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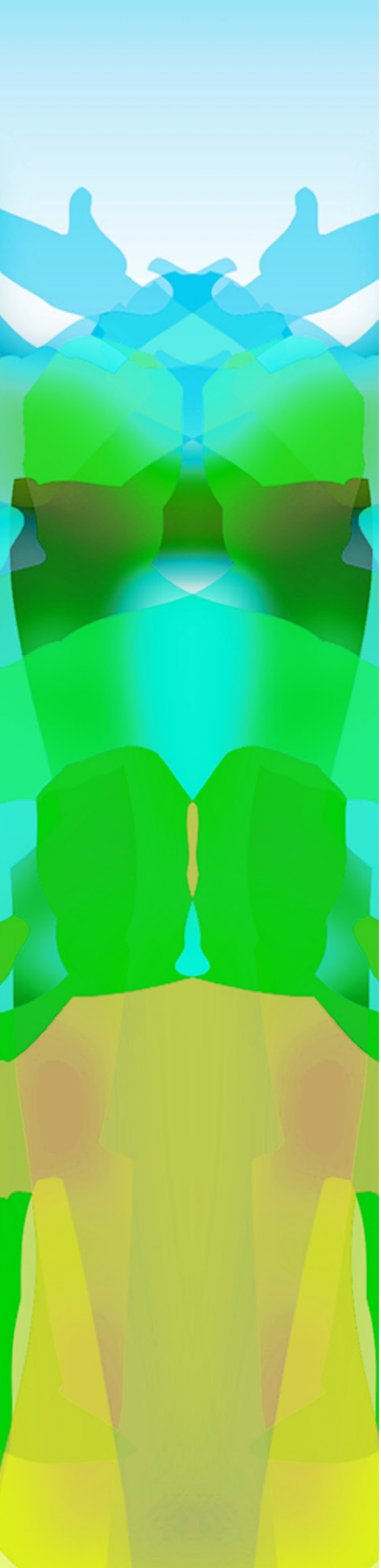

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EDITORIAL

Dear Colleagues,

Human interaction with the environment begins at birth and continues until death, often without conscious awareness. Inevitably, humankind is compelled to change and/or adapt in parallel with the transformations of the world. However, forgetting that they are part of nature, humans have throughout history exploited, manipulated, and even destroyed their environment. The extent of this destruction has now reached a level that threatens human health itself. Humankind may, in fact, be on the verge of destroying its own habitat. One of the most critical consequences of such human-driven damage is climate change.

Climate change, broadly defined as the result of global warming and/or cooling, manifests through extreme and unpredictable weather events such as heavy rainfall, floods, glacial melting, rising sea levels, reduced agricultural land, and disruptions in seasonal cycles, all of which have adverse impacts. Beyond posing significant physical threats to the planet and all living beings, climate change has become a global challenge with profound effects on individuals' and societies' mental health, raising concerns of an impending crisis. Research in the literature demonstrates that climate change is associated with large-scale problems such as deforestation, glacier retreat, and desertification, while simultaneously linking acute weather events, rapidly progressing environmental changes, economic and social strain, and mental health problems.[1,2]

The mental health consequences of climate change may be examined in terms of acute effects and those related to traumatic stress. Natural disasters such as hurricanes, floods, wildfires, and heatwaves have been associated with an increase in post-traumatic stress disorder (PTSD), acute stress reactions, sleep disturbances, and anxiety attacks. Following such events, healthcare utilization and psychiatric emergency admissions significantly rise.[1]

When considering the chronic and cumulative effects, depression, chronic anxiety, increased substance use, and psychosocial challenges at the community level are noteworthy. Populations that lose their livelihoods, are forced to migrate, or experience weakening of social ties become particularly vulnerable in the face of the climate crisis.[2]

Another important concept in this context is eco-anxiety, defined as the perception of uncertainty and threat concerning the future due to climate change. Eco-anxiety may manifest as worry, fear, anger, grief, hopelessness, guilt, and shame. It is especially prevalent among young people, often accompanied by significant stress, hopelessness, and reduced functionality. Meta-analyses have reported positive correlations between eco-anxiety and psychological distress, depressive symptoms, and anxiety.[2,3]

Risk groups in terms of mental health impact include low-income communities (with limited adaptive capacity), rural and agriculture-dependent populations (at risk of livelihood loss), adolescents and young adults (high sensitivity to climate concerns), older adults and individuals with chronic illnesses (greater vulnerability to physical/psychological stressors), and individuals with a history of mental illness.[2]

As with all crises, immediate mental health interventions (such as Psychological First Aid) and long-term psychosocial support services are of critical importance in climate-related emergencies. Community-based approaches—such as strengthening local support networks, implementing psychoeducational resilience programs, and providing culturally sensitive psychosocial interventions—play a key role. Raising awareness of climate-related stress, ensuring early recognition, and offering psychotherapeutic support may help protect mental health functioning. Importantly, a multidisciplinary team approach is essential in the planning and delivery of services, requiring strengthened coordination among public health and mental health professionals, social workers, and emergency management teams.[1,2]

Furthermore, it is vital to integrate the mental health impacts of climate change into health policies through monitoring, reporting, and resource allocation. Economic and social support should be provided to vulnerable populations, while awareness of climate and mental health should be promoted among both healthcare professionals and the general public. Interventions such as sustainable transportation, the creation and expansion of green spaces, environmentally friendly buildings, and the development of scientific research in this field are areas in which psychiatric nurses can play an active role. Psychiatric nurses should cultivate sensitivity toward reducing ecological footprints at both individual and societal levels, take the lead in incorporating climate-related issues into nursing education and in-service training, act as role models in promoting environmentally responsible lifestyles within society, and actively participate in policy-making processes related to environmental health.

Prof. Dr. Semra Karaca

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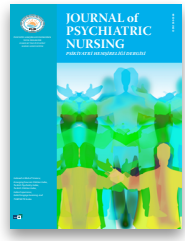

Qualitative Research

Experiences of compassion fatigue among nurses working in psychiatric clinics: A qualitative study

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Abstract

Objectives: This study aimed to examine the experiences of compassion fatigue among nurses working in a psychiatric clinic using a phenomenological approach.

Methods: This phenomenological study was conducted between July and September 2023 with 14 nurses working in a psychiatric clinic, using semi-structured questions. Criterion sampling was employed to reach the sample group, and interviews continued until data saturation was achieved. Colaizzi's seven-step method was used to analyze the data, allowing for a comprehensive examination of the participants' experiences and thereby contributing to the reliability of the findings.

Results: Five themes were developed based on 16 categories identified in the study. The themes included the role of compassion in psychiatric care, nurses' perceptions of compassion fatigue, negative emotions that trigger compassion fatigue in psychiatric care, strategies for coping with compassion fatigue, and suggestions for managing compassion fatigue.

Conclusion: The study concluded that compassion is fundamental to psychiatric care but can also lead to compassion fatigue when professional boundaries are crossed. Nurses stated that feelings such as exhaustion, anger, sadness, fear, and anxiety increased the risk of compassion fatigue. It was found that they used dysfunctional coping methods such as increased smoking, emotional avoidance, and shifting focus. The study also revealed that nurses had expectations in clinical and educational areas to prevent compassion fatigue.

Keywords: Compassion; compassion fatigue; psychiatric nursing; qualitative study

Compassion is a multidimensional concept that involves recognizing another person's pain, feeling that pain on an emotional level, and responding to it in an effective manner.[1] In this context, compassion can be defined as an attitude and behavior aimed at understanding the other person's experience, recognizing their needs, and alleviating their pain.[2] The feeling of compassion is based on the assumption that pain, failure, and inadequacy are fundamental to being human and that all individuals are worthy of compassion.[3]

Since Florence Nightingale's historical influence, compassion has formed the basis of the traditional philosophy of care in the international professional nursing context.[4] Nursing science theorists Erikson[5] and Watson[6] also emphasized that compassion is an essential element in nursing care. Compassion fatigue is considered a state of emotional, physical, and mental exhaustion that arises from prolonged exposure to work-related stress among healthcare workers.[7] Compassion fatigue is generally defined as a process that occurs when healthcare workers constantly compromise themselves and are exposed to excessive stress due to continuous and intense interaction with patients.[8] The nursing profession, which is considered vulnerable to compassion fatigue among healthcare professionals, stands out as a highly stressful profession.[7] Compassion fatigue is the emotional cost of nurses caring for

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traumatized individuals or witnessing the trauma of others.[8] Prolonged and/or intense exposure to patients' painful experiences,[9] long working hours, low job satisfaction, receiving less praise from patients, and increased perceived stress can increase the risk of compassion fatigue in nurses.[10] Nurses' difficulty in establishing a sustainable balance between their professional and personal lives may cause them to continue thinking about patient care and work-related experiences even outside of working hours.[11] Constant exposure to patients' pain and managing all aspects of that pain can leave nurses vulnerable to compassion fatigue.[9]

Physicians, nurses, and psychologists working in the field of mental health are among the occupational groups at high risk of compassion fatigue.[12,13] A study on compassion fatigue indicated that psychiatric nurses experienced higher levels of job burnout and compassion fatigue than other professional groups included in the study, among physicians, nurses, and psychologists working in the field of mental health.[14] Challenging patient profiles and adverse working conditions in psychiatric nursing can lead to compassion fatigue and cause nurses to become insensitive to patient needs.[15] Although descriptive studies on compassion fatigue in nurses caring for psychiatric patients are available in the literatüre,[13,14,16–19] there are a limited number of qualitative studies.[15,20,21] The results of the qualitative studies examined indicate that there is a need for a more in-depth examination of how compassion is understood in psychiatric nursing and the state of compassion fatigue among psychiatric nurses.[20,21]

The need to increase the quality and quantity of human resources working in the field of mental health in Türkiye has been emphasized in the National Mental Health Policy (2006) and the National Mental Health Action Plan (2020–2023) documents.[22] The National Mental Health Action Plan (2020–2023) states that the number of nurses trained in psychiatric nursing is relatively low. It is known that nurses working in psychiatric units in Türkiye are generally licensed or associate degree nurses, and that the number of nurses specializing in the field is quite insufficient.[22] In hospitals with a small number of nurses, attempts to maintain care services by increasing the working hours of existing nurses can cause physical and mental problems for nurses.[23] Accordingly, this study aims to examine in depth the perceptions of nurses working in psychiatric clinics regarding compassion fatigue experienced during the psychiatric care process.

What is presently known on this subject?

- Compassion fatigue in the nursing profession results from stress factors inherent in the act of providing care. Nurses may experience compassion fatigue as a consequence of prolonged, continuous, and intense contact with patients.
- Compassion fatigue has adverse effects on emotional, physical, and mental health.

What does this article add to the existing knowledge?

- Nurses working in psychiatric clinics may experience compassion fatigue when they are unable to express their compassion within professional boundaries.
- Feelings of burnout, anxiety, fear, sadness, and anger experienced by nurses working in psychiatric clinics can increase the risk of compassion fatigue.
- Nurses working in psychiatric clinics may use dysfunctional coping methods such as suppressing their emotions and shifting their focus of thought to combat compassion fatigue.
- The results of this study reveal that nurses working in psychiatric clinics are a vulnerable group to compassion fatigue.

What are the implications for practice?

- This study emphasizes that nurses caring for psychiatric patients should specialize in psychiatric nursing.
- It is recommended that nurses working in psychiatric clinics be empowered in the areas of mental health and clinical practice.
- There is a need for individual and organizational interventions to address compassion fatigue among psychiatric nurses.

Materials and Method

Research Model

This study was conducted between July and September 2023 using an inductive qualitative design. A phenomenological design was preferred to obtain in-depth information.[24]

Study Group

Criteria sampling, a type of purposive sampling, was employed to select the study group. Criteria sampling involves studying all cases that meet a predetermined set of criteria. The researcher creates the criteria, or a previously prepared list of criteria can be used.[25] The study group consisted of 14 nurses working at a Psychiatric Hospital in the Eastern Black Sea region of Türkiye. A total of 19 nurses worked in the unit where the study was conducted, and the interviews were completed with 14 nurses once data saturation was achieved.

Inclusion Criteria

Working as a nurse in the psychiatric clinic for at least 1 year, being open to communication, and agreeing to participate in the study.

Exclusion Criteria

Having worked in the psychiatric unit for less than 1 year, working in an area not directly involved in patient care, and refusing to participate in the study.

Research Team and Reflexivity

The research team members hold PhDs in psychiatric nursing and are faculty members at the institution. The researchers have experience working as clinical nurses in hospitals. They have training in qualitative research methods and experience in conducting qualitative interviews. The researcher who conducted the qualitative interviews in this study has published qualitative research in international peer-reviewed journals.

Data Collection Tool

A semi-structured open-ended interview guide was used to collect data. The researchers prepared the interview guide based on a literature review and in line with the research objective. To formulate the research questions, the statements used in the *Compassion Fatigue Short Scale*[26] and the statements taken from the compassion fatigue subdimension of the *Quality of Life Scale for Employees*[27] were examined. The prepared form consisted of two sections: socio-demographic questions and semi-structured questions.

The first section of the socio-demographic form contained six questions regarding the location and date of the interview, gender, marital status, age, and educational status. The second section comprised four main questions designed to evaluate the experiences of nurses working in the psychiatric clinic.

To ensure the content and face validity of the interview guide, the opinions of two faculty members specializing in mental health nursing were sought. Additions and corrections were made in line with the expert opinions, and the final version of the interview guide was produced. The main questions in the interview form were as follows:

1. What are your thoughts on psychiatric patients?
2. How does caring for a psychiatric patient affect you? Could you tell us about it?
3. What role does compassion play in your profession? Could you elaborate?
4. What does compassion fatigue mean to you?

A pilot study was conducted with two nurses to enhance the clarity and applicability of the data collection forms, to ensure the collection of data relevant to the research questions, and to develop and standardize the researcher's interview skills. As a result of the pilot study, it was decided not to make any changes to the questions. However, due to the standardization of the interview, the nurses included in the pilot study were excluded from the main study.

Data Collection

In qualitative research, it is crucial to identify individuals who can provide detailed information about the subject under study when determining the sample size. The literature generally indicates that qualitative studies are typically conducted with 10 to 15 participants.[28] A total of 19 nurses worked at the hospital where the study was conducted. Data collection was completed with 14 nurses, as it was accepted that data saturation was reached when similar responses began to be repeated by the participants.[29] Data were collected through face-to-face interviews. The average interview time with each participant was approximately 40 minutes. It was observed that the participants answered the questions clearly. No participants withdrew from the study. The interviews were conducted by researcher EB and recorded with a voice recorder with the written and verbal consent of the participants. The voice recordings were listened to at least three times and transcribed by researcher EB. The resulting transcripts were then submitted to the participants for review and approval.

Data Analysis

All interviews were transcribed by EB and triangulated by another researcher. Participants were anonymized by assigning them unique codes (N1, N2⋯N14). The researchers reviewed the transcribed data at different times. The transcribed interviews were entered into a computer and coded using MAXQDA 2022 qualitative research software. To ensure that participants' experiences were captured accurately and systematically, the data were analyzed using Colaizzi's 7-step method.

The descriptive analysis method outlined in Morrow's study [30] was used to analyze the data. In the first step, the researcher listened to the audio files at least three times and transcribed them verbatim. In the second step, the nurses' statements related to compassion fatigue were selected. In the third step, the researchers formulated the participants' statements, excluding their biases from the study. In the fourth step, themes and categories were identified. In the fifth step, themes were linked to each other and comprehensively defined. In the sixth step, an attempt was made to structure and support the perceptions of compassion fatigue among nurses working in the psychiatric clinic by using participants' quotes. In the final step, the structure and findings were validated to ensure reliability.

Each transcript was read and reread by the second researcher. The most frequently repeated sentences in each interview were identified. Codes were determined using a codebook, and subthemes were created by combining similar codes. Common themes were identified by grouping similar subthemes. If the codes were not similar, a discussion was held between the two coders to resolve the differences. Discussions continued until a consensus was reached. Throughout this study, the Consolidated Criteria for Reporting Qualitative Research (COREQ)[31] were followed. This rigorous and systematic approach ensured that the data analysis was both methodologically sound and reflective of the participants' actual experiences with compassion fatigue.

Reliability and Validity of the Study

Lincoln and Guba argued that the reliability of a research study is vital in assessing its value. In qualitative research, ensuring rigor and reliability is based on four criteria: cred-

Table 1. Individual characteristics of nurses caring for psychiatric patients according to their code names

Nurse (code names)	Age	Gender	Marital status	Education	Experience in profession (year)	Psychiatry clinic years of experience (year)
N1	48	Male	Married	Associate degree	27	10
N2	25	Male	Single	Associate degree	3	2
N3	25	Male	Married	Bachelor's degree	1	1
N4	23	Male	Single	Associate degree	1	1
N5	27	Female	Single	Bachelor's degree	3	3
N6	25	Male	Married	Bachelor's degree	3	9
N7	35	Female	Married	Associate degree	14	10
N8	25	Female	Married	Bachelor's degree	25	10
N9	32	Female	Single	Bachelor's degree	6	3
N10	27	Female	Married	Bachelor's degree	5	2
N11	35	Male	Married	Associate degree	10	7
N12	28	Male	Married	Associate degree	4	3
N13	44	Female	Single	Bachelor's degree	12	10
N14	39	Male	Single	Bachelor's degree	15	9

ibility, dependability, confirmability, and transferability.[32] To ensure credibility, all participants were informed verbally and via an information form about the purpose and procedure of the study before being included. All participants signed a consent form. Interviews were conducted at a time and place convenient for both the interviewer and the interviewees. The second researcher had basic knowledge about conducting interviews and data collection. The interview tool was piloted before being applied to the study. All interviews were recorded using a digital recording device and transcribed on the same day.

For reliability, the transcriptions were reread to correct any possible errors. Two independent coders read all transcripts, assigned codes separately, and discussed discrepancies. For validity, all researchers discussed and confirmed the assigned codes, themes, and subthemes. Transcription was performed using purposive sampling and continued until data saturation was achieved.

Ethical Aspects of the Study

Ethical committee approval was obtained from the Scientific Research and Publication Ethics Committee of the Faculty of Social and Human Sciences at Trabzon University (decision no. E-81614018-000-2200056621, dated 29 December 2022) for the implementation of the study. This study was conducted at Trabzon Ataköy Mental and Nervous Diseases Hospital with permission from the Trabzon Provincial Health Directorate (No. E-55568733-604.01.01-207178013, dated 16 January 2023). Additionally, permission was obtained from the Trabzon Provincial Health Directorate (No. E-55568733-604.01.02-226991327, dated 17 October 2023) regarding the publishability of the data specified in this study.

The Voluntary Informed Consent Form prepared by the researcher was read and signed by the participants before the interviews. The text, which stated that a voice recording device would be used, assured the confidentiality of identities and voice recordings. This study was conducted in accordance with the ethical principles of the Declaration of Helsinki (1964) and its later amendments. No artificial intelligence (AI)-assisted technologies (such as large language models, chatbots, or image generators) were used in the preparation of this manuscript.

Results

Table 1 shows the gender distribution of the individuals participating in the study. The distribution was 57.14% male and 42.86% female. When the distribution according to education level was examined, it was found that 57.14% (n=8) of the participants held a bachelor's degree and 42.86% (n=6) held an associate degree. When examining the demographic characteristics of the participants, it was found that their ages ranged from 23 to 48, with an average age of 31.29±7.86 years. The length of time working in the profession ranged from 1 to 27 years, with an average of 9.21±8.49 years. The length of time working in a psychiatric clinic ranged from 1 to 10 years, with an average of 5.71±3.83 years.

A descriptive analysis method was employed using the MAXQDA 2022 program, resulting in the identification of five main themes and 16 categories. These themes and categories are shown in Table 2 as "the place of compassion in psychiatric care, nurses' perceptions of compassion fatigue, negative emotions that trigger compassion fatigue in psychiatric care, ways of coping with compassion fatigue, and suggestions for coping with compassion fatigue."

Table 2. Themes and categories obtained from nurses caring for psychiatric patients

Themes	Category
The place of compassion in psychiatric care	Professional requirement
	Therapeutic distance
Nurses' perceptions of compassion fatigue	Expected result
	The invisible risk of professionalism
Negative emotions that trigger compassion fatigue in psychiatric care	Burnout
	Anxiety
	Anger
	Sadness
	Fear
Ways to cope with compassion fatigue	Increased cigarette consumption
	Emotional avoidance
	Shifting focus
Recommendations for coping with compassion fatigue	Participation in professional development and training programs
	Receiving psychosocial support
	Increasing annual leave and rest periods
	Increasing the number of staff

Theme 1. The Place of Compassion in Psychiatric Care

The nurses participating in the study stated that compassion is a professional requirement in the psychiatric care process. However, they emphasized that the compassion felt towards patients should be handled within therapeutic boundaries.

Professional Requirement

Nurses stated that compassion is fundamental to caring for psychiatric patients. They expressed that they develop compassion for patients while trying to understand them.

> "*When I think about what it would be like to be in their place, I try to help more. No matter how difficult a group they may be, they need care. This job cannot be done without compassion. We are not robots*." (N4)

> "*We need to maintain professionalism here. I understand the patient, I feel sorry for them, but I have to be professional*." (N6)

Therapeutic Distance

Participants stated that the compassion they felt towards psychiatric patients had to be kept within certain limits. They emphasized that if they did not set limits on their feelings of compassion, they believed patients could take advantage of the situation.

> "*I can't say my compassion is at a very high level. It varies from patient to patient. If we are too compassionate, it affects our care for them. The patient can take advantage of this. A substance abuse patient can use us when we are more compassionate towards them, bargaining with us for medication*." (N14)

> "*I can't put a schizophrenic patient and someone with depression in the same category. My empathy varies depending on the diagnosis. Of course, I empathize with those I should, but I struggle to do so with every patient. For example, I can understand a mother experiencing postpartum depression; I feel for her, missing her child. So empathy is necessary, but I can't empathize at the same level with every patient. The patient's medical history is important to me*." (N7)

> "*If I didn't love this job, I would have much less compassion. However, patients are very demanding. So when I have a lot of work, I'm unable to show compassion. I have to keep things running. The more compassion we show psychiatric patients, the more they can take advantage of us*." (N1)

Theme 2. Nurses' Perceptions of Compassion Fatigue

The nurses who participated in the study mentioned that the compassion they felt for psychiatric patients eventually led to exhaustion in themselves, that compassion fatigue was inevitable, and that being compassion-fatigued negatively affected the professional relationships they established with their patients.

Expected Result

Participants reported that caring for psychiatric patients and exhibiting compassion caused them to experience compassion fatigue.

> "*You get tired of showing compassion. I got tired. What happens if a person's life is always filled with drama, with people who have experienced traumatic events? They are affected too. Then they realize they need to become professionals. I was more affected in the early years, but as the years passed, I learned to control myself*." (N11)

The Invisible Risk of Professionalism

Participants stated that compassion fatigue can negatively affect both their relationships with patients and their individual well-being, and that this situation poses a risk that could threaten their professional competence.

"*I experience compassion fatigue, especially in my early days. I used to think, 'What can I do for the patients so they get better? I witnessed their pain. It was very sad. But it doesn't change the outcome. The same patients keep coming back. Then I say to myself, 'What can I do? This is my job.' I try to think in a work-oriented way*." (N5)

Theme 3. Negative Emotions That Trigger Compassion Fatigue in Psychiatric Care

The nurses who participated in the study stated that they experienced burnout while caring for psychiatric patients, felt anxious, were sometimes angered by patients, feared them, and felt sorry for them. They emphasized that these negative feelings increased the risk of compassion fatigue. Some of the participants' statements on this theme are as follows:

Burnout

According to the statements, participants mentioned that they experienced burnout while caring for psychiatric patients.

"*Two years ago, my mind wasn't so full; I was more positive, more excited. But now I feel exhausted. People wear themselves out here*." (N2)

Anxiety

Nurses stated that they experienced anxiety about their own mental health deteriorating in the future while caring for psychiatric patients.

"*They have delusions and suspicions, but I also think, 'Could this happen to me?' I worry. I can exaggerate the slightest sign*." (N14)

Anger

Nurses stated that psychiatric patients exhausted their patience and made them angrier more quickly.

"*The same person can ask the same question at least 10 times. But I can't answer with the same energy every time. After answering the first question, I no longer want to hear the 10th question. I answer reasonable questions, trying not to hurt their feelings. But sometimes they annoy me*." (N11)

Sadness

Nurses stated that they felt sad about the current situation of psychiatric patients, their repeated hospitalizations, and the thought that their condition would not improve.

"*The patients' stories are interesting and terrifying. As a person and a family member, I wonder how this person ended up in this state. I feel sad for patients who are addicted to substances. People who sell their bodies to get substances come here. It involuntarily comes to my mind, I feel sad, I have even cried*." (N10)

"*It's a difficult illness. Each one has its own challenges. Losing your mental health is terrible. There's nothing these people can do about it. There's nothing we can do about it. They've been excluded from life. I feel sad about their situation*." (N12)

Fear

Nurses stated that they feared psychiatric patients might harm themselves or others, either inside or outside the hospital.

"*At first, I was afraid. I would even go to the bathroom with security. However, we eventually grew accustomed to it. It's a risk of our job. We take precautions. They can harm us both in the hospital and outside*." (N13)

Theme 4. Ways of coping with compassion fatigue

The nurses in the study stated that they consumed more cigarettes, tried not to form emotional bonds with patients, and used dysfunctional coping methods such as shifting their mental focus to cope with the compassion fatigue they experienced while caring for psychiatric patients.

Increased Cigarette Consumption

Nurses stated that they smoked more because they worked in a psychiatric clinic.

"*I smoke more here. I don't smoke this much at home. I hate that cigarette smell that sticks to everything I bring home from the hospital, even though I smoke it*." (N1)

Emotional Avoidance

Nurses reported attempting to avoid making contact with patients and refraining from forming emotional bonds with them.

"*I just try to do my job, I try not to understand or see their pain, their feelings. Otherwise, I can't do my job*." (N7)

Shifting Focus

Nurses mentioned that they tried not to dwell on negative memories related to patients, both at work and outside of work, and instead attempted to shift their mental focus.

"*I can't leave it here. It comes to mind, but I still try not to think about it*." (N5)

"*I try not to think too much about their life stories; I try to leave them here*." (N7)

Theme 5. Recommendations for coping with compassion fatigue

The suggestions of nurses working in psychiatric clinics for coping with compassion fatigue included participating in regular training related to their field, receiving psychosocial support, taking more days off, and increasing the number of staff. The views of the nurses in the study on this subject are as follows:

Participation in Professional Development and Training Programs

Nurses stated that they did not receive training related to the field of psychiatry and believed that such training was essential for dealing with patients more effectively and for personal development.

> "*We have a small staff; we need to increase it. There are no training sessions here. No one can attend training because we have too few nurses. If group training were held, we couldn't leave our units to attend; instead, we would have to stay on site. After a while, we all get stuck in a vicious cycle here*." (N10)

Receiving Psychosocial Support

Nurses emphasized that their relationships with patients could take a toll on them and that receiving psychosocial support would be beneficial.

> "*We take care of a patient who has a cleaning obsession so that he doesn't wash his hands constantly at night. This also wears us out. Now, in this situation, my colleague takes care of the patient instead of me. We need to unburden ourselves at that moment. We also need psychological support*." (N9)

Increasing Annual Leave and Rest Periods

Nurses mentioned that working long hours and continuously in the psychiatric clinic wore them out physically and mentally.

> "*Psychiatry is a high-risk unit and should not be treated the same as other units. One shift here is equivalent to two shifts in other departments. It might be better if staff working in such places could take breaks at regular intervals or retire early*." (N3)

Increasing the Number of Staff

Nurses noted that the current ratio of nurses to psychiatric patients was insufficient.

> "*To do our job properly in the psychiatric ward, we should have a maximum of 5 patients. We are caring for 30 patients with the assistance of two people. We can't manage because of this. The number of staff needs to be increased*." (N13)

Discussion

This study was conducted to phenomenologically examine the experiences of compassion fatigue among nurses working in a psychiatric clinic. The study identified themes such as the role of compassion in psychiatric care, nurses' perceptions of compassion fatigue, the negative emotions that trigger compassion fatigue in psychiatric care, ways of coping with compassion fatigue, and suggestions for improvement.

The nurses participating in the study stated that compassion is one of the fundamental components of professional care while working in the psychiatric clinic. However, they emphasized that compassion for psychiatric patients should be maintained within certain limits. A study conducted by Bond and colleagues with psychiatric nurses concluded that compassion is an innate trait and that high levels of compassion play a role in individuals' reasons for choosing psychiatric nursing.[21] Compassionate care, in which patients are treated with dignity and respect, has great professional value in the nursing profession.[9] The literature indicates that nurses who show courtesy to patients, use therapeutic touch, listen to patients, and behave more sensitively during times of death and mourning are considered to provide compassionate care.[33,34] Compassion-focused care is an essential component of good nursing practice for both modern patient care and professional nursing.[15] Supporting psychiatric nurses in reflecting on compassion-focused care in their personal and professional lives can contribute to strengthening their capacity for compassionate care.

The nurses included in this study expressed that they were compassion-fatigued and stated that compassion fatigue was an expected outcome of providing care to psychiatric patients. They also stated that compassion fatigue constituted an obstacle to maintaining their professional competence. Compassion fatigue, exhaustion, anger, and burnout can arise as a natural consequence of working with individuals who have trauma or mental disorders.[35] It has been noted that individuals who are highly exposed to a patient's pain, suffering, or traumatic experience are more prone to experiencing compassion fatigue.[36] It can be challenging for nurses to manage their emotions, empathize, be compassionate, and communicate while working with patients.[9] Nurses working in psychiatric units often struggle to empathize, provide compassionate care, and sustain it.[18] Gradual desensitization to patient stories, a decrease in quality of care, and an increase in clinical errors are associated with compassion fatigue.[37]

Based on the results of this study, psychiatric nurses in closed psychiatric clinics may experience greater mental and physical strain due to intensive patient contact and efforts to reduce risky behaviors. In addition, psychiatric nurses may feel compassion fatigue due to the clinical conditions of psychiatric

patients, their past traumatic histories, and witnessing their suffering. It is believed that psychiatric nurses need to receive compassion-focused care training and demonstrate self-compassion first in order to maintain and sustain their professional competence.

Another theme that emerged in the study was the view that negative emotions such as anxiety, burnout, anger, fear, and sadness may be decisive factors in compassion fatigue. Prolonged exposure to suffering patients and challenging work environments may cause psychiatric nurses to experience compassion more intensely.[38] The literature emphasizes that nurses experiencing compassion fatigue may develop emotional problems such as negative mood, anxiety, anger, irritability, desensitization, and depression.[39,40] A study conducted with Iranian psychiatric nurses indicated that nurses experienced burnout and compassion fatigue.[41] Constant exposure to psychiatric patients, witnessing their suffering, and patients not showing the expected improvement can cause compassion fatigue in nurses. It has been reported that compassion fatigue is common among psychiatric nurses and causes them to avoid patients and feel professional helplessness.[34] Exposure to repeated verbal and physical violence from patients with mental disorders, patient identification, and heavy workloads can cause psychiatric nurses to experience compassion fatigue, placing them under physical and emotional strain.[7] Emotion regulation training may be recommended to support psychiatric nurses in protecting themselves against compassion fatigue.

The nurses participating in the study reported that they consumed more cigarettes to cope with compassion fatigue resulting from caring for psychiatric patients, tried not to form emotional bonds with patients, and attempted to shift their mental focus. A study conducted by Pehlivan and Çalışkan found that psychiatric nurses attempted to separate their professional lives from their personal lives to cope with compassion fatigue, and that institutional support and training to enhance their coping skills were inadequate during this process.[15] Another study examining psychiatric nurses' experiences of coping with compassion fatigue indicated that they used coping mechanisms such as taking vacations, visiting sacred places, resting, listening to music, watching movies, shopping, leaving the hospital environment, giving thanks to God, believing, accepting difficulties, staying calm, and not reacting.[34]

According to the results of a meta-synthesis conducted to interpret qualitative studies focusing on compassion fatigue, individuals experiencing compassion fatigue were found to encounter workplace stressors, possess dysfunctional coping skills, experience a decline in self-esteem, and face personal problems arising from balancing work and private life.[20] A study conducted among nurses in Türkiye found that affirming and supporting post-traumatic growth could increase compassion satisfaction in nurses coping with compassion fatigue.[42] It was determined that when newly graduated nurses used functional coping methods, their compassion satisfaction increased and burnout decreased, while when they used dysfunctional coping methods, burnout and secondary traumatic stress were affected.[43] Supporting nurses working in the field of psychiatry with functional coping methods may reduce or prevent compassion fatigue among nurses.

The final theme identified in the study indicates that the recommendations for preventing compassion fatigue among psychiatric nurses include engaging in regular professional training, receiving psychosocial support, taking additional leave, and increasing staffing levels. In a study conducted to address the question, "*Which strategies used by nurses to cope with compassion fatigue are the most beneficial?*", it was concluded that nurses who prioritized self-care, enhanced their knowledge, and fostered supportive professional relationships were more effective in managing compassion fatigue.[44]

A literature review indicated that institutional barriers that could lead to compassion fatigue among psychiatric nurses include high patient numbers, excessive administrative duties, insufficient management support, and heavy workloads.[21,45,46] A systematic review on compassion fatigue among nurses indicated that strong leadership, positive workplace cultures, clinical supervision, reflection, self-care, and personal well-being can protect the mental health of nurses from compassion fatigue.[47] It is essential to comprehend perspectives on compassion and compassion fatigue within the field of mental health, as well as the challenges and perceived barriers to delivering compassionate care in this context.[21] Implementing institutional-level measures to prevent compassion fatigue and providing physical and psychological support to nurses can contribute to the enhancement of professional competence.

Limitations and Strengths of the Study

One of the strengths of this study is that it was conducted in a mental health hospital, and the sample consisted of nurses who had been caring for psychiatric patients for at least one year. The fact that psychiatric nurses expressed the role of compassion in the psychiatric care process and the emotional effects of compassion fatigue on themselves makes the study meaningful. Furthermore, the study reveals nurses' institutional expectations for providing compassion-focused care, which is essential, as it demonstrates that compassion fatigue can be prevented not only through individual efforts but also through institutional support. However, the findings obtained in the study reflect only the views and experiences of the participants. This may limit the generalizability of the research results.

Conclusion and Recommendations

This study found that compassion is essential to the core of psychiatric nursing clinical practice; however, psychiatric nurses often experience compassion fatigue due to their struggles in maintaining compassionate care. It was determined that setting limits on compassionate care for psychiatric patients and stretching compassion can cause psychiatric nurses to experience more intense feelings of pity, sadness, anxiety, fear, and anger, which may facilitate compassion fatigue.

The study also emphasizes the obligations expected of institutions in preventing compassion fatigue. Supporting psychiatric nurses psychosocially, increasing the number of days off, and increasing the number of nurses working in the field can enhance nurses' personal and professional competence. Accordingly, it may be concluded that psychiatric nurses who receive physical and psychological support are better protected against compassion fatigue. It is also thought that the use of dysfunctional coping methods may increase compassion fatigue. At this point, it is recommended that the coping mechanisms of psychiatric nurses be supported and that risk analyses for compassion fatigue be conducted closely and frequently.

The fact that the nurses working in the unit where this study was conducted did not have postgraduate education in psychiatric nursing may lead to a lack of field-specific knowledge and skills. Therefore, supporting nurses working in psychiatric clinics with certificate programs or in-service training in psychiatric nursing may contribute to strengthening their professional competence in care processes.

Based on the results of this study, psychiatric nursing can yield instructive outcomes in terms of clinical practice, education, and institutional support. Transferring knowledge and strategies on how to provide compassion-focused care in psychiatric nursing to nurses may reduce the risk of compassion fatigue. Such training and awareness initiatives can increase nurses' emotional resilience, supporting sustainable and high-quality care delivery.

Ethics Committee Approval: The study was approved by the Trabzon University Scientific Research and Publication Ethics Committee of the Faculty of Social and Human Sciences (no: E-81614018-000-2200056621, date: 29/12/2022).

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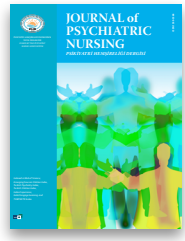

Original Article

Investigation of the relationship between social inclusion level, successful aging, and subjective happiness among elderly individuals enrolled in the 60+ refreshment university

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Abstract

Objectives: This study aimed to investigate the relationship between social inclusion level, successful aging, and subjective happiness among elderly individuals enrolled in the 60+ Refreshment University.

Methods: The study was designed as a cross-sectional correlational study. In this research, social inclusion level was considered the independent variable, while successful aging and subjective happiness were treated as the dependent variables. The study population consisted of 600 elderly individuals actively enrolled in the Third Age University affiliated with Akdeniz University. The study sample comprised 152 elderly individuals who voluntarily agreed to participate. Data were collected using the Personal Information Form, the Social Inclusion Scale (SIS), the Successful Aging Scale (SAS), and the Oxford Happiness Questionnaire–Short Form (OHQ-SF).

Results: A significant positive relationship was found between social inclusion, successful aging, and happiness ($p<0.01$). Additionally, social inclusion was found to influence successful aging by 5% and happiness by 18.8%. It was determined that social inclusion contributes to increased successful aging and happiness.

Conclusion: Elderly individuals were found to have moderate levels of social inclusion, successful aging, and happiness, and these three factors were shown to influence each other. Nurses can contribute to successful aging and happiness by promoting social participation among elderly individuals. It is recommended to establish stronger social support networks and to develop programs that support the physical and mental well-being of elderly individuals.

Keywords: Happiness; nursing; social inclusion; successful aging; third age university

Aging involves not only physical changes but also psychological transformations. Individuals aged 65 and over constitute approximately 10% of the global population, and this proportion is expected to exceed 16% by 2050. In Türkiye, it is projected that by 2040, approximately 16.3% of the population will be aged 65 and over.[1] With aging, both physical and mental balance may deteriorate, and older adults may increasingly require assistance from others. If adequate social and physical support is not provided, individuals may withdraw from social settings, feel unimportant, and perceive themselves as losing functionality—factors that negatively impact successful aging.[1–3] Moreover, physiological and mental changes associated with aging, retirement from work, loss of close friends, a decline in social activities, and children leaving home often contribute to social isolation and loneliness in older adults.[4,5]

To help elderly individuals navigate this period more positively, it is crucial that they have meaningful goals for the future and opportunities for social participation.[2] Social participation is a key factor in ensuring that older adults remain active in society, establish meaningful relationships, and receive social recognition. Engagement in social life supports happiness and healthy aging, and also facilitates the adjustment process associated

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with aging.[6,7] Participation in social activities among older adults is associated with better quality of life and improved psychological well-being. More specifically, social inclusion enhances subjective well-being and promotes successful aging.[8]

Successful aging refers to the state of physical, mental, social, and cognitive well-being that helps preserve quality of life and independence in later years.[9] It has been adopted as an important policy at the international level, aiming to reduce the mental and physical burdens of aging on individuals and society.[10] Successful aging encompasses the goal of keeping older individuals active, productive, and engaged throughout later life. Key components include maintaining control over daily life, independence, functionality, safety, and social participation.[11] Disruptions in these goals can lead to reduced life satisfaction and well-being among older adults. In order to prevent such problems, the World Health Organization (WHO) recommends that older adults adopt an active lifestyle both individually and socially, promoting a happier and healthier aging process.[12]

Happiness is defined as the individual's positive evaluation of their own life experiences. In other words, happiness refers to a positive appraisal of subjective life experiences.[13] A person's level of happiness has significant implications for both physical and psychological health, contributing to a healthier lifestyle and potentially increasing life expectancy.[14] Furthermore, happiness emerges as a factor influencing successful aging.[15] It has been reported that happiness enhances the level of social participation and reduces the risk of loneliness and depression among older adults.[14,15]

In light of this evidence, happiness stands out as an important concept for the elderly population. Indeed, since older adults are considered among disadvantaged groups, they are more vulnerable in terms of mental health. Therefore, it is essential for mental health professionals—particularly psychiatric nurses who spend more time with individuals—to monitor older adults and provide them with guidance in preventive mental health services.[16]

In providing such guidance, nurses can make use of initiatives such as the "60+ Refreshment University." The 60+ Refreshment University was established within Akdeniz University to promote the social, mental, and physical activity of older adults. Applications to the program can be made online. This university offers educational opportunities in various fields including art, health, technology, and social skills. Through these programs, it aims to enhance the social engagement of older individuals and support their process of successful aging.[17,18]

Within the context of the nursing profession, such social participation and educational programs play a critical role, particularly in the field of gerontological nursing. As the elderly population is considered a disadvantaged group, they are more vulnerable in terms of mental health. It is therefore essential for mental health professionals—especially psychiatric nurses, who spend more time with individuals—to monitor older adults and provide guidance in delivering preventive mental health services. Inclusion of older individuals in social support systems and the promotion of physical activity have been shown to reduce the risks of depression and social isolation, while also improving overall health and quality of life. Numerous studies in the literature have emphasized the positive effects of combining social participation with physical activity on the health of older adults.[18–20]

What is presently known on this subject?

- Social inclusion, successful aging, and happiness are considered important factors for older adults. However, there is a lack of studies in both psychiatric nursing and other literature that simultaneously evaluate these three factors.

What does this article add to the existing knowledge?

- The concept of successful aging has been studied only to a limited extent in nursing literature, indicating a need for further research. This study identifies the relationships among social inclusion, successful aging, and happiness, thus contributing a new concept and perspective for nurses in preventive mental health services.

What are the implications for practice?

- Nurses working in the field of elderly mental health, by considering concepts such as social inclusion and successful aging, contribute to increasing happiness among older adults, which in turn supports a more meaningful and adaptive aging process. This may enable nurses providing services to older individuals to be more effective and successful in preventive mental health care.

By encouraging participation in such social and physical activity programs, nurses support older individuals in achieving successful aging. In this regard, the educational and social activities offered by the 60+ Refreshment University are seen as an effective complementary element in the care processes provided by nurses to older adults.

A review of the literature reveals that studies focusing on happiness and social inclusion among older adults are limited in number.[4,14] Yet, the concepts of social participation, happiness, and successful aging in older adults are important constructs that influence not only subjective experiences but also national and international levels of well-being.[12]

In this context, the present study aims to examine the relationships between levels of social inclusion, successful aging, and subjective happiness among older individuals enrolled in the 60+ Refreshment University.

The Research Questions of this Study Are As Follows:

1. Is there a relationship between social inclusion and successful aging in older adults?
2. Is there a relationship between social inclusion and happiness in older adults?
3. Is there a relationship among social inclusion, successful aging, and subjective happiness in older adults?

Materials and Method

This study was conducted using a quantitative approach. The research design was a cross-sectional correlational study. This design allowed for the examination of the relationships between social inclusion, successful aging, and subjective happiness among participants. In the study, the level of social inclusion was treated as the independent variable, while successful aging and subjective happiness were considered dependent variables.

Population and Sample

The population of the study consisted of 600 older adults who were actively enrolled at the Refreshment University affiliated with Akdeniz University. The sample size was determined using an a priori power analysis conducted with the G*Power 3.1 software. In accordance with correlation and regression analysis parameters, the analysis was based on a significance level of α=0.05, power (1-β)=0.80, an effect size of f^2=0.08 (small to medium), and two predictor variables. The minimum required sample size was calculated to be 120 participants. The final sample consisted of 152 older adults who voluntarily agreed to participate among those who received the invitation.

