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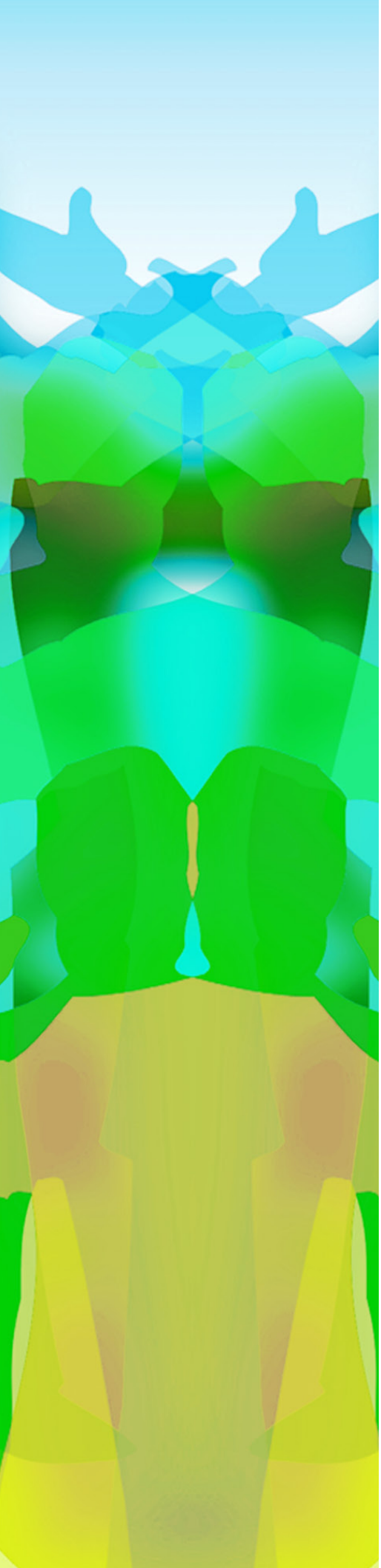

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EDITORIAL

Psychological First Aid

Many people around the world remain highly vulnerable to life-threatening events. Disasters, defined as unexpected and devastating occurrences, can lead to significant social disruption and serious psychological disorders.[1] In Türkiye, due to its geological, meteorological, topographical structure, and climatic characteristics, disasters such as earthquakes, landslides, floods, and avalanches occur frequently.[2] Healthcare professionals must actively participate at every level of the disaster process due to the complexity of disasters, their extensive influence on all facets of society, and the urgent need for response.[3]

Human lives are greatly affected by disasters, which can cause both physical and psychological distress. At every stage of the disaster process, appropriate psychological support interventions should be offered to prevent the negative effects of disaster experiences. Psychological First Aid (PFA), one such intervention, is acknowledged as the first type of care that needs to be provided immediately following a disaster.[4]

Early in the 20th century, as the devastating psychological effects of traumatic events, wars, and natural disasters became more widely acknowledged, the concept of psychological first aid emerged. Its origin can be traced to mental health interventions developed after World Wars I and II, when returning soldiers showed signs of PTSD. Caplan's work, which highlighted how early psychosocial support could prevent psychological decline, further influenced crisis intervention strategies. Later, these fundamental concepts developed into what is now called Psychological First Aid. Modern and improved PFA was introduced in the early 2000s, particularly in the aftermath of major crises such as the terrorist attacks of September 11, 2001, the tsunami in the Indian Ocean in 2004, and Hurricane Katrina in 2005. These dramatic events demonstrated the urgent need for culturally sensitive, standardized, and evidence-based psychological interventions. In 2011, the World Health Organization developed its "Psychological First Aid: Guide for Field Workers" and institutionalized PFA as a key component of humanitarian response.[4,5] The World Health Organization defines the core principles of PFA in three steps: look, listen, and link.[5] Expanding on these, Hobfoll and his colleagues identified five essential principles that facilitate positive adaptation following disasters: promoting a sense of safety, fostering calmness, enhancing self-efficacy and community efficacy, strengthening connections, and instilling hope. When used properly, these principles can greatly enhance the well-being of both responders and survivors.[6] Collectively, they establish the theoretical basis of Psychological First Aid. PFA includes a series of supportive measures designed to lessen immediate distress and promote both short- and long-term adaptive functioning while honoring individuals' dignity, culture, and abilities. This approach is grounded in evidence and aims to assist survivors of disasters or traumatic experiences while improving coping mechanisms and resilience. The primary objectives of PFA include ensuring safety, both objective and perceived, reducing stress-related symptoms, restoring rest and sleep, enabling access to essential resources, and strengthening social support networks.[4]

All individuals involved in disaster response, including teachers, law enforcement personnel, disaster relief workers, and especially healthcare professionals such as nurses, should be capable of providing Psychological First Aid. For nurses responding to disasters, it is crucial to recognize post-disaster psychological reactions, implement appropriate interventions, apply PFA, and prevent the development and chronicity of traumatic responses. While emotional responses following disasters are broadly similar across societies, the prioritization of emotional needs and the ways in which they are addressed may vary.[7,8] Nurses are uniquely positioned to assess the physical and psychological impacts of disasters on individuals, families, and communities and to safeguard both physical and emotional well-being throughout all phases of a disaster. By adopting a compassionate and supportive approach, they can identify the immediate and fundamental needs of individuals experiencing intense stress. In doing so, they help minimize the psychological impact of trauma, facilitate recovery, and strengthen both individual and community resilience. Furthermore, by applying PFA, nurses can encourage individuals to enhance their sense of self-efficacy, thereby reducing suffering and dependency. Given their theoretical knowledge, practical skills, and substantial presence within healthcare teams, nurses represent one of the most suitable professional groups to deliver Psychological First Aid.[7–10]

I wish for a world free from disasters caused by both human hands and natural causes. With love...

Prof. Dr. Hülya Arslantaş

References

1. Shultz JM, Forbes D. Psychological First Aid: Rapid proliferation and the search for evidence. Disaster Health 2013;2:3–12.
2. AFAD Nature-Borne Event Statistics. 2020. Available from: https://www.afad.gov.tr/afet-istatistikleri. Accessed Jun 29, 2026. [In Turkish]
3. Uyar S. Afetlerin insan sağlığı üzerindeki etkileri ve sağlık hizmetlerinin iyileştirilmesi. Int J Adv Nat Sci Eng Res 2024;8:99–109. [Article in Turkish]
4. National Institute of Mental Health. Mental health and mass violence: evidence-based early psychological ıntervention for victims/survivors of mass violence: a workshop to reach consensus on best practices. Available from: https://files.eric.ed.gov/fulltext/ED469199.pdf. Accessed Mar 29, 2026.
5. World Health Organization. Psychological first aid: guide for field workers. Geneva: WHO; 2011. Available from: https://www.who.int/publications/i/item/9789241548205. Accessed Mar 31, 2026.
6. Hobfoll SE, Watson P, Bell CC, Bryant RA, Brymer MJ, Friedman MJ, et al. Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. Psychiatry 2007;70:283–315; discussion 316–69.
7. Everly GS Jr, Barnett DJ, Sperry NL, Links JM. The use of psychological first aid (PFA) training among nurses to enhance population resiliency. Int J Emerg Ment Health 2010;12:21–31.
8. Kılıç N, Şimşek N. The effects of psychological first aid training on disaster preparedness perception and self-efficacy. Nurse Educ Today 2019;83:104203.
9. Oflaz F. Afetler ve psikiyatri hemşireliği. Turkiye Klinikleri J Psychiatr Nurs-Special Topics 2016;2:24–35. [Article in Turkish]
10. Kılıç N, Şimşek N. Psikolojik ilk yardım ve hemşirelik. J Psychiatric Nurs 2018;9:212–8. [Article in Turkish]

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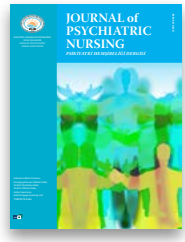

Original Article

Examining the professional profiles, knowledge, and experience of nurses working in forensic psychiatry

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Abstract

Objectives: This study was conducted to determine the sociodemographic and professional characteristics, knowledge, and experiences of nurses working in forensic psychiatry.

Methods: The research was conducted from September 2024 to January 2025 following ethical approval and included 78 nurses working in forensic psychiatry. The nurses were administered a questionnaire comprising 31 items developed by the researchers. The data were analyzed using SPSS 22.

Results: Of the nurses, 65.4% (n=51) were male, the mean age was 40.75±8.41 years, and the mean duration of professional experience was 16.91±8.75 years. A total of 62.8% (n=49) of the nurses had been working in the forensic psychiatry unit for more than four years. Additionally, 79.5% (n=62) had a bachelor's degree, 21.8% had a certificate in psychiatric nursing, and 59.0% (n=46) had started working in the forensic psychiatry unit through appointment. Furthermore, 67.9% (n=53) worked in a high-security unit, and 24.4% (n=19) worked in a regional psychiatric hospital. Most nurses (87.2%) were satisfied with working in their units; however, 60.3% reported receiving no information about forensic psychiatric nursing, and 71.8% reported needing more information about forensic psychiatric nursing care.

