatment adherence.

Group therapies: Group therapy is a form of psychosocial intervention that is one of the most affordable and accessible treatment approaches for individuals facing a wide range of difficulties. These include challenges in coping with illness and implementing behavioral or lifestyle changes (Drum et al., 2011). There is consistent evidence that group psychotherapy interventions improve quality of life, reduce psychological distress, strengthen coping skills, and alleviate symptoms and pain in patients with end-stage renal disease (Poorgholami et al., 2015). Duarte et al. (2009) reported that a 12-week CBT program administered to individuals undergoing HD treatment with major depression significantly improved depressive symptoms, with benefits sustained at 3- and 9-month follow-ups. Lerma et al. (2017) conducted a five-week group CBT program incorporating behavioral activation, deep breathing, muscle relaxation, and cognitive restructuring techniques with small groups of three to six participants and reported improvements in depressive symptoms and quality of life one month after treatment.

Psychoeducation: Psychoeducation has been identified as an effective intervention for reducing depressive symptoms in individuals undergoing HD treatment. CBT is frequently integrated with psychoeducation to further improve quality of life and reduce depression and anxiety in this population (Al-Saraireh et al., 2018). Al-Saraireh et al. (2018) compared the effects of psychoeducation and CBT on depression in individuals undergoing HD treatment, reporting that psychoeducation was more effective in reducing depressive symptoms. Similarly, Chen et al. (2023) found that the positive effects of psychoeducation on depressive symptoms persisted at 1-, 3-, and 6-month follow-ups.

Tele-nursing programs including psychosocial interventions: Evidence suggests that tele-nursing is an effective way of providing psychosocial support to people undergoing HD treatment. Tele-nursing programs have been shown to reduce anxiety, depression, and stress in individuals undergoing HD treatment by facilitating effective symptom management and enabling the early identification of treatment-related complications (Jahromi et al., 2015). Supporting these findings, Rajkomar et al. (2014) found that telephone communication with dialysis nurses and technicians during home-based HD improved treatment management and elicited positive emotional responses from patients and caregivers alike. Similarly, Jahromi et al. (2015) demonstrated that daily, 30-minute structured telephone support calls for 30 consecutive days following dialysis sessions were effective in reducing depressive symptoms.

In addition to nurse-led telephone follow-ups serving as a means of psychosocial support in HD, with RCTs confirming reductions in depression, anxiety, and stress, broader telehealth approaches that embed structured psychosocial components

have likewise been shown to enhance psychological outcomes and quality of life (Yang et al., 2024). However, further high-quality RCTs with standardized protocols are required to consolidate these findings.

Mindfulness and Mind-Body Based Interventions

Mind-body interventions contribute to reducing depressive symptoms by emphasizing stress management and relaxation. Interventions such as mindfulness-based therapies, relaxation exercises, and guided imagery have been shown to effectively reduce the psychological distress experienced during HD treatment (Razzera et al., 2021). Among these, Benson relaxation exercises and laughter yoga enhance emotional regulation by fostering greater self-awareness. Further evidence highlights that such practices have a positive effect on anxiety and depression (Bennett et al., 2018).

Mindfulness-based interventions: Over the past two decades, research has consistently demonstrated the positive impact of mindfulness-based meditation on physical and mental health. Mindfulness is defined as a state of consciousness characterized by non-judgmental awareness of present experiences, rather than an attempt to alter or eliminate them (González-Valero et al., 2019). The growing interest in mindfulness-based interventions for chronic diseases is largely due to their proven positive impact on quality of life and overall health (Goldberg et al., 2018). Consistent with this evidence, meditation has been shown to provide long-term psychological and clinical benefits in the management of end-stage renal disease and HD treatment (Bennett et al., 2018). Furthermore, a systematic review reported that mindfulness-based approaches with individuals undergoing HD treatment effectively reduced depressive symptoms (Razzera et al., 2021).

Laughter yoga: Laughter therapy involves the sustained practice of “intentional laughter” to achieve the psychological and physiological benefits associated with laughter. In the context of chronic diseases, laughter yoga has been shown to improve mood and alleviate depressive symptoms (Shahidi et al., 2011). The study conducted with individuals undergoing HD treatment suggests that laughter yoga effectively reduces depressive symptoms (Bennett et al., 2020).