Data Collection

Data were collected face-to-face between October 2023 and January 2024. The instruments used for data collection included the Personal Information Form, the Successful Aging Scale (SAS), the Social Inclusion Scale (SIS), and the Oxford Happiness Questionnaire–Short Form (OHQ-SF).

Personal Information Form

The Personal Information Form was developed by the researchers in line with the relevant literature. It included demographic and personal information such as age, enrollment year at the Refreshment University, gender, marital status, educational level, cohabitation status, income level, employment status, perceived health status, access to social support, presence of chronic illnesses, and medication use.

Successful Aging Scale (SAS)

The Successful Aging Scale was originally developed by Reker, [21] and its Turkish validity and reliability study was conducted by Özsungur and Hazer.[22] The scale consists of 10 items and includes two subdimensions: Healthy Lifestyle (items 5, 6, 10) and Coping with Challenges (items 1, 2, 3, 4, 7, 8, 9). It is a 7-point Likert-type scale, with total scores ranging from 10 to 70. Higher scores indicate higher levels of successful aging. The original internal consistency coefficients were reported as 0.80 for the Healthy Lifestyle subscale, 0.79 for the Coping with Challenges subscale, and 0.85 for the total scale.[22] In the present study, the Cronbach's alpha values were found to be 0.90 for the Healthy Lifestyle subscale, 0.90 for the Coping with Challenges subscale, and 0.94 for the total scale.

Social Inclusion Scale (SIS)

The Social Inclusion Scale was developed by Secker et al.[23] and was adapted into Turkish with validated reliability by Ilgaz et al.[24]. The scale consists of 18 items rated on a 4-point Likert scale and includes three subdimensions: Social Relationships (items 4, 7, 8, 9, 14, 17, 18), Social Acceptance (items 11 and 16), and Social Isolation (items 1, 2, 3, 5, 6, 10, 12, 13, 15). Four items (1, 10, 11, and 16) are reverse-coded. Total scores range from 18 to 72. The scale assesses experiences over a period longer than one month. Higher scores indicate a higher level of social inclusion. The original internal consistency coefficient of the scale was reported as 0.80.[24] In this study, the Cronbach's alpha value was found to be 0.85.

Oxford Happiness Questionnaire–Short Form (OHQ-SF)

The Oxford Happiness Questionnaire was developed by Hills and Argyle,[25] and its Turkish validity and reliability study was conducted by Doğan and Çötok.[26] The scale is designed to measure individuals' happiness levels, consisting of a single dimension with 7 items rated on a 5-point Likert scale. Items 1 and 7 are reverse-coded. Higher scores indicate higher levels of happiness. The Turkish adaptation reported a Cronbach's alpha coefficient of 0.74.[26] In the present study, the internal consistency coefficient was found to be 0.72.

Data Analysis

Data were analyzed using SPSS version 24 (Statistical Package for the Social Sciences). The normality of the data distribution was assessed using the Kolmogorov-Smirnov test, revealing that some variables followed a normal distribution while others did not. Descriptive and inferential analyses employed in this study included percentages, counts, frequencies, standard deviation, Cronbach's alpha coefficients, Pearson correlation analysis, t-test, one-way ANOVA, Mann-Whitney U test, Kruskal-Wallis test, and simple linear regression analysis.

Ethical Considerations

Ethical approval for the study was obtained from the Scientific Research and Publication Ethics Committee of Muş Alparslan University on April 18, 2023, with decision number 4-71. Institutional permission was granted on September 30, 2023. Additionally, written informed consent was obtained from all participants. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Results

The descriptive characteristics of the older adults included in the study are presented in Table 1. The mean age of the par-

Table 1. Relationship between demographic characteristics of older adults and their scale score means (n=152)

			SIS		SAS		OHQ-SF	
Characteristic	**Mean±SD**	**Min-max**	**Test and p**		**Test and p**		**Test and p**	
Age	68.30±5.12	60–88	r=-0.57	p=0.487	r=-0.222**	p=0.006	r=0.049	p=0.548
	n	**%**	**Mean±SD**	**Test and p**	**Mean±SD**	**Test and p**	**Mean±SD**	**Test and p**
Refreshment class								
1st class	50	32.9	61.58±7.03	[a]F=0.839	59.26±11.16	[a]F=1.168	30.50±5.35	[a]F=0.479
2nd class	43	28.3	60.81±9.93	p=0.474	27.27±14.48	p=0.324	30.42±4.91	p=0.697
3rd class	45	29.6	58.89±9.68		57.08±10.75		29.53±3.58	
4th class	14	9.2	61.43±6.41		52.21±16.18		30.79±4.31	
Gender								
Female	105	69.1	61.46±9.27	[b]t=2.159	59.17±11.15	[b]t=2.630**	30.27±4.70	[b]t=0.196
Male	47	30.9	58.53±6.90	p= 0.33	53.49±14.76	p=0.009	30.11±4.54	p=0.845
Marital status								
Married	76	50	59.74±9.07	[a]F=0.968	55.46±13.37	[a]F=1.122	29.93±4.84	[a]F=1.439
Single	16	10.5	60.38±10.45	p=0.410	59.50±14.96	p=0.304	31.50±4.27	p=0.234
Widowed	38	25	60.66±8.60		59.15±9.64		29.47±4.74	
Divorced	22	14.5	63.32±5.52		59.59±12.29		31.55±3.76	
Education level								
Literate	7	4.6	59.29±7.41	[c]KW=3.582	49.42±20.25	[c]KW=1.179	30.14±3.84	[c]KW=4.477
Primary education	17	11.2	55.76±12.68	p=0.310	57.11±14.03	p=0.758	29.29±5.83	p=0.214
Secondary education	57	37.5	60.65±8.69		58.49±11.34		29.37±4.79	
Higher education	71	46.7	61.75±7.35		57.39±12.32		31.13±4.16	
Living with								
Spouse	63	41.4	60.00±8.01	[a]F=1.073	55.87±12.84	F=1.120	30.05±4.69	[a]F=1.396
Children	19	12.5	62.63±9.90	p=0.363	55.36±17.12	p=0.343	31.53±4.53	p=0.246
Spouse and children	14	9.2	57.64±13.87		55.78±14.59		28.29±5.71	
Alone	56	36.8	61.20±7.29		59.73±9.68		30.45±4.26	
Income status								
Income < Expenses	25	16.4	61.32±9.25	[a]F=1.326	57.84±12.44	[a]F=0.309	28.64±5.70	[a]F=5.009
Income = Expenses	92	60.5	59.66±8.70	p=0.269	56.79±12.71	p=0.734	29.90±4.04	p=0.00**
Income > Expenses	35	23	62.34±7.95		58.71±13.16		32.17±4.79	
Employment status								
Yes	12	7.9	60.42±10.95	[d]MW-U=803.0	60.41±6.80	[d]MW-U=810.5	30.67±4.71	[d]MW-U=836.5
No	140	92.1	60.56±8.52	p=0.800	57.15±12.95	p=0.840	30.18±4.65	p=0.981
Health perception								
Good	78	51.3	60.90±9.74	[b]t=0.501	57.97±14.83	[b]t=0.574	31.71±4.89	t=4.287
Poor	74	48.7	60.19±7.48	p=0.617	56.81±9.87	p=0.567	28.65±3.80	p=0.00**
Social support status								
Yes	37	24.3	61.22±8.15	[b]t=0.532	57.63±11.95	[b]t=0.390	30.59±4.46	[b]t=0.567
No	115	75.7	60.34±8.88	p=0.595	56.70±14.60	p=0.697	30.10±4.71	p=0.571
Chronic disease								
Yes	71	46.7	60.60±9.26	[b]t=0.080	56.78±10.01	[b]t=0.566	29.54±4.28	[b]t=1.706
No	85	53.3	60.49±8.073	p=0.937	57.95±14.53	p=0.572	30.81±4.88	p=0.090
Medication use								
Yes	111	73	60.50±8.24	[b]t=0.133	56.92±11.06	[b]t=0.772	29.66±4.53	[b]t=2.486
No	41	27	60.71±9.91	p=0.895	58.70±16.12	p=0.441	31.73±4.63	p=0.014*

*: p<0.05; **: p<0.01. [a]: One-Way ANOVA Test; [b]: Independent Samples T-Test; [c]: Kruskal-Wallis Test; [d]: Mann-Whitney U Test. SIS: Social inclusion scale; SAS: Successful aging scale; OHQ-SF: Oxford happiness questionnaire–short form; SD: Standard deviation.

Table 2. Distribution of minimum-maximum scores and mean scores on the social inclusion, successful aging, and subjective happiness scales among elderly individuals enrolled in the 60+ Refreshment University (n=152)

Scales	Minimum score	Maximum score	Mean±SD
Social inclusion scale (SIS)	30	72	60.55±8.69
Social relationships subscale (SIS-SR)	7	28	22.88±4.36
Social acceptance subscale (SIS-SA)	2	8	5.77±2.20
Social isolation subscale (SIS-SI)	15	36	31.90±4.65
Successful aging scale (SAS)	10	70	57.40±12.59
Healthy lifestyle subscale (SAS-HL)	3	21	17.70±4.22
Coping with problems subscale (SAS-CP)	7	49	39.70±8.80
Oxford happiness questionnaire – short form (OHQ-SF)	15	35	23.01±4.49

SD: Standard deviation.

ticipants was 68.30±5.12 years. Of the sample, 32.9% were enrolled in the first year of the Refreshment University, 69.1% were female, 50% were married, 46.7% were university graduates, 41.4% lived with their spouse, 60.5% reported that their income and expenses were balanced, 92.1% were not employed, 51.3% perceived their health as good, 75.7% did not receive social support, 53.3% had no chronic illness, and 73% did not use medication (Table 1).

When comparing the descriptive characteristics of older adults with total scores on the Social Inclusion Scale (SIS), no statistically significant relationship was found ($p>0.05$) (Table 1).

In the comparison between the descriptive characteristics and total scores on the Successful Aging Scale (SAS), a statistically significant negative correlation was identified between age and SAS scores. Additionally, females (59.17±11.15) had significantly higher total scale scores than males (53.49±14.76) ($p<0.01$) (Table 1).

Regarding the Oxford Happiness Questionnaire–Short Form (OHQ-SF), participants who perceived their health as good (31.71±4.89), had income exceeding expenses (32.17±4.79), and did not use medication (31.73±4.63) had significantly higher total scale scores compared to other groups ($p<0.05$) (Table 1).

The minimum and maximum scores, as well as the mean scores and distributions of the Social Inclusion Scale (SIS), Successful Aging Scale (SAS), Oxford Happiness Questionnaire–Short Form (OHQ-SF), and their subscales among older adults, are presented in Table 2. Participants scored between 30 and 72 on the SIS, with a mean score of 60.55±8.69. On the Social Relationships subscale, scores ranged from 7 to 28, with a mean of 22.88±4.36. The Social Acceptance subscale scores ranged from 2 to 8, with a mean of 5.77±2.20. The Social Isolation subscale scores ranged from 15 to 36, with a mean of 31.90±4.65 (Table 2).

Regarding the Successful Aging Scale, the mean total score was 57.40±12.59. The Healthy Lifestyle subscale had a mean score of 17.70±4.22, while the Coping with Challenges subscale mean score was 39.70±8.80. The mean score for the Oxford Happiness Questionnaire–Short Form was 23.01±4.49 (Table 2).

When examining the relationships between the mean scores of Social Inclusion, Successful Aging, and the Oxford Happiness Questionnaire among older adults (Table 3), a moderate positive and statistically significant correlation was found between the OHQ-SF and the total SAS score ($r=0.322$, $p<0.01$). A weak positive correlation was observed between OHQ-SF and the Healthy Lifestyle subscale ($r=0.286^{**}$, $p<0.01$), while a moderate positive correlation was noted between OHQ-SF and the Coping with Challenges subscale ($r=0.323^{**}$, $p<0.01$) (Table 3).

A moderate positive and statistically significant correlation was also found between OHQ-SF and the total SIS score ($r=0.434$, $p<0.01$), as well as the Social Relationships subscale ($r=0.397^{**}$, $p<0.01$) (Table 3).

The total SAS score showed a weak positive correlation with the total SIS score ($r=0.223$, $p<0.01$), the Social Acceptance subscale ($r=0.218^{**}$, $p<0.01$), and the Social Isolation subscale ($r=0.182^{*}$, $p<0.05$) (Table 3).

A strong positive correlation was found between the Healthy Lifestyle and Coping with Challenges subscales ($r=0.853$, $p<0.05$). Additionally, weak positive correlations were observed between the Healthy Lifestyle subscale and the total SIS score ($r=0.279^{*}$, $p<0.01$), as well as the Social Acceptance subscale ($r=0.279^{**}$, $p<0.01$) (Table 3).

Finally, the Coping with Challenges subscale showed weak positive correlations with the total SIS score ($r=0.186$, $p<0.05$) and the Social Acceptance subscale ($r=0.178$, $p<0.05$) (Table 3).

According to the results of the regression analysis conducted to predict the relationships, both successful aging and happiness levels had a positive and weak but statistically significant effect on the social inclusion levels of older adults. The coefficient of determination (R^2), indicating the explanatory power of the model, was calculated as 0.188 for happiness ($R=0.434$; $R^2=0.188$; $p<0.01$) and 0.050 for successful aging ($R=0.223$;

Table 3. The relationship between mean scores of social inclusion, successful aging, and subjective happiness among older adults enrolled in the 60+ Refreshment University (n=152)

Scales	OHQ-SF total	SAS			SIS			
		SAS total	Healthy lifestyle subscale	Coping with problems subscale	SIS total	Social relationships subscale	Social acceptance subscale	Social isolation subscale
OHQ-SF total								
r	1							
p								
SAS								
SAS Total								
r	0.322**	1						
p	0.000							
Healthy lifestyle subscale								
r	0.286**	0.931**	1					
p	0.000	0.000						
Coping with problems subscale								
r	0.323**	0.985**	0.853**	1				
p	0.000	0.000	0.000					
SIS								
SIS Total								
r	0.434**	0.223**	0.279**	0.186*	1			
p	0.000	0.006	0.001	0.022				
Social relationships subscale								
r	0.397**	0.140	0.159	0.125	0.890**	1		
p	0.000	0.084	0.051	0.125	0.000			
Social acceptance subscale								
r	0.130	0.218**	0.279**	0.178*	0.240*	0.060	1	
p	0.112	0.007	0.000	0.029	0.003	0.464		
Social isolation subscale								
r	0.118	0.182*	-0.021	0.146	0.921**	0.753**	0.030	1
p	0.146	0.025	0.799	0.073	0.000	0.000	0.714	

*: p<0.05; **: p<0.01. OHQ-SF: Oxford happiness questionnaire–short form; SAS: Successful aging scale; SIS: Social inclusion scale.

Table 4. Regression analysis on the prediction of the social inclusion scale (SIS) by the successful aging scale (SAS) and oxford happiness questionnaire – short form (OHQ-SF) in older adults registered in the 60+ Refreshment University (n=152)

Independent variable	Dependent variable	B	SE	(β)	t	p	R	R^2	F	p
SIS	OHQ-SF	16.201	2.402	0.434	6.745	0.000	0.434	0.188	34.745	**0.000**
	SAS	37.820	7.052	0.223	5.363	0.000	0.223	0.050	7.873	**0.006**

SE: Standard error.

R^2=0.050; p<0.01). These values indicate that the social inclusion variable is explained by happiness at a rate of 18.8%, and by successful aging at a rate of 5% (Table 4).

Discussion

This study was conducted to examine the relationship between social inclusion, successful aging, and subjective happiness among older adults registered at the 60+ Refreshment University.

When the descriptive characteristics of the older adults included in the study were examined, the mean age was found to be 68.30±5.12 years. Most participants were enrolled in the first year of the Refreshment University, female, married, university graduates, living with their spouse, re-

porting balanced income and expenses, unemployed, perceiving their health as good, not receiving social support, without chronic illness, and not using medication.

The social inclusion levels of older adults in this study were found to be above the moderate level. Literature reviews indicate that the social inclusion levels of older adults are generally close to moderate.[27–30] Warburton et al.[31] reported that social inclusion among older adults is influenced by variables such as government policies, income, and marital status. Furthermore, increased participation in social environments and enhanced peer relationships were shown to improve social inclusion.

When all these studies are considered, the findings of the current study are consistent with the existing literature. Additionally, since this study was conducted at the 60+ Refreshment University, it can be suggested that the higher-than-average social inclusion levels observed among participants may be influenced by their engagement with the Refreshment University.

In this study, the level of successful aging among older adults was found to be high. Previous studies in the literature also report high levels of successful aging among older adults.[32–36] Konrath et al.[37] stated that successful aging levels in older adults are high and that successful aging is directly associated with social inclusion. The findings of the present study align with the literature, particularly regarding the positive impact of social participation and health maintenance on increasing successful aging levels among older adults. Various studies have also confirmed that social support and physical activity are significant determinants of successful aging.[38,39] Considering that the current research was conducted at the 60+ Refreshment University, the participation of older adults in social and physical activities is an expected outcome.

In this study, the happiness levels of older adults were found to be at a moderate level. Various studies in the literature similarly report moderate happiness levels among older adults.[40–42] In a study by Akın, it was reported that older adults exhibited moderate levels of happiness, and that decreases in social interaction and social support were associated with declines in happiness.[43] While these findings are consistent with other studies in the literature, it is understood that although the opportunities provided by the 60+ Refreshment University contribute to the happiness of older adults, this contribution may be limited by individual and social factors.

When examining the correlations between the scales in this study, a significant positive relationship was found between the happiness level and successful aging level of older adults. Previous studies in the literature have also reported a positive association between happiness and successful aging.[44–47] In a study conducted by Col et al.,[48] successful aging was reported to have a significant effect on happiness, life satisfaction, depression, and stress. Considering the context of this study conducted at the 60+ Refreshment University, these findings gain further significance. The university supports older adults in maintaining social, intellectual, and physical activity, thereby promoting their successful aging processes. As a result, it may have positively influenced their levels of happiness.

This study found a significant positive relationship between older adults' happiness levels and both the Healthy Lifestyle and Coping with Challenges subscales. The literature indicates that increases in healthy lifestyle behaviors and coping skills are associated with higher happiness levels among older adults.[30,34,36] In a study by Kütmeç, it was emphasized that improvements in healthy lifestyle behaviors and life satisfaction play a crucial role in individuals experiencing a happier life.[33] When the literature is reviewed, the findings of the present study are consistent with previous research. The results of this study are particularly meaningful in the context of the 60+ Refreshment University. This university provides an environment that supports the physical and mental health of older adults, offers opportunities for social participation, and enhances problem-solving skills.[33] The combination of these factors may lead to a significant increase in overall happiness levels. As noted in the literature, healthy lifestyle habits and effective coping abilities are critical for enhancing life satisfaction and happiness.[49] Conducting the study within the special context of the 60+ Refreshment University may contribute to the strength and clarity of this relationship.

From this perspective, the findings of the present study demonstrate that institutions such as the 60+ Refreshment University play an important role for older adults and strengthen the relationship between healthy living and happiness.

A significant positive relationship was found between the happiness levels of older adults and both social inclusion and the Social Relationships subscale. Previous studies in the literature have reported that increased social inclusion and social relationships among older adults are associated with higher levels of happiness.[30,40,50] In a study by Schmidt-Hertha et al.,[51] it was reported that older adults' integration into social environments and the enhancement of their social relationships provide numerous benefits in areas such as life satisfaction, happiness, and quality of life.

When the current findings are evaluated within the context of the 60+ Refreshment University, they are highly meaningful. The social environment and opportunities for interaction offered by this university enable older adults to feel more integrated into society and to strengthen their social bonds.[51]

A significant positive relationship was identified between the social inclusion levels and successful aging levels of older

adults in this study. Previous research has reported that as older adults' social inclusion levels increase, their successful aging levels also improve.[51–54] In a study conducted by Koçak (2024), social participation was highlighted as an important factor for successful aging among older adults.[55]

The positive relationship found between social inclusion and successful aging in the present study, when evaluated within the context of the 60+ Refreshment University, suggests that this institution contributes significantly to the successful aging process by encouraging social participation among older adults. This relationship is strongly supported in the literature as well. As Koçak pointed out, social participation plays a critical role in successful aging, and the 60+ Refreshment University supports this process by enhancing the social, emotional, and mental well-being of older adults.[55]

In this study, a significant positive relationship was found between older adults' levels of social isolation and their levels of social inclusion and social relationships. However, the literature indicates that in some studies, as social isolation increases, social inclusion and social relationship levels decrease.[5,27,48] Other studies suggest that older adults may experience isolation even within social environments due to factors such as the loss of close ones, difficulty adapting to rapidly changing contemporary conditions, and challenges in forming meaningful relationships.[56,57]

A study by Newall et al.[58] examined loneliness and isolation among older adults and classified them into four groups: isolated but not lonely, lonely in a crowd, isolated and lonely, and neither isolated nor lonely. The study concluded that high social participation does not necessarily reduce social isolation or improve social relationships among older adults.

Regression analysis between the scales in this study revealed that successful aging and happiness levels have a significant positive but weak effect on social inclusion. Happiness level explained 18.8% of the variance in social inclusion, while successful aging explained 5%. Various studies in the literature report that older adults' participation in social environments and social activities positively influences their happiness levels.[29,59–61] In a study by Yüksel et al.,[34] social participation was found to positively affect both successful aging and happiness.

When the results of the present study are considered within the context of the 60+ Refreshment University, the positive relationship between social inclusion and successful aging highlights the potential of such educational environments to strengthen individuals' social connections. However, the weak effect of social inclusion suggests that social participation needs to be regular and in-depth, and that other factors (e.g., health, life satisfaction, psychological resilience) should also be taken into account.

In light of these findings, it can be concluded that older adults' inclusion in social environments may contribute to both successful aging and a happy life from physical and psychological perspectives. This, in turn, may alleviate the workload of both older adults and nurses working in geriatric mental health, while contributing to more positive outcomes.

Limitations of the Study

This study was conducted solely with older adults registered at the 60+ Refreshment University, and therefore may not be representative of the general elderly population. Due to its cross-sectional design, it was not possible to examine long-term cause-and-effect relationships. Measurements based on self-reports are limited by the participants' emotional states and perceptions. Furthermore, given the restricted cultural and social context, the results may not be generalizable to other populations.

Conclusion and Recommendations

The study found that the majority of participants were female, married, with a secondary education level, living with their spouse, having balanced income and expenses, not working, not receiving social support, and using medication. Significant relationships were identified between successful aging and marital status, as well as between happiness and income level, perceived health, and medication use.

Both successful aging and happiness levels were found to increase social inclusion, with happiness explaining 18.8% and successful aging explaining 5% of the variance in social inclusion.

Based on these findings, nurses play a key role in addressing the physical and psychosocial needs of older adults to support their successful aging and happiness processes. The results indicate that social participation enhances both successful aging and happiness. Accordingly, nurses should develop strategies to protect older adults from social isolation and strengthen their social relationships. Institutions like the 60+ Refreshment University contribute significantly to the successful aging process by providing opportunities for social participation. It is crucial for nurses to be aware of the social and intellectual opportunities provided by such institutions and to encourage older adults to benefit from them, as this can greatly improve individuals' quality of life.

Furthermore, nurses' support for healthy lifestyle habits, encouragement of social participation, and provision of psychosocial support play an important role in enhancing older adults' successful aging and happiness levels. Such nursing practices will contribute to older adults experiencing a more satisfying and healthy aging process.

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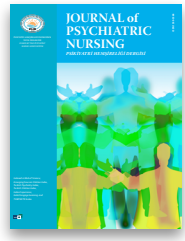

Original Article

Moderating role of CBT-based art and expressive eclectic nursing interventions on anger and assertiveness: An interventional study

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Abstract

Objectives: This study aimed to examine the effects of eclectic nursing interventions on functional anger and assertiveness in young adults.

Methods: The cross-sectional interventional pretest–posttest design study sample consisted of 16 undergraduate nursing students who were at risk for anger and had above-average scores on the Trait Anger subscales of the State–Trait Anger Expression Inventory. The intervention was prepared by integrating the basic principles of cognitive behavioral theory with psychodramatic-directed warm-up games and expressionist art interventions. Ten sessions of the eclectic intervention program were implemented, and pretest, posttest, and follow-up data were collected using the Rathus Assertiveness Inventory and the State-Trait Anger Expression Inventory.

Results: Repeated measurements between the dependent groups after the program revealed a statistically significant difference in total and sub-dimension anger and assertiveness scores ($p<0.05$). This difference, observed as a result of the intervention program, remained significant in the long term.

Conclusion: The present study suggests that brief art-integrated psychotherapeutic nursing interventions may be helpful in promoting assertiveness and regulating anger in undergraduate students. CBT-based art and expressive eclectic courses may be incorporated into undergraduate curricula for health promotion and may therefore contribute to well-being and protect against burnout.

Keywords: Anger; assertiveness; communication; nursing students

It is important to express anger clearly, productively, and assertively, using good communication skills to maintain one's well-being. Assertiveness, as a skill and functional communication attitude, is one of the main components of social interactions. Relevant studies have shown that communication skills affect young adults both personally and professionally.[1–7] Despite this, it has been reported that nurses and nursing students, as young adults, require anger regulation support.[8,9] When intra/interpersonal conflicts are not resolved, feelings of anger occur frequently,[10,11] which, if not managed properly, can negatively affect individuals, their interpersonal communication, and interactions.[3,12,13] Therefore, having good communication skills that enable one to express anger clearly, productively, and assertively is important.[11]

This study was presented at 5th Horatio World Festival of Psychiatric Nursing in the Copenhagen, Denmark May 9–12, 2019.

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It has been emphasized that assertiveness is a skill that should be learned and acquired by candidate nurses during their undergraduate education.[7,14] In this context, this study investigates the effects of an education program planned with consideration of current research on empowering communication skills on anger, anger expression style, and assertiveness levels of student nurses.

In this study, the effects of cognitive-behavioral theory (CBT)-based art and expressive eclectic interventions on functional anger and assertiveness in young adults were examined. The statistical significance of the short- and long-term changes in the State-Trait Anger Expression Inventory (STAXI) scores—specifically the Trait Anger, Anger Control, Anger-In, and Anger-Out sub-dimensions—and Rathus Assertiveness Inventory (RAI) scores after undergoing communication skills training were tested. The hypotheses of this research were:

H1a: There will be a statistically significant difference in the Trait Anger, Anger-In, Anger-Out, and Anger Control sub-dimension scores of STAXI across the three time points (pre-test, post-test, follow-up).

H1b: There will be a statistically significant difference in the RAI (assertiveness) scores across the three time points (pre-test, post-test, follow-up).

H1c: There will be a statistically significant increase in RAI (assertiveness) scores in the short term (post-test vs. pre-test).

H1d: There will be a statistically significant increase in RAI (assertiveness) scores in the long term (follow-up vs. pre-test).

H1e: There will be a statistically significant reduction in the Trait Anger, Anger-In, Anger-Out, and Anger Control sub-dimension scores of STAXI in the short term (post-test vs. pre-test).

H1f: There will be a statistically significant reduction in the Trait Anger, Anger-In, Anger-Out, and Anger Control sub-dimension scores of STAXI in the long term (follow-up vs. pre-test).

H1g: The changes in RAI and STAXI scores after the intervention will significantly predict each other in the short term.

H1h: The changes in RAI and STAXI scores after the intervention will significantly predict each other in the long term.

This research is expected to contribute to the development of communication-oriented emotional regulation skills in nursing students by examining the effects of CBT-based art and expressive eclectic interventions. It may serve as a guiding model for integrating short-term, cost-effective, and evidence-based intervention programs into undergraduate nursing education. Moreover, the outcomes of this study may provide insights for improving the emotional well-being, patient communication, and professional resilience of future nurses. By enabling nursing students to manage intra- and interpersonal conflicts more effectively, this program has the potential to enhance patient care quality and reduce professional burnout.

What is presently known on this subject?

- Anger management and assertiveness are skills that nursing students are required to develop.

What does this article add to the existing knowledge?

- The communication skills program conducted with an eclectic approach improves assertiveness and reduces anger in nursing students.

What are the implications for practice?

- The research offers a short-term, cost-effective program for nursing students and nurses.

Materials and Method

Study Design

The research had an interventional pretest–posttest design with follow-up measurements. This manuscript was prepared in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines (Appendix 1).[15]

Setting and Sample

The research was conducted with second-year nursing students at a nursing faculty in Izmir, Türkiye—the country's third-largest city by population. This location was chosen because the theoretical effective communication skills course and the practice module, wherein the student nurses would work with patients for the first time, were both included in the second-year curriculum.

The universe of the research consisted of second-year nursing students in a nursing faculty (N=297). The inclusion criterion of the study was the frequent feeling of anger, according to the STAXI. The STAXI was administered to the universe to determine the target group, and 25 student nurses who had above-average scores (min: 25.00, max: 33.00) on the Trait Anger subscale were identified.

The sample of the study consisted of 16 student nurses from the target group who met the inclusion criteria of the research, participated in at least eight of the intervention sessions, and completed the posttest and follow-up measurements (n=16). The inclusion and exclusion criteria are as follows:

Inclusion Criteria

Student nurses who were determined to be in the risk group of trait anger by objective measurement tools and volunteered to participate in the research.

Exclusion Criteria

Student nurses who suffered from a sensory organ disability and were unable to comply with the intervention sessions due to their living conditions.

Table 1. The content of CBT-based art and expressive eclectic communication skills program

Session	Content
1. Session	Providing information on communication skill training.
2. Session	Session Name: Introducing self and accepting.
	Session Objective: Initiating the self-awareness study for student nurses with appropriate questions and guidance.
3. Session	Session Name: Recognition and expression of emotions.
	Session Objective: Being aware of your own feelings.
4. Session	Session Name: Expressing cases causing anger, identifying cases where anger cannot be controlled.
	Session Objective: Experiencing anger (in vivo) in the group setting.
5. Session	Session Name: What is the problem? Is that a real problem? Identifying cognitive distortions.
	Session Objective: Being able to recognize the real problem, establish the connection between affect-behavior-cognition, and identifying cognitive distortions.
6. Session	Session Name: Use of "I Language", breathing and relaxation exercise, systematic desensitization (imagination).
	Recognizing the preparatory elements in the development of anger (anterior processes) as well as individual responses in an anger situation.
	Being aware of effective ways to express your anger and developing an action plan for yourself.
7. Session	Session Name: Use of "I Language" in anger, breathing and relaxation exercise, systematic desensitization (imagination).
	Session Objective: Expressing anger assertively using I language, Being able to apply breathing relaxation exercises for anger management.
8. Session	Session Name: The use of sense of humor in anger and environmental control.
	Session Objective: To determine the tendency of nursing students to use humor in anger management.
	Increasing the functionality of nurse students' use of humor.
	Developing future plans associated with potential humor intellection.
9. Session	Session Name: Old me - new me, evaluating personal change.
	Session Objective: Comparing the levels of anger management and assertiveness at the start of training to the present levels.
10. Session	Session Name: Final assessment.
	Session Objective: Application of post-tests (STAXI and RAI).

CBT: Cognitive-behavioral theory; STAXI: The State-trait anger expression inventory; RAI: Rathus assertiveness inventory.

To determine the power of the study, computed achieved power post hoc analysis was performed. The G*Power 3.1.9.2 program was used at the end of the practice; assertiveness scores were examined with an error rate of 0.05. The data obtained at three repeated measurements in independent groups were analyzed using ANOVA (within factors). The effect size was found to be 0.93 (Cohen's f); the alpha value was 0.05; and power was calculated as 0.99.

Variables

The means of the STAXI and RAI scores constituted the dependent variables of the study. The descriptive characteristics of the participants and the CBT-based art and expressive eclectic interventions constituted the independent variables.

Intervention

In this study, the "Communication Skills Training Program" was developed by integrating the core principles and techniques of Cognitive Behavioral Therapy (CBT) with psychodrama-based warm-up games and expressionist art therapy activities, and was implemented in the form of group sessions. The sessions were structured to help individuals recognize themselves and their emotions—particularly anger—identify their anger and expression styles, become aware of cognitive distortions, and initiate change in these areas. The CBT-based eclectic interventions incorporating art and expressive methods are presented in Table 1.

The sessions were conducted in the university's Mental Health Skills Laboratory. Held once a week, each session lasted approximately 90–120 minutes. All developers and implementers of the program were specialist psychiatric nurses. Among them, five were certified cognitive behavioral therapists (Author 2, 3, 4, 5, 6), one was a psychodramatist and dance therapist (Author 1), and two were practitioners of art therapy (Author 3, 6). The intervention with participating students was carried out outside of class hours, and during the program period, these students did not attend any courses conducted by the project team.

Instruments

Introductory Information Form

It is a nine-question form that evaluates information regarding the participants' age, gender, employment status in a health institution, place of residence, participation in regular activities, continuation of any personal development or therapy program, and diagnosis of physical or mental illness.

Rathus Assertiveness Inventory (RAI)

The scale, originally developed by Rathus in 1973, was adapted into Turkish and its validity and reliability were studied by Voltan. Voltan determined the alpha consistency coefficient of the inventory as 0.70 and the test–retest reliability as 0.92. [16] The inventory can be applied to adolescents and adults, and consists of 30 items: 17 with negative expressions and 13 with positive expressions. Those who score "+10" and below are considered non-assertive, and those who score above "+10" are considered assertive.[16,17] The scale was found to be moderately reliable for this sample (Cronbach's α=0.66).

State-Trait Anger Expression Inventory (STAXI)

The scale was developed by Spielberger et al.[18] and adapted into Turkish by Özer.[18,19] It is a 4-point Likert-type scale consisting of two subscales (State - Trait Anger and Anger Expression), three sub-dimensions, and 34 items in total. The Anger Expression subscale consists of three sub-dimensions: Anger Control, Anger-In, and Anger-Out. Trait anger indicates that anger is experienced as a general emotion with high frequency; Anger Control indicates that anger is under control; Anger-Out indicates that anger is easily expressed; and Anger-In indicates that anger is often suppressed (as cited in Öner).[20] The reliability coefficients of the Turkish version of the scale were 0.79 for Trait Anger, 0.84 for Anger Control, 0.78 for Anger-Out, and 0.62 for Anger-In.[20] In this research, the sub-dimensions of Trait Anger and Anger-In were found to be sufficiently reliable (0.62 and 0.63, respectively), whereas the Anger Control and Anger-Out sub-dimensions showed high reliability (0.86 and 0.81, respectively). In accordance with these findings, STAXI was accepted as a valid and reliable measurement tool for this study.

Public data sharing is applicable to this article (doi:10.17632/8g72y2z7hp.1).

Data Collection/Procedure

To identify the target group in the study, the Introductory Information Form, STAXI, and RAI were administered face-to-face to students in the classroom during breaks. Students who met the inclusion criteria and were deemed suitable for group work were invited to participate via telephone. At the end of the intervention, the posttest and follow-up assessments, conducted six months after completion of the intervention, were also administered face-to-face using the STAXI and RAI. Each data collection session took approximately 15 minutes. Written and verbal informed consent was obtained from the students.

Data Analysis

The Shapiro–Wilk test was used to determine the fitness of data to the normal distribution. The difference in repeated measurements of mean STAXI scores at different times in the same group was examined using Levene's variance homogeneity test and Mauchly's sphericity test, within the scope of repeated variance analysis. The multivariate test from repeated variance analysis was used for scale sub-dimensions that did not meet Mauchly's sphericity test. Bonferroni correction was applied for advanced analyses to determine from which group the significant difference originated. Friedman's test was used to test the significance of differences between dependent groups in repeated measurements of mean RAI scores at different times. Paired group comparisons were carried out for further analyses. The correlation between RAI and STAXI was examined by dual linear regression analysis, and autocorrelation and linearity were tested. Statistical significance was accepted as $p<0.05$.

Ethical Permissions

This research involving humans was approved by the Ege University Institutional Review Board (26/04/2016, ID:158) and conducted in accordance with national and international standards. Participants were informed about the purpose of the study, that their identities would be kept confidential, that participation was voluntary, and that the data would not be used for any other purposes. Informed consent was obtained from all participants. Any potential conflicts of interest were disclosed. The research team included certified art-based psychosocial specialists, CBT therapists, and a psychodrama therapist. The study was conducted in compliance with the principles of the Declaration of Helsinki.

Results

Of the 16 student nurses included in the study, 14 were women; half of them lived in a student dormitory (31.2% lived with their families, 18.8% lived in a student apartment). The mean age of the student nurses was 20.50±0.73 years (min=20.0, max=22.0).

According to the health histories of the students, one was determined to have a history of a genetic physical disease (Mediterranean anemia). No student nurse had been diagnosed with a psychiatric disorder. Two student nurses were found to have previously received training on anger or assertiveness, while one was determined to have participated in activities for personal development. These activities were provided by the students' faculties and non-governmental organizations for young individuals.

Changes in the STAXI and the RAI Scores

Between the dependent groups, repeated measurements after intervention revealed a statistically significant difference in the student nurses' total STAXI and sub-dimension scores and mean RAI scores (Table 2, $p<0.05$). This difference, observed as a result of the training, was significant in the long term. However, it was found that there was no significant change in the anger scores in the long term.

Table 2. Distribution of student nurses according to mean STAXI and RAI scores (n=16)

Mean scale scores	Pre-test mean±SD	Post-test mean±SD	Follow-up mean±SD	Statistical significance
Mean STAXI scores				
Trait Anger	24.44±5.91	19.25±4.82	22.94±4.65	F=12.080[a] p<0.01
Anger expression				
Anger control	21.00±4.07	23.56±3.52	22.31±2.65	F=3.347[b] p<0.05
Anger out	17.93±3.32	15.50±2.89	16.19±3.12	F=6.884[b] p<0.01
Anger in	19.56±3.50	15.75±4.34	18.00±5.28	F=5.390[b] p<0.05
Mean RAI scores	14.69±16.99	9.19±8.91	22.25±27.76	X^2=17,238[c] p<0.001

[a]: Repeated measures anova; [b]: Multivariate mesures; [c]: Friedman test. STAXI: State-trait anger expression inventory; RAI: Rathus assertiveness inventory; SD: Standart deviation.

In the analyses performed for the change in the mean STAXI and RAI scores after the intervention, it was found that anger and assertiveness scores did not predict each other in terms of short-term changes after the intervention, and that the difference that occurred in the independent variables after the intervention could not be explained by the increase or decrease in each other (p>0.05).

When the findings obtained from the follow-up measurements were examined, a statistically significant regression was found between the mean follow-up scores of RAI and the STAXI Anger-In sub-dimension (F(1,14)=13.710; p<0.05). A total of 49.5% of this statistically significant change in the RAI follow-up scores can be explained by the change in STAXI Anger-In follow-up measurement scores (Table 2).

Hypotheses H1a, H1b, H1c, H1d, and H1e were supported by the findings. Hypotheses H1f and H1g were rejected based on the lack of statistically significant long-term change in STAXI scores and the absence of short-term predictive relationships between RAI and STAXI. Hypothesis H1h was partially supported, as a significant predictive relationship was found specifically between the follow-up RAI scores and STAXI Anger-In scores (Table 3).

Discussion

The statistical significance regarding the short- and long-term changes in the STAXI Trait Anger, Anger Control, Anger-In, and Anger-Out sub-dimension scores and in the RAI scores after the communication skills training was tested in the research.

Short-term Moderating Roles of CBT-based Art and Expressive Eclectic Interventions on Anger and Assertiveness

Repeated measurements revealed a statistically significant difference in students' total STAXI sub-dimension scores and mean RAI scores (p<0.05). It was determined that Trait Anger, Anger-In, and Anger-Out scores decreased, while Anger Control scores increased in the posttest measurements. According to the regression analysis, it was determined that communication skills training had an effect on this change. All the null hypotheses of the study were rejected for all the scales' total and sub-dimensions for the short term. This difference observed as a result of the training was significant in the long term. However, it was found that there was no significant change in the anger scores in the long term (p>0.05).

In the training, art-based practices and concretization and expression of feelings and thoughts,[21] effective regulation of anger with cognitive-behavioral techniques, and assertive expression were emphasized. In other words, not only did the invisible become visible, but the change was also investigated. It is possible that short-term emotional relaxation and awareness were experienced when the participants paid attention to their own and their peers' anger, and that anger was experienced and recognized in different forms. In the research, it was determined that anger outcomes did not last long. Therefore, it can be considered open for improvement in terms of providing permanence through behavior change. For this, various practices with similar realistic experience (i.e., homework) can be recommended.

Long-term Moderating Roles of CBT-based Art and Expressive Eclectic Interventions on Anger and Assertiveness

Effects on Trait Anger and Anger Expression

In the follow-up test, it was determined that this change did not remain for the long term. The hypothesis is that Communication Skills Training provided in the research causes statistically significant changes in the student nurses' anger styles and expression scores in the short term and in assertiveness scores in both the short and long terms.

Table 3. Correlation between mean STAXI and RAI scores (n=16)

Variables	1	2	3	4	5	6	7	8	9	10
[1]STAXI trait anger post-test		rho=0.624[a]	rho=-0.467	rho=-0.763[a]	rho=0.585[b]	rho=0.401	rho=0.347	rho=0.456	rho=0.090	rho=-0.027
		p=0.010	p=0.068	p=0.001	p=0.017	p=0.124	p=0.188	p=0.076	p=0.739	p=0.920
[2]STAXI trait anger follow-up	rho=0.624[a]	rho=-0.237		rho=-0.478	rho=0.302	rho=0.050	rho=0.270	rho=0.490	rho=-0.199	rho=-0.017
	p=0.010	p=0.377		p=0.061	p=0.255	p=0.854	p=0.312	p=0.054	p=0.459	p=0.950
[3]STAXI anger control post-test	rho=-0.467	rho=-0.237		rho=0.465	rho=-0.703[a]	rho=-0.628[a]	rho=-0.113	rho=0.007	rho=-0.072	rho=-0.241
	p=0.068	p=0.377		p=0.069	p=0.002	p=0.009	p=0.678	p=0.978	p=0.792	p=0.368
[4]STAXI anger control follow-up	rho=-0.763[a]	rho=-0.478	rho=0.465		rho=-0.489	rho=-0.397	rho=-0.497[b]	rho=-0.537[b]	rho=-0.334	rho=0.391
	p=0.001	p=0.061	p=0.069		p=0.054	p=0.128	p=0.050	p=0.032	p=0.206	p=0.134
[5]STAXI anger out post-test	rho=0.585[b]	rho=0.302	rho=-0.703[a]	rho=-0.489		rho=0.783[a]	rho=0.244	rho=0.064	rho=0.058	rho=0.068
	p=0.017	p=0.255	p=0.002	p=0.054		p<0.001	p=0.362	p=0.813	p=0.831	p=0.804
[6]STAXI anger out follow-up	rho=0.401	rho=0.050	rho=-0.628[a]	rho=-0.397	rho=0.783[a]		rho=-0.034	rho=-0.035	rho=-0.174	rho=0.261
	p=0.124	p=0.854	p=0.009	p=0.128	p<0.001		p=0.900	p=0.898	p=0.519	p=0.329
[7]STAXI anger in post-test	rho=0.347	rho=0.270	rho=-0.113	rho=-0.497[b]	rho=0.244	rho=-0.034		rho=0.701[a]	rho=0.222	rho=-0.745[a]
	p=0.188	p=0.312	p=0.678	p=0.050	p=0.362	p=0.900		p=0.002	p=0.208	p=0.001
[8]STAXI anger in follow-up	rho=0.456	rho=0.490	rho=0.007	rho=-0.537[b]	rho=0.064	rho=-0.035	rho=0.701[a]		rho=-0.033	rho=-0.643[a]
	p=0.076	p=0.054	p=0.978	p=0.032	p=0.813	p=0.898	p=0.002		p=0.905	p=0.007
[9]RAI mean post-test	rho=0.090	rho=-0.199	rho=-0.072	rho=-0.334	rho=0.058	rho=-0.174	rho=0.222	rho=-0.033		rho=-0.334
	p=0.739	p=0.459	p=0.792	p=0.206	p=0.831	p=0.519	p=0.208	p=0.905		p=0.207
[10]RAI mean follow-up	rho=-0.027	rho=-0.017	rho=-0.241	rho=0.391	rho=0.068	rho=0.261	rho=-0.745[a]	rho=-0.643[a]	rho=-0.334	
	p=0.920	p=0.950	p=0.368	p=0.134	p=0.804	p=0.329	p=0.001	p=0.007	p=0.207	

[a]: Strong (0.60–0.79); [b]: Moderate (0.40–0.59), rho: Spearman correlation; STAXI: The state-trait anger expression inventory; RAI: Rathus assertiveness inventory.