Conclusion: The findings revealed that most nurses were undergraduate graduates, had professional experience in forensic units, and were satisfied with their work in this area; however, they did not consider their current level of knowledge in forensic psychiatric nursing sufficient. More studies should be conducted on forensic psychiatric nursing, and the knowledge gaps encountered by nurses working in these units should be addressed urgently. It is recommended that continuous and comprehensive training programs be established.

Keywords: Forensic psychiatric nursing; forensic psychiatry; psychiatric nursing

The presence of a criminal history in individuals with mental disorders affects the care process. For this reason, healthcare professionals responsible for the care and treatment of these individuals must possess specialized knowledge and skills. Both globally and in our country, the care and treatment processes for individuals with mental disorders and a criminal history are conducted in forensic psychiatry units. Forensic psychiatry units are clinics where the care and treatment of in-

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dividuals with a mental disorder who have engaged in criminal behavior are mandated by court order.[1] In these units, "forensic psychiatric nurses"—a specialized field recognized as an advanced subspecialty within psychiatric nursing—practice.[2] Forensic psychiatric nursing is considered a specialized field of nursing focused on the treatment and rehabilitation of individuals with a history of criminal behavior and mental disorders.[3,4] It is distinct from correctional and prison nursing, which involves conducting routine check-ups for detained and incarcerated individuals, preventing accidents, and assisting them in resolving health issues.[5]

There is currently no official classification for forensic psychiatric nursing in Türkiye. However, in recent years, the growing number of high-security forensic psychiatric hospitals has highlighted the need for nurses in this field. This situation has led to nurses being assigned to these units through rapid organizational arrangements, even though they may not possess sufficient quantitative and qualitative knowledge and skills regarding criminal behavior and mental disorders. However, since forensic psychiatry units are relatively new and specialized clinics, healthcare professionals working in these settings are expected to possess specific knowledge and skills and to demonstrate ongoing professional development.[6]

Forensic psychiatric nurses are required to understand both the criminal justice and healthcare systems in the countries where they work.[7] This situation entails specific roles and responsibilities for nurses. In today's world, where knowledge is rapidly evolving, forensic psychiatric nurses are also expected to be sensitive and assertive, possess conflict-resolution skills, and have well-developed empathy and communication skills.[8,9] Although forensic psychiatric nursing may seem similar to clinical psychiatric nursing, the scope of the roles and responsibilities differs. For example, for a nurse working in forensic psychiatry, the responsibility to communicate effectively is essential not only for understanding and caring for a patient involved in a crime but also for communicating with investigative authorities such as the police and prosecutors, as well as with the patient's family.[7] All of these competencies are made possible through high-quality, comprehensive education and a solid foundation of knowledge specific to forensic psychiatry. Therefore, it is important to identify the characteristics of nurses working in forensic psychiatry units and assess their knowledge in this field to provide effective care.

In healthcare services, cost-effective, efficient, and evidence-based service delivery can be achieved through quality education, and meeting this educational need is possible only through a detailed understanding of the characteristics of the target group.[10] Therefore, to enhance the knowledge levels of nurses working in forensic psychiatry, support their practice with evidence-based approaches, and provide training tailored to their needs, it is necessary to determine the current status, characteristics, and needs of these nurses. It has been observed that no study has assessed the current situation of nurses who care for forensic psychiatric patients or work in forensic psychiatric units in Türkiye; rather, existing studies have focused on nurses' roles, attitudes toward patients, work environments, and the challenges they face.[3,6,11–13] To empower nurses, improve care practices, and plan training programs, it is essential to identify the profiles of nurses currently working in forensic psychiatry units and determine their needs accordingly.

What is presently known on this subject?

- Forensic psychiatry is a field that requires nurses to have knowledge of legal issues and to use specialized care skills accordingly.

What does this article add to the existing knowledge?

- This article highlights that, although nurses working in forensic psychiatry in our country have professional experience, they need to improve their knowledge of forensic psychiatry-related topics.

What are the implications for practice?

- It will shed light on the needs of nurses working in forensic psychiatry and on planning training programs tailored to this population.

Considering this information, this study examines the sociodemographic and professional characteristics of nurses working in forensic psychiatry units (High-Security Forensic Psychiatry, Forensic Psychiatry for Detained and Incarcerated Patients, and the forensic units of Regional Psychiatric Hospitals) who provide care to forensic psychiatric patients.

This study aims to answer the following research questions:

1. What are the sociodemographic characteristics of nurses working in the field of forensic psychiatry?
2. What are the knowledge and experiences of nurses working in the field of forensic psychiatry regarding forensic psychiatry-related issues?

Materials and Method

Study Design

This study was conducted using a descriptive and cross-sectional design.

Place and Date

The data were collected via an online survey between September 2024 and January 2025.

Population and Sample

The population of this study consisted of nurses working in forensic psychiatry units at public hospitals in Türkiye that provide care to forensic psychiatric patients. In Türkiye, these services are provided within city hospitals and mental health hospitals. However, due to the absence of a centralized and up-to-date record system regarding the number of nurses working in these units, it was not possible to determine the exact population size.

Accordingly, the accessible population of the study consisted of forensic psychiatric nurses with whom communication could be established during the data collection period. This study used purposive sampling, a non-probability sampling method. The study was announced on an online platform for nurses working in forensic psychiatry units. A total of 78 nurses (n=78) voluntarily agreed to participate in the study and completed the data collection form in full, constituting the study sample.

Data Collection Process and Tools

Due to institutional access restrictions, nurses were contacted via online communication platforms during data collection. The survey link was shared digitally, and participation was voluntary. Data were collected using the Demographic Information Form prepared by the researchers in accordance with the relevant literature.[6,11,14,15] This form was developed by a research team comprising nurses and academics with experience in both clinical practice and scientific research in forensic psychiatric nursing. The Demographic Information Form consisted of 31 questions designed to assess nurses' sociodemographic and professional characteristics, their knowledge of forensic psychiatric nursing, and their current status.

Data Analysis

The data collected as part of the study were analyzed using SPSS (Statistical Package for the Social Sciences) version 22.0. In this study, descriptive statistical analyses were used to evaluate the data. Data on nurses' sociodemographic and professional characteristics were analyzed and interpreted using frequencies, percentages, means, and standard deviations. Due to the descriptive nature of the study, statistical significance tests were not conducted, and the findings were evaluated using descriptive statistics.

Ethical Considerations

This study was conducted in accordance with the ethical principles of the World Health Organization's Declaration of Helsinki. Approval for the study was obtained from the İzmir Izmir Katip Celebi University Health Research Institutional Review Board (dated July 18, 2024; No. 0020) prior to data collection. Nurses who volunteered to participate in the study were informed that their information would be collected anonymously, kept confidential, and used solely for scientific research purposes. This information was provided to encourage more reliable responses and help participants feel at ease.

Results

The study included 78 nurses working in forensic psychiatry in Türkiye, of whom 65.4% (n=51) were male, with a mean age of 40.75±8.41 years. Most participants were married (78.2%, n=61), resided in urban areas (50.0%, n=39), and held a bachelor's degree (79.5%, n=62). The mean duration of professional experience was 16.91±8.75 years. Of the participants, 83.3% (n=65) worked as ward nurses, and 80.3% worked on a rotating day-and-night shift schedule. Only 21.8% (n=17) reported holding a Ministry of Health-approved psychiatric nursing certificate (Table 1).

Table 1. Distribution of nurses by sociodemographic and professional characteristics

	n	%
Age (year)	40.75±8.41	
Professional work experience (year)	16.91±8.75	
Sex		
Women	27	34.6
Man	51	65.4
Marital Status		
Married	61	78.2
Single	17	21.8
Place of Residence		
Metropolitan Area	31	39.7
City	39	50.0
District	4	5.1
Town	2	2.6
Village	2	2.6
Length of professional experience		
0–5 years	17	21.8
5–10 years	29	37.2
11–15 years	4	5.1
15 years and more	28	35.9
Program of Graduation		
High School	1	1.3
Short-Term College Program	10	12.8
Bachelor's Degree	62	79.5
Master's Degree	4	5.1
Doctorate	1	1.3
Employment status		
Permanent civil servant	68	87.2
Contract civil servant	6	7.7
Rotating fund contract employee	4	5.1
Professional position		
Administrative nurse	1	1.3
Nurse supervisor / charge nurse	11	14.1
Staff nurse	65	83.3
Health officer	1	1.3
Shift system		
Day and night shifts	63	80.3
Night shifts only	4	5.1
Day shifts only	11	14.1
Ministry of Health–Approved Certification Status		
Holds a Psychiatric Nursing Certificate	17	21.8
Does Not Hold a Psychiatric Nursing Certificate	61	78.2
Total	78	100.0

n: Number, %: Percentage.