Benson’s relaxation techniques: Benson’s relaxation techniques, which include rhythmic breathing exercises such as slow breathing, deep breathing, breath meditation, and abdominal breathing, have been shown to alleviate stress and anxiety in patients undergoing HD treatment (Mahdavi et al., 2013). However, findings regarding their effectiveness remain mixed. For example, a systematic review of studies on Benson’s relaxation techniques in individuals undergoing HD treatment reported positive outcomes in one study, while two others found no significant effects (Abu Maloh et al., 2022).

Art, Social, and Support-Based Interventions

Interventions focusing on art and social support are complementary strategies that can enhance the emotional well-being of individuals undergoing HD treatment. For instance, music therapy provides patients with a means of emotional expression, while psychosocial support groups help reduce feelings of loneliness by strengthening social connections. These interventions are important in improving quality of life and helping patients to cope with depression.

There is evidence that music-based interventions and support groups effectively reduce depressive symptoms and promote treatment adherence (Yang et al., 2024).

Music therapy: Music therapy is a non-pharmacological intervention that involves the structured use of musical elements, such as melody, rhythm, and harmony, over a defined period. Its application to individuals undergoing HD treatment has increased in recent years. A systematic review indicates that music therapy effectively reduces depressive symptoms in individuals undergoing HD treatment (Nishiwaki et al., 2025).

Social support: Social support is widely recognized as a key factor in improving health outcomes for patients with chronic diseases. Among individuals undergoing HD treatment, mental health is strongly influenced by the level of support they receive from family members and their broader social networks. Evidence suggests that social support enhances treatment adherence in this population by reducing depressive symptoms (Gerogianni et al., 2019).

Research has also highlighted an association between low social support and greater psychological distress in individuals undergoing HD treatment. Research has shown that limited support from family and friends is linked to higher levels of anxiety and depression in HD patients (Lilypaki et al., 2016), whereas greater family and friend support has been associated with fewer depressive symptoms (Pan et al., 2019).

Spiritual and religious interventions: Spirituality and religion are important coping resources for individuals with chronic illness. Spirituality is often defined as the search for meaning, peace, and purpose beyond organized religion, while religion refers to structured beliefs and rituals rooted in faith traditions (Tanhan & Young, 2022). Within nursing, spirituality is regarded as a holistic dimension of care and a fundamental human need, particularly relevant for individuals undergoing HD treatment (Jaberi et al., 2019). Spiritual and religious practices may include prayer, meditation, reading sacred texts, listening to religious music, or participating in communal worship (Darvishi et al., 2020). For Muslim patients, listening to the Qur’an has also been found to alleviate depressive symptoms (Mashitah et al., 2020). These practices can be carried out by patients themselves, supported by family members, or facilitated by nurses and spiritual counselors.

Evidence shows that religiosity and spirituality enhance coping, reduce anxiety and depression, and improve quality of life in individuals undergoing HD treatment (Fradelos et al., 2021). Nearly 80% of individuals with CKD report high levels of religious/spiritual coping, which foster hope and positive adaptation (Valcanti et al., 2012; Hekmati Pour & Hojjati, 2015). However, negative forms of religious coping, such as feelings of abandonment by a higher power, have been linked to psychological distress and poorer health outcomes (Taheri-Kharamah et al., 2016).

Given the demanding and long-term nature of HD treatment, spiritual and religious support is especially valuable. Nurses play a central role in recognizing these needs, encouraging individuals to use their personal resources, and integrating spiritual care into clinical practice to strengthen resilience, improve adherence, and enhance overall quality of life (Jaberi et al., 2019).

CONCLUSION

For individuals on HD treatment, depression is not only a psychological issue but also a determinant of treatment adherence, clinical outcomes, and quality of life. Because of the risks associated with pharmacological therapies, psychosocial interventions are increasingly emphasized as essential in managing depressive symptoms. Evidence supports the effectiveness of approaches such as CBT, group-based programs, psychoeducation, relaxation techniques, music therapy, mindfulness practices, tele-nursing, and other complementary strategies.