It is seen in the literature that cognitive-behavioral techniques are frequently used in interventional studies.[13,22,23] Similar to the research, the awareness of emotions progresses toward the functional regulation of anger.[23,24] When the studies conducted with university students were examined, Özmen reported that training on coping with anger based on selection theory and reality therapy (15 in the interaction group, 15 in the placebo group, 15 in the control group) was effective in reducing inner anger.[25] In the study conducted by Özkamalı and Buğa, eight sessions of anger control training were given to 28 university students (14 in the experimental group, 14 in the control group).[26] At the end of the training, which included topics such as relaxation techniques, communication skills, and cognitive distortions, it was determined that there was a decrease in the Trait Anger levels of the students and that this decrease was permanent, based on the follow-up test performed after three months. Karahan et al.[27] conducted an 11-session focus group discussion-based study with 32 university students (16 in the experimental group, 16 in the control group), and it was found that anger control levels improved at the end of the cognitive-behavioral therapy-based program. It was concluded that the implemented program had a long-term effect, according to the follow-up tests. In the study conducted by Bilge and Keskin, in which they provided psychoeducation on anger using psychodrama techniques, it was found that the anger levels of 28 health school students decreased and that their anger control skills increased.[12]

Various concepts, such as coping with anger, controlling, and examining anger, are used in applied studies in the literature. However, all of them can be considered theory-based skills development programs. This study contributed to the literature with art-based practices in addition to cognitive-behavioral therapies, which are frequently used in anger studies. It can be said that the research conducted by Ekitli and Özgür is one of the unique examples of CBT-based art and expressive eclectic interventions similar to ours. They demonstrated evidence-based short- and long-term effects of eclectic CBT-based musical interventions in nursing students with risky anger traits.[28] In their study, the newly developed eclectic interventions reduced the students' tendencies to experience inappropriate expressions of anger more effective-

ly and were shown to have a stronger effect than non-eclectic ones. It can be suggested that this diversity enriched the therapeutic effect of training as well as learning, and that multifaceted approaches reinforced the interest of participants in the continuation of a long-term (such as ten-session) training program.

This study is in line with the literature, both in terms of training content and the number of sessions. In terms of the follow-up test, it was found that there were no long-term changes in Trait Anger and anger expression styles, and results different from those in the literature were obtained. In contrast, although it was not statistically significant, Trait Anger, Anger-Out, and Anger-In scores were lower in the follow-up test findings than those in the pretest, and the mean Anger Control was higher. This could be explained by the fact that the study was carried out with a group with high anger scores and that no intervention was made for individual problems of the students other than anger.

Effects on Assertiveness

It was ascertained in this study that the participants who were considered to be non-assertive according to the RAI started to achieve positive values after the CBT-based art and expressive eclectic interventions, that they had increased assertiveness, and that this increase was long-lasting. This means that after communication skills training, the nursing students achieved positive behavioral changes regarding their assertiveness. It was determined that the short-term change (posttest) was the result of communication skills training and that the best predictor of the long-term change in the follow-up test was the Anger-In score. Assertiveness can be increased if inner anger is regulated effectively. Thus, it can be suggested that inner anger can be reduced with an increase in assertiveness. It is possible that instead of experiencing anger, the ability to assertively express oneself was achieved.

It was established from various studies that the assertiveness levels of university students can be increased after 9 to 14 intervention sessions.[7,29–31] Adana et al.[32] found that a three-session communication skills program increased the level of assertiveness in nurses (n=103) and provided a behavior change. It is known that conducting assertiveness training with different teaching techniques improves the effectiveness of the intervention.[5] Tavangar and Yazdkhasti stated that they had a positive effect in the short and long term on the self-assertiveness levels of students by using psychodrama and cognitive restructuring techniques.[33] Albal et al.[34] mentioned that emotional communication skills could be improved through psychodrama. Our research is similar to other studies in terms of using different teaching techniques. Accordingly, the training program developed in this study may be considered in line with their objectives. However, this research differs in terms of the theoretical background of the training (art-based, cognitive-behavioral techniques) and the fact that assertiveness and anger were investigated together. In addition, due to the limited number of existing studies with follow-up tests and evaluations of the long-term impact, this study contributes to the relevant literature.

Limitation & Implication

The absence of a control group in the study negatively affects the study's strength. In addition, it reveals the effect of the nursing interventions only within the duration of the study.

Implications for Nursing Practice

It is seen that this program, created by psychiatric nurses with an eclectic approach, has an effect on increasing anger management and assertiveness skills in nursing students. Programs created with an eclectic approach supporting anger management and assertiveness skills in nursing education and in-service training of nurses can protect and increase nurse well-being. The program created in this study contributes to the field in terms of being structured, short-term, and cost-effective.

Conclusion

It was determined that the Trait Anger, Anger-In, and Anger-Out scores of the study participants decreased in the posttest measurements, and that Anger Control scores increased. This effect was found to be directly associated with the communication skills training, and it was determined through the follow-up tests that the effect did not remain in the long term. In contrast, there were both long-term and short-term positive changes in assertiveness levels. It may be necessary to increase and consolidate such CBT-based art and expressive eclectic interventions to ensure a long-term effect. Since this study involved university students, it indicates that courses to improve these skills should be incorporated into undergraduate curricula for health promotion.

This research contributed to the literature with its original practices, because the study was conducted with student nurses—a group of subjects on whom a limited number of studies have previously been done. Based on the findings of the newly developed eclectic communication skills training program, the following recommendations are made:

- CBT-based art and expressive eclectic courses to improve communication skills should be incorporated into undergraduate curricula for health promotion.
- The content of the communication skills training program should be determined in such a way that the introverted dimension of anger is emphasized to support permanence.
- The interventions should be repeated for lasting effectiveness.
- Studies must be conducted with control groups.
- The causes of change should be investigated using a qualitative research methodology.

Ethics Committee Approval: The study was approved by the Ege University Ethics Committee (no: 158, date: 26/04/2016).

Informed Consent: Written and verbal informed consent was obtained from the students.

Conflict of Interest Statement: The authors declare that there is no conflict of interest.

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Appendix 1. STROBE statement—checklist of items that should be included in reports of cross-sectional studies

	Item no	Recommendation	Page no
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1-2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	3
Methods			
Study design	4	Present key elements of study design early in the paper	3
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	3–4
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	3–4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	4
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5–6
Bias	9	Describe any efforts to address potential sources of bias	6
Study size	10	Explain how the study size was arrived at	3–4
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	4,5–6
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	6
		(b) Describe any methods used to examine subgroups and interactions	–
		(c) Explain how missing data were addressed	4
		(d) If applicable, describe analytical methods taking account of sampling strategy	–
		(e) Describe any sensitivity analyses	4,5–6
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	3,6
		(b) Give reasons for non-participation at each stage	None
		(c) Consider use of a flow diagram	No need
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6
		(b) Indicate number of participants with missing data for each variable of interest	none
Outcome data	15*	Report numbers of outcome events or summary measures	6–7
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6–7
		(b) Report category boundaries when continuous variables were categorized	–
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	–
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6–7
Discussion			
Key results	18	Summarise key results with reference to study objectives	7–10
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	10
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7–10
Generalisability	21	Discuss the generalisability (external validity) of the study results	11,12
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	11

*: Give information separately for exposed and unexposed groups. An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

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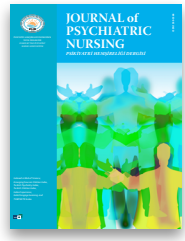

Original Article

Evaluation of dietary habits and related parameters in a group of inpatients with mental disorders

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Abstract

Objectives: This study aimed to examine the dietary habits and related parameters of individuals with mental disorders.

Methods: This study was descriptive and cross-sectional. The sample consisted of 94 individuals hospitalized in the psychiatric clinic of a hospital between June and December 2021. Data were collected using an information form created by the researchers.

Results: Of the participants, 83% were male, and 25.5% had a chronic physical illness. The patients had a diagnosis of mental disorder for an average of 6.07 years. The most common side effect was an increase in appetite (36.4%). Additionally, 76.6% ate within 15 minutes, 93.6% consumed fish once a week or never, and 56.4% never exercised. Individuals who consumed home-cooked meals had lower BMI averages than those who consumed fast food. A weakly significant positive correlation was found between BMI and waist circumference averages and the duration of medication use. Individuals with anxiety disorders had lower waist circumference, glucose, and LDL values compared to those with mood disorders. In contrast, individuals with psychotic disorders had significantly lower LDL levels than those diagnosed with mood disorders.

Conclusion: Individuals with mental disorders were found to have inadequate and unbalanced nutrition, consuming diets rich in carbohydrates and low in protein, which negatively affected their parameters. Psychiatric nurses should evaluate the dietary habits of patients and provide counseling about healthy nutrition.

Keywords: Dietary habits; mental disorder; psychiatric nursing.

It is stated that individuals with mental disorders live 8–25 years less than the general population due to negative dietary habits, sedentary lifestyle, obesity, smoking, cardiovascular disorders, and poor living conditions.[1–4] Psychotropic medications used in the treatment of patients negatively affect their physical health by increasing the risk of weight gain, metabolic syndrome, and diabetes, thereby elevating cardiovascular risk.[4–7] In addition to these circumstances, psychosocial difficulties also affect individuals' physical and mental health. Stigmatization, social isolation, low motivation, and limited access to social support further exacerbate lifestyle habits and reduce adherence to healthy behaviors.[2,4,5] Furthermore, economic difficulties and structural inequalities limit the ability of individuals with mental disorders to make healthier dietary choices.[3,8] These psychosocial difficulties not only aggravate unhealthy lifestyle patterns but also reduce treatment adherence, diminish motivation for behavioral change, and weaken the impact of preventive

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interventions.[2,3,5] Therefore, addressing stigma, isolation, and low motivation is as essential as managing biological risk factors in promoting healthier lifestyles among individuals with mental disorders.

Obesity, recognized as one of the most critical health problems of our time, is observed across all age groups and socioeconomic levels.[1,2] Additionally, the dietary habits of individuals with mental disorders are adversely affected by many factors, such as continuous medication, the effect of medication on appetite, decreased physical activity, worsening living conditions, and decreased income level.[3,5–7] Patients with schizophrenia, in particular, are known as a risk group in terms of obesity.[6] In studies examining the dietary habits of patients with schizophrenia, it has been found that these patients have inadequate fiber intake and fruit consumption, high saturated fat consumption, and excessive sugar and carbohydrate intake in their diets.[3,6–8] In these patients, a nutrient-poor and high-calorie diet causes insulin resistance, leading to an increased prevalence of obesity and metabolic syndrome.[7] An increased risk of diabetes and cardiovascular disease accompanies these conditions.[6,7] In addition to patients with schizophrenia, individuals with bipolar mood disorder also show different eating patterns: in manic episodes, inadequate food and calorie intake is common, while in depressive episodes, overeating or eating less or more than the body requires due to decreased appetite is observed.[1,7] Moreover, the prevalence of metabolic syndrome is also reported to be high in patients with bipolar mood disorder.[9]

Abdominal obesity, glucose intolerance, or diabetes mellitus constitute a set of risk factors that contribute to systemic disorders such as dyslipidemia, hypertension, and coronary artery disease.[10] Therefore, early identification of dietary risk factors in individuals with mental disorders and the implementation of preventive strategies are essential not only to reduce healthcare costs but also to improve life expectancy and quality of life.[3,10] Evaluating the dietary habits of individuals with different mental disorders and revealing the factors affecting this situation can also be used as a preventive intervention to protect these individuals from physical health problems.[1] Despite their relevance, the dietary patterns of individuals with mental disorders—similar to other aspects of their physical health—are often overlooked and neglected in clinical practice.[1,11]

In addition to the side effects of psychotropic agents, it is also crucial to assess patients' dietary habits in holistic nursing assessments. Psychiatric nurses can support patients in developing healthier habits by integrating the assessment of eating behaviors with lifestyle counseling and health promotion. In particular, changing unhealthy eating habits can reduce cardiovascular risk by controlling modifiable risk factors. Considering that patients often lose their lives due to cardiovascular causes, the effects of nursing-led interventions by psychiatric nurses to improve patients' dietary habits and increase their motivation in this regard may contribute to a reduction in patient mortality rates in the long term.

What is presently known on this subject?

- Mental disorders are associated with a higher risk of additional physical symptoms such as metabolic syndrome and diabetes. Unhealthy dietary habits and substance use observed in individuals with mental disorders also increase these risks. A limited number of studies have investigated the correlation between the dietary habits and metabolic values of individuals with mental disorders. This study aimed to examine the dietary habits and related parameters of individuals with mental disorders.

What does this article add to the existing knowledge?

- It has been determined that individuals with mental disorders do not have adequate and balanced nutrition, consume a diet rich in carbohydrates and low in protein, and consequently experience deterioration in related parameters.

What are the implications for practice?

- Psychiatric nurses should regularly screen individuals with mental disorders for the risk of metabolic syndrome and diabetes with a holistic perspective, evaluate their lifestyle and dietary habits, and implement educational and behavioral interventions to improve their health perception.

In our country, Türkiye, there are limited studies examining the dietary habits of individuals with different diagnoses of mental disorders.[1,8] This study, therefore, aims to contribute necessary evidence to the literature by emphasizing the significance of physical health in psychiatric settings and highlighting the responsibility of psychiatric nurses to deliver holistic care that encompasses both mental and physical dimensions.

The Study Questions

1. What are the dietary habits of individuals with mental disorders?
2. Is there a significant difference between the dietary habits of individuals and BMI?
3. Is there a significant difference between the sociodemographic characteristics of individuals and BMI, WC, glucose, total cholesterol, HDL, LDL, and triglyceride values?
4. Is there a significant relationship between individual characteristics and laboratory results?

Materials and Method

Aim

This study aimed to examine the dietary habits of individuals diagnosed with mental disorders and to evaluate related parameters, including body mass index (BMI), laboratory values (e.g., glucose and lipid profile), and dietary patterns.

Type of Research

This study was descriptive and cross-sectional.

Place and Time of the Study

The study was conducted in the psychiatry clinic of a training and research hospital in Istanbul between June and December 2021. The hospital where the data were collected is a former military hospital. Although it is now affiliated with the Ministry of Health, a higher number of military personnel are still hospitalized there. Therefore, the sample consists of more male individuals. The psychiatry clinic is an open ward with 12 beds in the general hospital. Individuals diagnosed with psychotic disorders, anxiety, depression, and, to a lesser extent, substance use disorders are hospitalized in the clinic.

Population and Sample of the Study

The study population consisted of individuals who were followed up as inpatients in the psychiatry clinic between June and December 2021 in the training and research hospital where the study was conducted. In the study, no sample selection was made; all individuals hospitalized in the psychiatry clinic within the specified date range and who met the inclusion criteria were attempted to be reached. During this period, 246 admissions were made to the psychiatry clinic. Of these, 138 were repeated hospitalizations of the same individuals. Among the 108 people who were hospitalized, 12 refused to participate in the study, and 2 were excluded due to not speaking Turkish. The study was completed with 94 people (Fig. 1).

Sample size calculation was performed using G*Power software version 3.1.9.4. The minimum number of individuals included in the sample was determined as 85, with a 95% confidence interval and a 5% margin of error. Thus, the final sample size of 94 participants exceeded the minimum requirement of 85, thereby strengthening the statistical power and representativeness of the study.

Patients who were 18 years of age or older, diagnosed with a mental disorder according to DSM-5 diagnostic criteria, not in the acute phase of illness, without cognitive or communication problems that would prevent them from responding appropriately, and who agreed to participate in the study by themselves or with the approval of their legal guardians were included. Patients who were in the acute phase of illness, did not agree to participate, did not speak Turkish, or had cognitive and communication problems that limited their ability to understand and answer the questions were excluded.

When the mental disorders of the patients were analyzed, it was determined that they were followed up with the diagnoses of psychotic disorder, mood disorder, and anxiety disorder.

Data Collection

The data were collected by the researcher (DÖ) through face-to-face interviews with the participants. Interviews were conducted when the patients were well and before discharge. The patients' weight and waist circumference were evaluated after the quarantine period, when the patients were first admitted to the clinic due to COVID-19 precautions, and when the primary doctor had decided on the discharge stage. The laboratory data for patients were based on the most recent blood test results obtained during their hospital stay. No additional blood samples were taken from patients for the study; routine blood test results were used. Participants were asked to answer by considering their dietary habits in the home environment. The interviews lasted for an average of 20 minutes. In this study, data were collected using the Information Form. No pilot study was conducted before starting the study.

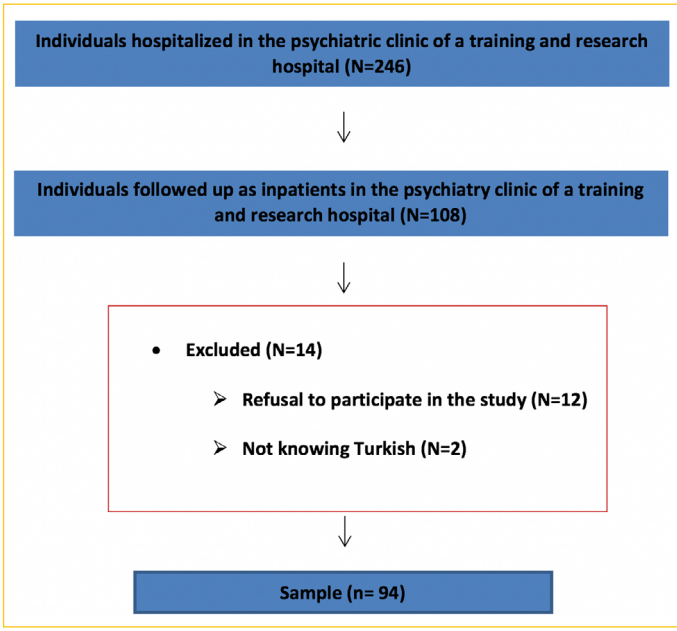

Figure 1. Flow diagram of the study.

Information Form

The form, created by the researchers based on a literature review, consists of five sections and 37 questions in total.[11] These included questions on sociodemographic data (age, gender, marital status, economic status, etc.), data on mental disorders (diagnosis, year of diagnosis, number of hospitalizations, medications and side effects, etc.), data on dietary habits (number of main meals, snacks, eating times, types of food, etc.), data on physical assessment (height, weight, waist circumference, BMI), and blood serum levels (glucose, lipid levels).

Ethical Consideration

This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethics committee approval was obtained from the University of Health Sciences Hamidiye Non-interventional Clinical Research Ethics Committee (IRB: 19/83, dated: 08.11.2019), and institutional permission was

Table 1. Sociodemographic characteristics of individuals (n=94)

Characteristics	Psychotic disorder (n=28)		Mood disorder (n=22)		Anxiety disorder (n=44)		Total	
	Mean (SD) (min-max)		Mean (SD) (min-max)		Mean (SD) (min-max)		Mean (SD) (min-max)	
Age (years)	31.32 (11.48) (20–70)		37.73 (11.28) (20–56)		32.43 (11.10) (19–72)		33.34 (11.41) (19–72)	
	n	%	n	%	n	%	n	%
Gender								
Female	3	18.8	10	62.5	3	18.8	16	17.0
Male	25	32.1	12	15.4	41	52.6	78	83.0
Marital status								
Married	1	3.2	8	25.8	22	71.0	31	33.0
Unmarried	27	42.9	14	22.2	22	34.9	63	67.0
Economic status								
Income less than expenditure	14	35.0	12	30.0	14	35.0	40	42.6
Income and expenditure are in line	13	27.7	10	21.3	24	51.1	47	50.0
Income more than expenditure	1	14.3	–	–	6	85.7	7	7.4
Chronic psychical disease								
Yes	10	41.7	5	20.8	9	37.5	24	25.5
No	18	25.7	17	24.3	35	50.0	70	74.5
Chronic psychical disease (n=24)								
Diabetes mellitus (DM)	2	20.0	–	–	1	11.1	3	12.5
Hypertension (HT) +DM	3	30.0	1	20.0	2	22.2	6	25.0
HT+hipotiroidi	–	–	2	40.0	1	11.1	3	12.5
Arrhythmia+heart failure	2	20.0	1	20.0	2	22.2	5	20.8
Gastritis, ulcer etc.	2	20.0	1	20.0	2	22.2	5	20.8
Constipation	1	20.0	–	–	1	11.2	2	8.4

SD: Standard deviation

obtained from the hospital where the study was conducted. After research permits were revoked during the COVID-19 pandemic, the study was carried out with renewed ethics committee and institutional approval, in compliance with COVID-19 precautions. After verbal and written information about the study was provided, written informed consent was obtained from the participants.

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 27.0. For the evaluation of normal distribution, skewness and kurtosis values of ±2 were considered normal, as stated in the literature.[12] It was determined that all variables, except 'How many times a week do you eat fish?', 'Do you eat more fish than meat in a week?', and 'Time spent eating', showed normal distribution. Descriptive data were analyzed using numbers, percentages, mean, and standard deviation. Mann-Whitney U test, Kruskal-Wallis test, Student t-test, and ANOVA were used for BMI comparisons. Pearson correlation analysis was applied to evaluate the relationship between variables. In all analyses, $p \leq 0.05$ was interpreted as statistically significant.

Body Mass Index (BMI) was calculated by dividing body weight (kg) by height in square meters (m^2), in line with the WHO classification of obesity. For BMI classification, the following categories were used: average weight=18.5–24.9, overweight=25.0–29.9, grade I obesity=30.0–34.9, grade II obesity=35–39.9, and grade III obesity=≥40. In addition, waist circumference (WC) thresholds were defined as ≥102 cm for men and ≥88 cm for women.[13] Laboratory reference ranges of the institution where the data were collected were as follows: fasting blood glucose (FBSG)=70–100 mg/dL, total cholesterol >200 mg/dL, HDL (female) <40 mg/dL, HDL (male) <50 mg/dL, LDL >130 mg/dL, triglycerides >150 mg/dL.

Results

It was found that 83% of the individuals who participated in the study were male, 67% were single, 47.9% were universi-

Table 2. Characteristics of individuals regarding mental disorders and psychotropic drug Use (n=94)

Characteristics	Psychotic disorder (n=28)		Mood disorder (n=22)		Anxiety disorder (n=44)		Total	
	Mean (SD) (min-max)		Mean (SD) (min-max)		Mean (SD) (min-max)		Mean (SD) (min-max)	
Duration of mental disorder (years)	8.32 (7.72) (1–30)		7.55 (6.94) (1–25)		3.14 (2.43) (1–10)		5.71 (6.07) (1–30)	
Number of hospitalizations	2.18 (.98) (1–4)		2.18 (.90) (1–4)		1.61(.81) (1–4)		1.91(.92) (1–4)	
Duration of psychotropic medication use (years)	4.54 (5.61) (1–20)		5.32 (6.40) (1–25)		2.32 (2.18) (1–9)		3.68 (4.72) (1–25)	
	n	%	n	%	n	%	n	%
Psychotropic medications								
Antidepressant	4	50.0	1	12.5	3	37.5	8	8.5
Antipsychotic	3	30.0	–	–	7	70.0	10	10.6
Antidepressant+antipsychotic	12	27.3	5	11.4	27	61.4	44	46.8
Antidepressant+antipsychotic+mood stabilizers	2	15.4	11	84.6	–	–	13	13.8
Antidepressant+antipsychotic+ anxiolytics	5	62.5	–	–	3	37.5	8	8.5
Antidepressant+anxiolytics	–	–	–	–	3	100	3	3.2
Antidepressant+mood stabilizers	–	–	2	100	–	–	2	2.1
Antipsychotic+mood stabilizers	2	33.3	3	50.0	1	16.7	6	6.4
Side effects								
Yes	13	29.5	14	31.8	17	38.6	44	46.8
No	15	30.0	8	16.0	27	54.0	50	53.2
Smoking								
Yes	18	30.5	14	23.7	27	45.8	59	62.8
No	10	28.6	8	22.9	17	48.6	35	37.2
Alcohol use								
Yes	9	31.0	9	31.0	11	37.9	29	31.2
No	19	29.7	13	20.3	32	50.0	64	68.8
Substance use								
Yes	2	66.7	–	–	1	33.3	3	3.2
No	26	28.6	22	24.2	43	47.3	91	96.8

SD: Standard deviation

ty graduates, 25.5% had chronic physical diseases, and the most common diagnoses were hypertension and diabetes mellitus (25%) (Table 1).

It was determined that the individuals had been taking psychotropic medications for 3.68 (±4.72) years, and 46.8% of them reported experiencing side effects. The most common side effect was increased appetite and weight gain (36.4%), followed by dry mouth (22.8%). In addition, 62.8% of the participants smoked, 31.2% consumed alcohol, and 3.2% used substances (Table 2).

When the dietary habits of the participants were evaluated, it was found that 62.8% had three main meals, 63.8% had no snacks, 59.6% ate home-cooked meals, 41.5% consumed 4–6 slices of bread daily, and 39.4% consumed more than three servings of pasta/rice per week. It was also determined that 50% consumed fewer than two servings of dairy products per day, 26.6% consumed two or fewer eggs per week, 93.6% consumed fish once a week or never, 25.5% consumed 6–8 spoons of sugar per day, 38.3% drank more than 1.5 liters of water daily, and 56.4% did not exercise. Individuals who consumed home-cooked meals had lower BMI averages than those who consumed fast food; those who consumed more than three servings of pasta/rice per week had higher BMI averages than those who consumed two servings per week ($p<0.05$) (Appendix 1).

The participants' mean BMI, WC, glucose, total cholesterol, HDL, LDL, and triglyceride levels are shown in Appendix 2. Glucose and triglyceride values were significantly higher in

Table 3. Correlations of individual characteristics and laboratory results

	BMI	WC	Glucose	Total cholesterol	HDL	LDL	Triglyceride
BMI	1						
WC	0.468**	1					
Glucose	0.168	0.396**	1				
Total cholesterol	0.073	0.148	-0.075	1			
HDL	-0.191	-0.146	0.042	-0.566**	1		
LDL	0.117	0.439**	0.419**	0.399**	-0.066	1	
Triglyceride	0.141	0.395**	0.272**	0.292**	0.006	0.483**	1
Age	0.181	0.448**	0.595**	0.232*	0.025	0.498**	0.493**
Duration of mental disorder (years)	0.177	0.253*	0.421**	0.040	-0.015	0.217*	0.194
Number of hospitalizations	-0.006	0.088	0.284**	0.050	0.005	0.150	0.080
Duration of psychotropic medication use (years)	0.266**	0.246*	0.339**	-0.041	0.027	0.188	0.184

*: Correlation is significant at the 0.05 level (2-tailed); **: Correlation is significant at the 0.01 level (2-tailed). BMI: Body mass index; WC: Waist circumference; HDL: High-density lipoprotein; LDL: Low-density lipoprotein

women than in men (p<0.05). In addition, individuals with anxiety disorder had lower waist circumference, glucose, and LDL levels compared to individuals with mood disorders (p<0.05). In contrast, individuals with psychotic disorders had significantly lower LDL levels than those with mood disorders. Furthermore, 37.5% of women were found to be obese and 73.1% had high waist circumference, while 35.9% of men were obese and 68.8% had low waist circumference. When the percentage distributions of BMI and waist circumference according to mental disorders were analyzed, the highest percentage of overweight or obese cases was observed in psychotic disorders (78.6%) (Appendix 2).

A positive, weakly significant correlation was found between BMI and mean waist circumference and duration of medication use (p<0.001). There was also a positive, weakly significant correlation between waist circumference and glucose, LDL, triglycerides, age, and duration of medication use (p<0.001). A positive, weakly significant correlation was found between glucose averages and LDL, triglycerides, duration of mental disorder, number of hospitalizations, and duration of psychotropic drug use; a positive, moderately significant correlation was found between glucose averages and age (p<0.001). While a positive, weakly significant correlation was found between age and total cholesterol, LDL, and triglyceride levels, a positive, weakly significant correlation was also observed between LDL levels and duration of medication use (p<0.001) (Table 3).

Discussion

In this study, which was conducted to examine the dietary habits and related parameters of inpatients with mental disorders, it was determined that one-fourth of the participants had chronic physical diseases. In previous studies, it has been reported that hypertension, diabetes mellitus, respiratory system diseases, and chronic neurological diseases often accompany individuals with mental disorders.[1,3,14] In this study, hypertension and diabetes mellitus were found to be the most common diagnoses in individuals with mental disorders. These findings are consistent with the literature and highlight how comorbid chronic diseases further complicate psychiatric care, underscoring the need for integrated treatment approaches. These comorbidities negatively affect the quality of life of individuals and may increase morbidity and mortality.[3,14] Patients can manage their chronic diseases with modifiable and improvable behaviors such as nutrition and exercise.[7] Therefore, psychiatric nurses should play an active role in guiding patients' dietary and exercise habits, using approaches such as motivational interviewing and patient education to enhance adherence and promote lifestyle change.

It is known that addictions such as smoking and alcohol use are high in individuals with mental disorders.[15] Smoking and alcohol use also increase the risk of diseases such as respiratory and cardiovascular system diseases, as well as cancer.[1] In a 42-year follow-up study conducted in Sweden, it was reported that substance use is frequently seen in individuals with mental disorders, and premature deaths are more common in this group.[16] It was also found that the incidence of metabolic syndrome was higher in individuals with schizophrenia and bipolar disorders who had substance abuse.[17] Substance use may have an impact on nutrient absorption and metabolism. More than half of the patients in this study smoked, and one-third consumed alcohol. While chronic mental disorders are considered risky for metabolic syndrome,[2] psychiatric nurses should pay more attention to individuals with schizophrenia and bipo-

lar disorders with comorbid substance use. From a nursing perspective, incorporating substance cessation programs into treatment protocols and providing lifestyle support are essential preventive strategies.

Appetite is often affected by psychotropics used in the treatment of mental disorders, and increased appetite may develop due to medication use.[1,2] In this study, it was determined that the most common side effects experienced by patients were increased appetite and weight gain. In addition to increased appetite caused by psychotropic agents, individuals' exercise and dietary habits also affect weight gain.[1] This result suggests that medication-related side effects interact with lifestyle factors, reinforcing the need for nurses to support patients in adopting balanced dietary habits and regular physical activity.[2]

The individuals who participated in this study frequently had three main meals and two snacks; however, it was observed that they consumed high amounts of carbohydrates and less protein. In this respect, the study findings are consistent with the literature. A review of the literature indicates that studies frequently conducted with patients with schizophrenia and other psychotic disorders show that patients have unhealthy nutritional habits, do not eat a balanced and healthy diet, prefer foods rich in carbohydrates, fat, and sugar, consume less fiber and protein, and particularly do not get enough vitamins.[3,4,18–20] In addition, they tend to skip breakfast and eat more at night. Similarly, Karagöl et al.[8] reported in a study conducted in Türkiye with patients with schizophrenia that dietary protein and vitamin intake and physical activity levels were lower than those of healthy controls.

In this study, the dietary habits of hospitalized individuals with mood, anxiety, and psychotic disorders were investigated. The findings show that the dietary habits of individuals with mood and anxiety disorders are as unhealthy as those of individuals with schizophrenia and other psychotic disorders. This result indicates that unhealthy dietary patterns are not limited to psychotic disorders but are also prevalent among mood and anxiety disorders, which broadens the scope of nursing interventions to a wider psychiatric population.

The study found that individuals consumed 6–8 spoons of sugar daily, frequently used sunflower oil, and drank 1.5 liters or more of water. In a meta-analysis, Teasdale et al.[2] determined that individuals with mental disorders consumed more fast food, fewer fruits, vegetables, nuts, and vegetable oil, and more carbohydrates, fat, and sugary foods. In light of these results, patients do not have an adequate and balanced diet. At this point, it is thought that the economic status of individuals with mental disorders also affects their dietary habits. In the study of Fond et al.,[21] it was reported that 80.7% of individuals with schizophrenia were poor. This result highlights a critical factor that prevents individuals from receiving adequate nutrition and accessing health services. Given that most participants in this study were unemployed and had lower income levels than their expenses, it is clear that this factor significantly contributes to their malnutrition. Thus, socioeconomic disadvantage should be considered an essential determinant of dietary habits, and nurses can advocate for social initiatives and rehabilitation programs that strengthen patients' participation in work life and economic independence.

Studies have also shown that cognitive functions are negatively affected when sufficient vitamins and minerals are not consumed.[3,6] At this point, patients' nutrition may also impact their mental state. Therefore, it is even more critical for patients to have a balanced diet. Future research should investigate the relationship between nutrition and cognitive functions, not only in psychiatric populations but also in healthy individuals, to better understand this association.

It was determined that more than half of the patients participating in the current study did not exercise, and almost all consumed fish once a week or not at all. The positive effects of exercise[22] and fish consumption on mental and physical health[23] have been reported in the literature. Recent studies have reported that fish consumption prevents depression.[24] However, it is also reported that Turkish society does not exercise sufficiently[25] and consumes little fish.[26] Thus, the Turkish population may be at risk in terms of both physical and mental health. In addition, this result may be related to cultural characteristics, living environment, or the recent increase in meat prices. Considering these findings, psychiatric nurses should encourage patients to increase physical activity and adopt healthier dietary alternatives, including fish consumption, as part of lifestyle counseling.

In this study, it was also found that most participants devoured their meals. Eating quickly may cause the amount of food eaten to be underestimated. Moreover, rapid eating can lead to obesity.[4] Slow eating is related to mindful eating, which involves awareness of the taste of food, decreased appetite, and increased satiety.[27] Therefore, psychiatric patients should be reminded to chew food sufficiently and eat mindfully. On the other hand, this study determined that individuals who consumed home-cooked meals had lower BMI averages than those who consumed fast food. Thus, it is important to consider whether patients with mental disorders can cook at home by themselves as part of psychiatric treatment and rehabilitation. This result emphasizes the role of patient education and skill-based interventions, where nurses can train and motivate patients to prepare healthier meals and adopt mindful eating practices.

It has been reported that the risk of obesity is higher in individuals with psychotic disorders compared to the general

population.[11] According to the World Health Organization,[28] the incidence of obesity in individuals with psychotic disorders is higher than in the general population. In the literature, long-term use of antipsychotic medications has been associated with impaired glucose metabolism, weight gain, increased waist circumference, and metabolic syndrome.[29] In this study as well, a significant positive correlation was found between BMI, mean waist circumference, and duration of medication use. Glucose levels were significantly correlated with age, duration of mental disorder, number of hospitalizations, and duration of psychotropic agent use. In addition to medication use, lack of motivation, disability, dietary habits, and lifestyle changes in patients may also affect this relationship.

The present study also determined that female patients' mean glucose and triglyceride levels were higher than those of male patients. Especially in long-term drug use, women were found to be at a higher risk than men of developing obesity.[6,29] It has been reported that metabolic syndrome is 2.5 times more common in women with schizophrenia and 1.5 times more common in men compared to the general population.[6] Bakola et al.[20] evaluated nutrition in individuals diagnosed with psychosis and found that the BMI of women was higher than that of men. In this direction, the study findings support the literature.

BMI and glucose levels were significantly higher in patients with mood disorders than in patients with anxiety disorders, and LDL levels were significantly higher in patients with anxiety disorders than in patients with schizophrenia and other psychotic disorders. In a meta-analysis, it was determined that individuals diagnosed with bipolar disorder consumed a high-energy and sodium-rich diet compared to healthy controls.[2] It has been reported that the prevalence of metabolic syndrome is common in patients with bipolar disorder,[9,30,31] and this situation has been associated with lithium use, impaired glucose metabolism, and impulsive overeating behavior, which is frequently observed in bipolar disorder, unlike other mental disorders.[30,31] However, when the literature is examined, it is seen that studies are frequently conducted with individuals with schizophrenia and other psychotic disorders.[18,19] Therefore, it may be recommended to conduct studies on metabolic syndrome and dietary habits in individuals diagnosed with mood disorders. Moreover, as this study was conducted during the COVID-19 period, pandemic-related restrictions may have influenced participants' lifestyle behaviors, physical activity, and eating habits, which should be taken into account when interpreting the findings.

Limitations

The data obtained from this study are limited to patients followed in a single center where the study was conducted. The research findings are limited to the sample group only and cannot be generalized. The predominance of male participants in the sample may limit the generalizability of gender-related comparisons, which is acknowledged as a limitation. In addition, the year 2021, when the data were collected, was the period in which restrictions continued due to COVID-19 in Türkiye. Therefore, the small sample size can be considered a limitation of the study. Other limitations include the fact that the study was conducted only with hospitalized patients and that no selection could be made according to the severity of the symptoms experienced by the patients. While questioning the medications used by the individuals, antipsychotic drugs could have been examined in more detail as typical and atypical. When evaluating dietary habits, the distinction between good and bad carbohydrates, such as whole wheat pasta and brown rice, could also have been questioned. Considering all these points, it may be recommended to conduct larger-scale studies.

Conclusion

In this study of inpatients with mental disorders, it was found that more than half of the patients smoked, almost all did not exercise at all, and they frequently consumed their meals within 15 minutes. The most common side effect experienced by the patients was increased appetite. Most of them ate three main meals and two snacks a day at home, but their diet was rich in carbohydrates and low in protein. It was found that almost all the patients consumed fish once a week or not at all. In addition, women and individuals with mood disorders were more likely to have elevated blood sugar levels. As the duration of antipsychotic use and the number of medications increased, patients' blood sugar and lipid profiles worsened. These findings indicate that individuals with mental disorders are at high risk for physical health problems and emphasize the need for targeted nursing interventions.

This study also reveals that not only individuals diagnosed with schizophrenia but also those with bipolar and anxiety disorders are at significant risk for physical health problems. Therefore, psychiatric nurses should integrate physical health assessments into routine care and adopt a holistic approach. Specific nursing interventions include providing counseling on exercise, educating patients on healthy eating habits, and supporting patients in quitting smoking and adopting healthier dietary behaviors through psychosocial techniques such as motivational interviewing and cognitive-behavioral strategies. Developing nutrition and exercise recommendations tailored to patients' sociodemographic characteristics and collaborating with social institutions to improve economic conditions can further enhance outcomes.

Ethics Committee Approval: The study was approved by the University of Health Sciences Hamidiye Non-interventional Clinical Research Ethics Committee (no: 19/83, date: 08/11/2019).

Informed Consent: Before starting the study, the participants were informed about the purpose of the study, the content of the form and how the data obtained in the study would be used. They were informed in accordance with the Helsinki Declaration that there would be no risk in participating in this study, and their written and verbal consent was obtained and an informed consent form was signed.

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Appendix 1. Comparison of dietary habits and BMI values of individuals

Variables	n	%	BMI mean (SD) (min-max)	Test/p
Number of main meals				
1	7	7.4	31.73 (8.87) (24.69–38.36)	F=0.864 p=0.425
2	28	29.8	29.35 (5.70) (18.71–41.36)	
3	59	62.8	28.86(5.36) (19.25–42.36)	
Number of snacks				
0	60	63.8	28.75 (5.49) (18.72–42.36)	F=0.486 p=0.623
1	11	11.7	30.52 (5.39) (23.26–38.36)	
2	21	22.3	29.70 (5.27) (21.67–41.36	
3	2	2.1	31.20 (11.52) (23.05–39.36)	
Breakfast foods				
Two or more foods	69	73.4	28.94 (5.51) (19.16–42.36)	F=0.958 p=0.387
Only one food	10	10.6	31.49 (6.42) (20.75–40.36)	
No breakfast	15	16.0	28.99 (4.73) (18.72–38.36)	
Time spent eating				
15 min	72	76.6	29.29 (5.82) (18.72–42.36)	KW=4.114 p=0.128
30 min	20	21.3	28.10 (3.43) (21.67–33.08)	
1 hour	2	2.1	37.86 (.70) (37.36–38.36)	
Where do you usually eat?				
Outside- fast food[1]	18	19.1	30.70 (5.53) (24.82–40.36)	**F=2.854 p=0.046 4<1**
At work- homemade food[2]	5	5.3	30.33 (4.56)	
In a restaurant or canteen- homemade food[3]	15	16.0	29.66 (5.53) (19.26–42.36)	
At home- homemade food[4]	56	59.6	26.31 (4.89) (18.72–37.36)	
How many times a day do you eat fruit and vegetables?				
More than three times	23	24.5	29.28 (5.80) (19.26–41.36)	F=0.094 p=0.921
One time	47	50.0	29.40 (4.94) (21.67–41.36)	
None	24	25.5	28.80 (6.38)	
How many times a day do you eat legumes?				
More than two times	24	25.5	28.18 (4.37) (20.75–40.36)	F=0.408 p=0.716
Two times	31	33.0	29.35 (5.80) (18.72–41.36)	
Less than two times	25	26.6	29.77(5.68) (19.16–42.36)	
None	14	14.9	29.72 (6.47)	

Appendix 1. Cont.