Table 2. Distribution of nurses by their knowledge and experience in forensic psychiatry

	n	%		n	%
Work experience in a forensic psychiatry unit			Forensic psychiatry clinical orientation training status		
Less than 1 year	16	20.5	Received orientation training	41	52.6
1–3 years	13	16.7	Did not receive orientation training	37	47.4
4 years and more	49	62.8	Need for information on forensic psychiatry care		
Forensic unit of employment			Needs additional information	56	71.8
Regional Psychiatric Hospital – Forensic Unit	19	24.4	Does not need additional information	22	28.2
Regional Psychiatric Hospital – Detainee and Convicted Offender Unit	1	1.3	Perceived competence in providing patient care		
Subacute Unit (Open Ward)			Competent	53	67.9
Detainees and Convicted Offenders Forensic	1	1.3	Partially competent	24	30.8
Psychiatry Hospital	4	5.1	Incompetent	1	1.3
High-Security Forensic Psychiatry Hospital	53	67.9	Perceived adequacy of patient care		
Method of assignment to the current unit			Adequate care is provided	28	39.1
Assigned through official transfer	46	59.0	Inadequate care is provided	50	64.1
Assigned upon personal request	30	38.5	Perceived causes of inadequate patient care*		
Assigned through temporary assignment	1	1.3	Adequate care is provided	17	21.8
Assigned through rotation program	1	1.3	Healthcare professional-related factors	30	38.5
Willingness to work in a forensic psychiatry unit			System/legal regulation-related factors	9	11.5
Volunteer	63	80.8	Physical infrastructure-related factors	15	19.2
Non-volunteer	13	16.7	Patient and family stigma-related factors	10	12.8
No response / prefer not to answer	2	2.6	No response	10	12.8
Forensic psychiatry training status			Satisfaction with working in the forensic psychiatry unit		
Received training	26	33.3	Satisfied	68	87.2
Did not receive training	47	60.3	Partially satisfied	10	12.8
Do not remember	5	6.4	Not satisfied	0	0.0
Source of knowledge about forensic psychiatry			View on nurses' employment in forensic psychiatry		
No training/information received	19	24.4	Nurses should work in forensic psychiatry units	75	96.2
Friends	23	29.5	Nurses should not work in forensic psychiatry units	3	3.8
Unit nurses/charge nurse	2	2.6			
Unit physician	8	10.3			
In-service training programs	19	24.4			
Courses during nursing education	7	9.0	Total	78	100.0

*: Participants were allowed to select more than one response; therefore, the total number of responses exceeds the number of participants.

Table 2 presents data on the nurses' knowledge and experience regarding forensic psychiatry. Of the participants, 67.9% (n=53) worked at a High Security Forensic Psychiatry Hospital; 59.0% (n=46) reported that they had begun working in forensic psychiatry through assignment, and 62.8% (n=49) indicated that they had been working in this field for four years or more. Approximately one-third of the nurses (33.3%, n=26) reported having knowledge of forensic psychiatric nursing, of whom 24.4% (n=19) had acquired it through in-service training programs and 9.0% (n=7) through courses taken during their undergraduate education. Nurses with no prior knowledge of forensic psychiatric nursing (60.3%) reported obtaining knowledge of the subject from colleagues or other members of their clinical team, including physicians and fellow nurses. A total of 64.1% (n=50) of the nurses believed that patients were not receiving adequate care. Moreover, 71.8% (n=56) reported needing more knowledge regarding forensic psychiatric nursing and patient care (Table 2).

Discussion

The findings of this research, conducted to determine the professional and demographic characteristics of nurses working in the field of forensic psychiatry in Türkiye, reveal that most of the 78 nurses participating in the study are undergraduate or postgraduate graduates, possess sufficient professional experience, are satisfied with and willing to work in forensic psychiatry units, but do not possess a Ministry of Health-approved Psychiatric Nursing Certificate, have not received any training in forensic psychiatric nursing, and report a need for further information. It was found that nurses who reported having knowledge of forensic psychiatry mostly obtained it from their own professional circles.

The research findings showed both similarities to and differences from studies in the literature. In a study conducted with 37 nurses and 66 healthcare workers who worked with individuals who had committed sexual abuse crimes, it was determined that the average age of the nurses was 39.7 years, the majority (n=27, 73%) were female, and the mean duration of professional work experience was 9 years.[16] A review of all healthcare professionals working in forensic psychiatry-related roles reported a mean age of 40.9 years and a mean professional work experience of 9.8 years.[17] The fact that the findings show both similarities to and differences from data in the literature, as well as the lack of sufficient literature for comparison with all of the data included in the study, suggests that further research is needed on this topic.

Patients receiving care and treatment in forensic psychiatry may have different care needs because of both their diagnoses of mental disorders and their involvement in legal processes. Therefore, nurses who provide care and treatment for these patients have many roles and responsibilities, including developing effective communication skills, conducting risk assessments, providing a safe and therapeutic environment, protecting patients, and acting ethically.[18] Nursing care should be patient-specific and holistic. Nurses can fulfill these roles and responsibilities only if they possess the necessary knowledge and skills.

Although more than half of the nurses who participated in the study considered themselves competent in providing patient care, they reported not having received prior training in caring for forensic psychiatric patients and needing more information on this subject. The fact that only 21.8% of the nurses participating in the study held a psychiatric nursing certificate supports these statements. In addition, research conducted in forensic units has shown that patients have difficulty accessing individualized care. It has been emphasized that the nursing care provided is monotonous and overlooks certain needs, including special needs.[19] More than half of the nurses participating in this study also believed that patients were not receiving adequate nursing care, which is consistent with findings in the literature. According to the nurses' opinions, the reasons for this include rapid patient admission and discharge rates, inadequate rehabilitation facilities and physical conditions, insufficient support from patients' families, and social stigma. These findings reveal the need for effective practices to develop and sustain patient-centered, recovery-oriented nursing practice.

Another reason for the lack of adequate care provided to patients has been attributed to healthcare professionals. The reasons include insufficient staffing levels, inadequate nurse knowledge, and a lack of motivation. According to 2021 data, the average number of nurses per 1,000 patients in OECD countries is nine, whereas in Türkiye it is three.[20] The number of nurses in the Turkish healthcare system is insufficient, and the shortage is even greater in psychiatric units. Many reasons, such as psychiatric care services being regarded as secondary, the employment of an increasing number of nurses specialized in psychiatry in clinics other than psychiatric units, and the absence of planned, standardized, and comprehensive training programs for patient care in relatively new fields such as forensic psychiatry, may be associated with an inadequate number of qualified healthcare professionals.[11] In fact, in a study conducted in psychiatric clinics, nurses stated that there were not enough nurses.[14] In another study conducted among intensive care nurses, the insufficient number of nurses was shown to be an important factor affecting nursing care.[21] The insufficient number of nurses has significant effects, particularly on patient care processes and the financial burden of care. Discharging patients without adequate care results in repeated hospitalizations (revolving door syndrome) and can lead to negative consequences, including an increased financial burden on hospitals and decreased job satisfaction among nurses.[22] Similarly, having a sufficient number of nurses working in forensic psychiatry is crucial to ensuring that patient care processes are carried out effectively.

In forensic psychiatry, the level of nurses' skills and knowledge is as crucial as adequate nurse staffing. The study found that the majority of nurses had more than four years of clinical experience. Clinical experience is important for patient care processes, but it is not sufficient for specialized areas such as psychiatric units. Psychiatric units are clinics that require knowledge of mental illnesses in addition to nursing care to provide effective patient care. Particularly in specialized units such as forensic psychiatry, it is crucial for nurses to possess a sufficient level of knowledge specific to the characteristics of the patient group with whom they work, to be able to manage patient behavior, and to intervene effectively in potentially risky situations (violence, suicide, etc.).[18]

Research in forensic psychiatry emphasizes that nurses with at least a bachelor's degree should work in forensic units.[23] In this study, although more than half of the nurses (85.9%) held bachelor's or master's degrees and nearly half had received orientation training before beginning work in forensic psychiatry, a large majority (71.8%) indicated that they needed more information regarding forensic psychiatric patient care. Furthermore, although more than half of the nurses stated that they considered themselves competent in caring for forensic psychiatric patients, they also believed that these patients were not receiving adequate care. These remarkable findings demonstrate that caring for forensic psychiatric patients requires specialized competencies. It was observed that nurses who began working in forensic psychiatric hospitals, a relatively new field in Türkiye, through a rapid organizational process and direct appointment found the orientation program insufficient and still felt the need to acquire more knowledge regarding forensic psychiatric pa-

tient care. Furthermore, another interesting finding is that although the vast majority considered the care they provided to be adequate, they believed that these patients were not receiving sufficient care. This can be interpreted as another indication of their need for more information regarding the care of forensic psychiatric patients because a significant proportion of nurses attributed inadequate patient care to healthcare professional-related factors, including insufficient qualifications, inadequate knowledge, insufficient staffing, emotional complexity, and low motivation.