Nurses hold a central position in identifying depression early and in planning and monitoring interventions. Their role extends beyond physiological monitoring to include the psychosocial well-being of patients. Within this framework, depression management should be prioritized in clinical practice, with structured psychosocial programs embedded into HD units and families actively involved in care. Regular assessments by consultation-liaison psychiatry teams support early recognition and individualized treatment planning. Nurses in these teams provide psychoeducation, strengthen adherence, and help patients and families develop coping skills. In-service training is also necessary to improve awareness of depression management and increase the impact of psychosocial interventions.

Current evidence on psychosocial interventions in HD is still limited, particularly concerning long-term outcomes and cultural adaptability. High-quality RCTs focusing on nurse-led strategies are needed to establish a stronger evidence base for their integration into routine practice. In parallel, incorporating the principles of depression recognition and psychosocial care into undergraduate and postgraduate nursing curricula will prepare future nurses to detect symptoms promptly, deliver patient-centered interventions, and work effectively within multidisciplinary teams. Linking research with education in this way can enhance clinical practice and training, ultimately improving outcomes and quality of life for individuals undergoing HD treatment.

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REFERENCES

- Abu Maloh, H. I. A., Soh, K. L., AbuRuz, M. E., Chong, S. C., Ismail, S. I. F., Soh, K. G., & Abu Maloh, D. I. (2022). Efficacy of Benson's relaxation technique on anxiety and depression among patients undergoing hemodialysis: a systematic review. *Clin Nurs Res*, 31(1), 122-135. doi:10.1177/10547738211024797
- Adejumo, O. A., Edeki, I. R., Sunday Oyedepo, D., Falade, J., Yisau, O. E., Ige, O. O., ... & Ekrikpo, U. E. (2024). Global prevalence of depression in chronic kidney disease: a systematic review and meta-analysis. *J Nephrol*, 37(9), 2455-2472. doi:10.1007/s40620-024-01998-5
- Al Saraireh, F. A., Aloush, S. M., Al Azzam, M., & Al Bashtawy, M. (2018). The effectiveness of cognitive behavioral therapy versus psychoeducation in the management of depression among patients undergoing haemodialysis. *Issues Ment Health Nurs*, 39(6), 514-518. doi:10.1080/01612840.2017.1406022
- American Psychiatric Organization. (2013). Diagnostic and statistical manual of mental disorders. 5th ed. Arlington: American Psychiatric Organization.
- Bello, A. K., Okpechi, I. G., Osman, M. A., Cho, Y., Htay, H., Jha, V., ... & Johnson, D. W. (2022). Epidemiology of haemodialysis outcomes. *Nat Rev Nephrol*, 18(6), 378-395. doi:10.1038/s41581-022-00542-7
- Bennett, P. N., Hussein, W. F., Reiterman, M., Yu, J., & Schiller, B. (2020). The effects of laughter therapy on depression symptoms in patients undergoing center hemodialysis: a pragmatic randomized controlled trial. *Hemodial Int*, 24(4), 541-549. doi:10.1111/hdi.12870
- Bennett, P. N., Ngo, T., Kalife, C., & Schilder, B. (2018). Improving wellbeing in patients undergoing dialysis: can meditation help? *Semin Dial*, 31(1), 59-64. doi:10.1111/sdi.12656
- Carswell, C., Cogley, C., Bramham, K., Chilcot, J., Noble, H., & Siddiqi, N. (2023). Chronic kidney disease and severe mental illness: a scoping review. *J Nephrol*, 36(6), 1519-1547. doi:10.1007/s40620-023-01599-8