Variables	n	%	BMI mean (SD) (min-max)	Test/p
How many slices of bread do you eat a day?				
More than six slices	22	23.4	31.17 (5.34) (20.75–41.36)	F=2.265 p=0.082
4 to 6 slices	39	41.5	29.59 (5.58) (18.72–42.36)	
Less than four slices	29	30.9	27.67 (5.20) (19.26–39.36)	
None	4	4.3	26.09 (4.67) (19.16–29.36)	
How many times a week do you eat rice and pasta?				
More than three servings[1]	37	39.4	31.79 (5.65) (23.26–42.36)	**F=4.592 p=0.002 2<1**
Two servings[2]	32	34.0	27.38 (4.89) (18.72–39.36)	
Less than two servings[3]	22	23.4	29.05 (4.76) (21.67–38.36)	
None[4]	3	3.2	25.73 (7.15) (19.16–33.36)	
How much milk or containing milk food do you eat a day?				
Four or more	11	11.7	31.38 (5.91) (23.55–39.36)	F=1.614 p=0.186
Four times	20	21.3	27.22 (3.71) (18.72–33.36)	
Two or less	47	50.0	29.21 (5.40) (19.26–41.36)	
None	16	17.0	30.24 (6.87) (19.16–42.36)	
How many times a week do you eat fish?				
2 or 3 times	6	6.4	26.06 (3.09) (22.64–30.49)	U=165.000 p=0.127
One time or never	88	93.6	29.43 (5.56) (18.72–42.36)	
Do you eat more fish than meat in a week?				
Yes	5	5.3	30.27 (2.66) (26.84–33.36)	KW=1.104 p=0.603
Equal	7	7.4	28.83 (7.14) (20.75–41.36)	
No	82	87.2	29.19 (5.51) (18.72–42.36)	
How many eggs do you eat a week?				
More than five pieces	22	23.4	28.22 (4.05) (19.26–36.36)	F=0.714 p=0.526
4 to 5 pieces	12	12.8	28.50 (6.19) (20.75–41.36)	
Three pieces	23	24.5	30.63 (5.40) (22.64–41.36)	
Two pieces or less	25	26.6	30.03 (6.71) (22.89–40.36)	
None	12	12.8	30.12 (6.51) (22.89–40.36)	

Appendix 1. Cont.

Variables	n	%	BMI mean (SD) (min-max)	Test/p
Which oil do you usually consume?				
Olive	27	28.7	29.43 (5.55) (19.26–40.36)	F=0.379 p=0.714
Sunflower	54	57.4	29.45 (5.67) (18.72–42.36)	
Butter	9	9.6	28.26 (5.76) (20.75–37.36)	
Margarine	4	4.3	26.83 (.46) (26.36–27.47)	
How many spoonfuls of sugar do you consume a day?				
More than eight spoons	13	13.8	28.88 (5.27) (20.75–37.36)	F=0.239 p=0.915
-8 spoons	24	25.5	29.28 (4.86) (21.67–40.36)	
4 or 5 spoons	17	18.1	30.33 (6.61) (23.26–42.36)	
Less than four spoons	17	18.1	28.65 (4.91) (19.16–40.36)	
None	23	24.5	28.94 (6.08) (18.72–41.36)	
How much water do you drink a day?				
More than 1.5 L	36	38.3	28.51 (5.31) (18.72–40.36)	F=2.216 p=0.108
1–1.5 L	35	37.2	28.57 (4.66) (21.67–39.36)	
Less than 1 L	23	24.5	31.32 (6.55) (19.16–42.36)	

Groups sharing the same superscript differ significantly based on post hoc test results. BMI: Body mass index; SD: Standard deviation; F: ANOVA; KW: Kruskal Wallis test; U: Mann-Whitney U test

Appendix 2. Comparison of individuals' characteristics and laboratory results

	BMI	WC	Glucose	Total cholesterol	HDL	LDL	Triglyceride
	Mean (SD) (min-max)	Mean (SD) (min-max)	Mean (SD) (min-max)	Mean (SD) (min-max)	Mean (SD) (min-max)	Mean (SD) (min-max)	Mean (SD) (min-max)
Total	29.22 (5.49) (18.71–42.36)	95.88 (12.33) (75–132)	92.13 (22.97) (65–187)	164.43 (47.62) (34–271)	48.54 (26.05) (26–200)	116.93(24.23) (64–210)	145.96(88.19) (36–586)
Gender							
Female	28.28 (5.10) (19.25–38.36)	99.19 (17.45) (75–132)	102.63 (28.39) (69–183)	161.69 (64.82) (34–271)	57.25 (42.41) (30–190)	131.06 (33.43) (98–210)	190.96 (122.88) (52–484)
Male	29.41 (5.58) (18.71–42.36)	95.21 (11.02) (77–126)	89.97 (21.27) (65–187)	164.99 (43.80) (38–270)	46.76 (21.21) (26–200)	114.03(21.01) (64–192)	136.72(77.10) (36–586)
Test	t=0.752 p=0.455	t=1.179 p=0.241	**t=2.041 p=0.041**	t=–0.252 p=0.852	t=1.472 p=0.143	t=2.643 p=0.010*	**t=2.291 p=0.024**
Mental disorder							
Psychotic disorder[1]	30.48 (6.20) (19.15–2.36)	96.86 (11.16) (77–126)	91.04 (24.18) (67–187)	147.64 (44.34) (38–245)	47.93 (16.23) (28–122)	109.07(16.04) (64–142)	129.65(45.34) (39–208)
Mood disorder[2]	28.30 (5.07) (19.25–8.36)	100.68 (16.34) (77–132)	102.18 (29.50) (69–183)	166.14 (54.47) (34–271)	52.59 (37.10) (26–190)	131.86(30.83) (91–210)	159.62(105.58) (36–484)
Anxiety disorder[3]	28.88 (5.18) (18.71–41.36)	92.86 (9.93) (75–120)	87.80 (16.64) (65–145)	174.25 (44.02) (58–270)	46.918 (24.87) (29–200)	114.45(22.00) (83–192)	149.50(99.02) (59–586)
Test	F=1.136 p=0.325	**F=3.217 p=0.042 3<2**	**F=3.184 p=0.046 3<2**	F=2.837 p=0.068	F=0.344 p=0.702	F=6.582 p=0.002* **1<2, 3<2**	F=0.774 p=0.464

	BMI										WC			
	Normal		Overweight		Obesity I		Obesity II		Obesity III		Low		High	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Total	22	23.4	34	36.2	23	24.5	10	10.6	5	5.3	62	66.0	32	34.0
Mental disorder														
Psychotic disorder	6	21.4	8	28.6	7	25.0	5	17.9	2	7.1	15	53.57	13	46.43
Mood disorder	6	27.3	7	31.8	6	27.3	3	13.6	–	–	9	40.9	13	59.1
Anxiety disorder	10	22.7	19	43.2	10	22.7	2	4.5	3	6.8	34	66.0	10	34.0

Groups sharing the same superscript differ significantly based on post hoc test results. BMI: Body mass index; WC: Waist circumference; HDL: High density lipoprotein; LDL: Low density lipoprotein; SD: Standard deviation; F: ANOVA; t: Student t test

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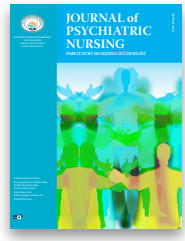

Original Article

Relationship between resilience, secondary traumatic stress and work-related factors among mental health professionals

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Abstract

Objectives: Resilience is the ability to maintain or rapidly recover mental health under stress. Mental health professionals are often exposed to workplace stress through violence, emotional labor, restrictions, and traumatic stories. Secondary traumatic stress results from being affected by others' traumatic experiences. Examining the relationship between resilience and secondary traumatic stress among mental health professionals is therefore essential.

Methods: This descriptive study was conducted between February and April 2022. Data were collected using the Personal Information Form, the Resilience Scale for Adults, and the Secondary Traumatic Stress Scale. Participants included 212 psychiatric and mental health nurses, 28 psychiatrists, 14 psychologists, and six social workers.

Results: A significant positive relationship was found between resilience and secondary traumatic stress. The regression model, including secondary traumatic stress, gender, educational status, willingness to work in mental health, job satisfaction, and unit of work, significantly predicted resilience.

Conclusion: Secondary traumatic stress and work-related factors, such as willingness and satisfaction with working in mental health and the unit of work, were found to play an essential role in resilience. Institutional support and supervision may strengthen resilience, while reducing secondary traumatic stress can enhance motivation and well-being. Institutions are recommended to implement strategies that address these factors to improve both resilience and professional effectiveness.

Keywords: Mental health professionals; resilience; secondary traumatic stress

Resilience is the ability to adapt effectively in the face of stress and adversity.[1] In this context, resilience is defined as one's ability to recover in the face of complex life events and to overcome disasters.[2] Although many factors explain resilience,[2] these factors often appear as protective and risk factors.[3] The protective factors of individuals play the most fundamental role in their ability to survive and cope with various difficulties encountered throughout life.[3] Protective factors include family harmony, personal structural characteristics, and external support systems. Personal factors include physical strength, sociability, intelligence, communication skills, self-efficacy, talent, and problem-solving. Familial protective factors emphasize that family closeness, harmony and structure, and relationships with at least one parent or a substitute parent are important.[1,4] External support systems that increase resilience may include social support, such as close bonds with at least one person or good peer relationships that help individuals overcome difficulties.[1,5]

In the formation of resilience, individuals must encounter some risk factors. Risk is defined as any event, situation, or experience that increases the likelihood that a problem will emerge, persist, or worsen. Traumatic experiences such

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as maltreatment in childhood can be given as examples of these risks. Risky situations encountered in work life can also affect an individual's resilience.[3] Mental health services, by nature, are stressful workplaces that serve individuals with mental disorders. Mental health professionals may be exposed to verbal or physical violence,[2] suicide attempts, emotional labor, and challenging situations such as restraint and isolation,[5] and they may also be exposed to traumatic histories of patients.[6] Long-term exposure to these stressors can cause burnout, compassion fatigue, physical and mental health problems, and secondary traumatic stress (STS) in mental health professionals.[2,7]

STS can be defined as the effects that occur as a result of witnessing or listening to the traumatic experiences of others,[8] and these effects are reported to be similar to the effects of primary exposure to trauma.[9] Studies on this subject have found that mental health professionals, especially nurses and social workers, are more affected,[10–12] and that continuous exposure to traumatic experiences causes decreased job satisfaction, compassion fatigue, and burnout.[13] A study conducted in Türkiye by Zara and İçöz reported that 44.9% of psychological counselors, psychologists, pedagogues, and social workers experienced above-average secondary trauma, and 25.4% experienced high levels of secondary trauma.[14]

The ability of mental health professionals to adapt positively to these stressors can contribute to increased resilience. It has been stated that working willingly in mental health services, peer support, and supervision positively affect the well-being of mental health professionals.[7] In this direction, while studies on this issue often examine the protective and risk factors of professionals' resilience, as well as personal and environmental factors, recent studies have also focused on resilience in the workplace context[3,6,15] and interventions that can be used to enhance resilience.[2,5]

For this reason, it is vital to examine work-related stressors and their relationship with resilience. Therefore, this study aimed to determine the relationship between resilience and STS levels, one of the major stressors, and the effects of work-related factors on resilience among mental health professionals working in a regional psychiatric hospital in Türkiye.

The study sought to answer the following three questions:

1. Is there a relationship between the resilience and secondary traumatic stress levels of mental health professionals?
2. Are there differences in the resilience of mental health professionals according to sociodemographic and work-related characteristics?
3. Which work-related characteristics affect the resilience of mental health professionals?

What is presently known on this subject?

- Resilience helps mental health professionals cope with workplace stressors such as violence, emotional labor, and exposure to trauma.

What does this article add to the existing knowledge?

- This study demonstrates a weak positive relationship between resilience and secondary traumatic stress and highlights the role of willingness, job satisfaction, and work unit.

What are the implications for practice?

- Resilience can be strengthened through institutional support, training, and interventions such as mindfulness and cognitive-behavioral techniques.

Materials and Method

The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) initiative,[16] which is used for standardizing descriptive and observational studies, was followed in reporting this study.

Type and Design

This study used a descriptive research design.

Place and Date

The data for this study were collected at a regional psychiatric hospital in Türkiye between February and April 2022. As two of the researchers had previously worked at the institution, the data collection process was conducted face-to-face by the researchers. All mental health professionals who met the study criteria and provided consent were included without the application of additional selection criteria. Data were collected outside of working hours, with convenient times arranged in advance through prior communication with the participants. Participation was entirely voluntary, and efforts were made to reach all eligible mental health professionals working at the hospital.

Population and Sample

The study population included all 755 healthcare workers (psychiatric and mental health nurses, psychiatrists, psychologists, and social workers) working in mental health at the specified regional psychiatric hospital. The sample size was calculated using the sample size formula for a known universe ($N=N\ t^2pq/d^2(N-1)+t^2pq$)[17] and the Raosoft program (http://www.raosoft.com/samplesize.html). The sample size was determined as 255, with type I error set at 5% and the study power at 95%. Stratified sampling was not used. Considering the inclusion and exclusion criteria and potential data loss, 260 mental health professionals were reached.

Inclusion criteria were: (1) working in the field of mental health (psychiatric and mental health nurse, psychiatrist, psychologist, or social worker) at the determined regional psychiatric hospital during the data collection period (February–April 2022), (2) having at least one year of experience in a mental health setting, (3) being 18–65 years old, and (4) agreeing to participate after receiving the necessary information.

Exclusion criteria were: (1) working outside the field of mental health at the determined hospital, (2) working at the hospital for less than one year, and (3) declining to participate in the study.

Variables of the Study

The dependent variable of the study was the total score of the Resilience Scale for Adults (RSA). The independent variables were the total score of the Secondary Traumatic Stress Scale (STSS) and the sociodemographic and work-related characteristics of the participants.

Ethical Considerations

To carry out the study, ethics committee approval (dated 03.01.2022 and numbered E-83270475-200-5981) was obtained from the Non-interventional Clinical Research Ethics Committee of Fenerbahçe University. Institutional permission (dated 18 February 2022 and numbered 32805) was also obtained from the hospital where the mental health professionals worked. Written informed consent was obtained from all participating mental health professionals. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Data Measurement Tools

A personal information form containing questions about sociodemographic and professional information, the STSS, and the RSA was used for data collection. The scales were self-report instruments, and the forms were completed on paper by the participants.

Personal Information Form

The personal information form was prepared in line with the purpose of the study and a literature review.[18,19] The sociodemographic factors examined were selected from risk and protective factors based on the model.[3,5] The survey included 12 items to determine sociodemographic characteristics (age, gender, education level, marital status, number of children) and work-related characteristics (occupation, total occupational experience, experience in the mental health field, willingness to choose the profession, satisfaction level in the service, working unit).

Secondary Traumatic Stress Scale (STSS)

The STSS was developed by Bride et al.,[20] and the Turkish validity and reliability study was carried out by Yıldırım et al.[21] The scale consists of 17 items and is answered using a five-point Likert-type scale. Items are coded from 1 to 5 as never (1), rarely (2), sometimes (3), often (4), and always (5). The scale has three subdimensions: avoidance, stimulation, and emotional violation. The lowest possible score is 17, and the highest is 85. High total and subdimension scores indicate higher levels of secondary traumatic stress.[21] In the Turkish validity and reliability study of the scale, Cronbach's alpha value was 0.91 for the total score, 0.84 for the emotional violation subdimension, 0.78 for the avoidance subdimension, and 0.82 for the stimulation subdimension. In this study, Cronbach's alpha value was 0.90 for the total score, 0.74 for emotional violation, 0.77 for avoidance, and 0.84 for stimulation.

Resilience Scale for Adults (RSA)

The RSA was developed by Friborg et al.,[22] and its Turkish validity and reliability study was conducted by Basım and Çetin.[23] The scale, with a total of 33 items, has six subdimensions: perception of the self (six items), perception of the future (four items), structural style (four items), social competence (six items), family harmony (six items), and social resources (seven items). To avoid biased evaluations, positive and negative judgments of the items are expressed in different dimensions, and a five-point Likert scale is used for evaluation. Responses are given in five categories, from never to always. In this study, items 1, 3, 4, 8, 11, 12, 13, 14, 15, 16, 23, 24, 25, 27, 31, and 33 were reverse coded. The lowest possible score is 33, and the highest is 165. In the Turkish validity and reliability study, Cronbach's alpha value was 0.86 for the total score, 0.73 for self-perception, 0.75 for perception of the future, 0.63 for structural style, 0.69 for social competence, 0.74 for family cohesion, and 0.62 for social resources. In this study, Cronbach's alpha value was 0.86 for the total score, 0.54 for self-perception, 0.63 for perception of the future, 0.25 for structural style, 0.72 for social competence, 0.71 for family cohesion, and 0.68 for social resources.

Data Analysis

The data obtained in the study were analyzed using SPSS (Statistical Package for Social Sciences) Statistics 28.0 for Windows, and the findings were reported according to the APA (American Psychological Association) Publications and Communications Board Working Group on Journal Article Reporting Standards.[24] Numerical data were presented as mean and standard deviation, minimum and maximum, and categorical data as percentages (%).

The distribution of the variables was examined using kurtosis and skewness values. It was determined that the scale mean scores and the age variable showed normal distribution, while the duration of work in the profession and in the mental health field showed non-normal distribution. Therefore, the Pearson correlation test was used to investigate the relationship between RSA and STSS total and subdimension scores and age. The Spearman correlation test was used to examine the relationship between the total scale mean scores and work experience. Correlation levels were evaluated as follows: 0.00–0.25 very weak, 0.26–0.49 weak, 0.50–0.69 moderate, 0.70–0.89 strong, and 0.90–1.00 very strong.[25]

Independent t-test and ANOVA were used to compare group mean scores according to nominal and ordinal variables. Based

Table 1. Sociodemographic and work-related characteristics of participants and comparison of the STSS and RSA total mean scores according to these characteristics

Characteristics	Min–max	Mean (SD)	STSS		RSA	
Age	20–47	29.39 (5.3)	r=0.06*	p=0.28	r=0.05*	p=0.36
	n (%)		**Mean (SD)**	**Test /p**	**Mean (SD)**	**Test /p**
Gender						
Female	185 (71.2)		71.50 (9.47)	**t=2.97**	130.56 (14.73)	**t=5.86**
Male	75 (28.8)		67.57 (10.13)	**p<0.001**	119.13 (12.96)	**p<0.001**
Marital status						
Single	179 (68.8)		69.78 (10.20)	t=-1.52	127.11 (15.078)	t=-0.25
Married	81 (31.2)		71.67 (8.79)	p=0.06	127.62 (15.35)	p=0.40
Children						
Yes	50 (19.2)		70.96 (8.17)	t=0.54	127.96 (16.75)	t=0.36
No	210 (80.8)		70.23 (10.17)	p=0.29	127.10 (14.76)	p=0.23
Educational level						
Medical vocational high school[1]	35 (13.5)		67.26 (5.98)	**F=5.82**	125.74 (15.87)	F=0.72
Bachelor[2]	172 (66.2)		70.44 (10.25)	**p<0.001**	126.80 (15.21)	p=0.53
Master[3]	45 (17.3)		74.09 (9.34)	**3>1**	129.38 (15.39)	
PhD[4]	8 (3.1)		61.50 (6.50)	**3>4**	132.00 (6.34)	
Profession						
Psychiatric and mental health nurses	212 (81.5)		70.61 (9.85)	F=0.54	127.04 (15.27)	F=0.32
Psychiatrist	28 (10.8)		69.68 (9.23)	p=0.65	129. 18 (14.94)	p=0.80
Psychologist	14 (5.4)		70.14 (8.89)		125.43 (17.02)	
Social worker	6 (2.3)		65.67 (13.77)		130.50 (2.51)	
	Min–max	**Median**				
Duration of occupational experience (years)	1–25	5.50	r=-0.14**	p=0.82	r=0.70**	p=0.26
	25%	4				
	50%	5.50				
	75%	8				
Duration of mental health settings experience (years)	1–15	4	r=0.46**	p=0.45	r=0.38**	p=0.54
	25%	2				
	50%	4				
	75%	6				
Satisfaction with working in mental health settings				F=6.18		F=9.85
Very satisfied[1]	68 (26.2)		74.99 (9.16)	**p<0.001**	132.75 (11.62)	**p<0.001**
Satisfied[2]	120 (46.2)		69.17 (9.83)	**1>2**	128.61 (13.93)	**1>3 1>4**
Somewhat[3] satisfied	60 (23.1)		68.13 (8.75)	**1>3**	120.33 (17.55)	**2>3 2>4**
Unsatisfied[4]	12 (4.6)		67.42 (10.66)		117.42 (15.61)	
Working willfully				F=0.28		F=21.16 **p<0.001**
Yes[1]	214 (82.3)		70.42 (9.99)	p=0.75	125.84 (13.91)	1>2
Undecided[2]	9 (3.5)		72.33 (9.43)		110.89 (5.84)	3>1
No[3]	37 (14.2)		69.62 (8.89)		139.49 (16.17)	3>2
Mental health unit						
Acute psychiatry unit[1]	174 (66.9)		70.87 (10.28)	F=1.21	123.83 (14.20)	**F=9.86**
Emergency psychiatry unit[2]	26 (10)		67.19 (8.03)	p=0.30	131.62 (20.34)	**p<0.001**
Addiction unit[3]	7 (2.7)		71.29 (11.45)		121.71 (16.63)	**4>1**
Forensic psychiatry unit[4]	39 (15)		69.15 (8.44)		136.67 (9.67)	**5>1**
Other[5]	14 (5.4)		73.00 (8.92)		138.43 (8.46)	

*: Pearson Correlation; **: Spearman Correlation. SD: Standard deviation; Min: Minimum; Max: Maximum; t: Independent t-test; F: ANOVA; STSS: Secondary traumatic stress; RSA: Resilience scale for adults

Table 2. Total and subdimension scores of RSA and STSS

Scales	Min–max	Mean (SD)
RSA	93–163	127.27 (15.13)
Perception of self	14–30	23.81 (3.12)
Perception of future	5–20	15.68 (2.77)
Structured style	6–20	14.55 (2.92)
Social competence	10–30	22.30 (4.20)
Family harmony	12–30	22.06 (4.04)
Social resources	19–65	28.87 (4.01)
STSS	41–85	70.37 (9.81)
Avoidance	14–35	28.58 (4-43)
Stimulation	10–25	20.42 (3.76)
Emotional violation	13–25	21.36 (2.82)

RSA: Resilience scale for adults; STSS: Secondary traumatic stress; Min: Minimum; Max: Maximum; SD: Standard deviation

on significant results from the independent t-test, correlation, and ANOVA, a model was established with the significant dependent variables (STSS, gender, willingness to work, satisfaction, and mental health unit). Multivariable linear regression analysis was performed to examine the effect of variables on RSA. The Enter method was used in regression analysis, and all dependent variables were entered into the model simultaneously. Gender was nominal, STSS was continuous, and satisfaction, willingness, and mental health unit were ordinal variables.

Results

Characteristics of the Participants

The mean age of the participants was 29.39 (SD=5.3) years. A total of 71.2% (n=185) were women, 68.8% (n=179) were single, and 80.8% (n=210) did not have any children. Among the mental health professionals, 66.2% (n=172) had a bachelor's degree, and 81.5% (n=212) were working as nurses. It was determined that 46.2% (n=120) of the professionals were satisfied with working in the mental health field, 82.3% (n=214) were willingly working in this field, and 66.9% were working in the acute psychiatry unit (Table 1).

Study Question 1

The RSA and STSS mean total and subdimension scores are shown in Table 2. A significant weak positive correlation was found between STSS and RSA total mean scores (r=0.403, p<0.001).

Study Question 2

When the sociodemographic and work-related variables were analyzed regarding RSA total scores, it was determined that the RSA total scores of women were higher than those of men (p<0.001). A significant difference was found in RSA total mean scores according to satisfaction with working in mental health (p<0.001). The total RSA mean scores of those who were very satisfied were higher than those who were not satisfied and those who were somewhat satisfied, and the mean scores of those who were satisfied were higher than those who were not satisfied and somewhat satisfied (p<0.001).

Moreover, professionals working willingly in the field of mental health had higher RSA total mean scores compared to those who were undecided. The RSA total mean scores of those who were unwilling to work in this field were also higher compared to those who were working willingly and those who were undecided (p<0.001).

It was determined that RSA total mean scores varied according to the mental health unit in which the participants worked. Mental health professionals working in the forensic psychiatry unit and other areas had higher RSA total mean scores compared to professionals working in the acute psychiatry unit (Table 1). Accordingly, the RSA total mean scores of those working in the forensic psychiatry unit were higher than those of participants in the acute psychiatry unit. In addition, professionals working in departments such as polyclinic, blood collection, rehabilitation, community mental health centers, and child and adolescent psychiatry had significantly higher RSA total mean scores compared to those working in the acute psychiatry clinic (p<0.001).

Study Question 3

The model established with STSS, gender, willingness to work in the field of mental health, satisfaction, and the unit of work was found to be significant (p<0.001), explaining 45.5% of the variance in RSA total mean scores (R^2=0.456) (Table 3).

Discussion

The aim of this study was to examine the relationship between resilience, secondary traumatic stress (STS) levels, and work-related factors among mental health professionals. The findings revealed a weak positive relationship between resilience and STS levels among mental health professionals. In line with the existing literature, which indicates high levels of secondary traumatic stress in studies involving social workers, psychiatric nurses, psychiatrists, and psychologists,[26,27] a negative relationship between these two variables has also been documented.[26,28] In this context, the role of risk factors in the development of resilience may be connected to STS. Therefore, strategies aimed at enhancing the resilience of mental health professionals could be crucial in mitigating the negative effects of STS.[5] Furthermore, the emergence of protective factors may be associated with mental health professionals' experiences of secondary traumatic stress, particularly from the stories they hear or witness. Their active involvement in

Table 3. The effects of sociodemographic variables and STSS on RSA

Dependent variable	Independent variables	B	p	F	Model (p)	R^2
RSA	Constant	98.75	<0.001	42.63	<0.001	0.456
	STSS	0.47	<0.001			
	Gender	-4.59	0.006			
	Working willfully	7.47	<0.001			
	Satisfaction with working in mental health settings	-6.31	<0.001			
	Mental health unit	1.71	<0.001			

STSS: Secondary traumatic stress; RSA: Resilience scale for adults; B: Regression coefficient; F: ANOVA test statistics

supporting these individuals may reduce the adverse effects of this process. Research has shown that mental health professionals who effectively cope with trauma are able to minimize negative effects and experience lower levels of secondary traumatic stress.[29] Moreover, Kökçam et al.[30] emphasized that psychological resilience is a critical factor in coping with trauma and stress. Psychological resilience refers to an individual's ability to cope with and overcome stressful situations.[31]

In this study, a significant difference in RSA scores was found based on gender, with women reporting higher resilience levels. This is consistent with the findings of Coco et al.,[32] who recognized gender as an important variable in psychological resilience and coping strategies. Gender-specific strategies play a vital role in stress management.[33] Research indicates that men and women cope with stress and trauma differently,[34] and traditional gender roles significantly impact stress management strategies.[35] Male mental health professionals, for instance, may be less inclined to express their emotions, which could pose challenges in seeking help.[36] On the other hand, female mental health professionals may be more open in expressing their emotions and seeking support but may face challenges in balancing professional and personal responsibilities.[37] A study conducted with nurses in the mental health field found that male nurses had higher levels of resilience compared to female nurses.[15] As the present study had a higher number of female participants, this may explain the higher resilience scores.

Moreover, the study identified a significant difference in RSA total mean scores based on satisfaction with working in the mental health field, with those more satisfied with their work showing higher resilience levels. In line with this, it has been noted that job satisfaction and a passion for nursing correlate with higher resilience levels among psychiatric nurses.[5] Similarly, Zheng et al.[38] found a positive correlation between job satisfaction and resilience among mental health nurses. These findings highlight that having a positive attitude toward work and the work environment may serve as protective factors for resilience.[3]

This study also found that resilience varied depending on the unit in which professionals worked. Specifically, professionals working in forensic clinics and other specialized units exhibited higher RSA scores, while those in acute clinics had lower RSA scores and higher STSS scores. This finding aligns with the literature, which indicates that trauma caseload, i.e., the amount of time spent working with trauma-exposed clients, is a strong risk factor for the development of secondary traumatic stress symptoms.[39] This may explain the higher STSS scores among professionals working in acute care settings.

Furthermore, risk factors such as years of experience, personal trauma history, lack of supervision, and absence of work-related support are frequently reported as contributing to secondary traumatic stress.[40] In Türkiye, mental health professionals at the start of their careers are generally assigned to acute clinics. Given that resilience tends to increase with experience and age, younger and less experienced professionals may have lower resilience levels. However, this study found no significant relationship between professional experience, time spent in mental health settings, and resilience. Future studies are recommended to explore the relationship between age, years of professional experience, and time spent in mental health settings.

Moreover, resilience can be developed and enhanced through education and role modeling.[5] Interventions such as orientation, in-service training, and peer counseling can help increase the resilience of professionals working in acute care units. Young professionals should be supported in effectively managing stressful situations, such as caring for psychotic patients, dealing with violence and suicide attempts, and managing restrictions and isolation, as well as improving their communication skills, coping mechanisms, and self-care strategies.

Limitations

The most important limitation of this study is that it was conducted in a single center; therefore, the results cannot be generalized. Another limitation is the Cronbach's alpha coefficient of the structural style subdimension of the RSA, which was found to be low. This suggests that the structural style subdi-

mension may be unreliable. It is recommended that this subdimension be re-evaluated in a larger sample in future studies.

In addition, personal factors such as stress coping methods, self-care activities, and institutional factors were not examined. Since resilience is a complex phenomenon, future studies should evaluate a broader range of individual and environmental factors among mental health professionals. Meanwhile, this study differs from the existing literature in that it focuses on work-related factors and secondary traumatic stress as workplace stressors among mental health professionals. This focus can be considered a strength of the study.

Conclusion

This study was conducted with mental health professionals to determine the association between psychological resilience, STS, and work-related factors, and whether there is a positive relationship between psychological resilience and secondary traumatic stress. It was found that secondary traumatic stress, gender, willingness to work in mental health, satisfaction, and the unit of work significantly affected resilience.

Relevance Statement

Since resilience is a dynamic concept, it can be developed over time. Mental health and psychiatric nurses can benefit from training in managing and controlling negative emotions and ineffective thoughts, coping with stress, and emotionally self-regulating. Such initiatives can strengthen communication skills and reduce clinical conflicts or interpersonal communication difficulties.[5]

In a review, Kunzler et al.[2] defined methods that can increase resilience among healthcare professionals. They emphasized that mindfulness-based practices, cognitive behavioral techniques, training, and face-to-face interventions can be used. However, they also noted that the level of evidence for these interventions could be higher, and future studies are needed. Considering that resilience among mental health professionals working in acute psychiatry clinics is lower, it may be recommended to implement resilience-enhancing interventions, as well as provide peer and institutional support and supervision practices, particularly for professionals who are new to the profession and working in psychiatry clinics.

Secondary traumatic stress encountered by health professionals in the mental health field can negatively affect their psychotherapy skills, empathy, and therapeutic relationships with patients. Examining the factors associated with STS and planning preventive interventions are therefore necessary.[12] Increasing resilience is essential to prevent or reduce secondary traumatic stress among mental health professionals.[41] Implementing resilience-enhancing interventions into daily work-life routines may positively affect secondary traumatic stress.[27]

Ethics Committee Approval: The study was approved by the Fenerbahçe University Non-interventional Clinical Research Ethics Committee (no: E-83270475-200-5981, date: 03/01/2022).

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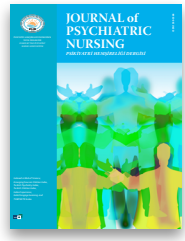

Original Article

Turkish validity and reliability study of the quality of care through the patient's eyes^{chemo} scale: Methodological study

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Abstract

Objectives: This study aimed to assess the Turkish validity and reliability of the Quality of Care Through the Patient's Eyes^{chemo} Scale.

Methods: Conducted at a university hospital in Türkiye, the study utilized a methodological design and involved 335 chemotherapy patients in the Outpatient Unit. Data collection employed a simple random sampling method along with a "Patient Information Form" and the "Quality of Care Through the Patient's Eyes^{chemo} Scale." Steps were taken to determine the language, content, construct validity, and reliability of the scale.

Results: Patients had a mean age of 54.48 years, with the majority being female (53.1%) and married (75.8%). Breast cancer (22.1%), lung cancer (17.3%), and colon cancer (10.7%) were the most common diagnoses among patients. Content validity analysis resulted in the removal of 9 items from the 67-item scale, with a content validity index of 0.92. The suitability of the data for factor analysis was confirmed with a Kaiser-Meyer-Olkin (KMO) value of 0.936 and Bartlett's test (6042.307, $p<0.000$). However, in construct validity, Confirmatory Factor Analysis (CFA) fit indices, including χ^2/SS (3.963), GFI (0.674), IFI (0.690), CFI (0.788), and RMSEA (0.124), fell below acceptable limits, suggesting incompatibility of the original structure of the scale in the country. Exploratory Factor Analysis (EFA) revealed a 3-factor structure with 27 items, explaining 59.648% of the total variance. The scale demonstrated a Spearman-Brown correlation coefficient of 0.871, a Guttman equivalent halves coefficient of 0.867, and a total Cronbach's alpha value of 0.950.

Conclusion: The scale is a valid and reliable tool for measuring the information and communication needs of chemotherapy patients. It is expected to serve as a guide for chemotherapy nurses in effectively assessing these needs.

Keywords: Chemotherapy; needs assessment; oncology service; reliability; validity

Chemotherapy, which is an important part of cancer treatment, increases survival in many cases but seriously compromises patients' quality of life and causes difficult-to-manage symptoms.[1,2] For patients and their families, adaptation can be a challenging experience.[3] The physical, sexual, and psychosocial problems caused by cancer and chemotherapy, as well as the management of these problems, can be influenced by many variables. One of these variables is the active role that patients and their families take in the process, as well as their ability to manage it.[1] Education and information about cancer and the treatment process are crucial in supporting patients and their families.[4]

Nurses play a key role in patient and family education.[5–7] Their constant and close interaction with patients, their position as implementers of treatment and managers of care, and their possession of the knowledge, skills, and competence required by their educational role place significant responsibilities on nurses at this point.[8] The chemotherapy process is one of the most challenging stages in which patients experience the fastest and most radical changes. Therefore, it is crucial for

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chemotherapy nurses to provide care based on individualized and holistic approaches, supported by evidence-based and up-to-date knowledge, and to deliver the necessary information and education to patients and their families, as these efforts play a vital role in both the patients' and families' quality of life and the success of treatment.[9,10]

The nurse's effective communication makes it possible for the patient to access the required information and internalize it, turning it into practical knowledge.[11,12] However, the literature includes studies indicating that in many healthcare systems, patients' needs for information and communication are not effectively met.[13–15] This can lead to psychological symptoms in patients and their families, which affect their quality of life and may even impact the patient's survival.[16–18]

The information and communication needs of patients and their families have been emphasized in studies addressing unmet needs and have been reported in the literature as a dimension of these unmet needs.[19–22] However, due to the lack of tangible indicators, the need for information and communication may be overlooked, and it is known that these needs are not adequately addressed.[22–24] In the literature, the importance of information and communication needs has been recognized, and many studies have reported data related to them; however, the primary focus of these studies has been on quality of care and patient satisfaction rather than on the need for information and communication itself.[25,26] In many studies primarily aiming to evaluate nurse–patient communication, the findings are presented based on nurses' subjective self-assessments of their own communication.[27,28] The challenging, acute, and specific nature of chemotherapy, along with the subjective character of the need for information and communication and the absence of observable tangible outcomes, create difficulties in identifying these needs. Therefore, there is a need for a reliable and easily applicable measurement tool to accurately identify the information and communication needs of patients and their relatives.[29]

A review of the literature revealed no other scale developed to specifically focus on information and communication needs and to measure these closely interrelated needs together.[19,23,30] The QUOTE^{chemo} (QUality Of care Through the patients' Eyes), developed by Van Weert et al.,[19] is a highly advantageous measurement tool as it was specifically designed for patients undergoing chemotherapy and identifies patients' needs from their own perspective. The aim of this study is to adapt the QUOTE^{chemo} into the Turkish language and culture.

Research Questions

1. Is the Turkish version of the QUOTE^{chemo} scale valid?
2. Is the Turkish version of the QUOTE^{chemo} scale reliable?

What is presently known on this subject?

- A personalized and holistic approach for patients with cancer and their families, based on evidence and up-to-date information, providing them with the knowledge and education they need, is crucial for the patient's and family's adaptation to the disease and treatment process, quality of life, and treatment success. There is currently no scale available to measure the information and communication needs of patients with cancer undergoing chemotherapy, which are closely interrelated.

What does this article add to the existing knowledge?

- There is a need for a measurement form in Turkish society that focuses on the information and communication needs of patients with cancer undergoing chemotherapy and identifies these closely interrelated needs. Therefore, it is recommended that the Turkish-adapted form be used as a guide by chemotherapy nurses to identify patients' information and communication needs.

What are the implications for practice?

- Determining the information and communication needs of chemotherapy patients, identifying individual needs, planning nursing interventions accordingly, and providing person-centered care are essential. It is recommended that the QUOTE^{chemo}-TR, consisting of 27 items, be used as a guide by chemotherapy nurses in determining patients' information and communication needs.

Materials and Method

Design

This study is a methodological research conducted to evaluate the validity and reliability of the QUOTE^{chemo} scale in Turkish.

Study Setting, Population, and Sample

The study was conducted in the Outpatient Medical Oncology Unit of a university hospital in Türkiye between December 2020 and December 2021, using a self-report method by two nurses working in the unit. Completion of the questionnaire took approximately 20–25 minutes. In the unit, the average number of patients visiting the outpatient clinic daily is 200, of whom 30 receive chemotherapy and 55 receive radiotherapy. The annual number of new patients visiting the unit ranges between 1,400 and 1,600. The population of the study consisted of cancer patients receiving chemotherapy. The sample size was determined as 335, based on five times the number of items in the scale.[31,32]

Inclusion criteria for the study were: being able to speak and understand Turkish, knowing the cancer diagnosis, and being literate. Exclusion criteria included any functional loss that would hinder communication.

Limitations of the Study

The fact that the majority (50.4%) of the sample consisted of literate individuals and primary school graduates was considered a limiting factor for understanding the two-step statements included in the scale.

Data Collection Tools

The "Informed Consent Form" was delivered face-to-face and by hand to the patients within the determined sample who

met the inclusion criteria, and questions regarding the study were answered. After the information was provided, data were collected from the participants who voluntarily agreed to take part in the study by using the "Patient Information Form" and the "QUOTE^{chemo} Scale (QUality Of care Through the patients' Eyes)." There were no missing data or incomplete forms during the data collection process.

Patient Information Form: The form consists of 9 questions, including patients' socio-demographic characteristics, disease information, and variables related to the treatment they are receiving (age, gender, marital status, educational status, income level, place and people they live with, duration of diagnosis, disease diagnosis, and treatment received).[30,33]

QUality of care Through the patients' Eyes (QUOTE^{chemo}): Developed by Van Weert et al.[19] in 2009, it is a 67-item measurement tool designed to assess the information and communication needs and experiences of patients receiving chemotherapy. The scale consists of two dimensions: QUOTE^{chemo} – Importance and QUOTE^{chemo} – Performance. The QUOTE^{chemo} – Importance dimension evaluates, through a 4-point Likert scale, the importance patients attach to information and communication during the chemotherapy process. In the QUOTE^{chemo} – Performance dimension, patients are asked to rate, again on a 4-point Likert scale, the extent to which the needs questioned in the scale items were addressed during their care. The scale consists of two categories: (a) Cancer-specific issues and (b) Generic issues, with a total of seven subdimensions. The cancer-specific issues category comprises three subdimensions: (1) Treatment-related information, (2) Prognosis information, and (3) Rehabilitation information. The generic issues category comprises four subdimensions: (4) Coping information, (5) Interpersonal communication, (6) Tailored communication, and (7) Affective communication. In the original study, Cronbach's alpha values ranged from 0.71 to 0.92.[19,24,30] In this study, the Cronbach's alpha coefficients of the subdimensions of the scale were found to range between 0.911 and 0.919, and the total Cronbach's alpha value of the scale was 0.950.

Validity and Reliability Stages of the 'Hasta Gözüyle Bakım Kalitesi QUOTE^{chemo}-TR' (Turkish Version) Scale

Language Validity

The language validity of the scale was carried out using the translation–back translation technique. Accordingly, the scale was initially translated from English, its original language, into Turkish by three academic nurses. The translated version was then evaluated in terms of meaning and grammar by a Turkish language expert. Subsequently, the Turkish version of the scale was back-translated into English by three academic nurses who were proficient in both languages. The back-translated version was reviewed by an English language expert with regard to meaning and grammar. Finally, the back-translated form was examined by the researchers, necessary corrections were made, and the Turkish version of the scale was finalized.

Content Validity

The content validity of the scale was evaluated using the Davis technique, with the opinions of 10 experts (7 psychiatric nurses, 1 oncology nurse, and 2 internal medicine nurses) obtained. The experts assessed each item of the scale on a four-point rating scale prepared as "not appropriate" (1), "needs to be modified" (2), "appropriate but requires changes" (3), and "appropriate" (4). The number of experts who selected "appropriate" or "appropriate but requires changes" for each item was divided by the total number of consulted experts, and the content validity ratio (CVR) and content validity index (CVI) for each item were calculated. According to the Davis technique, a CVI above 0.80 is interpreted as indicating adequate content validity.[34]

Face Validity

In order to assess the comprehensibility of the QUOTE^{chemo}-TR, it was administered to 10 patients receiving outpatient chemotherapy.[35] The patients participating in the application found the scale appropriate in terms of meaning, structure, and format, and no suggestions for changes were made. Since no modifications were made to the scale, the participants involved in this stage of the study were included in the sample.

Construct Validity

Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA) were used to evaluate the construct validity of the scale. The suitability of the data for factor analysis was analyzed using the Kaiser-Meyer-Olkin (KMO) test (>0.80) and Bartlett's test of sphericity ($p<0.05$) to assess whether relationships existed among the variables.

In the evaluation of CFA, the Maximum Likelihood (ML) estimation method and fit indices such as χ^2/df (<2, <5), GFI (>0.90), IFI (>0.90), CFI (>0.95), and RMSEA (<0.08) were used. In the evaluation of EFA, the varimax rotation technique and the principal axis factoring method were employed. A factor loading above 0.30 was considered acceptable for each item.[36] To determine the number of factors in the scale, factors with eigenvalues >1 were considered, and the total variance was expected to be between 40% and 60%. Items loading on more than one factor with differences in loadings of <0.10 were considered double-barreled items.[31] These items were removed, and the analysis was repeated until no double-barreled items remained. Considering that the scale has two main dimensions, each consisting of seven subdimensions, a second-order CFA was conducted to test the construct validity. The ML estimator was used for the analyses. Fit indices such

as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) were examined to evaluate model fit.

Reliability

In the evaluation of the reliability of the scale, internal consistency analysis (Cronbach's alpha coefficient), the split-half method, and item analysis were used. A Cronbach's alpha coefficient of ≥0.70 was considered sufficient for both the subscales and the overall scale.[37] In the split-half method, the items of the scale were divided into odd and even halves, and the correlation between the two halves was examined. In the evaluation of split halves, the Spearman-Brown correlation coefficient (>0.70) and the Guttman split-half correlation coefficient (>0.70) were used.

Within the scope of item analysis, item-total correlation coefficients and the item discrimination index were used. For the item-total correlation coefficients, a positive value and >+0.25 were taken into account.[36]

Ethical Considerations

Written permission for the evaluation of the validity and reliability of the QUOTE^{chemo}-TR was obtained via e-mail from the author of the original scale. Ethical approval for the study was obtained from the Non-interventional Ethics Committee of a university (16/03/2021; GO 21/369). The study procedures adhered to the guidelines of the Declaration of Helsinki. Verbal and written consent was obtained from all participants who took part in the study.

Data Analysis

SPSS (Statistical Package for Social Sciences) Version 23.0 and IBM AMOS (Analysis of Moment Structures) Version 23.0 were used for data analysis and factor analysis, respectively. Skewness-Kurtosis and Kolmogorov-Smirnov tests were used to determine the normality of the data, and it was found that the sample showed a normal distribution.