In addition, nurses reported other reasons for patients not receiving adequate care, including system- and legal regulation-related factors (rapid patient turnover and admission-discharge cycles, procedural uncertainties, inadequate post-discharge follow-up, insufficient rehabilitation opportunities, non-supportive or devaluing managers, and unclear managerial expectations), physical infrastructure-related factors (physical conditions, security provisions, food and nutrition services, and room facilities), and judgment-related factors concerning patients and their families (social judgment and stigmatization, lack of sufficient family support, patient resistance, acute illness, proneness to violence, or low socioeconomic status). International standards and guidelines recommend comprehensive treatment and care models developed through interdisciplinary collaboration within forensic psychiatry.[24] Based on these findings, it can be stated that the development and regular implementation of structured, standardized, comprehensive, and ongoing training programs for nurses working in these units are essential.

Forensic psychiatric nursing is a relatively new and emerging field in Türkiye. The nature of these units, which are associated with both psychiatry and criminal behavior, as well as the lack of clearly defined roles and responsibilities, may sometimes lead nurses working in these units to perceive them as negative and challenging clinical settings.[3,13] Despite these perceived challenges, the fact that the nurses who participated in the study were satisfied with working in forensic psychiatry units and believed that nurses' work in these units is necessary is a promising finding for the future. The findings of the study may contribute to the development of standardized procedures and guidelines to be prepared at the national level.

Limitations of the Study

This study has some limitations. The data collection process was constrained by reliance on digital platforms, the sensitivity inherent in forensic psychiatry, the workload of the units, and limited online access. As the sample was voluntary and the population size is unknown, caution is warranted when generalizing the findings to all forensic psychiatric nurses in Türkiye. Because the study was designed to be descriptive, it was not possible to compare variables or establish causal relationships.

Conclusion

This research was conducted to determine the sociodemographic and professional profiles of nurses working in forensic psychiatry units, as well as their levels of knowledge and experience in the field. The findings show that the vast majority of nurses are undergraduates and are generally satisfied with their work in forensic psychiatry units. However, it has been determined that the knowledge, skills, and educational requirements specific to forensic psychiatric nursing remain significant.

The research findings highlight various needs for the development and strengthening of forensic psychiatric nursing, a relatively new field in Türkiye. In this context, with regard to education, it is important that topics related to forensic psychiatric nursing be included in undergraduate and graduate nursing education programs, and that in-service training be conducted in a planned, regular, and sustainable manner. In addition, making appropriate staffing plans to reduce nurses' workload and developing supervision, counseling, and psychosocial support mechanisms are among the priority needs at the institutional level. On the other hand, the recognition of forensic psychiatric nursing as a distinct nursing specialty within regulations, along with a clear definition of its duties, authorities, and responsibilities, is critical for the field's institutionalization. Finally, there is a need to increase scientific research in this field at both national and international levels and to develop care models specific to Turkish culture.

In conclusion, strengthening forensic psychiatric nursing in education, practice, and legislation will make a significant contribution to both enhancing nurses' professional satisfaction and improving the quality of care provided to forensic psychiatric patients.

Ethics Committee Approval: The study was approved by the İzmir Katip Çelebi University Health Research Izmir Katip Celebi University Health Research Institutional Review Board (no: 0020, date: 18/07/2024).

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References

1. Inan S, Yildizhan E, Öncü F. The disease history, sociodemographics, and criminal features of the homicidal forensic psychiatric patients. Turk Psikiyatr Derg 2018;29:1–10.
2. Bowring-Lossock E. The forensic mental health nurse - A literature review. J Psychiatr Ment Health Nurs 2006;13:780–5.
3. Dikeç G, Baysan-Arabacı L, Taş G. Role and Responsibility of Forensic Psychiatric Nurses: Systematic Review. J Psychiatr Nurs 2017;8:157–64.
4. Baysan-Arabacı L. Adli psikiyatri hastasının bakımında hemşirenin rolü. Adli Psikiyatr Derg 2008;5:25–30. [Article in Turkish]
5. Sağlık-Bakanlığı. Hemşirelik yönetmeliğinde değişiklik yapılmasına dair yönetmelik. Resmi Gazete Sayısı 27910. Avaible at: https://www.resmigazete.gov.tr/eskiler/2011/04/20110419-5.htm Accessed April 19, 2011.
6. Polat H, Asi-Karakaş S. Forensic psychiatric nursing. Journal of Midwifery and Health Sciences 2020;3:225–32. [Article in Turkish]
7. Lyons T. Role of the forensic psychiatric nurse. J Forensic Nurs 2009;5:53–7.
8. Mason T, Lovell A, Coyle D. Forensic psychiatric nursing: skills and competencies: I role dimension. J Psychiatr Ment Heal Nurs 2008;15:118–30.
9. Bowen M, Mason T. Forensic and non-forensic psychiatric nursing skills and competencies for psychopathic and personality disordered patients. J Clin Nurs 2012;21:3556–64.
10. Şenyuva E. Nursing education and evidence based practice. Florence Nightingale Hemşirelik Derg 2016;24:59–65. [Article in Turkish]
11. Baysan-Arabacı L, Çam MO. Türkiye'de adli psikiyatri hastanelerinde çalışan hemşirelerin adli psikiyatri hastalarına yönelik tutumlarını etkileyen faktörler. Türk Psikiyatr Derg 2013; 2013;24:253–9. [Article in Turkish]
12. Bilgin H, Keser-Özcan N, Kutlu Y. Role perceptions of nurses working within forensic psychiatric wards: a qualitative research. Türkiye Klin J Psychiatry-Special Top 2011;4:73–80. [Article in Turkish]
13. Kutlu Y, Bilgin H. Nursing in forensic psychiatric clinics: roles and difficulties. Türkiye Klin J Psychiatry-Special Top 2011;4:67–72. [Article in Turkish]
14. Oflaz F, Boyacıoğlu NE, Yılmaz S, Sukut Ö, Doğan N, Enginkaya S. The profile of nurses in psychiatric units: Istanbul sample. J Psychiatr Nurs 2021;12:188–97.
15. Pulsford D, Crumpton A, Baker A, Wilkins T, Wright K, Duxbury J. Aggression in a high secure hospital: staff and patient attitudes. J Psychiatr Ment Health Nurs 2013;20:296-304.
16. Keulen-de Vos M, Sanci F. Silent struggles: navigating secondary traumatic stress in Dutch practitioners working with individuals who have committed sexual violence. J Forensic Nurs. 2025 Nov 3.
17. Zhao J, Bumstead B, Junes S, Canning C, Hilton NZ. Implementation research in forensic mental health: a scoping review. Implement Sci Commun 2025;6:102.
18. Martin T, Maguire T, Quinn C, Ryan J, Bawden L, Summers M. Standards of practice for forensic mental health nurses--identifying contemporary practice. J Forensic Nurs 2013;9:171–8.
19. Marklund L, Wahlroos T, Looi GE, Gabrielsson S. 'I know what I need to recover': Patients' experiences and perceptions of forensic psychiatric inpatient care. Int J Ment Health Nurs 2020;29:235–43.
20. OECD. Health at a Glance 2021. OECD; 2021. Avaible at: https://www.oecd.org/en/publications/health-at-a-glance-2021_ae3016b9-en.html Accessed: 20 June, 2026.
21. Kartal H, Çamlıca T, Özkan A. An Analysis of Missed Nursing Care in Intensive Care Units and Influencing Factors. Sağlık ve Hemşirelik Yönetimi Derg 2022;9:322–33. [Article in Turkish]
22. Karadağ M, Akman N, Demir C. Managerial and organizational problems in nursing service. Anadolu Hemşirelik ve Sağlık Bilim Derg 2013;16:16–26.
23. Tenkanen H, Tiihonen J, Repo-Tiihonen E, Kinnunen J. Interrelationship between core interventions and core competencies of forensic psychiatric nursing in Finland. J Forensic Nurs 2011;7:32–9.
24. Holmes D, Perron A, Jacob JD, Paradis-Gagné É, Gratton SM. Pratique en milieu de psychiatrie légale : proposition d'un modèle interdisciplinaire. Rech Soins Infirm 2018:33–43. [Article in French]

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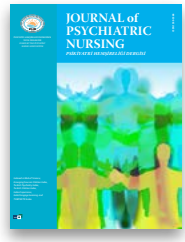

Original Article

The effect of a sexual minority awareness training program for nursing students on knowledge and attitudes toward LGBT individuals: a randomized controlled trial

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Abstract

Objectives: This study was conducted as a pretest, posttest, follow-up randomized controlled trial to determine the effect of the SMATP provided to nursing students on their knowledge of and attitudes toward LGBT individuals.