- Chen, H. C., Zhu, L., Chan, W. C. S., Cheng, K. F. K., Vathsala, A., & He, H. G. (2023). The effectiveness of a psychoeducational intervention on health outcomes of patients undergoing haemodialysis: a randomized controlled trial. *Int J Nurs Pract*, 29(3), e13123. doi:10.1111/ijn.13123
- Chopra, P., Ayers, C. K., Antick, J. R., Kansagara, D., & Kondo, K. (2021). The effectiveness of depression treatment for adults with ESKD: a systematic review. *Kidney360*, 2(3), 558-585. doi:10.34067/KID.0003142020
- Darvishi, A., Otaghi, M., & Mami, S. (2020). The effectiveness of spiritual therapy on spiritual well-being, self-esteem and self-efficacy in patients on hemodialysis. *J Relig Health*, 59(1), 277-288. doi:10.1007/s10943-018-00750-1
- Drum, D., Swanbrow Becker, M., & Hess, E. (2011). Expanding the application of group interventions: emergence of groups in health care settings. *J Specialists Group Work*, 36(4), 247-263. doi:10.1080/01933922.2011.613902
- Duarte, P. S., Miyazaki, M. C., Blay, S. L., & Sesso, R. (2009). Cognitive-behavioral group therapy is an effective treatment for major depression in hemodialysis patients. *Kidney Int*, 76(4), 414-421. doi:10.1038/ki.2009.156
- Fradelos, E. C., Latsou, D., Mitsi, D., Tsaras, K., Lekka, D., Lavdaniti, M., & Papathanasiou, I. V. (2018). Assessment of the relation between religiosity, mental health, and psychological resilience in breast cancer patients. *Contemp Oncol (Pozn)*, 22(3), 172-177. doi:10.5114/wo.2018.78947
- Gerogianni, G., Babatsikou, F., Polikandrioti, M., & Grapsa, E. J. I. U. (2019). Management of anxiety and depression in haemodialysis patients: the role of non-pharmacological methods. *Int Urol Nephrol*, 51, 113-118. doi:10.1007/s11255-018-2022-7
- Goh, Z. S., & Griva, K. (2018). Anxiety and depression in patients with end-stage renal disease: impact and management challenges—a narrative review. *Int J Nephrol Renovasc Dis*, 11, 93-102. doi:10.2147/IJNRD.S126615
- Goldberg, S. B., Tucker, R. P., Greene, P. A., Davidson, R. J., Wampold, B. E., Kearney, D. J., & Simpson, T. L. (2018). Mindfulness-based interventions for psychiatric disorders: a systematic review and meta-analysis. *Clin Psychol Rev*, 59, 52-60. doi:10.1016/j.cpr.2017.10.011
- González-Valero, G., Zurita-Ortega, F., Ubago-Jiménez, J. L., & Puertas-Molero, P. (2019). Use of meditation and cognitive behavioral therapies for the treatment of stress, depression and anxiety in students. A systematic review and meta-analysis. *Int J Environ Res Public Health*, 16(22), 4394. doi:10.3390/ijerph16224394
- Hedayati, S. S., Minhajuddin, A. T., Afshar, M., Toto, R. D., Trivedi, M. H., & Rush, A. J. (2010). Association between major depressive episodes in patients with chronic kidney disease and initiation of dialysis, hospitalization, or death. *Jama*, 303(19), 1946-1953. doi:10.1001/jama.2010.619
- Hekmati Pour, N., & Hojjati, H. (2015). The relationship between praying and life expectancy in cancerous patients. *J Med Life*, 8(4), 60.
- Jaberi, A., Momennasab, M., Yektatalab, S., Ebadi, A., & Cheraghi, M. A. (2019). Spiritual health: a concept analysis. *J Relig Health*, 58, 1537-1560. doi:10.1007/s10943-017-0379-z
- Jahromi, M. K., Javadpour, S., Taheri, L., & Poorgholami, F. (2015). Effect of nurse-led telephone follow ups (tele-nursing) on depression, anxiety and stress in hemodialysis patients. *Glob J Health Sci*, 8(3), 168. doi:10.5539/gjhs.v8n3p168