Descriptive characteristics of the participants, as recorded in the Patient Information Form, were analyzed using frequency, percentage, minimum–maximum values, standard deviation, and mean statistics. Construct validity of the scale was evaluated using EFA and CFA, while reliability was assessed through item-total correlations, Cronbach's alpha coefficients for all items and subdimensions, and the split-half method.

Results

Descriptive Characteristics

The mean age of the patients receiving chemotherapy and included in the sample was 54.48 years, and 53.1% were female. The majority of the patients (40.2%) were primary school graduates, 60.9% lived with their spouse, and 48.1% reported that their income equaled their expenses. The largest proportion of the sample (22.1%) was diagnosed with breast cancer, and the mean time since diagnosis was 18 months (Table 1).

Validity

The language validity of the scale was conducted using the translation–back translation technique, and the scale was finalized based on revisions made according to the experts' recommendations. After the completion of language validity, the scale was submitted to expert review for content validity.

Regarding content validity, the experts indicated that 9 items should be removed from the original 67-item scale due to the presence of multiple items referring to the same meaning and the limited comprehensiveness of some items. Accordingly, the CVR of the remaining 58 items ranged from 0.60 to 1.00, and the CVI was calculated as 0.92. In the literature, a CVI ≥0.90 is generally accepted as indicating "excellent" content validity. This result demonstrates that the scale has a strong foundation in terms of overall content validity.

The construct validity of the scale was evaluated using EFA and CFA. To assess the suitability of the data for factor analysis, the KMO test (0.936) and Bartlett's test (6042.307, p<0.001) were applied. These results indicated that the dataset was suitable for factor analysis. Therefore, EFA was conducted to identify the factor structure of the scale appropriate for our language and culture.

In determining the factor structure, the principal axis factoring method was used for factor extraction, and varimax rotation was applied as the rotation technique. Items that loaded on more than one factor simultaneously with a difference in loadings of <0.10 were considered double-barreled items and were removed from the scale. Factor analysis was repeated three times until no double-barreled items remained. As a result, 31 items were removed from the scale.

For the remaining 27 items, three factors with eigenvalues >1 were identified. The three-factor structure explained 59.648% of the total variance, which was considered acceptable. Unlike the original scale, the factor loadings of the 27 items in the three-factor structure ranged between 0.525 and 0.793 (Table 2).

As a result of the EFA, since two main dimensions—Importance and Performance—and seven subdimensions for each were identified, a second-order CFA was conducted. In the second-order CFA, the chi-square test indicated a significant result ($\chi^2(2137)=9431.212$, p<0.001). However, the fit indices suggested that the model did not achieve perfect fit (CFI=0.631, TLI=0.618, RMSEA=0.101, SRMR=0.067). The RMSEA value exceeding 0.10 indicates that the model needs to be revised

Table 1. Sociodemographic and clinical characteristics of the participants

Variables	Min-max	Mean (SD)	Variables	n	%
Age	20–91	54.48 (14.13)	Income level		
	n	%	Income exceeds expenditure	39	11.6
Gender			Cancer diagnosis		
Female	178	53.1	Pancreas	9	2.7
Male	157	46.9	Kidney	5	1.5
Marital status			Bile duct	2	0.6
Married	254	75.8	Bladder	3	0.9
Single	45	13.4	Liver	1	0.3
Widowed/divorced	36	10.7	Head and neck	16	4.8
Living situation			Endometrium	8	2.4
Alone	28	8.4	Over	15	4.5
With spouse	204	60.9	Colon	36	10.7
With child/relative	102	30.4	Rectum	18	5.4
Institution	1	0.3	Stomach	26	7.8
Education level			Breast	74	22.1
Literacy only	35	10.4	Testis	7	2.1
Primary	169	50.4	Prostate	5	1.5
Secondary	71	21.2	Lung	58	17.3
University	52	15.5	Lymphoma	2	0.6
Postgraduate	8	2.4	Ewing sarcoma	3	0.9
Income level			Melanoma	3	0.9
Expenditure exceeds income	135	40.3	Reported as "Tumor"	13	3.9
Income equals expenditure	161	48.1	Reported as "Metastasis"	19	5.4
			Reported as "Cancer"	12	3.6

SD: Standard deviation

for better fit. Additionally, the Parsimony Normed Fit Index (PNFI=0.552) and Bollen's Incremental Fit Index (IFI=0.632) suggested that the model demonstrated marginal fit.

Reliability

The reliability of the scale was evaluated using Cronbach's alpha coefficient, the split-half method, and item-total correlation coefficients. The Cronbach's alpha coefficient of the overall scale was 0.950. The Cronbach's alpha coefficients for the subdimensions were as follows: F1 – Psychosocial Support (0.919), F2 – Treatment-Related Information (0.916), and F3 – Tailored/Effective Communication (0.911). These findings indicate that the internal consistency of the scale was at a high level.

As another method to determine reliability, the split-half method was applied. The rationale for using this method was the consideration that participants' evaluations regarding healthcare professionals' communication could be influenced after completing the scale, and the perspective shaped by the scale items could lead to different responses in a retest. For this reason, test–retest reliability was not preferred, and the split-half method was used instead. The scale items were divided into odd and even halves, and the equivalence between the halves was analyzed. The Spearman-Brown correlation coefficient was 0.871, and the Guttman split-half coefficient was 0.867. Accordingly, the reliability of the scale was considered acceptable.

The item-total correlation coefficients ranged from +0.47 to +0.72. These results demonstrated that all items in the scale had acceptable discriminative power and sufficient correlation with the overall scale (Table 3).

Discussion

In this study, the aim was to adapt the scale developed by Van Weert et al.[19] to measure patients' information and communication needs and experiences regarding chemotherapy into Turkish. As a result of the study, it was determined that the 27-item, three-subscale form of the QUOTE^{chemo}-TR is a valid and reliable measurement tool that can be used to identify the information and communication needs of cancer patients receiving chemotherapy in the Turkish language and culture.

In scale adaptation studies, the translation–back translation technique is commonly used, and at least three expert opinions are required for language validity.[38] In this study, the language validity of the QUOTE^{chemo}-TR was also carried out

Table 2. QUOTE^{chemo}-TR scale factor structure

QUOTE^{chemo}-TR scale questions		F1 – psychosocial support	F2 – treatment-related information	F3 – tailored/ effective communication
Q58	Explanation of how to receive emotional support/help from other people	0.744		
Q67	Discussion with significant others in your life about how they can provide emotional support	0.730		
Q47	Addressing your psychological and social needs by healthcare personnel	0.680		
Q53	Identifying the support needs of significant others in your life	0.654		
Q48	Asking about and noticing your worries and anxieties	0.629		
Q62	Providing services that meet the requests and needs of significant others in your life	0.593		
Q38	Receiving support from other patients or support groups	0.587		
Q37	Checking what you know about chemotherapy	0.575		
Q66	Explaining the opportunities to continue working, spend leisure time, and maintain recreational activities during treatment	0.563		
Q56	Explaining the effects of your medications on sexuality	0.561		
Q31	Asking if you still want to start chemotherapy after education	0.525		
Q9	Explanation of your risk of infection during treatment		0.671	
Q19	Explanation of how often you need to come to the hospital		0.655	
Q11	Explanation that your white blood cell (WBC) count may decrease during treatment		0.653	
Q12	Explanation of which blood tests you need and how often they will be performed		0.640	
Q10	Explanation of how treatment may affect your daily activities (shopping, using the toilet, bathing, cooking, cleaning, etc.)		0.635	
Q20	Explanation of when you should visit the hospital		0.608	
Q6	Asking how much information you want about your process		0.558	
Q1	Explanation of the purpose of the treatment		0.540	
Q13	Providing information about hospital procedures, operations, and other services		0.523	
Q21	Being attentive regarding your condition			0.793
Q36	The healthcare professional's attention to you			0.658
Q41	Information provided according to your needs and in a way you can understand			0.617
Q7	Listening carefully to your questions			0.591
Q32	Dietary advice during treatment			0.580
Q68	Being given sufficient time			0.575
Q52	Information about the duration of chemotherapy treatment			0.541
Total variance explained %		46.326	7.653	5.669

QUOTE^{chemo}: Quality of care through the patient's eyes^{chemo} scale

using the translation–back translation technique, and the final version of the scale items was determined by obtaining the opinions of 8 experts (3 experts for English–Turkish translation, 1 expert for Turkish language evaluation, 3 experts for Turkish–English translation, and 1 expert for English language evaluation). The functionality of the scale structure is tested by interpretive validity, namely face and content validity.[39]

In the process of content validity, which examines to what extent the whole scale and each item in the scale serve the intended purpose, the Davis technique is a recommended method.[39] According to this method, 9 items were removed from the scale on the grounds that some of the items rated by the experts were repetitive or inappropriate. In addition, experts criticized the applicability of the scale to individuals due to the excessive number of items (67 items). At this stage, the scale was reduced to 58 items, and the CVI was calculated as 0.92. According to the Davis technique, a CVI >0.80 is interpreted as indicating appropriate content validity.[34] Therefore, the content validity findings of the 58-item form of the QUOTE^{chemo}-TR are considered acceptable.

Table 3. Item-total correlation coefficient and cronbach's alpha coefficients

QUOTE^{chemo}-TR questions	Mean	SD	Item-total correlation coefficient	Cronbach's alpha if item deleted
Q1	3.86	0.448	0.409	0.950
Q6	3.73	0.638	0.624	0.948
Q7	3.85	0.453	0.580	0.949
Q9	3.82	0.509	0.586	0.948
Q10	3.79	0.545	0.629	0.948
Q11	3.73	0.642	0.640	0.948
Q12	3.72	0.638	0.670	0.947
Q13	3.73	0.590	0.678	0.947
Q19	3.85	0.466	0.635	0.948
Q20	3.80	0.546	0.629	0.948
Q21	3.81	0.503	0.725	0.947
Q31	3.70	0.719	0.650	0.948
Q32	3.83	0.487	0.599	0.948
Q36	3.84	0.453	0.714	0.948
Q37	3.65	0.714	0.731	0.947
Q38	3.54	0.795	0.580	0.949
Q41	3.79	0.515	0.730	0.947
Q47	3.68	0.625	0.689	0.947
Q48	3.76	0.539	0.691	0.947
Q52	3.84	0.485	0.536	0.949
Q53	3.67	0.661	0.674	0.947
Q56	3.27	1.081	0.472	0.953
Q58	3.61	0.721	0.725	0.947
Q62	3.72	0.592	0.680	0.947
Q66	3.66	0.659	0.730	0.947
Q67	3.69	0.650	0.667	0.948
Q68	3.81	0.497	0.696	0.947

QUOTE^{chemo}: Quality of care through the patient's eyes^{chemo} scale; SD: Standard deviation

Construct validity, which demonstrates that the items of a scale are interrelated and form a whole, can be tested through different evaluation methods. CFA and EFA are among the most widely used methods.[39] In the adaptation of scales developed in one language and culture to another, CFA is often used in the initial stage.[40] In this study, CFA was also applied in the first stage of construct validity, and the results indicated that the fit index values were not within acceptable limits. This finding demonstrated that the original structure of the scale was not compatible with the Turkish language and culture. Therefore, EFA was conducted. EFA is used when the relationships among the scale items are unknown.[40]

In the EFA analysis, 31 items showing cross-loading values were removed from the scale, and the remaining 27 items were distributed under 3 factors: "Psychosocial Support," "Treatment-Related Information," and "Tailored/Effective Communication." In the original scale, there were 7 factors: (1) Treatment-related information, (2) Prognosis information, (3) Rehabilitation information/dealing with treatment at home, (4) Coping information, (5) Interpersonal communication, (6) Tailored communication, and (7) Affective communication.[19]

In the Turkish version of the QUOTE^{chemo}-TR scale, for which validity and reliability analyses were conducted, the factors "Prognosis information" and "Rehabilitation information/dealing with treatment at home" from the original scale were not included. The "Treatment-Related Information" factor of the QUOTE^{chemo}-TR consisted of items corresponding to the "Treatment-related information" category of the original scale. Furthermore, the factors "Coping information," "Interpersonal communication," and "Tailored communication" in the original scale were merged and represented under the "Psychosocial Support" factor in the Turkish version.

These results are considered highly informative as they provide an opportunity to investigate similarities and differences across societies.[41] The findings of this study indicate that, in the Turkish language and culture, the items retained were those addressing concrete and basic needs such as managing the acute treatment process, blood values, control dates, and how to access sources of help. When the subdimensions of the original scale are examined, it is seen that communication processes were highly detailed and that three subfactors were formed related to the form and process of communication.[19] In this study, however, communication was gathered under a single dimension, encompassing items that reflected the protection of the participant's value as an individual and the perception that they were being cared for. This situation is thought to stem from a healthcare system in which the focus is more on treatment and physical processes, where the paternalistic approach still exerts a strong influence, and where psychosocial services and a holistic approach are only beginning to be structured.[42]

The items removed from the original scale also support this interpretation. In particular, items that addressed the details of chemotherapy administration, complex medical procedures, needs for information on prognosis and end-of-life, and issues related to the patient's projection of the future were not retained in the adaptation study. In addition, when the educational level of the patients was examined, it was found that more than half of them (50.4%) were literate or primary school graduates. It is known that as the level of education increases, expectations and awareness increase, whereas when the education level decreases, awareness of identifying and requesting individual needs decreases.[17,43] The importance given by cancer patients in the sample group to information and communication is shaped by individual characteristics such as age and education level, as well as health service delivery and cultural features. There

are studies in the literature supporting this perspective.[17,18,44] Therefore, the differences between the original structure of the scale and its adaptation to Turkish language and culture are considered an expected outcome.

One of the recommended methods for assessing internal consistency, which is the criterion for determining how homogeneous the items in a scale are and whether they measure the intended concepts, is Cronbach's alpha reliability coefficient.[45] Developed by Cronbach in 1951, this method calculates the ratio of the sum of the variances of each item in the scale to the total variance, and the acceptable value of the coefficient is at least 0.70.[39] In the literature, if the Cronbach's alpha value is $0.81<\alpha<1.00$, the scale is interpreted as highly reliable; if $0.61<\alpha<0.80$, as moderately reliable; if $0.41<\alpha<0.60$, as low reliability; and if $0.00<\alpha<0.40$, as not reliable. The Cronbach's alpha coefficient of the QUOTE^{chemo}-TR scale was measured as 0.950. The Cronbach's alpha coefficients of the subdimensions were between 0.919 and 0.911. In this context, the scale is interpreted as highly reliable.[45]

Conclusion

In conclusion, the QUOTE^{chemo}-TR scale, consisting of 27 items and three factors, is a valid and reliable instrument that can be used to measure patients' information and communication needs regarding chemotherapy. Identifying these needs enables the determination of individual requirements, the planning of nursing interventions to address them, and the provision of individualized care. It is recommended that the QUOTE^{chemo}-TR scale be used as a guide for chemotherapy nurses in identifying patients' information and communication needs.

The results of the second-order CFA provided important insights into the evaluation of the overall structure of the scale. However, the fit indices indicated that certain improvements are required. In future studies, to increase the generalizability and validity of the QUOTE^{chemo}-TR scale, it is important to employ different sample groups and larger sample sizes. Conducting confirmatory factor analysis with larger samples may be a crucial step in testing the applicability of the scale to a broader population. In this way, the impact of the scale on individuals with different demographic characteristics can be analyzed more comprehensively.

For the purpose of guiding future research, it should be considered that the sample group in the validity and reliability studies of the scale should resemble the original scale's sample in terms of age and education level, as well as in cancer diagnoses and disease stages. In addition, the number of nurses and other healthcare professionals providing cancer care services should be taken into account, as these are factors that directly affect the extent to which patients' expectations are met and the quality of care delivered.

Ethics Committee Approval: The study was approved by the Hacettepe University Non-interventional Clinical Research Ethics Committee (no: 21/369, date: 16/03/2021).

Informed Consent: Informed consent was obtained from all participants.

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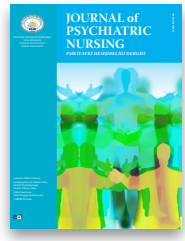

Original Article

Relationship between nutritional literacy and depression status among COVID-19 survivors: A cross-sectional study

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Abstract

Objectives: The COVID-19 pandemic has affected everyone's mental health as well as their physical health. The aim of this study was to examine the impact of nutritional literacy on depression status among COVID-19 survivors.

Methods: A cross-sectional study was conducted on COVID-19 survivors in East Kalimantan, Indonesia, from March to June 2022. According to the sample size, a total of 567 participants were selected. To assess depression status, participants completed the Depression, Anxiety, and Stress Scale—21 Items (DASS-21) questionnaire, with each category consisting of 7 questions. The participants' nutritional literacy status was tested using the Short Food Literacy Questionnaire (SFLQ), which consists of 16 questions.

Results: Most of the participants were women (71.8%) and had undergraduate education (44.3%). The literacy status of most participants was in the good category (53.6%). Regarding depression status, the majority did not experience depression (72.8%), followed by mild depression (8.5%), moderate depression (11.8%), severe depression (6%), and extremely severe depression (6%). The results of the bivariate test analysis showed a significant correlation between nutritional literacy and depression status (p=0.000, r=-0.236).

Conclusion: Nutritional literacy has a significant impact on depression status in COVID-19 survivors. Good nutritional literacy can reduce depression status and vice versa.

Keywords: COVID-19; depression; Indonesia; mental health; survivors

At the end of 2019, the world was faced with the COVID-19 pandemic, which started in Hubei Province, China. At the beginning of January 2020, the World Health Organization (WHO) announced that this pandemic was an international public health emergency.[1] WHO stated that more than 400 million cases of COVID-19 occurred worldwide, and 6 million of them were reported to have died.[2]

The COVID-19 pandemic, which has been ongoing since 2020, has had a substantial impact on global mental health, with prevalence rates of depression and anxiety increasing dramatically across diverse populations.[3] However, mental health impacts during pandemics are not a novel phenomenon. The Ebola outbreak in West Africa (2014–2016) demonstrated high prevalence rates of mental health disorders, with 48% of the population experiencing anxiety-depression symptoms and 76% showing PTSD symptoms.[4] Recent studies on Ebola survivors revealed that 3.9% experienced major depression and 12% developed substance use disorders, significantly exceeding regional baseline rates.[5]

The SARS pandemic (2002–2003) and similar MERS-CoV outbreaks produced comparable psychological impacts, albeit with more geographically limited scope compared to COVID-19.[6] Comparative analysis across respiratory pandemics indicates that despite pathogen variation, psychological

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responses among populations demonstrate consistent patterns, including increased stress, anxiety, and depressive disorders.[7]

Beyond mental health impacts, pandemics have significantly altered nutritional behaviors and dietary patterns within communities. Contemporary research demonstrates that during the COVID-19 pandemic, fundamental changes occurred in lifestyle and dietary patterns, with significant variations across different populations and cultures.[8] Cross-cultural studies indicate that nutritional responses to pandemics are heavily influenced by sociodemographic, economic, and local cultural factors.[9]

The COVID-19 pandemic has impacted many aspects of life, including public health and the economy.[10] Lockdown policies, restrictions on activities outside the home, and quarantine for COVID-19 sufferers were efforts to reduce the spread of COVID-19 in every country. The impact of this situation on people included the emergence of psychological problems due to uncertain changes in circumstances, feelings of loneliness, and fear of infection.[11] The psychological impact experienced during the pandemic gradually affected individuals' mental health.[12]

Mental health problems that occurred during the COVID-19 pandemic are a concern for further study. Research conducted in China on the psychological effects of COVID-19 on the general public and health workers during the lockdown reported that 25% of the general public experienced anxiety and 28% experienced depression.[11] Psychological problems due to COVID-19 were also observed in Europe. A study in the United Kingdom showed a high incidence of mental disorders (52%) and insomnia (28%).[13] Studies in several developing countries, including the Southeast Asia region, also revealed an increase in the prevalence of mental health problems in the community.[14] The incidence of anxiety (55.1%) and depression (59.2%) was reported in the general population of Malaysia.[15] Meanwhile, studies in Indonesia showed that the incidence of depression in the general public was 67%.[16] A meta-analysis of community-based research found that the prevalence of depression increased sevenfold during the COVID-19 pandemic compared to pre-pandemic levels, and this represents a critical issue that must be addressed to improve community welfare.[17]

The COVID-19 pandemic, especially the lockdown situation, has been known to cause changes in people's mental health, lifestyle, and dietary habits. Literacy factors regarding health, diet, and lifestyle play an important role in mitigating the negative impacts of the COVID-19 pandemic.[18] Maintaining a good diet reduces the risk of developing mental health disorders.[19] Literacy regarding diet or nutrition, including the ability to plan, select, and prepare food, has changed during the COVID-19 pandemic. Information about healthy food literacy is mostly obtained through online media.[20] Most people at that time planned the type of food they would consume based on a predetermined nutritional panel, choosing healthy and quality food, and preparing it by cooking their own meals.[21,22] Several studies show that nutritional literacy is associated with improved mental health status during the COVID-19 pandemic.[23,24]

What is presently known on this subject?

- The COVID-19 pandemic that has occurred worldwide has impacted every aspect of life, including the economy and public health. It affects not only physical health but also the mental health of both healthy and infected individuals.

What does this article add to the existing knowledge?

- This study underscores the significance of enhancing nutritional knowledge, even under restricted conditions, by utilizing social media platforms to educate individuals on making informed choices regarding food selection and preparation. Good nutritional knowledge and information can prevent deficiencies that lead to nutrient insufficiency, while unhealthy diets may cause emotional problems, depression, and cognitive decline.

What are the implications for practice?

- Health promotion and education should be carried out by governments and health service facilities. A multidisciplinary approach in the fields of nursing and health is highly recommended to reduce the negative impact on people's mental health.

East Kalimantan Province ranked fifth in Indonesia in 2021 in terms of confirmed COVID-19 cases among residents. The lack of proper monitoring of population movement and the absence of self-quarantine measures, particularly among workers in the oil, natural gas, and mining industries scattered across the region, are believed to have contributed to this situation. Given the vast geography of the region and the conditions of those living in interior regions, border areas, and areas divided by rivers and forests, it is possible that people's conditions during the COVID-19 pandemic worsened due to a lack of information and support from medical professionals. Consequently, governmental responses to the pandemic involved implementing restrictions on community activities, leading to notable changes in people's daily routines. These changes included reduced physical activity and increased consumption of unhealthy food items.

The adoption of unhealthy eating habits and sedentary lifestyles during the pandemic restrictions may serve as risk factors for depression. This is compounded by the ongoing uncertainty surrounding the pandemic, which could result in long-term stressors leading to depressive disorders. Research conducted by Hertanto et al.[25] indicated that a significant proportion of respondents (42%) who consumed traditional foods such as rice, meat, fish, and vegetables were less likely to experience depression compared to those consuming processed foods such as noodles, bread, and frozen meals, who showed a higher tendency towards depression. Embracing a healthy diet is crucial in mitigating depression risks, highlighting the importance of nutritional management amid the COVID-19 crisis.

Increasing nutritional literacy within the community is essential in addressing potential depressive symptoms during

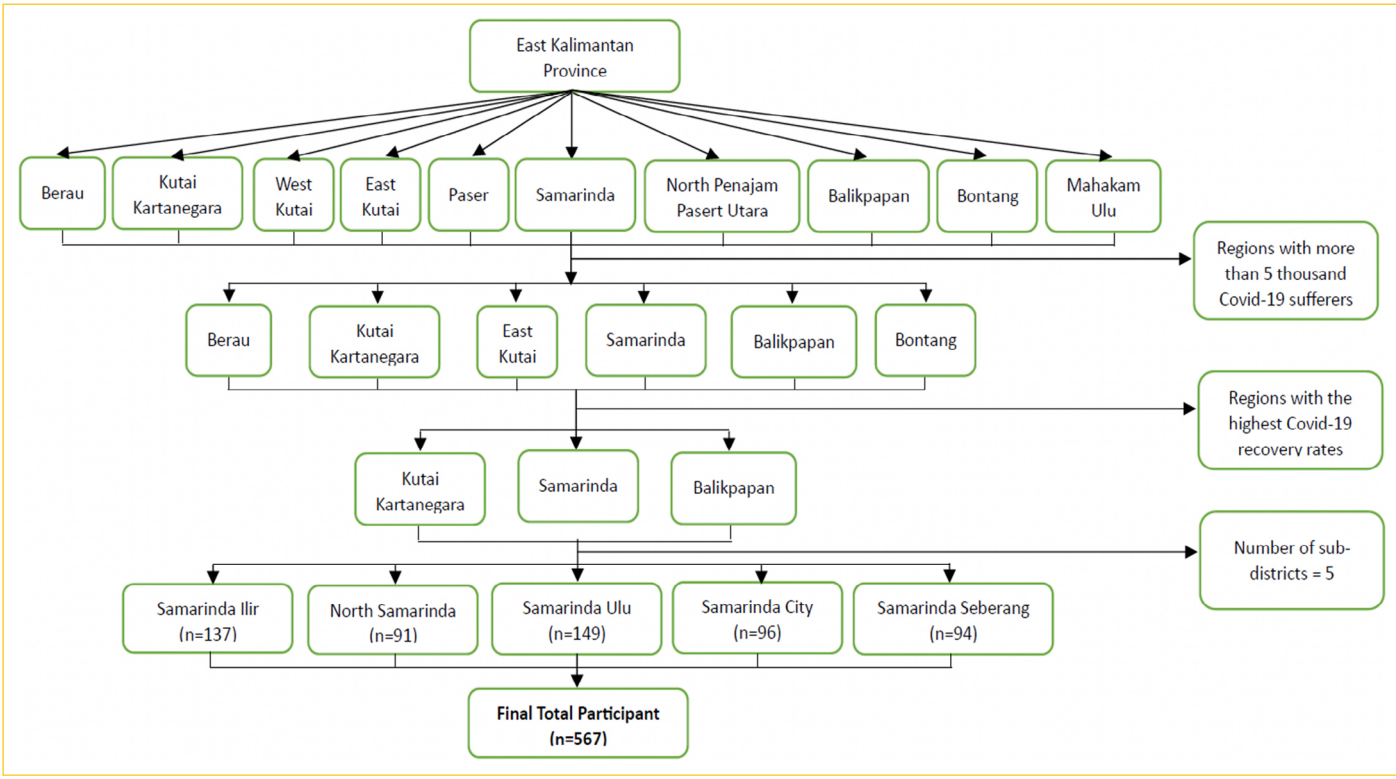

Figure 1. Flowchart of participant selection in East Kalimantan Province.

the pandemic. This study underscores the significance of enhancing nutritional knowledge, even under restricted conditions, by utilizing social media platforms to educate individuals on making informed choices regarding food selection and preparation. The aim of this study was to examine the impact of nutritional literacy on depression status among COVID-19 survivors.

Materials and Method

Study Design and Participants

This was a quantitative, descriptive, and cross-sectional study conducted on a population with post-COVID-19 in Samarinda, East Kalimantan Province, Indonesia, from March to June 2022. Figure 1 displays the screening process for the population of COVID-19 cases in East Kalimantan. The sampling method used was purposive sampling with established inclusion criteria for respondents. Participants involved in this study were: 1) 18 years old or older, 2) individuals who had recovered from COVID-19 and had previously been infected without symptoms or with mild symptoms while self-isolating at home, and 3) able to read and respond to questionnaires. Participants with critical illness were excluded.

The sample size in this study was calculated using G*Power with an effect size=0.15, an alpha level=0.05, and a power level=0.95. From the results of these calculations, a sample size of 567 participants was obtained.

Instruments

This research used a self-administered online survey distributed to participants in the Indonesian language using the Google Form platform. Two questionnaires were used: one for nutritional literacy and one for depression. The nutritional literacy questionnaire used the Short Food Literacy Questionnaire (SFLQ) for Adults.[26] The depression questionnaire used the Depression, Anxiety, and Stress Scale—21 Items (DASS-21).[27] The DASS-21 questionnaire referred to a version previously translated by other researchers. Meanwhile, the SFLQ was initially translated into Indonesian and then back-translated into English by different translators; both versions were compared and found to be similar. Experts in the field, including two nutrition academics, reviewed the instrument for face and content validity, and changes were made.

The first stage involved collecting demographic data, including gender, education level, religion, and marital status.

The second stage involved collecting data using the questionnaires.

The Depression Questionnaire

The Depression, Anxiety, and Stress Scale—21 Items (DASS-21) questionnaire was utilized in the depression assessment. This seven-item questionnaire was developed to evaluate emotional states associated with stress, anxiety, and depression. An assigned value of 0 signifies that the assertion "does

not pertain to me in any way"; a value of 1 signifies that the assertion "applies to me to a certain extent, or to some degree"; a value of 2 signifies that the assertion "applies to me to some extent, or significantly"; and a value of 3 signifies that the assertion "strongly applies to me." Four categories were used to classify the participants' levels of depression: normal, mild, moderate, severe, and extremely severe.

The Nutritional Literacy Questionnaire

The nutritional literacy questionnaire used the Short Food Literacy Questionnaire (SFLQ). This questionnaire consists of 12 questions. Participants' responses were measured using a Likert scale consisting of four- and five-point options: very bad to very good (1–4), strongly disagree to strongly agree (1–4), very bad to very good (1–5), very difficult to very easy (1–4), and never to always (1–5). The food literacy level of the participants was interpreted as good nutritional literacy if the nutritional literacy score was equal to or higher than the median, and poor nutritional literacy if the score was less than the median.

Data Collection

Data were collected via Google Form, which included the DASS-21 questionnaire and the SFLQ questionnaire. To ensure validity, several provisions were implemented in the Google Form: 1) each participant could only use one ID to access the form; 2) submission was only possible if all questions were answered. The finalized Google Form was then distributed by the researchers through a shared link in existing WhatsApp group media. Each WhatsApp group contained a minimum of 50 members. To meet the minimum sample size, data collection was carried out until the final dataset reached 567 participants.

Statistical Analysis

Data were analyzed using SPSS version 26.0. Data are presented in tables. Descriptive statistics were reported as mean and standard deviation (SD), whereas frequency and percentage were used for categorical variables. To examine the relationship between food literacy and depression status, a bivariate analysis was performed using the Spearman rank test. A two-tailed difference of $p<0.05$ was considered statistically significant, and the r value was used to assess the strength of correlation between variables.

Ethical Considerations

This research was approved by the Ethics Committee (approval number: 09/KEPK-FK/II/2022, approval date: 2 February 2022). All participants were informed that no private data would be collected, and research procedures followed strict rules to ensure confidentiality and anonymity. All procedures were carried out in accordance with the ethical standards of the Declaration of Helsinki.

Table 1. Socio-demographic characteristics of the participants (n=567)

Characteristics	n	%
Sex		
Male	160	28.2
Female	407	71.8
Education		
Elementary School	13	2.3
Junior High School	18	3.2
Senior High School	53	9.3
Diploma	201	35.4
Bachelor	251	44.3
Profession	7	1.2
Magister	23	4.1
Doctor	1	0.2
Religion		
Moslem	508	89.6
Protestan	43	7.6
Chatolic	14	2.5
Hindu	2	0.4
Marriage status		
Single	219	38.6
Married	345	60.8
Widowed	3	0.5
Age, mean±SD, min-max	32.16±9.385 18–64	

SD: Standard deviation

Results

Demographic Characteristics of the Participants

A total of 567 participants were included in this study. Based on Table 1, the socio-demographic characteristics of the participants showed that the majority were female (n=407, 71.8%), with the highest level of education being a bachelor's degree (n=251, 44.3%). Most of the participants were Muslim (n=508, 89.6%), and their marital status was married (n=345, 60.8%). The average age of participants was 32 years, with the lowest age being 18 years and the highest age being 64 years.

Analysis of Univariate Data on Nutritional Literacy and Depression Status of Participants

Based on Table 2, in terms of nutritional literacy, 57% of participants agreed that they could find information about healthy nutrition if they had any questions. Participants were also good (53.6%) at understanding nutritional information using various sources, including nutrition information leaflets, TV or radio programs on nutrition, and oral recommendations. Regarding the food pyramid, participants stated that they were quite familiar with it (44.8%). With respect

Table 2. Description of the short food literacy questionnaire (SFLQ) results

No	Questions	Options															
		1=strongly disagree		2= don't agree		3= agree		4= strongly agree						SD	Mean	Total	
		n	%	n	%	n	%	n	%								
1	When faced with inquiries regarding healthy nutrition, I am aware of the resources available to me for obtaining information on this subject.	0	0.0	40	7.1	326	57.5	201	35.4					0.587	3.28	567	
No	**Questions**	**1= very bad**		**2= bad**		**3= fair**		**4=good**		**5=very good**				**SD**	**Mean**	**Total**	
		n	%	n	%	n	%	n	%	n	%						
2	How proficient is one's comprehension of various nutritional information sources typically encountered? a. Leaflets providing nutritional information. b. Details on food labels c. Television or radio broadcasts focusing on nutrition d. Verbal guidance on nutrition delivered by experts e. Recommendations on nutrition from acquaintances or family members.	0	0.0	0	0.0	135	23.8	304	53.6	128	22.6			0.682	3.99	567	
3	How well acquainted are you with the Food Pyramid of the Ministry of Health in Indonesia?	2	0.4	9	1.6	254	44.8	241	42.5	61	10.8			0.711	3.62	567	
No	**Questions**	**1=strongly disagree**		**2= don't agree**		**3= agree**		**4= strongly agree**						**SD**	**Mean**	**Total**	
		n	%	n	%	n	%	n	%								
4	I am familiar with the official recommendations from the Ministry of Health in Indonesia regarding the consumption of fruits and vegetables.	3	0.5	87	15.3	416	73.4	61	10.8					0.529	2.94	567	
5	I am familiar with the guidelines provided by the Ministry of Health in Indonesia regarding the recommended consumption of salt.	10	1.8	81	14.3	407	71.8	69	12.2					0.577	2.84	567	
No	**Questions**	**1= very hard**		**2=hard**		**3=easy**		**4=very easy**						**SD**	**Mean**	**Total**	
		n	%	n	%	n	%	n	%								
6	Consider a typical day: to what extent do you encounter challenges in preparing a nutritionally balanced meal in the comfort of your own home?	11	1.9	74	13.1	365	64.4	117	20.6					0.643	3.04	567	

Table 2. Cont.

No	Questions	Options										SD	Mean	Total
		1= never		2= seldom		3=sometimes		4=often		5=always				
		n	%	n	%	n	%	n	%	n	%			
7	In previous instances, how frequently were you capable of providing assistance to your family members or acquaintances when they sought clarification on matters related to nutrition?	18	3.2	66	11.6	274	48.3	180	31.7	29	5.1	0.842	3.24	567
No	**Questions**	**1= very bad**		**2= bad**		**3= fai r**		**4=good**		**5=very good**		**SD**	**Mean**	**Total**
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**			
8	There is a lot of information available on healthy nutrition today. How well do you manage to choose the information relevant to you?	2	0.4	50	8.8	441	77.8	77	13.1	0	0.0	0.482	3.02	
No	**Questions**	**1=very difficult**		**2=difficult**		**3=easy**		**4=very easy**				**SD**	**Mean**	**Total**
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**					
9	How easy is it for you to judge if media information on nutritional issues can be trusted?	0	0.0	60	10.6	422	74.4	85	15.0			0.504	3.04	567
No	**Questions**	**1= very hard**		**2=hard**		**3=easy**		**4=very easy**				**SD**	**Mean**	**Total**
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**					
10	Commercials often relate foods with health. How easy is it for you to judge if the presented associations are appropriate or not?	1	0.2	94	16.6	395	69.7	77	13.6			0.555	2.94	567
11	How simple is it for individuals to assess the relevance of a particular food item in promoting a nutritious dietary regimen?	2	0.4	96	16.9	406	71.6	63	11.1			0.539	2.93	567
12	How feasible is it for individuals to assess the enduring effects of their dietary patterns on their overall health?	3	0.5	113	19.9	395	69.7	56	9.9			0.554	2.89	567

SD: Standard deviation.

Table 3. Description of depression status using DASS-21

No	Statement	Options								SD	Mean	Total
		0=Did not apply to me at all		1= Applied to me to some degree, or some of the time		2= Applied to me to a considerable degre or a good part of time		3= Applied to me every much or most of the time				
		n	%	n	%	n	%	n	%			
1	I couldn't seem to experience any positive feeling at all	475	48.5	221	39.0	63	11.1	8	1.4	0.731	0.65	567
2	I found it difficult to work up the initiative to do things	255	45.0	236	41.6	69	12.2	7	1.2	0.728	0.70	567
3	I felt that I had nothing to look forward to	407	71.8	111	19.6	41	7.2	8	1.4	0.683	0.38	567
4	I felt down-hearted and blue	381	67.2	133	23.5	43	7.6	10	1.8	0.710	0.44	567
5	I was unable to become enthusiastic about anything	319	56.3	187	33.0	58	10.2	3	0.5	0.696	0.55	567
6	I felt I wasn't worth much as a person	450	79.4	86	15.2	24	4.2	7	1.2	0.598	0.27	567
7	I felt that life was meaningless	459	81.0	76	13.4	26	4.6	6	1.1	0.589	0.26	567

DASS-21: The Depression, Anxiety, and Stress Scale—21 Items; SD: Standard deviation.

to recommendations for fruit and vegetable consumption, most respondents agreed that they knew this (71.8%).

Participants reported that there is quite a lot of information available about healthy nutrition today. They stated that they were fairly able (77.8%) to manage information that was relevant to them. Additionally, participants stated that they could easily assess the reliability of information sources (74.4%) and evaluate whether certain foods were related to a healthy diet (71.6%).

Table 3 shows the questionnaire statements regarding participants' depression status. The analysis revealed that over 50% of participants reported that they did not experience the symptoms related to depression. A total of 48.5% of participants stated that "not being able to feel positive feelings" did not occur to them. Similarly, 45% stated that "difficulty in taking initiative" did not occur to them. Moreover, participants reported not experiencing feelings of sadness (67.2%), lack of enthusiasm (56.3%), lack of self-worth (79.4%), and feeling that life had no meaning (81.0%).

Table 4 shows the statistical analysis of participants' depression status. The majority did not experience depression (n=418, 72.8%), while 48 participants (8.5%) were in the mild depression category, 67 (11.8%) in the moderate category, 34 (6.0%) in the severe category, and 5 (0.9%) in the extremely severe depression category. Furthermore, Table 4 also displays the nutritional literacy status of participants: 299 (52.7%) had good nutritional literacy, and 268 (47.3%) had poor nutritional literacy.

Analysis of the Correlation Between Nutritional Literacy and Participants' Depression Status

Table 5 shows that there is a significant relationship between nutritional literacy and depression status (p=0.000). To examine the direction of the relationship, a Spearman rank correlation analysis was conducted, which yielded a negative correlation (r=-0.322). These results indicate that the better the nutritional literacy status, the less severe the depression status, and vice versa.

Discussion

The purpose of this study was to examine the relationship between nutritional literacy and depression status among COVID-19 survivors. The current study found that nutritional literacy and depression have a strong association. Furthermore, the study revealed a negative correlation, indicating that the higher participants' nutritional literacy, the lower their depression level. Other research has shown that the higher the food literacy score during the COVID-19 pandemic, the greater the likelihood of maintaining a stable or better mental health state.[18,23] Previous research also stated that nutritional literacy can be used as an independent predictor of a person's mental health status during the COVID-19 pandemic.[23]

Nutritional literacy relates to an individual's capacity to make appropriate food decisions and balance food needs using available resources. To lower the risk of depression and enhance clinical therapy, an approach is required that incor-

Table 4. Analysis of univariate variable of depression status dan nutritional literacy

No	Option	Normal		Mild		Moderate severe		Severe		Extremely		SD	Mean
		n	%	n	%	n	%	n	%	n	%		
1	Level of depression	413	72.8	48	8.5	67	11.8	34	6.0	5	0.9	0.976	1.54
	Option	**Good**		**Poor**								**SD**	**Mean**
		n	%	n	%								
2	Level of nutritional literacy	299	52.7	268	47.3							0.247	1.07

SD: Standard deviation.

porates information about dietary patterns, specific types of food, and the basic mechanisms of nutrition in the body.[28] In the Integrated Health Literacy Model, it is stated that the core of food literacy is health literacy.[29]

Food intake and exercise are regarded as the keys to a healthy lifestyle. Healthy food intake is influenced by a variety of factors, including sociodemographics, clinical conditions, and behavior. As a result, these findings provide critical information for governments and organizations to create strategic nutritional support programs to combat the pandemic and its psychological consequences, especially in circumstances of lockdown or home confinement caused by COVID-19 to prevent viral infections.[30]

These findings align with emerging evidence from various pandemic contexts and provide important insights for future public health preparedness. The negative correlation between nutritional literacy and psychological distress observed in our study is consistent with patterns documented across various infectious disease outbreaks, suggesting universal protective mechanisms that transcend specific pathogen characteristics.

During the 2014–2016 Ebola outbreak in West Africa, communities demonstrated varying levels of psychological resilience, with health education and community preparedness playing crucial roles in mental health outcomes.[31] The devastating nature of Ebola and its high mortality rates created unique psychological stressors, yet populations with better health system support and community interventions showed improved coping mechanisms during the crisis.[32] Similarly, during the 2003 SARS epidemic, studies revealed that individuals with better health literacy and coping strategies reported lower levels of psychological distress during quarantine periods.[33] The SARS coronavirus created social isolation conditions that highlighted the importance of health knowledge and self-efficacy in maintaining mental health during infectious disease outbreaks.[34]

Based on our results and evidence from previous pandemics, several nutritional behaviors emerge as critical for maintaining

Table 5. Bivariate analysis of nutritional literacy and depression status

Variable	Depression status		
	n	r	p
Nutritional literacy	567	-0.322	0.00*

*: Statistically Significant p<0.00. n: Total of Participants; r: Correlation test; p: Significance value.

mental health during health emergencies. Dietary changes can improve mental and cognitive health. Healthy eating habits and adequate nutrient intake can prevent and treat depression. Micronutrient deficiency, metabolic syndrome, and unhealthy diet are associated with depression. Vitamin C and vitamin D intake can have positive effects on depression symptoms.[35] Increased intake of non-refined grains and vegetables may help prevent or alleviate depression and anxiety. Non-refined grains, vegetables, and alcohol consumption are linked to depression and anxiety.[36,37] Fruit consumption is associated with a lower risk of developing depression. Green foods, yellow vegetables, and fresh fruit are particularly beneficial to mental health.[38–40] Adherence to the Mediterranean-style diet is linked to reduced depression symptoms. A Mediterranean diet rich in plant-based foods has been related to a lower risk of depression. The overall effect of diet is significant for mental health.[35,36]

The results of this study are consistent with previous studies. A reported study regarding nutrition literacy and mental health among university students in Pakistan showed that higher levels of nutrition literacy were associated with lower levels of depression.[41] In a study of Saudi people, 83% stated that the COVID-19 lockdown had a favorable impact on food literacy behavior ($p<0.05$), with varying effects on food consumption. Fruit intake increased ($Z=-3.330$, $p=0.001$), whereas processed meat and sweet drinks consumption decreased ($Z=-11.375$, $p<0.001$ and $Z=-2.403$, $p<0.05$, respectively). Side effects included decreased

vegetable consumption (Z=-3.447, p=0.001) and increased consumption of sugary foods (Z=-2.268, p<0.05).[21]

Do et al.[42] found that older persons with higher health literacy were less likely to be depressed and engaged in healthier practices among COVID-19 patients. The Mediterranean diet and other healthy eating habits may aid in the prevention and treatment of depression. This eating pattern emphasizes seafood, olive oil, vegetables, fruit, nuts, lean protein sources, whole grains, and vegetable oils, while limiting foods poor in nutrients and high in added sugars and saturated fats, such as sugar-sweetened beverages.[28] A study in China found that having good nutritional status combined with physical activity was associated with fewer depressive symptoms, and vice versa.[43]

Depression is a common mental health disorder marked by prolonged sadness. Diet is linked to depressive symptoms and depression. Nutrient deficiencies and unhealthy diets can lead to emotional distress, depression, and cognitive deterioration. Healthy eating habits and adequate nutrition can help prevent and treat depression. Dietary adjustments can reduce the prevalence of depressive illnesses.[35] Adolescence is a common starting point for mental health issues. Proper diet is critical for mental health in the early years.[44] A diet high in chocolate, confectionery, and butter, but lacking in vegetables and fruits, has been linked to an increased risk of depressive and anxious symptoms. Moderate consumption of meals and beverages may minimize the burden of mental illnesses. Some studies have examined the relationship between food patterns and depressive and anxious symptoms.[37] Higher intake of dietary added sugars is associated with an increased risk of incident depression, whereas higher intake of lactose, fiber, non-juice fruit, and vegetables is associated with lower risks of incident depression.[44]

Limitation

This study has several limitations that should be acknowledged. First, the cross-sectional design with self-assessment questionnaires may introduce reporting bias, as participants' responses could be influenced by social desirability or current emotional states. Second, the study's geographical restriction to Indonesia significantly limits generalizability. Indonesia's unique cultural characteristics (collectivist orientation, high religiosity, strong family support), specific pandemic policies, and healthcare system may produce psychological response patterns that differ from other countries. These contextual factors limit the applicability of findings to populations with different cultural backgrounds or healthcare systems. For future research, it is recommended to use qualitative studies or mixed-method approaches to obtain deeper findings and conduct cross-cultural replication studies to test the generalizability of these results across diverse geographical and cultural contexts.