Methods: The study included 78 participants, with 39 in the intervention group and 39 in the control group (α=0.05, power=0.80, effect size=0.20). To account for potential dropouts, four additional participants were added to each group. As a result, a total of 86 students were included in the intervention and control groups. The LGBT Ally Identity Measure, Attitude Scale Towards Lesbians and Gays, and Attitude Scale Towards Transgender Individuals were administered. The intervention group attended an online SMATP once weekly for 4 weeks, with each session lasting 60–90 minutes, while the control group received no intervention. Assessments were conducted at pretest, posttest, 1-month follow-up, and 3-month follow-up.

Results: There was a statistically significant difference between the scores of students in the intervention and control groups on the posttest and follow-up tests. The average scores of students in the intervention group were higher on both the posttest and follow-up tests than those of students in the control group (F=157.464, p=0.00/F=6.237, p=0.01/F=11.291, p=0.00).

Conclusion: We found that the SMATP improved students' knowledge of LGBT individuals and was effective in fostering positive attitudes.

Keywords: Attitude; gender minority; LGBT; nursing students; training

The concept of LGBT, often viewed as referring to a single, homogeneous group, encompasses various sexual orientations and identities, including lesbian, gay, bisexual, and transgender. "LGB" (lesbian, gay, and bisexual) refers to sexual orientation, while "T" (transgender) refers to a gender identity that differs from biological sex. Although LGBT includes different sexual identities and orientations, individuals within this group face similar problems and obstacles in society.

Perspectives toward LGBT individuals have changed throughout history. In some populations, attraction to the same gender or to certain genders has been socially accepted, while in others, it has not. In monotheistic religions, many pleasures, including homosexuality, were classified as "sin," and in later periods, the concept of sin was replaced by "crime."[1] These individuals, who became the subject of scientific discussions in the mid-19th century, were viewed as "patients" during this

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period and were treated with methods such as psychoanalysis and electroconvulsive therapy (ECT).[2] In 1973, to prevent othering, homosexuality was removed from the category of illness by the American Psychiatric Association (APA) and recognized as an orientation.[3] In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the terms "transsexualism" and "gender identity disorder," used in previous editions, were replaced by "gender dysphoria." It was also removed from the list of mental illnesses by the World Health Organization (WHO) in 1990.[4] Despite these developments, homophobic attitudes toward LGBT individuals persist, especially in conservative, strong, and patriarchal societies. These individuals continue to face negative attitudes and behaviors in many areas of society, such as home, school, and work.[5,6] LGBT individuals are subjected to verbal and physical abuse, physical and sexual harassment, and attacks at home, at school, at work, among peer groups, and in many other areas of life.[7] In daily life, homophobia manifests in many forms, such as ridicule, violence, swearing, humiliation, murder, and being ignored.

Homophobic attitudes are also common among healthcare professionals.[8,9] These negative attitudes often emerge when LGBT individuals use health services. Both healthcare professionals and other patients may exhibit homophobic attitudes.[6] Especially during adolescence, LGBT individuals need professional help as they come to understand their sexual orientations and identities. LGBT individuals, who are likely to encounter healthcare professionals lacking sufficient knowledge and resources, are concerned that they will not be able to receive help when they need comprehensive health screenings in the future.[10–12] According to studies conducted in different countries, LGBT individuals may not receive or may delay treatment due to fear of discrimination while accessing health services, and they experience anxiety and insecurity due to stigmatization.[6,13,14] In a study conducted with nursing students, approximately half of the participants stated that they did not want to spend much time with LGBT individuals in clinical settings, and some indicated that they would not want to provide care and could display discriminatory attitudes.[15] In a study conducted with emergency department staff, a training program consisting of five modules addressing equity and equality, discrimination, the use of gender-affirming language, and patient care practices was implemented. At the end of the training, a significant increase in knowledge, skills, and openness was observed in participants' attitudes toward LGBT individuals.[16] Most studies on LGBT issues in our country focus on defining problems.[17–22] There are insufficient studies aimed at solving these identified problems. However, it is known that there are negative attitudes regarding the healthcare needs of LGBT individuals.[23] Healthcare professionals' lack of knowledge about LGBT individuals leads to homophobic attitudes and behaviors, which creates stigmatization in determining the psychological and physical needs of LGBT individuals. In addition, inappropriate communication is an obstacle to creating inclusive healthcare environments for LGBT patients.[24] Health professionals, who are required to provide care to everyone equally and in accordance with ethical values, must provide the same quality of healthcare to LGBT individuals as they do to all patients.[25] This will only be possible if health professionals recognize these individuals and overcome their prejudices. It is essential to emphasize to healthcare professionals that LGBT individuals should not be ignored in terms of non-prejudiced, empathetic, ethical, patient-centered care and equal health rights.[6,26] Providing healthcare professionals with training about sexual education, sexual identities, and sexual orientations before graduation will be effective in increasing healthcare quality and awareness.[6,15,16] Recent studies show that the use of LGBT+ or LGBTIQ+ is common. The plus sign represents the great diversity in expressions of sexual orientation, gender identity, and gender characteristics. Therefore, the acronym LGBTIQ+ is dynamic and may change by region or country. The abbreviation "LGBT" is used in this article because it is the most common usage in the country where this study was conducted.

What is presently known on this subject?

- Homophobic attitudes are common among healthcare professionals and can negatively affect the care they provide to LGBT individuals. Providing equitable and fair healthcare is one of the most important ethical values that healthcare professionals should uphold. Previous research has shown that educational programs such as SMATP increase knowledge and reduce negative attitudes toward LGBT individuals among healthcare professionals, including nursing students.

What does this article add to the existing knowledge?

- This study provides evidence that a 4-week SMATP program for nursing students can increase knowledge and reduce negative attitudes toward LGBT individuals. Additionally, improvements observed up to 3 months after training highlight the sustained effects of SMATP over time.

What are the implications for practice?

- The results indicate that integrating SMATP into nursing curricula can significantly improve students' knowledge and attitudes. Including such programs as elective courses or within the content of the Mental Health and Psychiatric Nursing course may offer long-term benefits.

Aim and Hypothesis

This study aimed to determine the effect of the Sexual Minority Awareness Training Program (SMATP) provided to nursing students on their knowledge of and attitudes toward LGBT individuals.

The hypotheses of this study were as follows:

H1: The average LGBT Ally Identity Measure score of students who receive sexual minority awareness training will increase with a statistically significant difference after training.

H2: After the training, the mean LGBT Ally Identity Measure score of students who receive sexual minority awareness

training will increase with a statistically significant difference compared with the control group.

H3: The average score on the Attitudes Towards Lesbians and Gays Scale for students who receive sexual minority awareness training will increase with a statistically significant difference after training.

H4: After the training, the mean score on the Attitudes Towards Lesbians and Gays Scale for students who receive sexual minority awareness training will increase with a statistically significant difference compared with the control group.

H5: The average score on the Attitude Scale Towards Transgender Individuals for students who receive sexual minority awareness training will increase with a statistically significant difference after training.

H6: The mean score on the Attitude Scale Towards Transgender Individuals for students who receive sexual minority awareness training will increase with a statistically significant difference compared with the control group.

Materials and Method

Design and Participants

A randomized controlled experimental research design with pretest-posttest follow-up was used. The study population consisted of first- and second-year Bachelor of Nursing students (n=101). First- and second-year students were included because they had not yet participated in professional practice or internships and had not provided care to an LGBT patient before the training. The inclusion criteria were being a first- or second-year student in the nursing department, having the technological equipment necessary to participate in the online training program, and not having a communication disability related to vision or hearing. Students who dropped out of the training program or did not complete any of the pretest, posttest, or follow-up tests were excluded from the study. The effect size for calculating the sample size was based on the results of a similar study.[16] The sample size was determined as 39 participants per group, totaling 78 participants, using the G*Power analysis program (α=0.05, power=0.80, effect size=0.20). Four students did not meet the inclusion criteria, and 11 students declined to participate. To account for potential dropouts or exclusions, 8 additional students were included, 4 in each group (10% of the group size). Consequently, a total of 86 students in the intervention and control groups participated in the study (Appendix 1).

Randomization

Assignment of students to the control and intervention groups was determined using the randomization table available online at http://biostatapps.inonu.edu.tr/RAY/.[27] In the table, Group 1 and Group 2 were designated as the control and intervention groups, respectively, by drawing lots. Students participating in the research were listed by their student numbers and then assigned to groups according to the order in the randomization table. A single-blind method was used. To prevent bias in data analysis, statistician blinding was applied. The research data were coded as A and B, and the statistician did not know which letter corresponded to which group.

Place and Date

The study was conducted from February 2022 to June 2022 at the School of Nursing of a foundation university in Istanbul.