- Lerma, A., Perez-Grovas, H., Bermudez, L., Peralta-Pedrero, M. L., Robles-García, R., & Lerma, C. (2017). Brief cognitive behavioural intervention for depression and anxiety symptoms improves quality of life in chronic haemodialysis patients. *Psychol Psychother*, 90(1), 105-123. doi:10.1111/papt.12098
- Lilympaki, I., Makri, A., Vlantousi, K., Koutelekos, I., Babatsikou, F., & Polikandrioti, M. (2016). Effect of perceived social support on the levels of anxiety and depression of hemodialysis patients. *Mater Sociomed*, 28(5), 361. doi:10.5455/msm.2016.28.361-365
- Mahdavi, A., Gorji, M. A. H., Gorji, A. M. H., Yazdani, J., & Ardebil, M. D. (2013). Implementing Benson's relaxation training in hemodialysis patients: changes in perceived stress, anxiety, and depression. *N Am J Med Sci*, 5(9), 536. doi:10.4103/1947-2714.118917
- Mashitah, M. W. (2020). Quran recitation therapy reduces the depression levels of hemodialysis patients. *Int J Res Med Sci*, 8(6), 2222-2227.
- Nishiwaki, H., Levack, W. M., Hasegawa, T., Ota, E., Noma, H., Suzuki, T., ... & Kelly, T. N. (2025). Music-based interventions for people with chronic kidney disease undergoing haemodialysis. *Cochrane Database Syst Rev*, 2025(4), CD016139. doi:10.1002/14651858.CD016139
- Ok, E., & Işıl, Ö. (2019). Assessment of the mental status of patients with chronic kidney disease. *J Psychiatr Nurs*, 10(3), 181-189. doi:10.14744/phd.2019.35119
- Ok, E., & Kutlu, F. Y. (2019). Hopelessness, anxiety, depression and treatment adherence in chronic hemodialysis patients. *Int J Caring Sci*, 12(1), 423-429.
- Pan, K. C., Hung, S. Y., Chen, C. I., Lu, C. Y., Shih, M. L., & Huang, C. Y. (2019). Social support as a mediator between sleep disturbances, depressive symptoms, and health-related quality of life in patients undergoing hemodialysis. *PLoS One*, 14(4), e0216045. doi:10.1371/journal.pone.0216045
- Poorgholami, F., Javadpour, S., Saadatmand, V., & Jahromi, M. K. (2015). Effectiveness of self-care education on the enhancement of the self-esteem of patients undergoing hemodialysis. *Glob J Health Sci*, 8(2), 132. doi:10.5539/gjhs.v8n2p132
- Rajkomar, A., Farrington, K., Mayer, A., Walker, D., & Blandford, A. (2014). Patients' and carers' experiences of interacting with home haemodialysis technology: implications for quality and safety. *BMC Nephrol*, 15(1), 195. doi:10.1186/1471-2369-15-195
- Razzera, B. N., Adamoli, A. N., Ranheiri, M. F., Oliveira, M. D. S., & Feoli, A. M. P. (2021). Impacts of mindfulness-based interventions in people undergoing hemodialysis: a systematic review. *Brazilian J Nephrol*, 44(1), 84-96. doi:10.1590/2175-8239-JBN-2021-0116
- Seyahi, N., Koçyiğit, İ., Eren, N., Tonbul, H. Z., Tatar, E., Yılmaz, Z., ... & Ateş, K. (2025). Current status of kidney replacement therapy in Türkiye: a summary of 2023 Turkish Society of Nephrology Registry Report. *Turk J Nephrol*, 34(2), 141-148. doi:10.5152/turkjnephrol.2025.24978
- Shahidi, M., Mojtahed, A., Modabbernia, A., Mojtahed, M., Shafiabady, A., Delavar, A., & Honari, H. (2011). Laughter yoga versus group exercise program in elderly depressed women: a randomized controlled trial. *Int J Geriatr Psychiatry*, 26(3), 322-327. doi:10.1002/gps.2545
- Taheri-Kharamah, Z., Zamanian, H., Montazeri, A., Asgarian, A., & Esbiri, R. (2016). Negative religious coping, positive religious coping, and quality of life among hemodialysis patients. *Nephro-Urol Monthly*, 8(6), e38009.
- Tanhan, A., & Strack, R. W. (2020). Online photovoice to explore and advocate for Muslim biopsychosocial spiritual wellbeing and issues: ecological systems theory and ally development. *Curr Psychol*, 39(6), 2010-2025. doi:10.1007/s12144-020-00692-6
- Valcanti, C. C., Chaves, É. D. C. L., Mesquita, A. C., Nogueira, D. A., & Carvalho, E. C. D. (2012). Religious/spiritual coping in people with chronic kidney disease undergoing hemodialysis. *Revista Da Escola De Enfermagem Da USP*, 46, 838-845. doi:10.1590/s0080-62342012000400008
- WHO, (2024). The top 10 causes of death. The top 10 causes of death
- Yang, H., Qi, L., & Pei, D. (2024). Effect of psychosocial interventions for depression in adults with chronic kidney disease: a systematic review and meta-analysis. *BMC Nephrol*, 25(1), 17. doi:10.1186/s12882-023-03447-0