Conclusion

This research shows that there is a weak but significant relationship between nutritional literacy and depression status in COVID-19 survivors. Nutritional literacy has been proven to be associated with depression status during the COVID-19 pandemic. From the direction of the relationship obtained, the better the nutritional literacy, the lower the depression status. Nutritional literacy is often considered trivial and assumed to have little connection with a person's mental health; however, this study demonstrates otherwise. These findings can serve as the basis for increasing public awareness of the importance of health literacy in reducing depression and promoting mental well-being.

Ethics Committee Approval: The study was approved by the Komisi Etik Penelitian Kesehatan Fakultas Kedokteran Universitas Mulawarman Ethics Committee (no: 09/KEPK-FK/II/2022, date: 02/02/2022).

Informed Consent: Informed consent was obtained from all participants.

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

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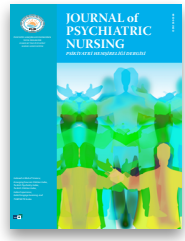

Original Article

The role of fear of COVID-19 during pregnancy in controlling the pregnancy process and its effect on perceived stress before birth

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Abstract

Objectives: This research seeks to explore the distinct impacts of the COVID-19 pandemic on pregnancy, with particular emphasis on how fear of COVID-19 and perceived stress influence prenatal management.

Methods: The sample of this descriptive and correlational research consisted of 89 pregnant women in a province in the Western Black Sea region of Turkey. Data were collected using the Personal Information Form, the COVID-19 Phobia Scale (C19P-S), the Health Locus of Control Scale for the Fetus, and the Antenatal Perceived Stress Inventory. Multiple linear regression analysis was conducted to investigate the effects of pregnant women's age, medical and obstetric risks affecting fetal health, psychosocial changes in pregnancy, expectations for childbirth, COVID-19 vaccination status, and recent loss variables on the Health Locus of Control Scale for the Fetus. A $p<0.05$ value was considered statistically significant.

Results: The findings indicate that the fear of COVID-19 particularly lowers the focus on internal health checks and can lead to increased stress and anxiety during pregnancy. Additionally, it was concluded that receiving the COVID-19 vaccine has a positive impact on internal health check focus, thereby contributing to a safer and more controlled pregnancy process.

Conclusion: These findings emphasize the importance of supporting both the psychological and physical health of pregnant women during the pandemic.

Keywords: Control; COVID-19; midwife; nurse; phobia; pregnancy; stress

Pregnancy, although one of the most significant periods in a woman's life, brings with it numerous physical and psychological changes.[1,2] The onset of the COVID-19 pandemic has significantly heightened uncertainty, anxiety, and stress levels experienced during this period. Pregnant women, while trying to cope with stressors such as the fear of contracting the COVID-19 virus, difficulties in accessing healthcare services, social isolation, and quarantine, have also found their ability to manage the birth process adversely affected.[1,3] The stress and anxiety experienced during pregnancy can not only jeopardize the health of the expectant mother but also pose a threat to the development of the fetus.[4]

From the early days of the COVID-19 pandemic onward, studies examining how stress and anxiety during pregnancy impact prenatal processes have demonstrated that the uncertainty and fear during this period lead to both psychological and physiological consequences.[3,5–7] In particular, the fear of contracting the virus and concerns that it could cause complications during childbirth have heightened stress levels among pregnant women. It is believed that this situation has significant implications for both preparation for childbirth and the postpartum period. For instance, research has indicated that fear of COVID-19 is linked to premature delivery, reduced birth weight, and various other negative pregnancy outcomes.[5,7]

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Moreover, studies indicate that pandemic-specific stress factors may influence the choice of birth setting, with an increase in demand for out-of-hospital births being observed.[3]

In the literature, numerous studies have been conducted on the impact of psychological stress caused by the COVID-19 pandemic on the mental health of expectant mothers during pregnancy. Notably, there is evidence suggesting that the fear of contracting COVID-19 during pregnancy has led to an increase in levels of depression, anxiety, and stress.[8–10] A study conducted in Poland revealed a strong relationship between the COVID-19 pandemic and perceived stress during pregnancy, as well as fear of childbirth.[9]

Similarly, it has been reported that the isolation, uncertainty, and fear of infection caused by the pandemic have heightened anxiety among pregnant women during the preparation for childbirth and negatively impacted their ability to manage this process.[8] Moreover, adverse effects have been observed on maternal bonding and self-efficacy during and after childbirth.[2]

Locus of control was first introduced as a psychological concept in the mid-20th century by Rotter.[11] Later, the Multidimensional Locus of Control Scale developed by Levenson enabled a more detailed assessment of this concept by expanding the scope of measurement to include the dimensions of internal control, chance, and powerful others.[12] Fetal health locus of control is a significant psychological construct that reflects pregnant women's perceptions of control over their baby's health.[13] Pregnant women tend to adopt either an internal or external locus of control when making health-related decisions. Those with an internal locus of control are more likely to take responsibility for managing their own health and pregnancy process, whereas those with an external locus of control tend to attribute health outcomes to external factors such as luck, fate, or healthcare providers.[14] An internal locus of control may help prevent adverse pregnancy outcomes by encouraging women to avoid risky behaviors during pregnancy.[15,16] Therefore, assessing expectant mothers' beliefs and perceptions regarding fetal health control is important for promoting more effective pregnancy management.[14]

Although the COVID-19 pandemic was no longer at its peak during the data collection period, this study focuses on the lingering psychological impacts of the pandemic on pregnant women. Specifically, it examines how residual fear of COVID-19 and perceived antenatal stress influence women's ability to manage the pregnancy process. While most studies in the literature have explored the general effects of the pandemic, this study uniquely concentrates on prepartum psychological factors, aiming to provide a deeper understanding of how long-term pandemic-related anxieties may still affect maternal well-being. In doing so, it offers valuable insights for healthcare professionals on the importance of psychological support and stress management strategies for pregnant women, even in the post-pandemic period.

What is presently known on this subject?

- The fear of COVID-19 increases perceived stress during pregnancy and leads to difficulties in managing the birthing process.

What does this article add to the existing knowledge?

- Pregnant women who have received the COVID-19 vaccine tend to have higher scores in internal health control focus and are more likely to manage the pregnancy process in a safer and more controlled manner.
- Psychosocial changes and age have a significant impact on internal health control focus during pregnancy.

What are the implications for practice?

- The increase in fear of COVID-19 reduces pregnant women's control over their health, leading to higher levels of stress and anxiety.

Research Questions

1. How does fear of COVID-19 correlate with each dimension (Internal, Chance, Powerful Others) of the Fetal Health Locus of Control Scale?
2. What is the effect of COVID-19 vaccination status on pregnant women's perception of control over fetal health across the three locus of control dimensions?
3. How do perceived stress levels before birth relate to pregnant women's health locus of control, specifically in terms of internal control, chance, and powerful others?

Materials and Method

Design

This study is a descriptive, correlational, cross-sectional analysis conducted with pregnant women in Türkiye from February to September 2024.

Participants

This research is designed as a descriptive and correlational study. The sample consisted of 89 pregnant women who attended three Family Health Centers (FHCs) selected through simple random sampling from FHCs located in a province in the Western Black Sea region of Türkiye. The inclusion criteria were being aged 18 or older, voluntarily participating in the study, not having any clinically diagnosed psychiatric disorder, and being in the 36th to 39th week of pregnancy. Participants were excluded if they exhibited a chronic illness or any communication impairment.

VanVoorhis and Morgan[10] suggest that regression analyses with six or more predictor variables require a minimum of 10 participants per variable, with 30 participants per variable recommended to detect a small effect size. Based on the assumption of 10 participants per predictor variable, the sample size for regression analysis was calculated as 70 individuals (10×7 (number of variables)=70). The literature

emphasizes that, in small study populations, selecting a larger-than-required sample can improve representativeness, yielding more reliable and valid results.[17]

The final study sample consisted of 89 pregnant women who volunteered, met the inclusion criteria, and completed the data collection forms accurately. Data were collected through face-to-face interviews conducted at the Family Health Centers where the participants routinely received care. Each participant took approximately 20 minutes to complete the survey. Importantly, no participants withdrew or left the study unfinished during the data collection process.

Procedure

The research followed the Declaration of Helsinki on Human Rights. Ethical approval for this study was obtained from the Ethics Committee for Social and Human Sciences Research (Ethics Approval Number: 2024/02, Date: January 26, 2024). Informed written consent was secured from participants before the study began.

Measures

In this study, data were gathered using a Personal Information Form, the COVID-19 Phobia Scale (C19P-S), the Health Locus of Control Scale for the Fetus, and the Antenatal Perceived Stress Inventory (APSI). Permissions for the use of the COVID-19 Phobia Scale (C19P-S), the Health Locus of Control Scale for the Fetus, and the Antenatal Perceived Stress Inventory were obtained from the authors. Participants provided written informed consent prior to their involvement in the study. The collected data were automatically transferred into an SPSS file for analysis.

Personal Information Form

The researcher-designed form includes six questions aimed at gathering information on the socio-demographic characteristics of the pregnant women and two questions that assess their knowledge related to COVID-19.

The COVID-19 Phobia Scale (C19P-S)

The COVID-19 Phobia Scale (C19P-S) is a self-report instrument created to assess phobia associated with the coronavirus. The scale is a 5-point Likert format, where items are rated from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The scale consists of four subdimensions: Psychological Subdimension, Somatic Subdimension, Social Subdimension, and Economic Subdimension. The subdimension scores are calculated by summing the item scores within each subdimension. The overall C19P-S score is determined by summing the scores across all subdimensions, yielding a range from 20 to 100 points. Higher scores indicate higher levels of phobia in the specific subdimensions and overall corona-phobia. The Cronbach's alpha value for the overall scale is 0.92, while it ranges between 0.85 and 0.89 for the subdimensions.[18] In this study, the Cronbach's alpha values were found to be 0.87 for the psychological subdimension, 0.85 for the somatic subdimension, 0.78 for the social subdimension, 0.83 for the economic subdimension, and 0.95 for the entire scale.

The Health Locus of Control Scale for the Fetus

The Health Locus of Control Scale for the Fetus, developed by Labs and Wurtele in 1986, aims to facilitate the prediction of factors that contribute to adherence to health advice during pregnancy. Initially, the scale consisted of 85 items, but after analysis, it was refined to its final version with 18 items. The scale comprises three subscales:

1. Internal Health Locus of Control
2. Chance Health Locus of Control
3. Powerful Others Health Locus of Control

The scale is Likert-type and consists of 18 items, with each statement rated on a scale from 0 ("Strongly Disagree") to 9 ("Strongly Agree"). There are no reverse-coded items. Each subscale's total score ranges from 0 to 54, with elevated scores signifying a more favorable outlook towards "internal control," "chance," or "powerful others" as the dominant factor influencing health. Conversely, lower scores reflect a more negative attitude towards these factors.[13]

The validity and reliability study for the Turkish population was carried out by Duyan et al.[19] The internal consistency coefficients were determined to be 0.802 for the Internal Health Locus of Control, 0.876 for the Chance Health Locus of Control, and 0.750 for the Powerful Others Health Locus of Control subscales. In this study, the Cronbach's alpha coefficients were found to be 0.91 for the Internal Health Locus of Control subdimension, 0.73 for the Chance Health Locus of Control subdimension, 0.69 for the Powerful Others Health Locus of Control subdimension, and 0.77 for the entire scale.

Antenatal Perceived Stress Inventory

The Antenatal Perceived Stress Inventory (APSI), created by Razurel and colleagues in Sweden in 2014, evaluates stress perception during pregnancy.[20] The study to establish Turkish validity and reliability was carried out by Atasever and Sis Çelik in 2018. The scale is applied to pregnant women between the 36th and 39th weeks of pregnancy and consists of 12 items across three subdimensions, scored on a 5-point Likert scale (1=never to 5=very often).

The perceived stress score is obtained by totaling the item scores and dividing by the number of items, with possible scores ranging from 1 to 5. Higher scores represent greater levels of perceived stress in pregnant women.

The subdimensions of the scale are as follows:

1. Medical and Obstetric Risks/Fetal Health
2. Psychosocial Changes During Pregnancy
3. Prospect of Childbirth

Each subdimension score is determined by adding the item scores and dividing by the number of items, yielding an average score between 1 and 5.

Validity and reliability analysis by Razurel et al.[20] reported an overall Cronbach's alpha coefficient of 0.75 for the scale, reflecting acceptable internal consistency. In this study, the Cronbach's alpha coefficients were found to be 0.72, 0.79, and 0.76 for the subdimensions, respectively, and 0.91 for the entire scale.[21]

Data Analysis

Data analysis was carried out using SPSS Statistics software, version 27.0 (IBM Corp., Armonk, NY). Descriptive statistics were presented as mean±standard deviation (SD) or percentages (%). The Shapiro-Wilk test was employed to verify data normality ($p>0.05$). To assess the internal consistency of the scales, Cronbach's alpha coefficient was calculated. Multiple linear regression analysis explored how factors such as age, medical and obstetric risks, fetal health, psychosocial changes during pregnancy, childbirth expectations, COVID-19 vaccination status, and recent bereavement affected the Health Locus of Control Scale for the Fetus. A p-value below 0.05 indicated statistical significance.

Results

When the socio-demographic characteristics of pregnant women were examined, it was found that their average age was 28.60±5.21 years, 36% had a university-level education, 86.5% lived in a nuclear family structure, 27% were employed in some form of work, and 67.4% had an income equal to their expenses (Table 1).

Table 1. The socio-demographic characteristics of the pregnant women

Variable	n	%
Age (mean±SD)	28.60±5.21	
Gestational week	36.73±1.25	
Educational status		
Middle school	32	36.0
High school	25	28.0
University	32	36.0
Family types		
Nuclear family	77	86.5
Extended family	12	13.5
Employment status		
Yes	24	27.0
No	65	73.0
Economic status		
Income is more than expenses	17	19.1
Income equals expenses	60	67.4
Income is less than expenses	12	13.5

SD: Standard deviation

Factors Affecting Fetal Health Locus of Control Scale/Internal Health Locus of Control

To evaluate the effects of factors such as age, medical and obstetric complications, fetal well-being, psychological shifts during pregnancy, expectations around childbirth, COVID-19 vaccination status, and the recent loss of a loved one on internal health locus of control in pregnant women, multiple linear regression analysis was applied. The model is statistically significant ($F=12.220$, $p<0.001$). The independent variables included in the model explain 51.4% of the variance in internal health locus of control ($R^2=0.514$). Additionally, the Durbin-Watson statistic is 1.766, indicating no autocorrelation in the model.

The constant coefficient of the model was found to be 39.705, meaning that when all independent variables are equal to zero, the internal health locus of control score is 39.705 points ($p<0.001$).

Age is a significant and positive predictor of the Internal Health Locus of Control ($B=0.477$, $p=0.024$). This indicates that for every one-unit increase in age, the Internal Health Locus of Control score increases by an average of 0.477 points.

COVID-19 phobia is a significant and negative predictor of the Internal Health Locus of Control ($B=-0.529$, $p<0.001$). This indicates that as COVID-19 phobia increases, the Internal Health Locus of Control score decreases by an average of 0.529 points.

Psychosocial changes during pregnancy also have a positive and significant effect on the Internal Health Locus of Control ($B=3.534$, $p=0.031$). An increase in psychosocial changes leads to an average increase of 3.534 points in the Internal Health Locus of Control score.

COVID-19 vaccination status (Reference: Not vaccinated) has a significant effect on the Internal Health Locus of Control as well ($B=7.416$, $p=0.047$). Individuals who have been vaccinated have an Internal Health Locus of Control score that is, on average, 7.416 points higher than those who are not vaccinated.

The variable of Medical and Obstetric Risks/Fetal Health was not found to be a significant predictor of the Internal Health Locus of Control ($B=-1.744$, $p=0.216$). Similarly, birth expectation was not a significant predictor ($B=3.091$, $p=0.121$), nor was the experience of close loss (Reference: No close loss) ($B=-0.519$, $p=0.850$).

In this model, age, COVID-19 phobia, psychosocial changes during pregnancy, and COVID-19 vaccination status were the

Table 2. Factor effecting fetal health locus of control scale/ internal health locus of control

Independent variable	Unstandardized coefficients		Standardized coefficients	t	p	95.0% CI
	B	SE	β			
Constant	39.705	8.927		4.448	<0.001	25.943–57.467
Age	0.477	0.207	0.259*	2.301	0.024	0.065–0.889
C19P-S	-0.529	0.119	-0.864*	-4.456	<0.001	-0.765–0.293
Medical and obstetric risks/fetal health	-1.744	1.398	-0.167	-1.248	0.216	-4.526–1.038
Psychosocial changes	3.534	1.609	0.331*	2.196	0.031	0.332–6.737
The birth expectation	3.091	1.972	0.271	1.567	0.121	-0.833–7.015
The COVID vaccination status	7.416	3.677	0.234*	2.017	0.047	0.100–14.732
Close loss	-0.519	2.737	-0.027	-0.189	0.850	-5.964–4.927

Durbin-Watson=1.766; F=12.220, p<0.001; R=0.714; R^2=0.514; Adjusted R^2=0.472. *: Significance level was accepted as p<0.05, C19P-S; COVID-19 phobia scale, dependent variable = Fetal health locus of control scale/ internal health locus of control. CI: Confidence interval; B: Unstandardized regression coefficient; SE: Standard error; β: standardized regression coefficient.

independent variables that significantly predicted the Internal Health Locus of Control. Specifically, an increase in COVID-19 phobia lowers the Internal Health Locus of Control score, while psychosocial changes and being vaccinated against COVID-19 increase it (Table 2).

Factors Affecting Fetal Health Locus of Control Scale/Chance Health Locus of Control

This multiple linear regression analysis aimed to assess how factors such as age, medical and obstetric risks, fetal health, psychosocial adjustments during pregnancy, childbirth expectations, COVID-19 vaccination status, and recent bereavement influence the chance health locus of control variable among pregnant women. The model achieved statistical significance (F=2.439, p=0.025), with the independent variables accounting for 17.4% of the variance in chance health locus of control (R^2=0.174). Furthermore, the Durbin-Watson statistic of 1.829 suggests no autocorrelation in the model.

The constant coefficient of the model was found to be 50.168, meaning that when all independent variables are equal to zero, the chance health locus of control score is 50.168 points (p<0.001).

The impact of the age variable on the chance health locus of control is negative, with a B coefficient of -0.165. This indicates that as age increases, the chance health locus of control score decreases by an average of 0.165 points (p=0.024).

The impact of the COVID-19 phobia variable on the chance health locus of control is also negative. The B coefficient was found to be -0.372, indicating that an increase in COVID-19 phobia decreases the chance health locus of control score by an average of 0.372 points (p=0.002).

The Medical and Obstetric Risks/Fetal Health variable does not have a significant effect on the chance health locus of control (B=0.255, p=0.854). Similarly, the Psychosocial Changes During Pregnancy variable also does not have a significant effect on the chance health locus of control (B=0.992, p=0.534).

The birth expectation variable was not observed to have a significant effect on the chance health locus of control (B=2.176, p=0.267).

COVID-19 vaccination status (Reference: Not vaccinated): The chance health locus of control scores of vaccinated pregnant women are, on average, 8.975 points higher than those of unvaccinated women (p=0.016).

Close loss (Reference: No close loss): The experience of close loss does not have a significant effect on the chance health locus of control (B=5.255, p=0.055).

In conclusion, age and COVID-19 phobia have been identified as significant negative predictors of the chance health locus of control, meaning that as these variables increase, the chance health locus of control scores decrease. On the other hand, COVID-19 vaccination status is a significant positive predictor, indicating that vaccinated individuals have higher chance health locus of control scores. The other variables do not show a significant effect (Table 3).

Factors Affecting Fetal Health Locus of Control Scale/Powerful Others Health Locus of Control

This multiple linear regression analysis aimed to estimate the influence of factors such as age, medical and obstetric risks, fetal health, psychosocial adjustments during pregnancy, expectations regarding childbirth, COVID-19 vaccination status, and recent loss of a loved one on the powerful others health locus of control variable among pregnant women. The model is statistically significant (F=4.462, p<0.001). The independent variables in the model explain 27.8% of the variance in powerful others health locus of control (R^2=0.278). Additionally, the Durbin-Watson statistic is 1.881, indicating no autocorrelation in the model.

Table 3. Factor effecting fetal health locus of control scale/ chance health locus of control

Independent variable	Unstandardized coefficients		Standardized coefficients	t	p	95.0% CI
	B	SE	β			
Constant	50.168	8.819		5.689	<0.001	32.621–67.715
Age	-0.165	0.207	0.259*	2.301	0.024	0.065–0.889
C19P-S	-0.372	0.117	-0.802*	-3.176	0.002	-0.605–-0.139
Medical and obstetric risks/fetal health	0.255	1.381	0.032	0.185	0.854	-2.493–3.003
Psychosocial changes	0.992	1.590	0.122	0.624	0.534	-2.171–4.156
The birth expectation	2.176	1.948	0.252	1.117	0.267	-1.701–6.052
The COVID vaccination status	8.975	3.632	0.374*	2.471	0.016	1.748–16.203
Close loss	5.255	2.704	0.362	1.944	0.055	-0.125–10.635

Durbin-Watson=1.829; F=2.439, p=0.025; R=0.417; R^2=0.174; Adjusted R^2=0.103. *: Significance level was accepted as p<0.05, C19P-S; COVID-19 phobia scale, dependent variable = Fetal health locus of control scale/ chance health locus of control. CI: Confidence interval; B: Unstandardized regression coefficient; SE: Standard error; β: standardized regression coefficient.

The constant coefficient of the model was found to be 37.054, meaning that when all independent variables are equal to zero, the powerful others health locus of control score is 37.054 points (p<0.001).

The age variable is not a significant predictor of the powerful others health locus of control.

The impact of the COVID-19 phobia variable on the powerful others health locus of control is negative. The B coefficient was found to be -0.143, indicating that an increase in COVID-19 phobia decreases the powerful others health locus of control score by an average of 0.143 points (p=0.037). This result also suggests that COVID-19 phobia has a significant effect on the internal health locus of control.

The Medical and Obstetric Risks/Fetal Health variable does not have a statistically significant effect on the powerful others health locus of control (B=1.182, p=0.142). Similarly, the Psychosocial Changes During Pregnancy variable is not a significant predictor (B=0.563, p=0.542).

The birth expectation variable does not have a significant effect on the powerful others health locus of control (B=1.139, p=0.314).

COVID-19 vaccination status (Reference: Not vaccinated): The effect of being vaccinated on the powerful others health locus of control is not significant (B=-0.339, p=0.872).

Close loss (Reference: No close loss): The experience of close loss is a positive and significant predictor of the powerful others health locus of control (B=5.480, p<0.001). This indicates that pregnant women who have experienced close loss have, on average, 5.480 points higher scores on the powerful others health locus of control compared to those who have not experienced close loss.

In conclusion, COVID-19 phobia significantly decreases the powerful others health locus of control, while experiencing a close loss significantly increases it. Age, medical and obstetric risks, psychosocial changes, birth expectation, and COVID-19 vaccination status do not have a significant effect on the powerful others health locus of control (Table 4).

Discussion

This study identified age as a significant positive predictor of internal health locus of control, suggesting that older pregnant women are more likely to perceive themselves as capable of managing their health during pregnancy. This may stem from accumulated life experience, greater exposure to health information, and increased confidence in making informed decisions—factors that often accompany age.[4,22] The heightened awareness of health-related risks among older pregnant individuals may also reinforce their sense of control over the pregnancy process.[23] These findings point to a developmental shift toward greater internal health agency with age and emphasize the need to strengthen self-efficacy in younger pregnant women through targeted education and support.

In the study, it was found that age is a meaningful and negative predictor of health locus of control dependent on chance. As age increases, women tend to perceive their health and pregnancy processes as less dependent on chance, which may be due to greater knowledge, experience, or a stronger internal locus of control. A review of the literature reveals no prior studies directly addressing this finding. However, based on the positive predictive role of internal health locus of control, it can be inferred that as women age, they are more likely to develop less chance-based control over their health.

Although age was not found to be a significant predictor of the health locus of control focused on powerful others (PODHLC), this finding suggests that pregnant women's trust in external authorities, such as healthcare professionals, may be shaped more by personal experiences, cultural expecta-

Table 4. Factor effecting fetal health locus of control scale/ powerful others health locus of control

Independent variable	Unstandardized coefficients		Standardized coefficients	t	p	95.0% CI
	B	SE	β			
Constant	37.054	5.090		7.279	<0.001	26.926–47.182
Age	0.197	0.118	0.228	1.663	0.100	-0.039–0.432
C19P-S	-0.143	0.068	-0.501*	-2.120	0.037	-0.278–-0.009
Medical and obstetric risks/fetal health	1.182	0.797	0.242	1.482	0.142	-0.405–2.768
Psychosocial changes	0.563	0.918	0.112	0.613	0.542	-1.263–2.389
The birth expectation	1.139	1.125	0.214	1.013	0.314	-1.099–3.377
The COVID vaccination status	-0.339	2.097	-0.023	-0.162	0.872	-4.511–3.833
Close loss	5.480	1.561	0.611*	3.511	<0.001	2.375–8.585

Durbin-Watson=1.881; F=4.462, p<0.001; R=0.528; R^2=0.278; Adjusted R^2=0.216. *: Significance level was accepted as p<0.05, C19P-S; COVID-19 phobia scale, dependent variable = Fetal health locus of control scale/ powerful others health locus of control. CI: Confidence interval; B: Unstandardized regression coefficient; SE: Standard error; β: standardized regression coefficient.

tions, and belief systems rather than chronological age.[1,2] This stability across age groups may indicate that reliance on medical authority remains consistent during pregnancy, regardless of age-related factors. Therefore, interventions aimed at strengthening or addressing external health beliefs may need to consider sociocultural context more than demographic characteristics like age.

The negative association between fear of COVID-19 and internal health locus of control suggests that heightened fear can undermine pregnant women's confidence in their ability to manage their own health. This aligns with previous studies indicating that pandemic-related anxiety may impair individuals' internal health agency, particularly during pregnancy when health-related vulnerability is perceived to be higher.[23] The uncertainty surrounding the safety of both mother and fetus likely contributes to this diminished sense of control,[2] as fear often disrupts rational health-related decision-making. Additionally, the literature highlights that elevated fear and stress during the pandemic are associated with decreased psychological resilience and increased dependency on external factors.[3]

Interestingly, this study also found that fear of COVID-19 negatively predicted both chance-based and powerful others health locus of control—an observation not previously reported in the literature. These findings may indicate a shift in coping strategies, whereby women under stress from pandemic-related fear become less likely to attribute their health outcomes either to chance or to external authorities such as healthcare professionals. This pattern could reflect growing skepticism toward external systems, especially during times when healthcare infrastructure may have been perceived as strained or inaccessible. Consequently, pregnant women may have turned toward more individualized, self-directed approaches to health management—adopting proactive behaviors such as strict hygiene, distancing, and information-seeking as coping mechanisms rather than relying on chance or trust in others.

Overall, these findings highlight a complex psychological response to pandemic-related fear, wherein pregnant women neither trust themselves fully nor place faith in external authorities or fate. This underscores the importance of integrated prenatal care strategies that address fear and uncertainty, such as evidence-based counseling, routine mental health screening, and reinforcing trust in healthcare systems to help restore balanced health control beliefs during public health crises.

The finding that medical and obstetric risks/fetal health variables did not significantly predict any dimension of health locus of control suggests that objective health status alone may not shape how pregnant women perceive control over their health. While previous research has indicated that high-risk pregnancies can heighten women's focus on health behaviors and control,[24–26] the lack of such an association in this study may reflect the relatively healthy profile of the sample. It is also possible that, in the context of a widespread external threat like COVID-19, individual medical conditions may be perceived as less influential than broader psychosocial stressors. This highlights the importance of considering the psychological and contextual environment, not just clinical risk, when addressing pregnant women's health beliefs.[27]

Psychosocial changes directly and positively affect pregnant women's internal health locus of control, while they have been found to be ineffective on the powerful-others-dependent and chance-dependent health locus of control. This indicates that pregnant women see their health as more under their own control, but it does not change their trust in external factors or luck. It is known that psychosocial stress weakens individuals' sense of control over their health.[28] Access to social

support and healthcare services, in particular, can enhance pregnant women's sense of health control.[1] Additionally, a high level of psychological well-being during pregnancy positively influences the perception of pregnancy.[29] Research indicates that deterioration in psychological well-being during pregnancy may lead to mental and emotional problems in both the mother and the baby.[15–30]

The finding that receiving the COVID-19 vaccine significantly predicts higher internal health control and lower chance-based health beliefs suggests that vaccination may contribute to a stronger sense of personal agency in pregnant women. Those who are vaccinated may perceive themselves as actively protecting their health, thus reinforcing internal control beliefs while reducing reliance on chance or fate. This is consistent with prior findings indicating that vaccination not only reduces fear of infection but also enhances individuals' overall perception of control over their health-related decisions.[4,24] Interestingly, the absence of a significant relationship between vaccination status and the powerful-others dimension suggests that trust in healthcare professionals remains relatively stable, regardless of vaccination status. This may reflect that while vaccination bolsters personal confidence, it does not necessarily alter the perceived authority or role of health professionals in the pregnancy process. These results emphasize the role of preventive health behaviors—such as vaccination—not only in biological protection but also in shaping psychological constructs like health control orientation during sensitive periods like pregnancy.

The variable of birth expectation has not been found to be a significant predictor of internal health control, powerful-others health control, or chance-related health control. No previous study on this subject has been found in the literature. It can be said that the expectations of pregnant women regarding the birth process do not directly affect their sense of control over managing their overall health. This shows that pregnant women's specific expectations about birth do not significantly alter their beliefs in managing overall health control.

The variable of experiencing a close loss is a significant and positive predictor of health control focus dependent on powerful others, while it is not a significant predictor of internal health control or chance-related health control. This shows that individuals tend to seek more external support and rely on professionals in managing their health when they experience a loss. No study related to this finding has been encountered in the literature. Experiencing a close loss due to COVID-19 can weaken pregnant women's confidence in managing their health. In this case, pregnant women may tend to rely more on healthcare professionals or external strong authorities in controlling their health. Individuals experiencing loss, especially when they need strong support to manage their health, may increase their dependency on doctors or other healthcare providers. This may reflect the need for individuals experiencing loss to seek more medical assistance or consult with powerful others in their health-related decisions.

Strengths and Limitations of the Study

Examining the psychosocial and health effects of COVID-19 on pregnancy in a multidimensional way, utilizing comprehensive data collection tools, and evaluating data reliability provided through face-to-face interviews can be considered important strengths. However, collecting samples only from Family Health Centers in one region may limit the generalizability of the findings. Furthermore, the subjective nature of the scales used in the study and the data collected through instant responses should be considered, as they may have been influenced by individuals' current psychological states.

Conclusion

Findings indicate that the long-term psychological impact of the COVID-19 pandemic continues to influence pregnant women, particularly by reducing their focus on internal health locus of control and contributing to elevated stress and anxiety levels during pregnancy. Although the data were collected after the pandemic, the results suggest that past experiences and lingering fears related to COVID-19 still shape health-related perceptions and behaviors. Notably, having received the COVID-19 vaccine was associated with a higher internal health control focus, which may support a greater sense of safety and control during pregnancy. Other influential factors, such as psychosocial changes experienced during pregnancy and the experience of recent personal losses, were also found to significantly affect the internal health control perspective.

These findings highlight the enduring psychological footprint of the pandemic and the importance of providing ongoing psychological and physical support to pregnant women in the post-pandemic period. Integration of routine psychological assessments, telehealth services, and culturally responsive counseling into prenatal care remains essential to address persistent challenges and promote maternal well-being. In light of these findings, nursing practice should emphasize the early detection and management of psychological distress among pregnant women, particularly in those affected by pandemic-related stressors. Tailored interventions that strengthen internal health locus of control can enhance maternal coping strategies and perceived control during pregnancy.

Future research should aim to investigate the persistence of these psychological patterns over time and examine the effectiveness of specific nursing interventions in mitigating their effects. Cross-cultural and multi-center studies could offer broader insights into how different health systems address the long-term impacts of public health crises on maternal well-being.

Ethics Committee Approval: The study was approved by the Karabük University Social and Human Sciences Research Ethics Committee (no: 2024/02, date: 26/01/2024).

Informed Consent: Informed written consent was secured from participants before the study began.

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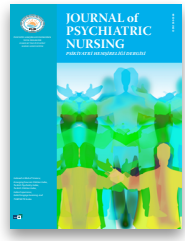

Original Article

Development of an interview skills assessment checklist for nursing students: Validity and reliability study

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Abstract

Objectives: In nursing education, although students receive training in communication and interview techniques, the objective assessment of these skills remains a challenge. This study aimed to develop a valid and reliable checklist to evaluate nursing students' interview skills, guided by Peplau's Interpersonal Relations Theory.

Methods: The study employed a methodological design and was conducted with 95 intern nursing students. The Interview Skills Assessment Checklist (ISAC) was developed by the researchers based on theoretical and expert input. Content validity was assessed using expert evaluation and Kendall's W coefficient (W=0.595, p<0.001). Discriminative validity was examined using the independent samples t-test between upper and lower 27% groups. Internal consistency was measured using Cronbach's alpha, and construct validity was tested via exploratory factor analysis.

Results: The checklist consists of 14 items structured into three sub-dimensions: management of the interview, setting up the interview framework, and interview-related skills. Cronbach's alpha was 0.821, and the three-factor structure explained 53.17% of the total variance. Each item is scored on a 3-point Likert scale (1=insufficient, 3=sufficient), with higher scores indicating better performance. No test-retest analysis was conducted, as the students' skills were expected to develop over time.

Conclusion: The developed checklist is a valid and reliable tool for evaluating nursing students' interview performance. It can be used both to monitor students' progress throughout their training (formative assessment) and to evaluate their competency at the end of the educational process (summative assessment). Additionally, it can be adapted for use in the education of other health professions where similar skills are assessed.

Keywords: Checklist; communication skills; interview skills; nurse education; nursing students

Interviews between the patient and nurse are an important tool in establishing and maintaining the therapeutic relationship.[1] Interviews are patient/client-centered and conducted as a purposeful interaction process. As nurses collect data to plan care, they observe the patient and conduct focused interviews with the patient.[2] The aims of the interview are to develop a therapeutic relationship with the patient, to identify how the patient perceives his/her problems and their effects on his/her life, to diagnose stressors, to determine needs and priorities, and to reveal the motivations and emotions underlying his/her behaviors.[1,3,4] Therefore, the quality of the interview is one of the critical factors in maintaining therapeutic collaboration and obtaining the right information to guide nursing diagnosis, care management, and patient outcomes.[5]

For the interview to be effective, nurses should use their communication skills effectively.[6] The effectiveness of communication is important in establishing trust between nurses and patients, creating a therapeutic relationship, enabling patients

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to express their feelings and thoughts comfortably, helping them manage stressors, and supporting compliance.[5,7] Similarly, studies show that effective communication has positive effects on quality of care, patient satisfaction, improving patients' therapeutic alliance, and maintaining well-being and quality of life.[7–9] At this point, it is of critical importance that nursing students graduate with effective communication skills.[10] In the interview process, nurses should exhibit a supportive and non-judgmental attitude, observe how the patient can express themselves more comfortably, allow the patient to express their feelings and thoughts, and support the patient in line with the steps of the interview.[11,12] However, research suggests that patients experience ineffective relationships and communication with nurses.[13–15] Similarly, nurses have difficulties in interviews and in communicating with patients.[16–18] Due to these difficulties, nurses tend to not prioritize dialogue and may exhibit avoidant approaches such as focusing on routine work and practical tasks.[19,20] As a result, the quality of care is negatively affected, and effective communication is described as an element of safe and quality patient care.[21,22]

The ability to communicate effectively is essential for nurses to develop therapeutic relationships with their patients and achieve greater patient satisfaction.[11] It is important to provide nurses with effective communication and interviewing skills during the training process.[23,24] Similarly, the importance of current and active learning methods in nursing education is emphasized, and the need to support students in developing critical thinking and communication knowledge and skills in providing safe patient care is highlighted.[25] Evaluating the outcomes of these skills is another important point. There is a need for valid and reliable measurement tools that will help to evaluate not only knowledge but also skills in nursing education.[26] The literature highlights the lack of valid and reliable measurement tools to assess nursing students' communication skills.[26] Similarly, although there are guidelines for the principles of interviewing skills, valid and reliable tools for the behavioral and attitudinal assessment of interviewing skills have not been found. In the behavioral assessment of interviewing skills, these skills should be measured in a consistent, stable, repeatable, applicable, and understandable way.[27]

When the relevant literature on this subject was examined, the Simulated Client Interview Rating Scale, in which both communication skills and motivational interviewing skills are used in interviewing patients with alcohol/substance problems, was found. The tool was developed to assess the ability to conduct motivational interviewing with individuals who use alcohol and substances, and its validity and reliability were established.[27] A short, easy-to-use interview assessment tool and/or checklist that includes communication skills and stages of the interview process was not found. From this point of view, the aim of this study is to develop an observation-based assessment tool that covers all communication skills and the interview process in the evaluation of interview skills. A valid and reliable interview skills assessment tool will provide a standardized assessment of the interview method in which communication skills are actively used in nursing.[28] The most important contribution of the research is to provide the field with a direct observation-based assessment tool for interview skills that covers all communication skills.

What is presently known on this subject?

- It is essential to teach nurses effective interviewing skills during their education. Interviewing skills are important in patient assessment and care planning. A short and easy-to-use interview skills assessment tool for nursing students has not been found.

What does this article add to the existing knowledge?

- The Interview Skills Assessment Checklist was found to be a valid and reliable tool.

What are the implications for practice?

- This checklist can be used to evaluate the interviewing skills of nursing students.

Materials and Method

Design

This study was conducted with a methodological design.

Population and Sample

The study was conducted in an accredited nursing faculty in Western Türkiye between November 2022 and June 2023. The sample of the study consisted of 4th-year nursing students studying at the Faculty of Nursing (n=95). The sampling criterion for students was to have successfully completed the communication courses in the curriculum of the relevant nursing faculty.

Students received theoretical knowledge about communication and interview skills in the 1st- and 2nd-year communication courses, and in the 3rd year they experienced interviewing at least once in different clinical placements with a real patient. The checklist items involve the use of the interview process and therapeutic communication skills. Intern nursing students (4th year), as nurse candidates, undertake internships and are expected to continuously use their interview skills. Therefore, it was considered that the best group to assess interview skills would be intern students. The sample size was calculated using the non-probability purposive sampling method in accordance with the 5–10–15 structuring, by taking 25% more than 5 times the number of instrument items, since the number of items was 14 and the sample included 95 students.

Tools Used in the Research

The Participants Characteristics Form and the Interview Skills Assessment Checklist were used to collect the necessary data for the study. The Participants Characteristics Form, organized by the researchers to obtain information

about the characteristics of nursing students, included questions about age and gender.

Interview Skills Assessment Checklist

The Interview Skills Assessment Checklist (ISAC) is a 14-item instrument structured into three sub-dimensions, each reflecting a distinct component of interview skills. It provides a structured means to assess nursing students' interview competencies. Items are rated on a 3-point Likert scale (1=insufficient, 2=partially sufficient, 3=sufficient), with higher total scores indicating better overall performance.

Creation and Content Validity of the Interview Skills Assessment Checklist

Peplau's Interpersonal Relations Theory was used conceptually in the development of the checklist steps. Peplau's theory of interpersonal relationships focuses on the nurse-patient relationship and the therapeutic process. The theory defines the nurse-patient relationship in three stages [orientation, exploitation, and resolution] and provides a framework for basic nursing approaches in these stages.[29] These stages defined by Peplau provide a basic framework for structuring the interview process.[30] According to this theory, the interview skills checklist structure was organized into preparation/initiation, working, and termination stages. In addition, a pool of 16 items was created by reviewing the relevant literature and existing checklists on the topic.[31–33]

After obtaining the necessary institutional and ethical approvals for the research, expert opinions were sought to examine the psycholinguistic features of the checklist and its content validity. Accordingly, 12 experts with academic or clinical expertise in communication and interview skills were consulted. The Content Validity Index (CVI) was determined using the Lawshe technique.[34] The experts rated each item on a three-point checklist: 1=unnecessary, 2=necessary but not sufficient, 3=necessary. If experts gave a score of 2 or less, they were asked to provide suggestions for that item. The scores given by the experts ranged between 0.5 and 1. For criterion content validity, the content validity index is expected to be above 0.80.[35] As a result of the experts' evaluations, the CVI value was found to be 0.85, which is at a sufficient level. Then, expert opinions were discussed by the researchers; one item was removed from the checklist, and two new items were added, resulting in a 16-item checklist.

Pilot Study of Interview Skills Assessment Checklist

It is recommended that the sample size for the pilot study should constitute 10% of the main study's sample.[36] Since the main study sample was calculated as 80, 8 students were targeted for the pilot study. The pilot study was conducted with a 10–15 minute role-play application, including the structured scenario used in the data collection process. A student and a researcher role-played the scenario while two observers made independent assessments using the interview skills checklist. Feedback was received from each student, and the functionality of the checklist items was discussed by three researchers. After the pilot study was completed, the checklist items were organized, and the application was started with a 16-item checklist.