Data Collection Tools

Descriptive Characteristics Questionnaire

It was prepared by the researchers using the literature to determine students' personal and familial characteristics and their approach to sexual minorities.[28–30] It consists of 21 questions: 9 about students' sociodemographic characteristics, such as gender, place of longest residence, hometown, parents' education level, religious belief, and parental attitude, and 12 about sexual minorities.

LGBT Ally Identity Measure

It was developed by K. Nicole Jones, Melanie E. Brewster, and Jacob A. Jones (2014) and consists of 19 items and three subscales.[31] The scale is a five-point Likert-type scale, ranging from "strongly disagree" to "strongly agree." The total score ranges from 19 to 95. A high score indicates a high level of supportive identity characteristics. In the Turkish validity and reliability study, two subdimensions were formed, unlike the original version, and one item was excluded from the analysis. Cronbach's alpha was 0.95 for the whole scale, 0.96 for the awareness-openness and support subscale (items 4, 5, 6, 7, 9, 12, 15, 16, 17, and 18), and 0.89 for the knowledge and skills subscale (items 1, 2, 3, 8, 10, 11, 13, and 14).[32] In this study, the Cronbach's alpha value was 0.912 in the pretest, 0.967 in the posttest, 0.966 in the 1-month follow-up, and 0.965 in the 3-month follow-up.

Attitude Scale Towards Lesbians and Gays

The scale was developed by Herek (1998), and its Turkish validity and reliability were established by Duyan and Gelbal (2004). It is a five-point Likert-type instrument consisting of 10 items. Participants respond to each item on five levels: "strongly disagree," "disagree," "undecided," "agree," and "completely agree." Six items against homosexuality (1, 2, 4, 6, 7, and 9) have negative meanings, while four items (3, 5, 8, and 10) have positive meanings. For positive items, "completely agree" is scored as 5 and "completely disagree" as 1. For negative items, "completely

disagree" is scored as 5 and "completely agree" as 1. The lowest possible score on the scale is 10, and the highest is 50; higher scores indicate more positive attitudes toward homosexuality, while lower scores indicate more negative attitudes. The Cronbach's alpha value of the scale was reported as 0.91.[33] In this study, the Cronbach's alpha value was 0.91 in the pretest, 0.87 in the posttest, 0.87 in the 1-month follow-up, and 0.86 in the 3-month follow-up.

Attitude Scale Towards Transgenders

Its validity and reliability were studied by Gölge and Akdemir (2019). Its validity and reliability were studied by Gölge and Akdemir.[34] It is a five-point Likert scale consisting of 20 items. Each item can be answered as "strongly agree," "agree," "undecided," "disagree," or "strongly disagree." Items 1, 5, 8, 10, 12, 13, 14, 16, and 17 are reverse-scored. As the score increases, positive attitudes toward transgender individuals also increase. Cronbach's alpha was reported as 0.96.[34] In this study, the Cronbach's alpha value was 0.93 in the pretest, 0.92 in the posttest, 0.92 in the 1-month follow-up, and 0.92 in the 3-month follow-up.

Ethical Responsibilities

The study was approved by the university ethics committee (Meeting/Decision Number: 2021/07-687) and conducted in accordance with the Declaration of Helsinki. Participation was voluntary, and informed consent was obtained before the study began. All participants had the right to participate or decline participation. The study was registered with ClinicalTrials.gov (ClinicalTrials.gov ID: NCT05258084).

Intervention

Before the start of SMATP, an online interview was conducted with all students who volunteered to participate in the study and met the criteria. Information was provided about the purpose, benefits, and duration of the study. After approval to participate was obtained from the intervention and control groups, pretests were administered. The intervention group was informed about the SMATP date and time, the program link, and the rules to follow during the training. The data collection process was carried out by the researcher, who provided information to the students. The training was conducted via Microsoft Teams. Students were added to the training group once using their email addresses, so there was no need to send invitations each week. A reminder message was sent to the intervention group via Microsoft Teams 1 day before each training session. Each training module lasted approximately 1 to 1.5 hours (4 weeks and 4 modules). At the beginning of each module, a summary of the previous module was provided. There were no technical problems or need for support during the training. All students attended all modules of the training program, which was completed with 43 students.

Posttest data for the intervention group were collected after all four modules were completed. To test the lasting effect of the training, follow-up data were collected from the intervention group 1 and 3 months after the training was completed. All students in the intervention group participated in the follow-up data collection. Students in the intervention and control groups, who did not have the opportunity to socialize before the training because their courses were online, did not meet each other during the training.

Control Group

Three weeks after the pretest data were collected, a one-time, unstructured online informational interview (1 hour) was held, during which students in the control group had their questions about SMATP answered. Immediately after the training program ended, on the same day that posttest data were collected from the intervention group, posttest data were also collected from the control group. All students in the control group participated in the posttest. After the study was completed, SMATP program materials were provided to the control group to ensure they received equal treatment. This approach allowed for clear comparisons of outcomes between the intervention and control groups and helped maintain ethical standards.

Data Analysis

The data obtained in the research were analyzed using IBM SPSS 25.0. Descriptive statistics, including arithmetic mean, frequency, and standard deviation, were used to analyze demographic data. The suitability of the data for normal distribution was assessed with the Kolmogorov–Smirnov and Shapiro–Wilk tests. The independent samples t-test was used to compare two independent quantitative groups with normal distribution, and repeated measures analysis of variance was used to compare at least three related quantitative datasets. The Mann–Whitney U test was used to compare two independent quantitative groups without normal distribution, and the Friedman test was used to compare at least three related quantitative datasets. The Chi-square test and Fisher's exact test were used to analyze categorical descriptive information and to determine differences between groups. The reliability of the scales was calculated with Cronbach's alpha. All test results were evaluated at the $p<0.05$ significance level.

Results

A total of 77.9% of the participants were women and 22.1% were men. Among the participants, 58.1% had lived in a metropolitan area for the longest period, 75.6% believed in a religion and performed its rituals, and 22.1% believed in a religion but did not perform its rituals. Of these participants, 50% had mothers and 47.7% had fathers with a high school education; 62.8% had mothers who were housewives, and 29.1%

Table 1. Analysis of variance (ANOVA) of LGBT AIM mean scores of control and intervention groups for repeated measures

LGBT AIM	Int. group		Cont. group		t	p		F	p
	$\bar{x}$	SD	$\bar{x}$	SD					
1- Pre-test	50.86	10.73	49.23	14.25	0.598	0.551	Group	8.420	0.005*
2- Post-test	70.26	8.14	49.21	16.41	7.535	0.000*	Time	8.266	0.005*
3- 4th week test	70.23	7.85	49.23	16.45	7.556	0.000*	Group*Time	4.613	0.035*
4- 12th week test	70.33	7.60	49.00	16.48	7.706	0.000*			
Bonferroni	1<2;1<3;1<4;		–						
p	0.000*		0.938						
Test	F=157.464		F=0.006						

*: p<0.05. F: Repeated measures analysis of variance, t: Independent samples t-test, SD: Standard error.

Table 2. Analysis of variance (ANOVA) of ASTLG mean scores of control and intervention groups for repeated measures

ASTLG	Int. Group		Control group		t	p
	$\bar{x}$	SD	$\bar{x}$	SD		
1- Pre-test	32.37	9.78	29.26	8.96	t=1.541	0.127
2- Post-test	36.79	7.56	31.26	7.81	Z=-3.236	0.001*
3- 4th week test	36.79	7.56	31.21	7.77	Z=-3.264	0.001*
4- 12th week test	36.91	7.57	31.21	7.76	Z=-3.366	0.001*
Test	F=6.237		X^2=0.363			
p	0.016*		0.948			
Bonferroni	1<2;1<3;1<4;		–			
p	0.017*;0.017*;0.015*		–			

*: p<0.05. F: Repeated measures analysis of variance, t: Independent samples t-test, X^2: Friedman test, SD: Standard error.

had fathers who were workers. Additionally, 54.7% described their parents' attitudes as protective, while 24.4% described them as authoritarian (Appendix 2).

Of the participants, 59.3% did not have a homosexual friend, 60.5% would be friends with a homosexual person, 90.7% did not have a transgender friend, 50% would not be friends with a transgender person, 74.4% did not discuss LGBT issues in their families, and 46.5% reported that their parents had negative attitudes toward LGBT individuals. According to 70.9% of the survey participants, providing healthcare to a lesbian or gay person, and according to 68.6%, providing healthcare to a transgender person, would be no different from providing healthcare to others. For 73.3% of participants, receiving care from a lesbian or gay healthcare professional was not a problem, and for 67.4%, receiving care from a transgender healthcare professional was not a problem. Of the participants, 53.5% accessed information about LGBT individuals via the internet, and 46.5% thought that their knowledge about LGBT individuals was insufficient (Appendix 3).