Data Collection

The data collection process of the Interview Skills Assessment Checklist was carried out in a quiet room suitable for the interview process. Each interview was conducted in accordance with a structured scenario with volunteer students and a mental health nursing PhD student in the patient role. The structured scenario was designed to enable the student to experience the entire interview process within the scope of interviewing a patient hospitalized in the orthopedics clinic. In this scenario, a patient who was hospitalized in the orthopedics clinic with a diagnosis of fracture and was in the preoperative period experienced concerns about maintaining his/her job and family life after surgery. The student was expected to conduct an interview with the individual to identify stressors and coping skills related to the pre- and postoperative period.

The structured scenario, and the date and time the students would arrive, were emailed to them and explained verbally before the interview practice. The interviews were conducted over a period of 4 weeks, with one full day allocated each week. On each interview day, the students arrived at the designated time and place to attend the interviews. On average, 25 students completed their interviews in a single day. At least 15 minutes were given to each student to conduct their interview in a quiet room. Each interview lasted 15–20 minutes. The student played the role of the interviewing nurse, and the researcher played the role of the patient who had been admitted to the orthopedic clinic with a diagnosis of fracture and was in the preoperative phase. Two observers, who were intern lecturers in mental health nursing, assessed the interview process independently by using the Interview Skills Assessment Checklist.

Statistical Analysis

SPSS (Statistical Package for the Social Sciences) 22.0 was used to analyze the data. Sociodemographic data were evaluated in terms of frequencies, percentages, and means. The normal distribution of the data was assessed using the Shapiro-Wilk test and by examining kurtosis and skewness coefficients. The statistic of each of kurtosis and skewness in the descriptive statistics table was divided by its standard error, and the resulting value was observed to be between +1.96 and –1.96 at the 5% significance level.[37] As a result of the analysis, it was determined that the data were normally distributed. Therefore, parametric tests were used in the

Table 1. Checklist development process and analysis methods

Phases	Objectives	Method/tool used
Phase I	Preparation of item pools	Review of relevant literature
Step 1	Examining item content validity	Using expert opinion
	Determining checklist items	The assessment of content validity
Step 2	Pilot application	Pilot application checklist and item corrections
Step 3	Collect data	Socio -demographic data form
		Draft Checklist form
		Role-Play
		Observer evaluation
Phase II	Items identification	
Step 1	Evaluating validity of checklist	The assessment of content validity
		(Lashwe technique)
		The distinctiveness item analysis (high/low group comparison)
Step 2	Evaluating reliability of checklist Inter-observer agreement	Cronbach Alpha
		Kendall's coefficient of concordance
		Item total score correlation coefficient
		Explanatory factor analysis

analysis. The content validity of the checklist was calculated according to the Lawshe technique.[34] Kendall's W coefficient of concordance was used to evaluate inter-observer agreement.[38,39] Cronbach's alpha internal consistency coefficient was used to determine whether the items were consistent with each other.[40] In the item validity analysis of the difference between the lower and upper group means, an independent group t-test was used to evaluate the difference between the upper 27% group (with the highest scores) and the lower 27% group (with the lowest scores).[41] The statistical significance level was accepted as p=0.05.

After the checklist was developed, the content validity index was used to evaluate content (scope) validity, and explanatory factor analysis with the Varimax rotation method was used to evaluate construct validity. The content validity index, Pearson product of moments, and Cronbach's alpha coefficient analysis methods were used to evaluate reliability. The analysis methods used in the study are given in Table 1.

Ethical Considerations

Approval was obtained from the relevant institution and the Ethics Committee for Non-Interventional Studies prior to the data collection phase of the study (Date of Decree: 2022/38-17, Number of Decree: 2015/01-18). The purpose of the study was explained to the students. Written informed consent was obtained from the students who wished to participate. To protect the psychological safety of the students, two researchers who were not responsible for their evaluation conducted the data collection phase. At the same time, the students were informed that their performance would not be evaluated. Feedback on their performance was given constructively to those students who requested it, and they were encouraged to improve their communication skills. The study was conducted in accordance with the principles of the Declaration of Helsinki. This study, which benefited from previously created texts, cited the sources in the references in accordance with research and publication ethics.

Results

All of the students were intern nursing students who had taken the basic communication skills course in the first year and the communication skills in nursing course in the second year. Of the students, 53.7% (n=51) were male, and the mean age was 22.50±1.31 (min-max: 20–28). Although the difference was not statistically significant (p>0.05), female students demonstrated higher mean scores (M=35.60, SD=5.60) compared to male students (M=32.58, SD=5.86), suggesting a non-significant gender-related trend in favor of females regarding interview performance.

Validity Findings

The content validity index of the Interview Skills Assessment Checklist was found to be 0.85. After the expert opinion, the checklist was finalized according to the analysis of the content validity index. It was found that the mean scores of each item differed between the 27% group with the highest score on the checklist and the 27% group with the lowest score (p<0.05). The checklist was found to be valid, and the distinctiveness of the characteristics being measured was confirmed.

Table 2. Item statistics and corrected item-total correlation

Item (N=95)	Average	SD	Corrected item total correlation
1. Arranges the meeting environment appropriately.	2.726	0.659	0.308
2. Explains the purpose of the interview	2.136	0.906	0.437
3. Explains who conversation data can be shared with.	1.621	0.901	0.506
4. It reveals the individual's feelings and thoughts about the purpose of the interview.	2.273	0.6595	0.638
5. Using appropriate questioning techniques according to the flow of the conversation (open and closed questions).	2.515	0.562	0.580
6. Promoting the clarity of the individual's intangible expressions.	2.168	0.974	0.410
7. Using statements that demonstrate her/his active listening to the person (Hmm, hmm, okay, go on, etc.)	2.589	0.555	0.580
8. Using empathetic expressions regarding the individual's feelings and thoughts.	1.705	0.861	0.487
9. Throughout the interview, use spoken words that the person can understandend.	2.894	0.308	0.279
10. Conduct the interview in accordance with the purpose of the meeting.	2.515	0.666	0.472
11. Using appropriate body language throughout the interview (maintaining eye contact, turning towards the person, tone of voice, etc.).	2.757	0.454	0.348
12. At the end of the interview, asks the individual to summarise the interview.	1.947	0.993	0.424
13. Summarises the interview at the end of the interview	2.147	0.967	0.422
14. Asking the individual what they want to add about the subject of the interview.	1.968	0.994	0.274
15. Introduces him/herself and explains his/her role.	2.421	0.894	0.088
16. Plans the next meeting.	2.042	0.977	0.052

SD: Standard deviation

Reliability Findings

The reliability of inter-observer agreement was tested by having two observers complete the form independently. Kendall's Concordance Test was used to examine the level of agreement between the expert opinions, and it was found that there was a high level of agreement (Kendall's W=0.595, p<0.001).

Cronbach's alpha internal consistency coefficient was calculated to determine whether the items were consistent with each other. In this study, Cronbach's alpha coefficient was found to be 0.82.

The mean scores of the items ranged from 1.621 to 2.894. For the reliability criterion, the value of the corrected item-total score correlation coefficient was taken as 0.20. However, since the corrected total item correlation coefficient of the 15th and 16th items was below this value, they were excluded from the checklist. The final checklist consists of 14 items (Table 2).

Explanatory Factor Analysis (EFA) was carried out to test the construct validity of the checklist and to determine the factor loads and subdimensions. The Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity were used to evaluate the suitability of the data for factor analysis. Applying the EFA, the checklist was separated into each factor with an eigenvalue greater than 1. The variance explained by these factors regarding the checklist was 53.17%. Of the items, two with a factor load of less than 0.30 or an item-total score correlation of less than 0.30 were excluded from the analysis. The factor loads of the checklist items ranged from 0.447 to 0.863. Subdimensions with two or fewer items were excluded (Table 3).

The developed checklist contains 14 items organized into 3 sub-dimensions. Each item is rated on a 3-point Likert scale, with higher total scores indicating better overall performance.

Table 4 shows the reliability analyses of the checklist and its subdimensions. The total variance value explained for the checklist is 53.17%, and each subdimension explains more than 5% of the variance. The eigenvalue of each of the subdimensions is higher than 1. Internal consistency coefficients are as follows: 0.580 for the subdimension "management of the interview", 0.689 for the subdimension "setup of the interview framework", and 0.813 for the subdimension "communication skills". The internal consistency coefficient obtained for the whole checklist was determined as 0.821.

Discussion

The creation of the Interview Skills Assessment Checklist and its validity and reliability study provided an observation-based assessment tool for interviewing skills, which is an important competency in nursing education.

Table 3. Factor analysis results and subdimensions of the checklist

Factor	Item	Item content	Item factor load
Interview management	1	Arranges the meeting environment appropriately.	0.863
	2	Using appropriate body language throughout the interview (maintaining eye contact, turning towards the person, tone of voice, etc.)	0.753
	3	Asking the individual what they want to add about the subject of the interview.	0.456
Setting up the interview framework	4	Explains the purpose of the interview	0.447
	5	Explains who conversation data can be shared with.	0.696
	6	At the end of the interview, asks the individual to summarize the interview.	0.715
	7	Summarizes the interview at the end of the interview	0.783
Communication skills	8	It reveals the individual's feelings and thoughts about the purpose of the interview.	0.622
	9	Using appropriate questioning techniques according to the flow of the conversation (open and closed questions)	0.759
	10	Promoting the clarity of the individual's intangible expressions.	0.589
	11	Using statements that demonstrate her/his active listening to the person (Hmm, hmm, okay, go on, etc.)	0.734
	12	Using empathetic expressions regarding the individual's feelings and thoughts.	0.571
	13	Throughout the interview, use spoken words that the person can understand.	0.583
	14	Conduct the interview in accordance with the purpose of the meeting.	0.685

Table 4. Checklist and subdimensions reliability analysis

Factor name	Eigenvalue	Variance explained	Cumulative variance	Cronbach's α
Communication skills	4.395	31.340	31.340	0.813
Setup the interview framework	1.655	11.590	42.930	0.689
Management of the interview	1.444	10.247	53.177	0.580
Total	7.494	53.177	53.177	0.821

Validity Data of the Interview Skills Assessment Checklist

The steps of Peplau's Interpersonal Relations Theory were used as the conceptual framework for the checklist. The structure of the theory allows the interviewing skill to be shaped and completed in a certain structure and process.[24] The items of the checklist were developed by reviewing the relevant literature and scales related to communication skills.[25–27]

In the identification and working phases, the checklist focused on skills such as active listening, asking effective questions, using therapeutic communication techniques (e.g., demonstrating empathy), employing clear and comprehensible language, and maintaining a goal-oriented approach. The termination phase included skills such as summarizing to appropriately conclude the communication. According to Peplau's Interpersonal Relations Theory, the nurse-patient relationship is a dynamic process, and the nurse assumes multiple roles throughout this process. The nurse's possession of interview skills is the basis for ensuring a therapeutic relationship between the patient and the nurse. Although Peplau's theory does not cover all stages of the theoretical process, it is also important for the applicability of all nursing theories that emphasize the therapeutic role of the patient-nurse relationship.[42]

The most commonly used measure for determining content validity is the content validity index. The Lawshe technique, one of the content validity indices, requires a minimum of 5 and a maximum of 40 expert opinions. Expert opinions on each item are rated as "the item measures the intended construct," "the item is related to the construct but unnecessary," or "the item cannot measure the intended construct." The checklist prepared according to the Lawshe technique[28] was developed in a three-point Likert format and presented to 12 experts. The experts' scores ranged between 0.5 and 1. For criterion content validity, the content validity index is expected to be above 0.80. The content validity index of the checklist was 0.85 and was found to be at a good level.[29]

In the item analysis of the difference between the upper and lower group means, the independent samples t-test was used to assess the difference between the upper 27% group with the highest scores and the lower 27% group with the lowest scores.[37] It was found that the mean scores of each item differed significantly between the highest-scoring 27% group and the lowest-scoring 27% group, indicating that the

checklist items have good discriminative ability. This result demonstrates that the items on the checklist can successfully differentiate between individuals with high and low levels of the measured construct. High item discrimination is crucial in checklist development, as it indicates that the items are sensitive enough to capture meaningful differences among respondents. Scientifically, a high level of item discrimination supports the validity and effectiveness of the checklist in distinguishing variations in the trait or skill being measured. The ability to differentiate among individuals' performance levels adds to the checklist's credibility and reinforces its potential use in both educational assessment and feedback.[43]

Reliability Data of the Interview Skills Assessment Checklist

The literature does not provide a standard cutoff value for the item–total correlation coefficient below which reliability is considered insufficient. Some sources state that the reliability of items with a coefficient less than 0.50 should be doubted, some state it should be above 0.30, but most studies use 0.20 as the cutoff.[31] In line with this information, it is noted that the reliability criterion can vary according to the purpose of the research and the nature of the measurement, and that researchers decide which test items are reliable or unreliable.[38]

Cronbach's alpha internal consistency coefficient was calculated to determine whether the remaining items were consistent with each other. The reliability limit for the checklist was assumed to be 0.70.[33] Cronbach's alpha coefficient was found to be 0.82. This value shows that the checklist is reliable at a good level.

Inter-observer agreement was assessed by having two independent raters complete the checklist separately. Kendall's coefficient of concordance was employed to evaluate the level of agreement, yielding a moderate to high concordance (Kendall's W=0.595, $p<0.001$).[40] This finding supports that the checklist items are consistently interpreted across different raters, ensuring that the instrument can be applied in an objective, reliable, and standardized manner. Furthermore, the reproducibility of the assessment process underscores its potential for broader implementation. It is recommended that inter-observer reliability be re-examined in future applications of the checklist to ensure sustained measurement precision.

It is important that the sample be large enough to provide reliability for correlation analyses. In a scale development study, the KMO test is performed to determine the adequacy of the sample.[33,34] KMO criteria are evaluated as excellent between 0.90 and 1.00, very good between 0.80 and 0.89, good between 0.70 and 0.79, and moderate between 0.60 and 0.69.[39] The KMO value of the items in the checklist (0.74) was evaluated as "good." Bartlett's test of sphericity ($\chi^2=435.957$, $p<0.001$) was statistically significant, indicating that the data set is suitable for EFA.[29]

There were no items with factor loadings of 0.40 or less, indicating that each item contributed adequately to the theoretical structure. The total variance explained is reported to be 40%–60% in some sources[29] and 50%–70% in others.[34] The total variance explained by the checklist in this study is 41.98%, which falls within the recommended range. In the literature, three or more items are recommended for subdimensions.[35,36,40] Three factors were identified by EFA for the 14-item checklist, explaining 53.17% of the total variance. Each subdimension accounted for more than 5% of the variance. The factor loadings of items in each subdimension were above 0.30. The EFA findings met the criteria used as a basis for determining the factors and the items within them, and satisfied the aforementioned criteria.[36]

Reliability refers to the consistency between the answers given by study participants to the test items and the extent to which the scale reflects the problem of interest. In the reliability studies for the scale, Spearman-Brown correlation and Cronbach's alpha were used. The item–total score correlation represents the relationship between the scores of individual test items and the total test score. A positive and high item–total correlation indicates that items measure similar attitudes and that the test has high internal consistency.[30] It is recommended that the item–total score correlation should not be negative and should be at least 0.20.[33] In the initial item analysis, two items with an item–total score correlation below 0.20 were removed from the checklist, resulting in a 14-item checklist. A scale is considered reliable if Cronbach's alpha is between 0.60 and 0.80, and very reliable if it is 0.80 or above.[42,43]

Limitations and Strengths

Peplau's Theory of Interpersonal Relations was used as a conceptual framework in the development of the checklist, and the item pool for the interview skills checklist was created accordingly. Peplau's theory provides a strong theoretical foundation for conducting interview skills, making it a fundamental model in guiding the structure of the instrument. The use of a theoretical framework in the development of the checklist is a strength of this study.

A limitation of this study is that there is no checklist assessing interviewing skills in the literature, which made it difficult to compare the validity and reliability results. Therefore, the discussion section of the study includes the comparison of parallel test validity and reliability results within normal ranges. Another limitation of the study is that it was conducted with a single nursing faculty.

This study did not include a test-retest analysis. This decision was based on the expectation that students would improve their interview skills over time as part of their training. A repeated administration of the checklist with the same students

would likely reflect their skill development rather than the stability of the checklist. In the context of behavioral checklists such as this one, test-retest reliability is more appropriate when the skills being measured are expected to remain stable. This omission is acknowledged as a limitation of the study, and other reliability analyses (e.g., internal consistency, inter-rater agreement) have been conducted and reported accordingly.

Conclusion and Recommendations

This study aimed to develop and validate the Interview Skills Assessment Checklist (ISAC), and the results demonstrated that the instrument is both valid and reliable. Interview skills play a crucial role in patient assessment, care planning, and implementation. The developed checklist offers a standardized method for evaluating and enhancing these skills in nursing education and can be adapted for use in other health professions. Additionally, the checklist supports students in monitoring and improving their own performance and may also be utilized for peer-based evaluation of interview skills. The checklist also holds potential for use in clinical education settings as a feedback and evaluation tool during student-patient interactions. Future research is recommended to further examine the applicability of the checklist in diverse educational and professional contexts.

Ethics Committee Approval: The study was approved by the Dokuz Eylül University Non-interventional Research Ethics Committee (no: 2022/38-17, date: 30/11/2022).

Informed Consent: Written informed consent was obtained from the students who wished to participate.

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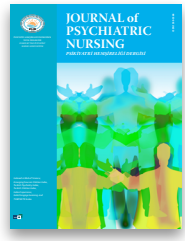

Original Article

The effect of mindfulness-based stress reduction program on nursing students' stress level and emotion regulation: A randomized controlled trial

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Abstract

Objectives: This study was conducted as a pre-test, post-test, follow-up randomized controlled trial to determine the effect of a mindfulness-based stress reduction program on perceived stress levels and cognitive emotion regulation strategies in nursing students.

Methods: The study involved 45 participants, with 22 in the intervention group and 23 in the control group. Data collection tools included a personal characteristics form, the Perceived Stress Scale, and the Cognitive Emotion Regulation Scale. The intervention group attended an online MBSR program once weekly for eight weeks, with sessions lasting 60–90 minutes, while the control group received no intervention. Assessments were conducted at pre-test, post-test, one-month, and three-month follow-ups.

Results: The results revealed a significant reduction in perceived stress scores in the intervention group across all measurement points compared to the control group. On the Cognitive Emotion Regulation Scale, the intervention group showed lower scores in the "rumination" and "self-blame" subscales post-intervention and during follow-ups. Additionally, they scored higher in the "acceptance," "positive refocusing," and "putting into perspective" subscales at similar intervals. Feedback from the intervention group indicated that 33.3% found the program beneficial for stress management, 66% reported enhanced mindfulness, and 33.3% noted increased awareness.

Conclusion: The MBSR program effectively reduced perceived stress levels and encouraged positive cognitive emotion regulation strategies, such as increased acceptance, reduced rumination, and improved perspective-taking among nursing students. These findings suggest that mindfulness practices can be a valuable tool in fostering emotional well-being and stress resilience in this population.

Keywords: Cognitive emotion regulation; mindfulness; perceived stress; psychiatric nursing

Nursing education is a highly challenging and stressful program for nursing students. Difficulties encountered during clinical education, along with personal and social stressors, can contribute to the stress experienced by students. Academic stress can be attributed to the curriculum of nursing education, which combines clinical and theoretical knowledge, requiring students to develop practical skills. Studies have shown that nursing students perceive higher levels of stress compared to students in other programs. This is due to the intensive content of the nursing program, the challenging assignments, and the demanding nature of clinical practice aimed at skill development.[1,2] The academic pressure further increases anxiety among nursing students, particularly due to their fear of failure in exams and evaluations.[3,4]

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Clinical stress also plays a significant role in their overall stress levels. Students often face emotional challenges related to patient care, such as dealing with suffering patients and death.[3,5] Additionally, dynamics within the clinical setting, conflicts with clinical staff, and peer relationships can exacerbate the stress experienced by students.[2,5] Nursing is a demanding and stressful profession.[6,7] Some studies indicate that professional stress among nurses can lead to feelings of inadequacy, self-doubt, low self-esteem, irritability, depression, somatic illnesses, sleep disorders, and burnout.[7,8] For nursing students, emotion regulation is crucial for stress management, maintaining mental health, and delivering effective patient care. The rigorous academic requirements, clinical training, and emotional investments associated with nursing education necessitate the development of emotion regulation skills. Research indicates that when nursing students develop effective emotion regulation skills, it can significantly reduce the stress and anxiety they commonly experience.[9] Mindfulness-Based Stress Reduction (MBSR), which incorporates mindfulness meditation and yoga, can help nursing students enhance their awareness, enabling them to manage stress during their education and in future practice. This, in turn, can lead to improved patient care.[10,11] Mindfulness-based practices serve as a tool for nursing students navigating challenging educational environments, assisting them in stress management and emotion regulation. Recent studies highlight the increasing interest in mindfulness-based practices across various groups for managing stress and enhancing emotion regulation strategies. Mindfulness practices, which focus on staying present, have been reported to mitigate stress responses and support emotional healing. Research has determined that mindfulness-based practices reduce perceived stress levels.[12–14] These practices, conducted with diverse sample groups, support the regulation of emotional responses.[15,16]

Aim and Hypothesis

The aim of this study was to examine the effect of the Mindfulness-Based Stress Reduction Program (MBSR) on perceived stress levels and emotion regulation skills among nursing students.

H1: The perceived stress level scores of nursing students in the intervention group participating in the MBSR will decrease compared to those in the control group.

H2: The perceived stress level post-test and follow-up scores of nursing students in the intervention group participating in the MBSR will decrease compared to their pre-test scores.

H3: The emotion regulation strategies of nursing students in the intervention group participating in the MBSR will show positive changes compared to those of nursing students in the control group.

What is presently known on this subject?

- Nursing students face high levels of stress due to challenging clinical and theoretical education. This stress can negatively impact their emotional well-being and academic performance. Emotion regulation skills and stress management are critically important for maintaining mental health. Mindfulness-based interventions, such as MBSR, have been shown in previous research to reduce stress levels and improve emotion regulation skills in various populations, including nursing students.

What does this article add to the existing knowledge?

- This study provides evidence that the eight-week MBSR program implemented for nursing students can effectively reduce perceived stress levels and enhance positive emotion regulation strategies. Unlike other studies that generally aim to reduce overall stress levels, this study focuses on measurable changes in cognitive emotion regulation strategies, such as increasing acceptance, positive refocusing, and perspective-taking, while reducing rumination and self-blame. Additionally, improvements observed up to three months after the intervention highlight the sustainable effects of MBSR over time.

What are the implications for practice?

- The results suggest that integrating the MBSR program into the nursing curriculum could significantly enhance students' stress management and emotion regulation skills, both in their academic journey and future professional practice. Including such programs as elective courses or within the content of the Mental Health and Psychiatric Nursing course could provide long-term benefits.

H4: The emotion regulation strategies of nursing students in the intervention group participating in the MBSR will show positive changes in the post-test and follow-up compared to the pre-test.

While several studies have investigated the effects of Mindfulness-Based Stress Reduction (MBSR) programs on nursing students, most have focused primarily on changes in perceived stress levels. The present study contributes to the literature by also examining cognitive emotion regulation strategies, which have received less attention, particularly in nursing education contexts. Furthermore, the intervention was adapted for online delivery in response to the practical constraints of the COVID-19 pandemic. Although not the first of its kind, this study offers valuable insights into how mindfulness-based approaches may support stress management and emotional coping in nursing students under modern educational conditions.

Materials and Method

Type and Design

This randomized controlled study included treatment and control groups, with pre-test, post-test, and follow-up measures. The aim was to evaluate the impact of the Mindfulness-Based Stress Reduction (MBSR) program on nursing students' stress levels and emotion regulation abilities. Using G*Power 3.1.9.4, a two-tailed test with an alpha level of 0.05 and power (1-β) of 0.80 indicated that a minimum of forty participants was needed for a large effect size (Cohen's d=0.8). To account for potential attrition, the sample size was increased to fifty participants, with twenty-five in each group.

Place and Date

The study was conducted between February 2021 and July 2021 at a private university's School of Nursing in Istanbul.

Population and Sample

The target population consisted of second- and third-year nursing students (n=172) from a foundation university. Participants were recruited via email and online announcements and had to meet criteria such as being over 18 years old, having a PSS score of 26 or more, and having no visual or hearing impairments. The Perceived Stress Scale (PSS), a widely used psychological instrument developed by Cohen, Kamarck, and Mermelstein, [17] was used to assess students' perceived stress levels. Based on the Turkish adaptation of the scale, a score of 26 or higher was used as the cut-off to include students with moderate to high stress. This threshold was selected to ensure that participants were experiencing a level of stress suitable for evaluating the effects of the mindfulness intervention. The recruitment process emphasized voluntary participation, confidentiality, and the right to withdraw without consequence. Eligible students were then randomly assigned to intervention or control groups.

In the Turkish nursing education system, clinical placements typically begin in the second year and intensify during the third year. Therefore, second- and third-year students were selected for the study, as they are actively engaged in clinical practice and more likely to experience stress related to clinical settings. First-year students were excluded because they were still in the process of adapting to university life, had not yet started clinical training, and had limited in-person interaction due to COVID-19 restrictions. Fourth-year students were also excluded as they were in the graduation phase, focusing on clinical internships and thesis writing, which made it difficult for them to participate in the 1-month and 3-month follow-up assessments.

Randomization

Participants were randomly allocated to intervention and control groups using a random number table generated by an unbiased individual not involved in the study design or data analysis. A list of students from 1 to 50 was created, and a simple random sampling method was used for allocation. The group assignments were made using the random number generator tool provided at www.random.org, with the following distribution:

- **Intervention group:** 18, 11, 12, 6, 17, 5, 38, 9, 21, 43, 41, 35, 13, 4, 22, 23, 20, 7, 27, 45, 40, 50, 48, 1, 15
- **Control group:** 31, 44, 8, 24, 36, 3, 42, 34, 29, 25, 33, 26, 10, 19, 32, 2, 37, 30, 14, 39, 46, 47, 16, 49, 28.

Due to the COVID-19 pandemic, both groups continued their education in an online environment, which minimized direct interaction and reduced the risk of contamination or group influence. Additionally, statistical analyses were conducted by an independent statistician to ensure objectivity and reduce potential bias.

Data Collection Tools

Data used for the research were collected using the Individual Characteristics Form (ICF), Perceived Stress Scale (PSS), and Cognitive Emotion Regulation Questionnaire (CERQ).

Individual Characteristics Form

According to Arslan, [18] Azak,[19] and Demir and Gündoğan,[20] information on gender, residence area, grade level attained by participants, parents' education level, location of home, and stress levels was included in the questionnaire prepared with 19 questions by the researcher in line with the literature.

Perceived Stress Scale (PSS)

The Perceived Stress Scale (PSS) is a 14-item instrument developed by Cohen, Kamarck, and Mermelstein to assess the degree to which individuals perceive situations in their life as stressful.[17] It is a 5-point Likert-type scale ranging from "Never (0)" to "Very Often (4)." Seven of the items are positively worded and are reverse-coded. The total score defines the overall level of perceived stress, with scores between 11–26 indicating low stress, 27–41 moderate stress, and 42–56 high stress. The Turkish adaptation and validation of the scale was conducted by, [21] demonstrating strong psychometric properties among Turkish university students. In the present study, the Cronbach's alpha coefficient for the PSS was 0.84. Appropriate permission for use was obtained.

Cognitive Emotion Regulation Questionnaire (CERQ)

The Cognitive Emotion Regulation Questionnaire (CERQ) is a 36-item self-report scale developed by Garnefski, Kraaij, and Spinhoven to assess the cognitive strategies individuals use to manage stressful life events.[22] It consists of nine sub-dimensions: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame. Responses are given on a five-point Likert scale ranging from 1 (very untrue of me) to 5 (completely true of me). The Turkish adaptation of the scale was conducted by Tuna and Bozo,[23] who confirmed its validity and reliability in a Turkish student population. In the present study, the Cronbach's alpha coefficient for the CERQ was 0.87. Permission for use of the Turkish version was obtained prior to data collection.

Qualitative Data

In addition to quantitative measures, qualitative data were collected through semi-structured interviews conducted with

Table 1. Categorization of the opinions of nursing students in the intervention group on CERQ

	Positive - negative aspects dual theme					Development theme
CODE	**Coping with stress 1,2**	**Living in the moment 3,4**	**Mindfulness 5,6,7**	**Continuity 8,9**	**Attention 10**	**Application length 11**
*Initial codes						
S1		x	x			
S2	x	x				x
S3	x	x		x		
S4		x	x	x	x	
S5		x		x		
S6		x		x		x

*Initial Codes: 1 Stress management (n=1); 2 Coping with stress (n=1); 3 Living in the moment (n=3); 4 Understanding the emotions (n=1); 5 Recognizing self-potential (n=1); 6 Noticing what has happened (n=1); 7 Noticing what has not been noticed (n=1); 8 Repetitive practices (n=1); 9 Ensuring continuity (n=3); 10 Focusing on practices (n=1); 11 Length of meditation sessions (n=2). CERQ: Cognitive emotion regulation questionnaire.

participants in the intervention group after the completion of the program. The interviews aimed to explore students' perceptions of the program, including its benefits and challenges. The responses were thematically analyzed, and the resulting codes were grouped into categories. The findings of this analysis are presented in Table 1.

Process

During the research design stage, an ID number was obtained from the Office of Management and Budget; ClinicalTrials.gov (ID: NCT05100537) registered the study, which complied with international standards for experimental research. The CONSORT guidelines were followed to ensure transparency and reproducibility during this investigation (Fig. 1).

The Mindfulness-Based Stress Reduction (MBSR) program under this study took less time compared to conventional MBSR courses, as it targeted nursing students who had very busy timetables to enhance accessibility and participation. Each session lasted between 60 and 90 minutes, focusing mainly on body scan meditation, mindful walking, and loving-kindness meditation, which are core mindfulness practices suitable for this modified format.

Ethical Responsibilities

Ethical approval was obtained from Maltepe University Ethics Committee (Decision no: 2021/03-04, Date: 22.01.2021). Participants were informed about the purpose and method of the research, how it would be conducted, that they could withdraw from the research at any time if they wished, that their information would remain confidential, and their questions were answered. Written consent was collected via e-mail, and verbal consent was obtained during the preliminary interview. This study was conducted in accordance with the principles of the Declaration of Helsinki.

Intervention

The intervention consisted of an eight-week Mindfulness-Based Stress Reduction (MBSR) program incorporating mindfulness exercises such as body scan meditation, mindful walking, and loving-kindness meditation (Appendix 1). These activities were chosen based on their proven effectiveness in enhancing mindfulness and reducing stress, as supported by previous studies. The program also included group discussions, allowing participants to reflect on their mindfulness practice experiences and learn more about mindfulness techniques.

While the program was based on the principles of the MBSR model developed by Jon Kabat-Zinn, it did not fully follow the standard MBSR structure. Instead, the structure and content were adapted to meet the needs of nursing students and the practical limitations of online learning during the COVID-19 pandemic. For example, the one-day silent retreat typically included in standard MBSR programs was omitted due to time and delivery constraints. This approach aligns with previous studies demonstrating that modified MBSR programs can remain effective without a retreat component.[24,25]

Participants were asked to maintain weekly logs, recording the duration of daily home practice sessions and noting any significant events during these sessions outside the guided meetings. To ensure consistency and participant engagement in the online environment, specific precautions were taken during the intervention. At the beginning of the program, participants were provided with clear instructions regarding the technical and environmental setup. They were asked to keep their cameras on throughout the sessions, use headphones to minimize external noise, ensure they were in a quiet and private space (preferably alone), and avoid multitasking or engaging with other devices. The facilitator also conducted brief

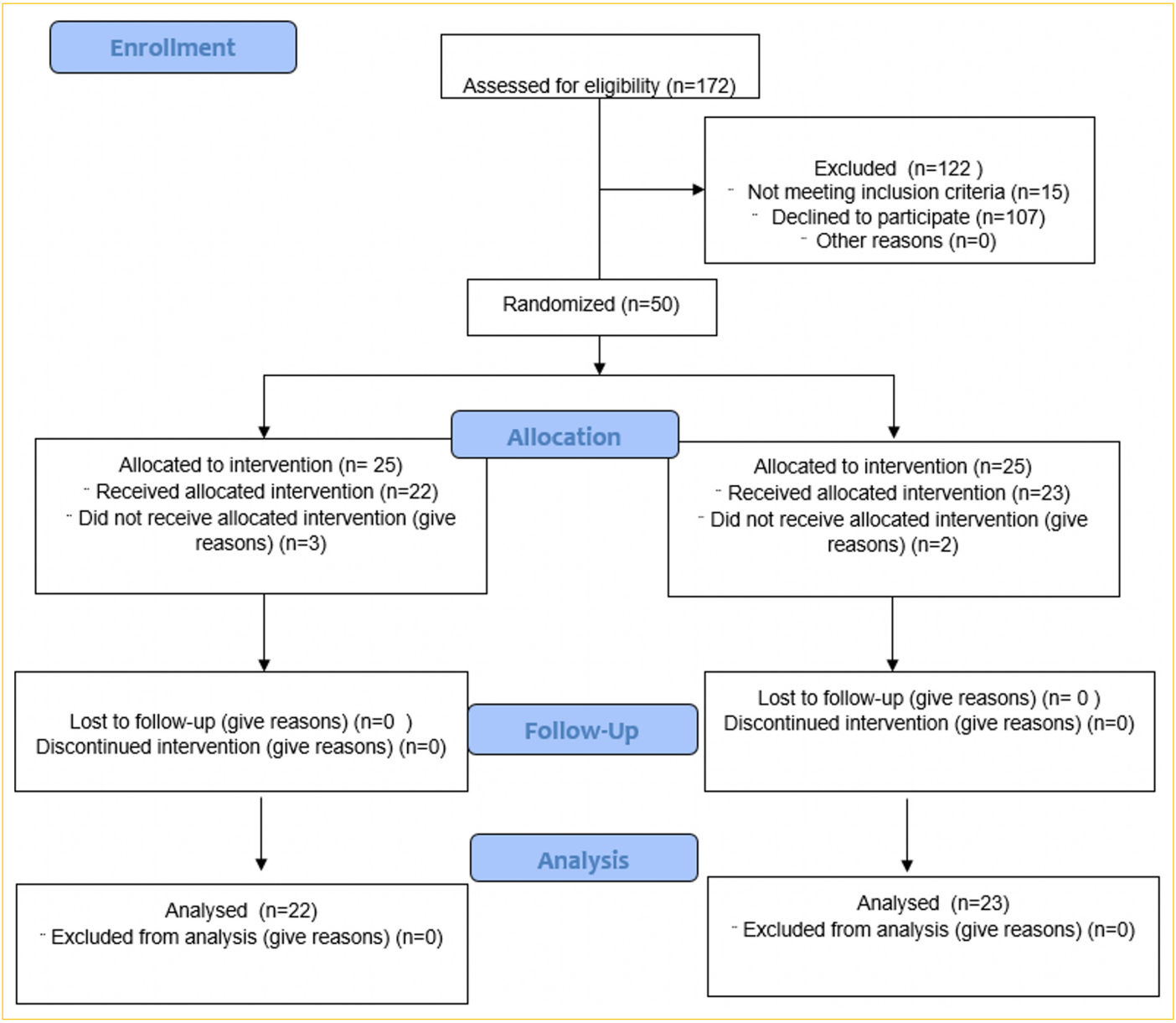

Figure 1. Consort flow diagram.

MBSR: Mindfulness-based stress reduction.

verbal check-ins at the start of each session to confirm that participants were visible and could hear clearly. These measures were taken to simulate a group mindfulness environment as closely as possible despite the online format.

To address potential distress or discomfort from mindfulness exercises, additional support mechanisms were provided, including access to counseling services and a dedicated session to discuss and manage any distressing experiences encountered during the program. The intervention was delivered by the researcher, who had received formal training in mindfulness-based practices and completed certification in MBSR. Although the researcher had not previously conducted mindfulness sessions specifically with students in healthcare fields, their training included practice-oriented modules for educational group settings. The researcher was not teaching or evaluating the participating students during the study period, which helped reduce potential bias.

During the study, three students in the intervention group dropped out after the first session, and two students in the control group completed only the pre-test. The final sample included 22 participants in the intervention group and 23 in the control group.

Control Group

The control group did not receive any intervention during the course of the study but were provided with MBSR program

materials upon completion of the study so that they would receive equal treatment. This helped maintain ethical standards while clearly comparing outcomes between intervention and control groups.

Data Analysis

The research data were analyzed using SPSS 25.0 for Windows. Descriptive statistics provided values for number, percentage, minimum–maximum, mean, and standard deviation. Data normality was assessed using Q-Q plots, with skewness and kurtosis values required to be between ±3 for normal distribution. For normally distributed data, independent t-tests were used to compare two groups, and repeated measures ANOVA was used to compare more than two groups. Bonferroni correction was applied to identify significant differences. The study included 22 participants in the intervention group and 23 in the control group, analyzed at a p=0.05 significance level within a 95% confidence interval.

Regression analysis was utilized to evaluate outcomes from randomized controlled trials and to determine factors influencing perceived stress levels, which was the primary outcome variable. The intervention status (intervention vs. control) was an independent variable in the analysis. Randomization accounted for baseline differences and socio-demographic variables, with analyses adjusted for group variations. Multiple linear regression was employed due to the continuous nature of the primary outcome variable.

The study's credibility depended on the researcher's ability to deliver the program effectively. Prior to the study, the researcher underwent formal training in mindfulness practices and completed a comprehensive MBSR facilitation program. This program included theoretical and practical components, supervised practice sessions, and teaching competence evaluation to ensure quality assurance.

Results

In order to ensure that the treatment and control groups were similar at baseline, various individual characteristics of students in both groups were assessed in detail, as shown in Appendix 2. The scores from the Perceived Stress Scale (PSS) and the Cognitive Emotion Regulation Questionnaire (CERQ) for both groups were analyzed to gain a complete understanding of how the Mindfulness-Based Stress Reduction (MBSR) program affected them.

In addition to the independent t-tests mentioned earlier, an extensive statistical analysis was conducted across all variables and at all time points. This consisted of repeated measures ANOVA in both PSS and CERQ scales for comparing pre-test, post-test, 1-month follow-up, and 3-month follow-up scores within and across groups. The intervention group showed significant improvement in PSS scores from pre-test to post-test, 1-month, and 3-month follow-ups, which indicated a continued decrease in perceived stress levels. There were also significant changes in some of the subscales of the CERQ, including self-blame, acceptance, rumination, and putting into perspective, suggesting an improved ability to regulate emotions.

In the control group, no significant differences were observed in PSS scores over time, indicating that their stress levels remained stable throughout the study period. There was also no significant progress made by the control group in emotion regulation, as shown by CERQ results. These findings were further supported by two-way repeated measures ANOVA, which revealed a strong interaction effect between Time and Group for both PSS and CERQ, indicating that the MBSR program was highly successful in reducing stress among nursing students as well as enhancing their emotion regulation capabilities. All analyses were carried out using SPSS for Windows 25.0, and statistical significance was considered at $p<0.05$. The detailed statistical results for each analysis, including test values and significance levels, are presented in Appendix 3.

Table 1 presents the themes, sub-themes, and initial codes derived from nursing students' reflections on the MBSR program. Two main themes were identified: (1) positive/negative aspects and (2) development. Within the dual theme of positive/negative aspects, five sub-themes emerged: coping with stress, living in the moment, mindfulness, continuity, and attention. The development theme was mainly represented by participants' comments on the length and structure of the intervention.

Discussion

The aim of this study was to examine the effect of the Mindfulness-Based Stress Reduction Program (MBSR) on perceived stress levels and emotion regulation skills among nursing students. The findings revealed that the hypothesis "The perceived stress level scores of nursing students in the intervention group participating in MBSR will decrease compared to nursing students in the control group (H1)" was not supported. This result may be attributed to several factors. First, the relatively small sample size (n=45) may have limited the statistical power to detect significant differences between groups. Second, during the intervention period, both groups were exposed to similar external stressors such as academic workload, online education challenges, and residual pandemic-related anxiety, which may have influenced the control group's stress levels and minimized between-group differences. These points have been acknowledged in the discussion to provide context for the unsupported H1 hypothesis.

However, the hypothesis "The perceived stress level post-test and follow-up scores of nursing students in the intervention group participating in MBSR will decrease compared to their pre-test scores (H2)" was supported. Ratanasiripong et al.[26] randomly divided 89 students in Thailand into three groups: one group received biofeedback, another mindfulness meditation, and the third served as the control group. It was found that the perceived stress levels of students in the mindfulness meditation group decreased. Drew et al.[27] divided first- and third-year students into two groups and applied yoga and mindfulness exercises to the intervention group, reporting that the perceived stress level of the intervention group decreased compared to the control group. Dos Santos et al.[28] conducted a non-controlled study with nursing students, applying a stress reduction program consisting of mindfulness exercises and meditations. It was determined that the perceived stress levels of participants decreased after the program. Similarly, Sparado reported that an eight-week mindfulness program applied to nursing students reduced their perceived stress levels.[29] Burger et al.[30] conducted a randomized controlled study with nursing students, applying mindfulness meditations, and found that stress levels in the intervention group decreased. Studies have shown that mindfulness-based programs reduce stress levels among nursing students.[26,30–40] MBSR, designed to increase self-regulation and personal awareness by staying present in the moment during negative situations, is thought to reduce perceived stress levels.

Based on the study findings, the hypotheses "The emotional regulation strategies of nursing students in the intervention group participating in MBSR will differ from those of nursing students in the control group (H3)" and "The emotional regulation strategies of nursing students in the intervention group participating in MBSR will differ in post-tests and follow-ups compared to pre-tests (H4)" were supported. Lee et al.[41] found that as mindfulness levels increased among nursing students, the use of negative emotional regulation strategies decreased, aligning with the study's findings. Li and Qin conducted a randomized controlled study with university students and found that after applying mindfulness exercises to the intervention group, the use of rumination and blaming others as emotional regulation strategies decreased.[42] Demir and Gündoğan observed that after a mindfulness-based cognitive therapy program for university students, the use of negative emotional regulation strategies decreased.[20] Jimenez et al.[43] reported that as mindfulness levels increased among senior university students, the use of positive emotional regulation strategies increased. Gülgez and Gündüz applied a dialectical behavior therapy-based emotional regulation program to university students and found that the use of negative emotional regulation strategies decreased by the end of the program.[44] In the literature, dialectical behavior therapy is regarded as a mindfulness-based approach.[44,45] Rivzi et al.[46] concluded that dialectical behavior therapy-based emotional regulation programs were effective in managing emotional regulation strategies among university students.

One of the aims of MBSR is not to ignore unwanted negative emotions but to help individuals accept both positive and negative emotions. It is thought that mindfulness practices enable the use of positive emotional regulation strategies in negative situations. Qualitative research conducted with students and nurses through MBSR aligns with the findings of this study. Qualitative findings from participant interviews (Appendix 3) provided additional insight into the impact and practicality of the intervention. Many students reported increased awareness of their emotions and stress responses and appreciated the applicability of mindfulness techniques such as body scan and mindful breathing. These strategies were frequently mentioned in the context of clinical practice and personal stress management. However, some participants also expressed difficulties maintaining attention during online sessions and a desire for longer or more interactive content. These insights underscore the value of incorporating student feedback into future program design and suggest that blended or face-to-face formats may enhance engagement.

Van der Riet et al.[47] found that MBSR improved focus and self-awareness. Tarrasch stated that participants' awareness of their emotions, thoughts, and behaviors increased in his study.[48] Ögel[45] reported that mindfulness-based practices improved focus and supported stress management skills. Dos Santos et al.[28] reported that participants stated their focus durations and mindfulness levels increased, and their stress levels decreased after the program. Sparado found that nursing students expressed the need for continuity of mindfulness practices to maintain effectiveness and noted that their awareness, focus duration, and stress management skills increased.[29] Sears et al.[49] found that while some students had doubts about the effectiveness of meditations without continuity, faced challenges with focusing, and reported positive improvements such as increased attention and mindfulness levels, stress levels decreased overall.

Limitations

This study has several limitations that should be acknowledged. First, the relatively small sample size may have reduced the statistical power to detect between-group differences. Second, the absence of a full-day silent retreat, an essential component of the standard MBSR curriculum, may have influenced the intervention's overall impact. Third, the

program was delivered online, which might have affected the depth of engagement and reduced the interpersonal dynamics typically observed in face-to-face sessions. Fourth, both data collection and intervention delivery were carried out by the same researcher, which introduces the potential for bias, despite efforts to standardize procedures. Finally, the study's follow-up period was limited to three months, preventing the assessment of long-term effects. These limitations have been clearly stated to provide context for interpreting the findings and to guide future research.

Conclusion

This study highlights the positive impact of the Mindfulness-Based Stress Reduction (MBSR) program on nursing students' perceived stress levels and cognitive emotion regulation strategies. Despite the lack of significant differences between the intervention and control groups in PSS scores, improvements were observed within the intervention group, particularly in reducing self-blame and rumination while increasing acceptance, positive refocusing, and perspective-taking. Feedback from participants also emphasized the program's benefits in enhancing present-moment awareness and stress coping skills, though concerns about the need for continued practice and session duration were noted. Based on these findings, it is recommended that MBSR programs be integrated into nursing curricula as elective or core components to foster emotion regulation and stress management skills from the early stages of nursing education. Future research should focus on larger sample sizes and comparative analyses with alternative programs to better support the emotional well-being of nursing students.

Ethics Committee Approval: The study was approved by the Maltepe University Ethics Committee (no: 2021/03-04, date: 22/01/2021).

Informed Consent: Informed consent was obtained from all participants.

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Appendix 1. MBSR program content

	Session content	Aim and objective
Week 1		
60–90 min	Getting to know each other, introduction to the program, and basic concepts	To meet the participants and introduce the mindfulness program and its main components
The participants were met and their expectations from the program were learned. Information was given on how the 8-week program would progress. The basic concepts of the program such as the definition of mindfulness, focus, meditation, and awareness were discussed. The raisin meditation was applied to learn the awareness of daily life, which is the basic discipline of the mindfulness program. At the end of the meditation, participants shared their experiences.		
Homework: Performing the daily tasks (brushing teeth, taking a shower, drinking tea and coffee, etc.) during the week with awareness, as in the raisin meditation.		
Week 2		
60–90 min	Body awareness	Developing body awareness in participants, encouraging them to recognize and accept their bodily sensations
Their experiences with last week's homework were discussed. A 40-minute Body Scan Meditation was performed. Participants commented on their experience at the end of the meditation		
Homework: Having a mindful walk for 15–30 minutes every weekday without a special destination.		
Week 3		
60–90 min	Mindful movement, mindful breath	Increasing movement and breath awareness in daily life
The participants spoke about their homework for the previous week. Movement Awareness meditation, Breathing Space Awareness meditation, and Attention Management exercise with the 5 senses were performed. At the end of the meditations, the participants shared their experiences.		
Homework: Watching the water boil in the kettle.		
Week 4		
60–90 min	Mindful thinking, self-love, and self-compassion	Being aware of the thoughts and of the things happening in the environment in daily life, helping participants treat themselves kindly and be aware of their needs.
The participants shared their ideas about last week's homework. Sounds-thoughts meditation and loving kindness meditation for self-compassion were performed. Participants shared their experiences when the session ended.		
Homework: Consciously changing the place you sit at home, at school, and at work every day.		
Week 5		
60–90 min	Coping with difficult emotions	Helping participants cope with the difficulties encountered in daily life by increasing their coping skills
Their experiences with last week's homework were discussed. Difficulty meditation, self-compassion, and shame meditation were applied. At the end of the meditations, the participants shared their experiences.		
Homework: Plant seeds or flowers		
Week 6		
60–90 min	Coping with stress	Helping individuals understand stress, be aware of the stresses they experience in daily life, and gain effective coping methods
The participants spoke about their homework for the previous week. A short body scan and breathing space exercises were done. The methods of coping with stress were discussed with each of the participants. At the end of the meditations, the participants commented on their experiences.		
Homework: Writing a letter to yourself		
Week 7		
60–90 min	Being stuck in the past or living in the present?	Helping participants reduce their negative thoughts about themselves, accept the self, and find peace
The participants shared their opinions about last week's homework. Friendship meditation, soften your attitude towards yourself meditation was performed. Participants commented on their experiences at the end of the meditations.		
Homework: Doing a favor to a random person		
Week 8		
60–90 min	Mindful breath, mindful movement, evaluation of the program	Remembering what has been learned, getting feedback about the program
The participants spoke about their homework for the previous week. Breathing meditation and awareness in movement meditation were applied. Feedback was received about the achievements of the program, its shortcomings, and what can be done to increase its effectiveness.		

MBSR: Mindfulness-based stress reduction

Appendix 2. Individual characteristics of the patients (n=45)

Variables	Intervention		Control		Test value	p
	n	%	n	%		
Gender						
Female	21	95.5	22	95.7	0.001**	0.974
Male	1	4.5	1	4.3		
Grade						
2	10	45.5	16	69.6	2.680**	0.136
3	12	54.5	7	30.4		
Longest area of residence						
Village	2	9.1	2	8.7	1.384**	0.779
District	6	27.3	4	17.4		
City	5	22.7	4	17.4		
Metropolitan	9	40.9	13	56.5		
Education level of mother						
Illiterate	0	0.0	2	8.7	3.094**	0.425
Primary School	16	72.7	12	52.2		
High School	5	22.8	8	34.8		
University	1	4.5	1	4.3		
Education level of father						
Primary School	10	45.5	13	56.5	3.452**	0.164
High School	11	50.0	6	26.1		
University	1	4.5	4	17.4		
Employment status						
Employed	1	4.5	1	4.3	0.001**	0.974
Unemployed	21	95.5	22	95.7		
Place of residence						
Private dorm	3	13.6	0	0.0	3.226**	0.311
Student house	1	4.5	2	8.7		
With family	18	81.9	21	91.3		
A diagnosed psychiatric disorder						
Yes	1	4.5	0	0.0	1.069**	0.489
No	21	95.5	23	100.0		
Stress						
No (≤5)	10	45.5	11	47.8	0.025**	0.873
Yes (>5)	12	54.5	12	52.2		
Economic status						
Income equal to expenses	20	90.9	21	91.3	0.002**	0.963
Income greater than expenses	2	9.1	2	8.7		
Physical condition						
Fair	2	9.1	4	17.4	0.911**	0.758
Good	15	68.2	13	56.5		
Very Good	5	22.7	6	26.1		
Mental health status						
Poor	1	4.5	4	17.4	3.352**	0.359
Fair	6	27.3	9	39.1		
Good	13	59.1	9	39.1		
Very Good	2	9.1	1	4.3		
Academic achievement						
Fair	6	27.3	5	21.7	0.413**	0.859
Good	14	63.6	15	65.3		
Very Good	2	9.1	3	13.0		

Appendix 2. Cont.

Variables	Intervention		Control		Test value	p
	n	%	n	%		
Studying Nursing was my decision						
Yes	19	86.4	23	100.0	3.360**	0.109
No	3	13.6	0	0.0		
I love my profession						
Yes	21	95.5	22	95.7	0.001**	0.974
No	1	4.5	1	4.3		
School life satisfaction						
Very dissatisfied	1	4.5	0	0.0	1.346**	0.650
Somewhat satisfied	11	50.0	14	60.9		
Very satisfied	10	45.5	9	39.1		
Relatives						
No	1	4.5	2	8.7	0.311**	0.577
Yes	21	95.5	21	91.3		
Friends						
No	6	27.3	3	13.0	1.423**	0.284
Yes	16	72.7	20	87.0		
Total	22	100.0	23	100.0		

**: Independent t-test.

Appendix 3. Comparison of the PSS and CERQ sub-dimension pre-test, post-test, 1-month, and 3-month follow-up scores of the nursing students in the intervention and control groups

	Pre-test (1)		Post-test (2)		1-Month (3)		3-Month (4)		Test value	p	Bonferroni
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
Perceived stress scale											
Intervention	29.18	8.54	21.27	6.99	19.86	7.17	22.68	11.39	6.051***	0.001*	1>2,1>3,1>4
Control	28.04	7.41	28.08	7.92	28.13	8.83	29.39	8.70	2.763***	0.051	
Test value	0.478**	-1.260**	-1.358**	0.428**							
p	0.635	0.214	0.181	0.671							
Cognitive emotion regulation questionnaire											
Self-blame											
Intervention	9.90	3.08	8.18	2.42	7.36	1.94	7.59	2.03	5.368***	0.002	1>3, 1>4
Control	10.39	3.66	9.60	3.49	10.26	3.67	9.39	3.35	0.526***	0.666	
Test value	-0.476**	-1.583**	-3.288**	-2.164**							
p	0.636	0.121	0.002*	0.036							
Acceptance											
Intervention	10.68	2.47	14.59	2.48	15.54	2.48	10.95	2.85	31.169***	0.000	3>1, 2>1,4>1
Control	10.95	2.93	11.43	3.21	12.17	3.22	11.13	2.51	0.710***	0.549	
Test value	-0.339**	3.673**	3.914**	-0.220**							
p	0.736	0.001	0.000	0.827							
Rumination											
Intervention	12.95	3.56	9.13	2.74	9.00	2.81	8.54	2.57	17.949***	0.000	1>2,1>3,1>4
Control	13.17	3.27	13.00	3.63	13.04	3.81	11.82	3.35	0.777***	0.511	
Test value	-0.215**	-4.151**	-3.891**	-3.668**							
p	0.831	0.000	0.000	0.001							
Positive refocusing											
Intervention	9.72	2.37	11.04	3.79	11.68	4.14	11.09	3.59	1.290***	0.286	
Control	9.56	3.52	11.73	4.19	11.86	4.28	11.17	4.35	1.784***	0.159	
Test value	0.180**	-0.581**	-0.149**	-0.070**							
p	0.858	0.564	0.882	0.945							
Refocus on planning											
Intervention	13.22	3.11	13.72	3.34	11.68	4.14	12.90	3.57	0.240***	0.868	
Control	13.08	3.48	14.82	3.74	11.86	4.28	14.17	3.99	1.636***	0.190	
Test value	0.142**	-1.036**	-0.149**	-1.118**							
p	0.888	0.306	0.882	0.270							
Positive reappraisal											
Intervention	12.45	2.84	18.77	1.020	18.54	1.76	15.90	3.23	38.082***	0.000	1<2,1<3
Control	13.04	3.97	14.04	3.58	14.56	3.51	13.91	4.03	0.700***	0.555	
Test value	-0.570**	5.956**	4.767**	1.826**							
p	0.572	0.000	0.000	0.075							
Putting into perspective											
Intervention	11.59	3.11	16.54	2.38	17.04	2.51	11.72	3.71	22.248***	0.000	1<2,1<3,2
Control	11.95	3.61	12.86	3.58	12.78	3.84	11.60	4.09	0.581***	0.629	
Test value	-0.363**	4.031**	4.376**	0.102**							
p	0.718	0.000	0.000	0.920							
Catastrophizing											
Intervention	8.36	3.81	6.81	2.70	6.81	3.40	8.22	3.33	1.645***	0.188	
Control	8.65	3.78	8.00	3.66	7.86	4.04	7.30	3.77	0.454***	0.715	
Test value	-0.255**	-1.226**	-0.941**	0.868**							
p	0.800	0.227	0.352	0.390							
Other-Blame											
Intervention	8.00	2.76	7.09	3.42	7.13	3.66	8.13	2.98	0.686***	0.564	
Control	8.17	2.62	8.39	3.97	8.47	2.92	8.39	3.53	0.032***	0.992	
Test value	-0.217**	-1.174**	-1.361**	-0.261**							
p	0.829	0.247	0.181	0.796							

: Independent t-test; *: Variance analysis for the repeated measurements(1) pretest (2) post-test (3) 1-month follow-up (4) 3-month follow-up. PSS: Perceived stress scale; CERQ: Cognitive emotion regulation questionnaire; SD: Standard deviation.

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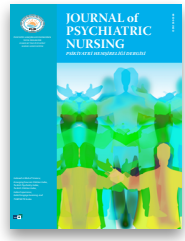

Original Article

Portuguese nurses' mental health literacy about depression: A descriptive cross-sectional study

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Abstract

Objectives: Over the past decade, extensive evidence has pointed to a high prevalence of mental health issues among nurses, particularly stress, anxiety, depression, and burnout. At the same time, there has been a call to assess nurses' mental health literacy (MHL) and prioritize initiatives that promote MHL, which could improve their mental health. To evaluate the mental health literacy regarding depression of Portuguese nurses working in a hospital setting.

Methods: A descriptive cross-sectional study was conducted with nurses in Portugal. Mental health literacy was evaluated using QuALiSMental for depression. Summary statistics (e.g., percentage distributions) were calculated using SPSS 28. A point estimate and confidence interval for the proportion were used for inference. STROBE guidelines were used to report the study.

Results: A total of 483 nurses completed the Questionnaire for Assessment of Mental Health Literacy (QuALiSMental). The results show good MHL, with a particular emphasis on recognizing depression (95% CI: 78.77–85.62). However, these values are not extendable to all components of MHL, with notable gaps in knowledge regarding some mental health first-aid strategies.

Conclusion: The results observed in this study, although still distant from what is considered optimal, show—compared to other studies conducted in different contexts using similar methodologies—that nurses' MHL levels are generally positive. Adequate levels of MHL can contribute to using this knowledge to benefit one's mental health and that of others with whom they interact in their personal and professional daily lives. In the case of depression, adequate levels of MHL can help reduce the time between the onset of the first signs and symptoms and the provision of specialized help, potentially preventing the worsening of suffering and the progression to chronic situations.

Keywords: Depression; health literacy; mental health; nursing; survey

Over the last decade, and especially as a result of the COVID-19 pandemic and the post-pandemic period, the literature has shown a substantial increase in the prevalence of mental health problems and mental disorders among health professionals, especially nurses.[1–3]

Nursing professionals account for more than half of the healthcare workforce worldwide, and they are considered the professional group most affected by these problems.[4,5] Simultaneously, they are also the group most vulnerable to developing mental health problems and psychopathology.[6]

Moreover, while they are trained to look after the mental health of others, in many cases, they do not invest in or look after their own mental health.[7] This is due, among other things, to the fact that nursing work is carried out in increasingly complex and de-

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manding environments, and nurses are subject to high physical and psychological pressure, which means an increased risk and susceptibility to developing mental health problems. High levels of stress at work, long and exhausting shifts, working hours that hinder adequate sleep hygiene, repeated exposure to patients' suffering, and lack of support from teams are some of the causes that can contribute to the increase in these problems.[8]

In this scenario, depression, along with anxiety, stress, and burnout, takes center stage.[9] In the specific case of depression, studies carried out prior to the pandemic period already indicated worrying figures, with the rate of depression being twice as high in nurses compared to the general population and other professionals.[10,11] More recently, during the pandemic and post-pandemic periods, incidences have been higher than 20%.[12]

The severe consequences of depression at an individual, family, and professional level point, among other things, to a reduction in quality of life and well-being, since the suffering and incapacity generated jeopardize personal and family life, as well as affect the ability to provide safe, quality healthcare, influencing relationships with patients and families, and even the functioning of healthcare teams.[13]

In this context, mental health literacy (MHL)—the beliefs and knowledge that help recognize, manage, or prevent mental health problems in everyday life[14,15]—is considered a critical determinant impacting nurses' mental health at different levels.[16] It is understood in the field of preventive mental health, where it is a prerequisite for recognizing mental health problems, favoring early intervention, and consequently having a positive effect on prognosis and treatment success,[15] or in the field of mental health promotion, since it is also considered a condition for the adoption of healthy behaviors and lifestyles conducive to the quality of life and well-being of individuals.[16] In the latter case, a revision of the MHL concept is pointed out. However, the nuances introduced do not change the concept's initial proposal, including its measurement.[17]

In MHL, nurses play a dual role: both as the target of interventions aimed at improving their mental health and, through this, as carers who can facilitate and enhance the mental health of those with whom they interact daily.[18] However, although MHL is considered a key concept for nursing, there is little evidence of studies evaluating nurses' MHL, specifically regarding depression.[19,20]

Consistent with this information and with the way of looking at mental health problems and the interventions to be developed, this study aims to characterize mental health literacy about depression based on a sample of nurses working in hospitals in the central region of mainland Portugal. This study enables the concurrent assessment of various MHL components, thereby facilitating the identification of specific intervention areas and domains.

What is presently known on this subject?

- Mental health literacy (MHL) is a key concept for mental health promotion and is related to mental health help-seeking behaviors. MHL among health professionals, particularly nurses, tends to be slightly higher than that of the general population but still falls short of optimal values.

What does this article add to the existing knowledge?

- Although there is a satisfactory level of literacy regarding depression, it is not extendable to all components. The deficits found in some areas may constitute obstacles to seeking mental health help and may also reduce the ability to provide mental health first aid to those with whom nurses interact daily.

What are the implications for practice?

- Programs aimed at improving mental health literacy for nurses should be designed based on evidence highlighting the knowledge and beliefs they use to manage their mental health in daily life. Different stakeholders can use these results to develop mental health literacy programs. They represent valuable evidence that can be used to improve nurses' mental health.

To evaluate the mental health literacy regarding depression of Portuguese nurses working in a hospital setting.

Materials and Method

Research Question

What is the extent of nurses' mental health literacy regarding depression, specifically in relation to:

a) Ability to recognize signs and symptoms of depression;
b) Knowledge about appropriate help-seeking pathways and evidence-based treatment options;
c) Understanding self-help strategies for managing depressive symptoms;
d) Knowledge to give mental health first aid to others; and
e) Knowledge of preventive strategies?

Study Design

We conducted a descriptive cross-sectional study using a quantitative approach and an online survey. In this study, we followed the STROBE recommendations.[21]

Participants

The sample size, with a confidence level of 95% and a margin of error of 4.25%, was n=481 nurses. Given that the refusal rate for this type of study is close to 20%, the questionnaire was sent to a total of 587 nurses, with 483 valid responses.

The sample size was determined based on the following formula:

$$n = \frac{\frac{z^2 * (pq)}{e^2}}{1 + (\frac{z^2 * (pq)}{e^2 N})} = \frac{\frac{1.96^2 * (0.5 * 0.5)}{0{,}0425^2}}{1 + (\frac{1.96^2 * (0.5 * 0.5)}{0{,}0425^2 (5000)})} \approx 481 \text{ nurses}$$

Where:
z=1.96
p=0.5
q=1-p
e=0.0425
N=5000

Data Collection Tools

Questionnaire for Assessment of Mental Health Literacy (QuaLiSMental)

The data collection instrument,[22] based on the Survey of Mental Health Literacy – Interview Version,[23] consists of a set of items aimed at assessing the five components of mental health literacy, using different response formats.

The first part of the questionnaire includes instructions for completion and questions on nurses' sociodemographic information and professional categories.

This is followed by a vignette describing a case of depression (according to the criteria for Major Depressive Episode in DSM-V[24]) in a 33-year-old woman named Sophia, which serves as the target for all the questions in the subsequent sections.

Case vignette

Sophia is 33, married, and has a 6-year-old son. She has felt unwell for the last two months without any reason to justify it. She wakes up in the morning with a sense of heaviness that persists throughout the day. She does not enjoy the things she usually would, like playing with her son. In fact, nothing gives her pleasure, and even when good things happen, they do not seem to make her happy. Her days go on, but it has not been easy. Even the smallest tasks have been challenging to accomplish. She says it is hard for her to concentrate on anything. She feels drained of energy and strength. Even though she feels tired, she cannot fall asleep at night. She feels worthless and lacks the courage to face challenges. Her family has noticed that over the last two months she has changed and no longer seems the same, to the point where she has withdrawn.

Table 1. Distribution of respondents endorsing each category to describe the problem shown in the vignette (n=483)

Labels	n	%
Depression	435	90.13
Psychological/emotional/mental problems	168	34.87
Stress	103	21.27
Nervous breakdown	91	18.86
Mental illness	65	13.38

Components of QuaLiSMental

Recognizing depression: Several labels were used for nurses to choose from in a multiple-choice format, including depression, stress, anxiety, and nervous breakdown (items are presented in Table 1).

- Eight items constitute knowledge of professional help, and six items cover knowledge of treatments available. For each item, participants could select one of the following response options: helpful, harmful, neither, or don't know. Content items are presented in Table 2.
- Knowledge of interventions is constituted by 12 items (content items in Table 3). For each item, participants could select one of the following response options: helpful, harmful, neither, or don't know.
- Knowledge and skills to give first aid and support to others are constituted by ten actions/items (Table 3). The

Table 2. Distribution of nurses endorsing various potential types of help (n=483)

	Helpful		Harmful		Neither		Don't know	
	n	%	n	%	n	%	n	%
Different people who could possibly help								
A general practitioner	362	75.00	7	1.46	63	13.04	50	10.42
A psychologist	469	97.08	3	0.63	4	0.83	7	1.46
A nurse	403	83.33	0	0.00	43	8.96	37	7.71
A social worker	61	12.71	16	3.33	282	58.33	124	25.62
A psychiatrist	424	87.71	4	0.83	18	3.75	37	7.71
A telephonic helpline	235	48.54	30	6.25	108	22.29	111	22.92
A close family member	338	70.00	10	2.08	57	11.88	78	16.04
A close friend	422	87.29	4	0.83	22	4.58	35	7.29
Medicines								
Vitamins	166	34.38	6	1.25	220	45.63	90	18.75
Tea	137	28.33	6	1.25	243	50.42	97	20.00
Tranquillizers	130	26.88	79	16.46	116	23.96	158	32.71
Antidepressants	326	67.50	16	3.33	26	5.42	115	23.75
Antipsychotics	19	3.96	164	33.96	101	20.83	199	41.25
Sleeping pills	246	50.83	30	6.25	67	13.96	140	28.96

Table 3. Distribution of nurses endorsing knowledge about self-help interventions and mental health first aid (n=483)

	Helpful		Harmful		Neither		Don't know	
	n	%	n	%	n	%	n	%
Interventions								
Becoming more physically active	448	92.71	1	0.21	18	3.75	16	3.33
Getting relaxation training	440	91.04	1	0.21	20	4.17	22	4.58
Practicing meditation	390	80.63	5	1.04	30	6.25	58	12.08
Getting acupuncture	197	40.83	3	0.63	95	19.79	187	38.75
Getting up early ….	248	51.25	5	1.04	124	25.62	107	22.08
Receiving therapy….	471	97.50	2	0.42	1	0.21	9	1.88
Looking up a web site ….	100	20.63	188	38.96	109	22.50	87	17.92
Reading a self-help ….	209	43.33	28	5.83	133	27.50	113	23.33
Joining a support group ….	280	57.92	7	1.46	64	13.33	132	27.29
Going to a specialized ….	465	96.25	2	0.42	3	0.63	13	2.71
Using alcohol to relax	4	0.83	452	93.54	19	3.96	8	1.67
Smoking ….	1	0.21	444	91.88	21	4.38	17	3.54
Knowledge and skills to give first aid and support to others								
Listen to her problems .	477	98.75	2	0.42	3	0.63	1	0.21
Talk to her firmly about ….	135	27.92	160	33.13	132	27.29	56	11.67
Suggest she seek ….	470	97.29	1	0.21	5	1.04	7	1.46
Make an appointment for …..	314	65.00	20	4.17	79	16.25	70	14.58
Ask her whether she is ….	212	43.96	95	19.58	69	14.37	107	22.08
Suggest she have a few drinks …	7	1.46	441	91.25	24	5.00	11	2.29
Rally friends to cheer …	217	45.00	56	11.67	103	21.25	107	22.08
Not acknowledging ….	3	0.63	468	96.88	9	1.88	3	0.63
Keep her busy to ….	184	38.13	93	19.17	139	28.75	67	13.96
Encourage her to…	401	82.92	3	0.63	43	8.96	36	7.50

Table 4. Distribution of respondents endorsing each item on beliefs about prevention (n=483)

Beliefs about prevention	Yes		No		Don't know	
	n	%	n	%	n	%
Keeping physically active	408	84.58	25	5.21	49	10.21
Avoiding situations that …	370	76.67	68	14.17	44	9.17
Keeping regular contact ….	415	85.83	26	5.42	42	8.75
Keeping regular contact ….	404	83.54	24	5.00	55	11.46
Not using drugs	374	77.50	63	13.13	45	9.38
Never drinking alcohol ….	335	69.38	80	16.46	68	14.17
Making regular time for …	430	89.17	10	2.08	42	8.75
Having a religious or spiritual…	172	35.63	78	16.04	233	48.33

response format was: helpful, harmful, neither, or don't know.

- Knowledge of how to prevent mental disorders is constituted by eight items (Table 4). The response options were yes or no.

The reliability and validity studies conducted in the Portuguese context indicate that QuaLiSMental demonstrates good psychometric properties.[22]

Data Collection

This study was conducted in hospitals in the Centre Region of mainland Portugal, with data collected between September and October 2022. Data were collected using the online platform Encuesta Fácil (https://www.encuestafacil.com). Participants were randomly selected from the list of emails, which were extracted using the random.org software (https://www.random.org/).

Ethics Approval

Authorization to proceed with data collection was requested from the nursing directors of the hospitals. The opinion was positive, and conditions were created for data collection to be carried out via email. This research was conducted according to the Declaration of Helsinki for medical research involving human participants, and the study and survey questionnaire were previously approved by the Ethics Committee of UICISA-E of the Nursing School of Coimbra (No. P867/04-2022). The data collection instrument was accompanied by an informed consent form, ensuring anonymity and guaranteeing confidentiality.

Data Analysis

Data were analyzed using IBM-SPSS 28.0 software. As this is a descriptive exploratory study, we calculated appropriate summary statistics, such as percentage frequencies, to meet the study's objectives. A 95% confidence interval for proportion was calculated for correct recognition of depression.

Results

The study sample comprised 483 nurses, 18.6% male and 81.4% female. The mean age was 42.43 years (SD=10.55 years), and the median was 42.30 years. In terms of marital status, the majority were married (65.5%), followed by single (24.6%), divorced (8.9%), and widowed (0.8%). Regarding the professional category, the majority (60.9%) were general nurses, followed by specialists (35.4%) and managers (3.7%).

Recognition of Depression

Table 1 shows the responses given by nurses to the question, "In your opinion, what is going on with Sophia?" Depression was the most common answer (90.13%), followed by psychological/mental/emotional problems (34.87%), stress (21.27%), nervous breakdown (18.86%), and mental illness (13.38%). The corrected categories were grouped to allow calculation of the percentage recognizing depression. It was found that 82.19% of the nurses (95% CI: 78.77–85.62) recognized Sophia's situation as depression.

When asked if they would seek help in a situation similar to the one described in the vignette, 372 (77.02%) said they would without reservation, 11 (2.28%) said they would not, and 100 (20.70%) were reluctant to ask for help, saying they did not know.

Knowledge of Professional Help and Available Treatments

Concerning the different people (and professionals) who could help Sophia, Table 2 shows that the health professionals most often considered helpful were psychologists (97.08%), followed by psychiatrists (87.71%), nurses (83.33%), and general practitioners (75.00%). Friends (87.29%) or family members (70.00%), as informal supportive people, were frequently rated as helpful. The telephone helpline was only perceived as valuable by around half of the nurses (48.54%). Notably, 58.33% of the participants did not know whether the social worker was helpful or harmful, and 22.29% thought the same about the telephone helpline. Additionally, 22.92% even stated they had no opinion about the helpline.

Regarding products, vitamins were considered helpful by 34.38% of nurses, but 64.38% considered them neither beneficial nor harmful (45.63%) or did not know (18.75%). Although 28.33% considered teas beneficial, 50.42% thought they were neither helpful nor harmful, and 20.0% said they had no opinion.

For tranquilizers, 26.88% considered them beneficial, 23.96% did not know if they were useful or harmful, and 32.71% had no opinion. Regarding medication, antidepressants were perceived as valuable by 67.5%, but 23.75% had no opinion. Antipsychotics were considered harmful by 33.96% of participants, 20.83% considered them neither valuable nor harmful, and 41.25% had no opinion. Sleeping pills were considered helpful by approximately half of the sample (50.83%), with a substantial proportion saying they had no opinion (28.96%).

Knowledge of Effective Self-help Strategies and Skills to Give First Aid and Support to Others

In terms of strategies (Table 3), "receiving therapy with a specialized professional" was chosen as the most helpful strategy (97.50%), followed by "looking for a specialized mental health service" (96.25%), "doing more physical activity" (92.71%), and "practicing meditation" (80.63%). "Joining a support group of people with similar problems" and "getting up early and sunbathing in the morning" were perceived as valuable by 57.92% and 51.26%, respectively.

Among the strategies considered harmful, "using alcohol to relax" (93.54%) and "smoking to relax" (91.88%) were perceived as harmful by the vast majority of the sample (>90%). "Reading a self-help book about the problem" and "getting acupuncture" were perceived as valuable by around two-fifths of the participants, namely 43.33% and 40.83%. It should be noted that 38.96% considered that "looking for information on the website about the problem" could be harmful.

In terms of knowledge and skills for providing first aid (Table 3), the strategies chosen by the nurses as being the most useful were "listening to her problems in an understanding way" (98.75%), "suggesting that she seek professional help" (97.29%), "encouraging her to maintain more physical activity" (82.91%), and "making an appointment with her family doctor with her knowledge" (65.00%). Other strategies included "rallying friends to cheer her up" (45.00%) and "asking her whether she is feeling suicidal" (43.96%).

Two strategies perceived as harmful by almost all the nurses were "not acknowledging her problem, ignoring her until she gets better" (96.88%) and "suggesting she have a few drinks to forget her troubles" (91.25%). Regarding the strategy "ask the person if they have suicidal thoughts," the results also indicated that 19.58% of nurses thought it was harmful, 14.37% said it was neither helpful nor harmful, and 22.08% stated they had no opinion.

Discussion

This study was the first to be carried out in the Portuguese context to precisely evaluate MHL on depression in nurses working in hospital settings. It is also the first to use QuaLiSMental with vignettes, as initially proposed by Jorm and colleagues in Australia.[24]

It should be emphasized that there is still little evidence on this subject for nurses, and it has been produced mainly on the Asian continent.[19] This becomes problematic when more recent studies use other measuring instruments that do not allow comparative analyses, either because they do not assess the same dimensions/components or because they use classification systems that do not allow comparison of results.[17]

Recognition of Depression

Regarding the recognition of depression, it was observed that Portuguese nurses have a good level of recognition, as 82.19% correctly identified the case described in the vignette as a situation of depression. These figures are higher than those obtained in other studies in different cultural and economic contexts.[25,26] However, these figures, including that of the study carried out in the Portuguese context, represent an increase compared with the results found in 2000[27] and 2010.[28]

One fact that may help explain this increase in recognition of depression by Portuguese nurses is that data collection was carried out during the pandemic period. This period corresponded to the proliferation of mental health education and awareness initiatives in the mass media, including initiatives by the Portuguese Nursing Association (https://www.ordemenfermeiros.pt/) through its Specialty College of Mental Health and Psychiatric Nursing, which presented mental health promotion and mental illness prevention strategies for nurses during the pandemic.

It is worth noting that the nurses selected a few labels from the list available in the questionnaire, most of which were appropriate, but the use of the "nervous breakdown" label requires correction (18.96%). As this is a non-specific label used indiscriminately to indicate any alteration in mental health, it could mean that approximately one-fifth of the nurses did not correctly identify the signs and symptoms described in the vignette, which could have implications for help-seeking.

An adequate MHL level in terms of recognition increases the possibility of early identification of the problem and consequent help-seeking, with referral to mental health professionals.[13,22,29] In this sense, the intention to seek mental health help for depression is satisfactory, as 77.02% said they would ask for help, while 20.70% were undecided. These figures differ from those presented in other contexts,[25–27] mainly because they reported a higher percentage of undecided responses.

These results may stem either from the stigma associated with mental disorders, which is a substantial barrier to seeking specialized mental health help and may contribute to a considerable number of nurses feeling indecisive about asking for help,[30–32] or from the failure to recognize the signs and symptoms associated with depression, not believing that treating the symptoms may require specialized mental health intervention.[13,14]

Knowledge of Professional Help and Available Treatments

Regarding knowledge of professional help and treatments available, a significant proportion (>90.0%) of nurses perceived psychologists, psychiatrists, mental health nurses, and family doctors as helpful. Informal help from friends and family was also rated highly.

Regarding products, nurses viewed vitamins and teas—where there is no evidence of effectiveness—with skepticism, not knowing whether they were helpful or harmful. Nevertheless, around 30.0% considered these products helpful. For prescription medication, a substantial margin considered antidepressants helpful, yet many nurses were unaware of their usefulness, which can be problematic, namely not using the prescribed medication or discontinuing treatment.[13,14] These results are consistent with those of other studies using similar methodologies.[25–28]

For health professionals such as nurses, these results deserve attention because nursing training involves learning about the principles and suitability of psychotropic drugs. It is therefore questionable how much weight scientific knowledge has compared to socially and culturally rooted beliefs.

Knowledge of Effective Self-help Strategies and Skills to Give First Aid and Support to Others

Regarding knowledge about effective interventions, the vast majority of nurses considered physical activity, relaxation training, meditation practice, therapy with a specialized professional, and seeking a specialized mental health service to be helpful, with the perceived usefulness being >90.0% in all cases except meditation practice (80.63%). Other studies[25–27] indicate much lower percentages in these items, but these differences may reflect cultural differences in the way self-help associated with mental illness is perceived.

The results suggest that nurses, on the one hand, value self-help strategies such as relaxation training, physical exercise, and the practice of meditation, which are helpful for depression,[13,33] but on the other hand, they see the need for specialized professional help.

In terms of knowledge about providing first aid in mental health, it is favorable to note that for depression, nurses consider listening to be a fundamental strategy and suggest seeking professional help. They also consider ignoring the problem and the person as harmful, as well as suggesting alcohol consumption.

The item "ask her if she is feeling suicidal" is noteworthy. The majority of nurses do not consider this strategy. In fact, those who considered it "harmful," "do not know if it is helpful or harmful," or "don't know" accounted for more than 56.04% of the responses. This raises questions, mainly because it could mean that nurses believe questioning the person might aggravate the problem or trigger behavior. However, training and existing guidelines present this strategy as appropriate, outlined in good nursing practice. This result justifies why the Order of Nurses developed a guideline for good practice in promoting mental health literacy.[34]

The lack of knowledge can also be seen in inadequate first aid strategies such as "talk to her firmly about getting her act together" and "keep her busy to keep her mind off problems." Even so, the results obtained in the study suggest a higher level of MHL in this component compared to those observed in other studies.[26]

Beliefs About Prevention

Regarding the last component of MHL (knowledge about how to prevent mental disorders), nurses believe in preventive mental health, i.e., it is possible to prevent mental illnesses such as depression, which is evidenced in many studies, both in the general population[31] and among nurses and other health professionals.[25–28]

All the strategies were assessed as capable of preventing health problems, with the exception of alcohol consumption. A total of 30.63% of nurses stated that avoiding alcohol does not prevent depression or that they did not know whether not drinking helps prevent it. This finding also appears in Portuguese studies, including samples of adolescents and young people.[35,36] Alcohol consumption is socially accepted and culturally justified, and the tendency is for it not to be seen as harmful to mental health.

Religious beliefs, which have traditionally been seen as protective factors for mental health,[37] are here perceived as having no such effect. A total of 48.33% of nurses reported that they did not know whether religion could help prevent mental health problems.

These results, combined with the mental health panorama of nurses in the post-pandemic period,[38] imply the inclusion of a national strategy for the promotion of MHL that is comprehensive and inclusive.[39] It is therefore necessary to move on to action to make a practical contribution to changing the mental health of individuals and communities.[40]

Limitations

The first limitation relates to the representativeness of the sample. Considering the total number of nurses working in Portugal, the sample size limits the extent to which the findings can be generalized to all hospital-based Portuguese nurses. Therefore, any generalization of the findings should be approached with caution and is primarily applicable to nurses who share similar demographic and professional characteristics with those in the study sample.

Another limitation is the lack of differentiation regarding the nurses' specific areas of work. Some participants may have worked in psychiatry, but the data did not allow a detailed analysis of MHL across different nursing contexts.

The second limitation relates to the use of self-reported data, which may introduce response bias, as nurses might have provided socially desirable answers or may not have accurately recalled or assessed their own experiences and perceptions.

A further limitation concerns the online data collection method. This approach may have introduced selection bias, as individuals with access to and comfort using digital platforms were more likely to participate, potentially excluding those with limited internet access or less familiarity with online surveys.

Even so, this study provides a first attempt to evaluate the MHL of Portuguese nurses, allowing the identification of key areas for action in promoting MHL.

Conclusion

This study presents the first evaluation of mental health literacy (MHL) regarding depression among nurses working in hospital settings in Portugal, using the QuaLiSMental tool based on clinical vignettes. The findings provide valuable insights into nurses' ability to recognize depressive symptoms, their knowledge of treatment options, and their beliefs about prevention and first-aid strategies in mental health care.

Overall, Portuguese nurses demonstrated a strong ability to recognize depression, with most participants correctly identifying the condition described in the vignette. However, the occasional use of imprecise terms, such as "nervous breakdown," suggests that some misconceptions remain, indicating a disconnect between formal training and culturally influenced interpretations of mental illness. Nurses also showed a good understanding of appropriate sources of professional and in-

formal help. Nevertheless, uncertainty about the effectiveness of antidepressants, together with support for non-evidence-based treatments such as vitamins and herbal supplements, reveals gaps in psychopharmacological literacy that could benefit from targeted educational initiatives.

In terms of mental health first-aid responses, most nurses emphasized the importance of active listening and discouraging harmful behaviors. However, a significant percentage did not support directly asking about suicidal ideation, which is concerning given the recognized value of this practice in assessing and managing suicide risk. This finding highlights the need for ongoing professional development in mental health intervention skills.

Finally, the majority of nurses believed that depression can be prevented. Strengthening MHL among this professional group is essential to improve early detection, reduce stigma, and support the delivery of more effective mental health care.

Ethics Committee Approval: The study was approved by the UICISA-E of the Nursing School of Coimbr Ethics Committee (no: P867/04-2022, date: 20/07/2022).

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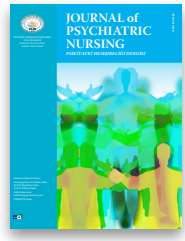

Letter to the Editor

Understanding hangxiety: The link between alcohol and anxiety

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Dear Editor,

Alcohol consumption is a common social activity, yet its aftereffects can be distressing. Beyond the typical symptoms of a hangover—such as headache, nausea, and fatigue—many individuals experience heightened anxiety the day after drinking. This phenomenon, commonly referred to as "hangxiety," can range from mild unease to severe panic attacks.[1] Understanding the mechanisms behind hangxiety is crucial for developing effective coping strategies.

Alcohol affects neurotransmitters by initially enhancing gamma-aminobutyric acid (GABA) activity, promoting relaxation and reducing anxiety.[1,2] However, as alcohol leaves the system, GABA levels drop while glutamate activity rises, leading to increased brain excitability and heightened anxiety.[1] Additionally, alcohol disrupts the hypothalamic-pituitary-adrenal (HPA) axis, causing a surge in cortisol levels post-consumption,[3] which contributes to stress and restlessness. Furthermore, alcohol-induced sleep disturbances, particularly reduced REM sleep, impair emotional regulation and can worsen anxiety symptoms the next day, creating a cycle of physiological and neurochemical imbalance.[3,4]

Frequent episodes of hangxiety can contribute to chronic anxiety and depression, exacerbating mental health issues over time.[5] Alcohol-induced anxiety also places strain on the cardiovascular system, temporarily increasing heart rate and blood pressure.[6] Additionally, the combination of stress and poor sleep weakens the immune system, making individuals more vulnerable to illness.[4] Cognitive functions such as decision-making and concentration may also be impaired due to poor emotional regulation and heightened brain excitability.[7] In the long term, persistent hangxiety can signal an underlying anxiety disorder or problematic drinking habits, highlighting the need for intervention and lifestyle adjustments.[5]

Individuals with anxiety-prone personalities or a history of social anxiety disorder are more susceptible to hangxiety, as their baseline stress levels heighten the rebound effect.[8] Drinking patterns and alcohol expectancy also play a role, with those who consume alcohol to ease social anxiety experiencing intensified anxiety once its effects subside.[8] Additionally, genetic predisposition and environmental stressors can further amplify post-drinking anxiety, making some individuals more vulnerable to its impact than others.[9]

Practicing moderation and mindful drinking by limiting alcohol intake and avoiding binge drinking can help reduce the severity of hangxiety.[7,10] Staying hydrated and replenishing lost electrolytes also aids in alleviating hangover symptoms and supporting overall recovery. Additionally, mental health strategies such as mindfulness, deep breathing exercises, and therapy can be effective in managing alcohol-related anxiety.[11] In more severe cases, medical intervention may be necessary to address both anxiety and potential alcohol dependence, ensuring a comprehensive approach to prevention and coping.[12]

This letter equips psychiatric nurses with a better understanding of how alcohol affects neurotransmitter activity, including the suppression of GABA (Gamma-Aminobutyric Acid) during consumption and the rebound overstimulation of glutamate during withdrawal.[1,2] Such biochemical effects can lead to acute anxiety symptoms, reinforcing cycles of alcohol depen-

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dence as individuals seek to self-medicate their anxiety. Psychiatric nurses can use this knowledge to educate patients about the risk of "hangxiety" and how alcohol exacerbates anxiety symptoms in the long term.

The letter also emphasizes the importance of recognizing hangxiety as a symptom of potential alcohol dependence or an early warning sign of alcohol use disorder (AUD).[9,12] Psychiatric nurses can incorporate this understanding into their assessments, identifying patients who may be struggling with both anxiety disorders and substance misuse. By tailoring interventions to address both issues simultaneously, nurses can enhance the effectiveness of treatment plans, including Cognitive Behavioral Therapy (CBT), medication management, and psychoeducation.[11]

Additionally, the insights from this letter underscore the need for psychiatric nurses to promote alternative coping strategies for anxiety—such as mindfulness, stress reduction techniques, and support groups—while fostering an environment of trust and empathy for patients battling alcohol-related challenges.[12,13]

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