The average scores, standard deviations, and results of the repeated measures analysis of variance for the intervention and control groups from the LGBT Ally Identity Measure, Attitudes Towards Lesbians and Gays Scale, and Attitudes Towards Transgender Individuals Scale are presented. There was no statistically significant difference between the mean pretest scores of students in the intervention and control groups on these measures. However, a statistically significant difference was found in the posttest and follow-up tests. The average scores of students in the intervention group were higher in the posttest and follow-up tests than those of students in the control group. There was no statistically significant difference between the mean scores of students in the control group across the pretest, posttest, and follow-up tests, whereas a statistically significant difference was found between the mean scores of students in the intervention group across these time points. According to the results of the Bonferroni analysis, conducted to determine between which time periods the difference occurred, the difference was due to the pretest, with the average pretest score of the intervention group being lower than the posttest and follow-up test scores (Tables 1-4).

Discussion

According to a UNESCO report, many adolescents worldwide do not receive comprehensive sexuality education from their families or schools. They often learn confusing and misleading information about sexuality.[35] In patriarchal and traditional

Table 3. Analysis of variance (ANOVA) of ASTTI mean scores of control and intervention groups for repeated measures

ASTT	Int. group		Control group		t	p
	$\overline{x}$	SD	$\overline{x}$	SD		
1- Pre-test	60.53	17.44	60.63	13.82	t=0.027	0.978
2- Post-test	71.67	14.07	62.26	13.68	Z=-3.032	0.002*
3- 4th week test	71.56	13.98	62.21	13.52	Z=-3.062	0.002*
4- 12th week test	71.63	13.88	62.23	13.54	Z=-3.122	0.002*
Test	F=11.291		X^2=2.181			
p	0.002*		0.536			
Bonferroni	2>1; 3>1;4>1		–			
p	0.002*;0.002*;0.002*		–			

*: p<0.05. F: Repeated measures analysis of variance, t: Independent samples t-test, X^2: Friedman test, SD: Standard error.

Table 4. SMATP content

Modules and topics	Contents	Outputs
MODULE 1 Terminologies and concepts related to gender and sexuality	It is the first module of SMATP. Biological sex, gender concepts, sexual orientation and sexual identity concepts were explained within the framework of being a woman and a man. (Sex, Gender, Gender Identity, Sexual Orientation, Anatomy, chromosomes, hormones)	At the end of the module, students will understand the difference between biological sex and social gender. They will be able to define the concepts of sexual orientation and gender identity.
MODULE 2 Expression of sexual identity and gender transition processes	It is the second module of SMATP. It includes the social, legal and medical dimensions of the process from the expression of sexual identity to gender transition processes Social Dimension Expressing gender identity/orientation: ''coming out'' Legal Dimension The functioning of courts and other institutions in officially changing gender Medical Dimension Hormone therapy or various surgical procedures	At the end of the module, students will learn about masculine, feminine and secret identities, and will recognize the social dimension and difficulties of coming out. They will also learn about the legal and medical issues of gender transition
MODULE 3 Determining factors in LGBT individuals' inadequate use of health services	It is the third module of SMATP. The determining factors in LGBT individuals' use of health services were explained. Physical Factors Poverty, lack of Health Insurance Social Factors Family Rejection, Social Stigma Individual Factors Chronic diseases, Smoking-alcohol/substance abuse, Previous negative communication experiences Factors from Healthcare Providers Impact of lack of knowledge and bias of healthcare professionals	At the end of the module, students will be able to identify negative personal, physical, social and healthcare professional factors. They will learn the importance of employment, trust and equality.
MODULE 4 Creating a safe and health-friendly environment for LGBT individuals and healthcare professionals	It is the last module of SMATP. The importance of creating a safe and health-friendly environment for LGBT individuals and healthcare professionals will be emphasized. Physical environment Health promotion materials, website, patient intake processes Use of Positive Language Clear, nonjudgmental, respectful language Policy Needs assessment and collaboration with LGBT community organizations	At the end of the module, the resources that need to be created for LGBT people to benefit from health services at an adequate level, policy texts and the importance of using clear/respectful language will be learned.

societies, people who grow up believing that sexuality requires confidentiality have difficulty discussing sexuality-related issues and accessing accurate information when needed. [36] Adolescents can easily access all kinds of information on the internet, but not all of it is reliable. Therefore, adolescents should be able to learn accurate information about sexuality

from their families and schools. Notably, most participants in this study stated that the places where they learned the least about sexuality were family and school. The results of different studies conducted with nursing students in our country are similar to those of this study. The findings show that adolescents receive limited information about sexuality from their parents, do not receive sexuality education at school, and mostly rely on the internet as a source of information.[37–40] In addition, half of the participants in these studies had insufficient knowledge about LGBT people, and some had no knowledge at all. However, information learned at home and at school is believed to play an important role in shaping attitudes. In various studies conducted with nursing students, it is evident that students do not receive education about sexual identities or orientations.[29,41] In our country, sexuality education provided in schools is limited. The content, mostly offered at the high school and some university or master's levels, focuses only on reproduction and does not include sexual identities or orientations.[42] In a study conducted in our country, nursing students were asked about the meaning of "LGBT," and 64.6% stated that they could explain it. However, when asked to provide explanations, half of the responses were incorrect, and most students explained "homosexuality," "bisexuality," and "transsexuality" incorrectly.[20] The majority of participants in this study stated that providing healthcare to an LGBT individual or receiving care from an LGBT healthcare professional would not be a problem for them. In a study with nursing students, 42.6% stated that they would continue to provide care to an LGBT patient without showing that they understood. In the same study, 6.1% stated that they would change their treatment and approach, 20.5% did not know what approach to adopt, and 30.8% stated that they could discuss sexual orientation and provide equal healthcare to everyone.[20] Different studies conducted with nursing students align with the results of our study.[28,43,44] In studies that included nurses, nursing students, and other health professionals, most participants stated that they were not uncomfortable providing health services to LGBT individuals or receiving health services from an LGBT health professional. However, the number of participants who thought otherwise was not small. Healthcare professionals who have not had social interaction with an LGBT individual or who have incorrect information about them are more likely to have negative attitudes.[19,22,45] Many studies show that previous social interaction with LGBT individuals and having accurate information are effective in developing positive attitudes.[5,19–22,45–47] There are studies showing that training programs for healthcare professionals increase proficiency in providing healthcare to LGBT people. In various studies, the findings obtained after training given to nurses and other healthcare professionals about LGBT individuals are similar to those of this study. In all studies, statistically significant results were obtained in pretest, posttest, and follow-up test scores.[16,25,48–56] All similar studies aiming to develop positive attitudes toward LGBT individuals, provide communication skills, and increase knowledge levels have shown positive results. It is believed that the fact that the sample groups in these studies consisted of healthcare professionals is an important factor in obtaining positive results. Healthcare professionals who have received training in ethical and equitable caregiving principles are thought to be more open to learning about differences.

Study Limitations

While our study may also be useful for nursing staff in clinical settings, it included only first- and second-year nursing students. To obtain definitive evidence, it should be further tested with healthcare students or professionals. Additionally, our study included only Turkish nursing students. New studies with more diverse participant groups are needed to better assess possible cultural effects. SMATP should be used more widely to facilitate its transfer to different countries. Finally, we recommend adding role-play and simulation practices with standardized patients to the training program to measure students' clinical proficiency. Future studies should consider these suggestions.

Conclusion

This study was conducted with nursing students to investigate the effect of SMATP on their knowledge of and attitudes toward LGBT people. The results showed that SMATP increased the participating nursing students' knowledge about LGBT people and was effective in developing positive attitudes. It was observed that the participating nursing students were willing to provide the support that LGBT people need when delivering healthcare.

Ethics Committee Approval: The study was approved by the Istanbul Yeni Yuzyil University Science, Social and Non-interventional Health Sciences Research Ethics Committee Ethics Committee (no: 2021/07-687, date: 06/07/2021).

Informed Consent: Written informed consents were obtained from patients who participated in this study.

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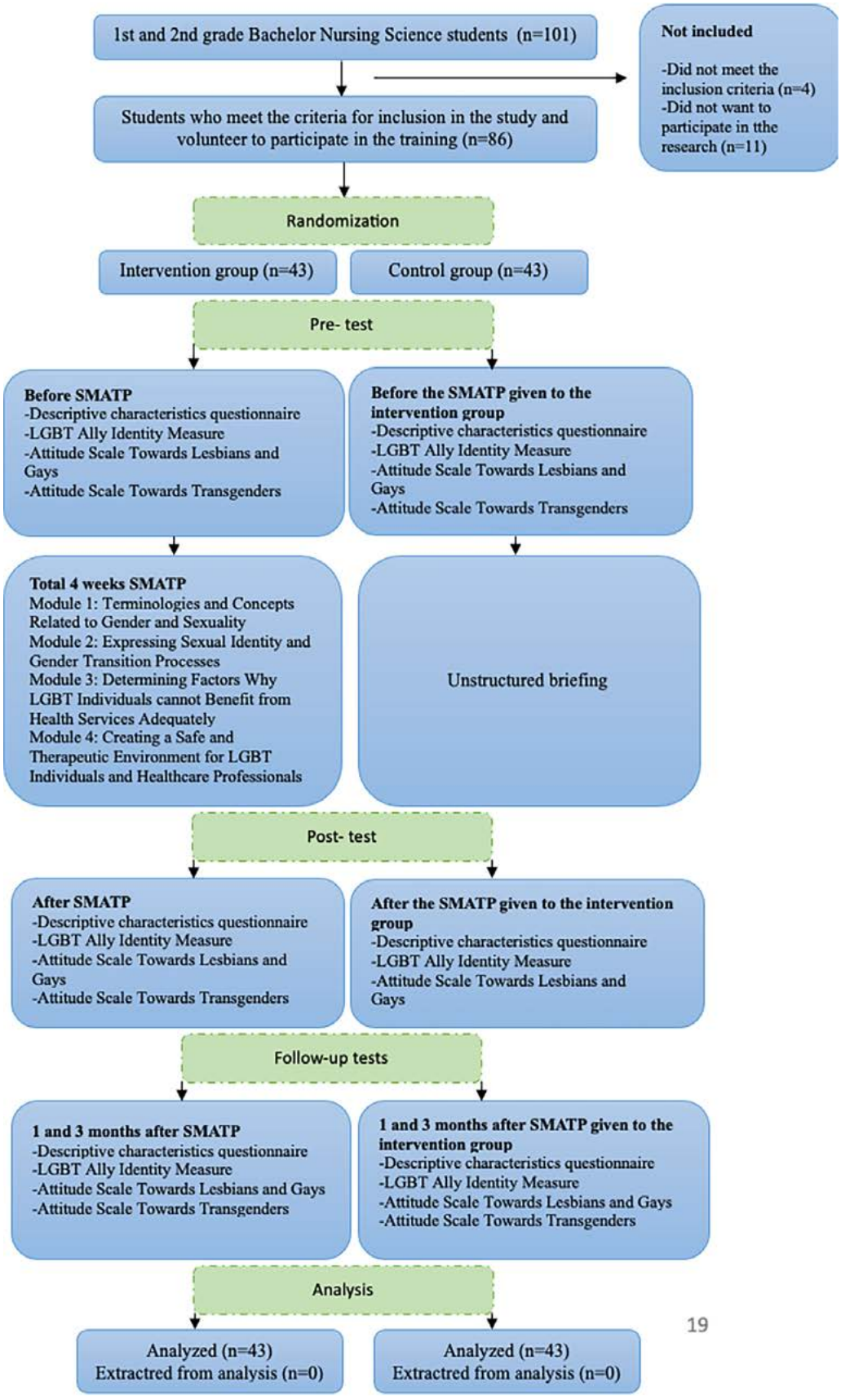
References

1. Dondurucu ZB. Eşcinsellik Temelli Nefret Söylemi İçeren İletilerin Twitter'da İncelenmesi. JEC 2018;5:513–34. [Article in Turkish]
2. Candansayar S. The medicalization of sexuality and homosexuality as a practice of othering. In: The Anti-Homophobia Book. Ankara: Kaos GL Association; 2009.
3. American Psychological Association (APA). Sexual orientation & homosexuality. Available at: https://www.apa.org/topics/lgbtq/orientation. Accessed November 24, 2024.
4. Badza G. Homosexuality is not a disease, but homophobia hurts the mental health of LGBTI people – for example in Zimbabwe. Mental Health – D+C Development and Cooperation e-Paper. 2019.
5. Şah U. Eşcinselliğe, biseksüelliğe ve transseksüelliğe ilişkin tanımlamaların homofobi ve LGBT bireylerle tanışıklık düzeyi ile ilişkisi. Studies in Psychology 2012;32:23–48. [Article in Turkish]
6. Karataş S, Buzlu S. Difficulty of getting health care of transgender people having. Lectio Scientific Journal of Health and Natural Sciences 2018;2:70–81.
7. Orta Metin İ, Camgöz Metin S. A general overview on research on homophobia in Turkey. DTCF Dergisi 2018;58:409–39.
8. Değer VB, Kaçan H. Discrimination based on sexual orientation "homophobia in healthcare employees": a cross-sectional study. Sexuality Research and Social Policy 2025;22:318–28.
9. West MGLN, Araújo EC, Vilar CMLN, Batista MAL, Pereira DMR, Silva ATCSGS. Continuing nursing education actions in the face of homophobia: an integrative review. Rev Bras Enferm 2024;77(Suppl 3):e20230094.
10. Gonzales G, Henning-Smith C. Barriers to care among transgender and gender nonconforming adults. Milbank Q 2017;95:726–48.
11. Yılmaz V, Göçmen İ. Türkiye'de lezbiyen, gey, biseksüel ve trans bireylerin sosyal ve ekonomik sorunları araştırmasının özet sonuçlar. Türkiye Politika ve Araştırma Merkezi (Research Turkey). 2015;4:94–101. [Article in Turkish]
12. Buz S. Lezbiyen gey biseksüel transseksüel travesti bireylerle sosyal hizmet. Toplum ve Sosyal Hizmet 2011;22:137–48. [Article in Turkish]
13. Stewart K, O'Reilly P. Exploring the attitudes, knowledge and beliefs of nurses and midwives of the healthcare needs of the LGBTQ population: an integrative review. Nurse Educ Today 2017;53:67–77.
14. Karakaya S, Kutlu FY. LGBT individuals' opinions about their health care experiences: A qualitative research study. J Nurs Manag 2021;29:24–31.
15. Küçükkaya B. Hemşirelik Bölümü Öğrencilerinin Lezbiyen, Gey, Biseksüel, Transgender ve İnterseks (LGBTİ) Bireylere İlişkin Tutumları. STED 2019;27:373–83. [Article in Turkish]
16. Bristol S, Kostelec T, MacDonald R. Improving emergency health care workers' knowledge, competency, and attitudes toward lesbian, gay, bisexual, and transgender patients through interdisciplinary cultural competency training. J Emerg Nurs 2018;44:632–9.
17. Keten Edis E, Bektaş C. Relationship between nursing students' attitudes towards gender roles and sexual orientation myths. Göbeklitepe Medical Science Journal 2024;7.
18. Sürmeli Y, Vefikuluçay Yılmaz D, Değirmenci F, Bagıslayıcı N, Benli M. Determining the attitudes of nurses towards lesbians and gays and the factors driving their attitudes. Gümüşhane Üniv Sağlık Bil Derg 2024;13:28–36.
19. Efe İpek R, Türk Delibalta R. Determining university students' views on homosexuality. Journal of Life Long Nursing 2022;3:36–55.
20. Çiçekoğlu Öztürk P, Duran S. Hemşirelik öğrencilerinin homofobik tutumu, empatik becerileri ve etkileyen faktörlerin incelenmesi. JOHUFON 2022;9:207–15. [Article in Turkish]
21. Aymelek Çakıl N, Seki Öz H, Ceyhan Y. The effects of the violence tendency levels of nursing students on their attitudes towards homosexual individuals. Cyprus J Med Sci 2022;7:373–80.
22. Bahadır Z, Yücel H. Investigation of attitudes of health sciences faculty students towards lesbians and gays. Euroasia Journal of Mathematics, Engineering, Natural & Medical Sciences International Indexed and Refereed 2022;9:51–9.
23. Harmanci Seren AK, Eşkin Bacaksiz F, Çakir H, Yilmaz S, Sükut Ö, Turan S, et al. A Cross-sectional survey study on homophobia among medical, nursing, pharmacy, and other health sciences students. J Homosex 2023;70:3108–24.
24. Gao Q, Antfolk J, Santtila P. An experimental study using a sexual strategies explanation to reduce homophobia toward gay men among lay people and healthcare professionals in China. Front Psychol 2023;14:1143584.
25. Mert-Karadas M, Yucel-Ozcirpan C. The impact of an educational program based on the reproductive health of LGBT individuals developed for nursing students to improve the knowledge, skills and attitudes of students: A quasi-experimental study. Nurse Educ Pract 2023;70:103668.
26. Aker S, Mıdık Ö, Böke Ö. The effect of education on homophobia and attitudes toward gay men and lesbian women among medical faculty students: a turkish sample. Teach Learn Med 2024;36:358–68.
27. Arslan AK, Colak C. RAY: Rasgele Atama Yazılımı [web-based software]. Available from: https://biostatapps.inonu.edu.tr/RAY. Accessed March 22. 2022.
28. Sadıç E, Beydağ KD. Hemşirelik öğrencilerinin lezbiyen ve geylere yönelik tutumları ve etkileyen faktörler. HBD 2018;1:5–13. [Article in Turkish]
29. Soner G, Altay B. Attitude of nursing last term students towards homosexual individuals. Samsun Sağ Bil Der 2018;3:17–24. [Article in Turkish]
30. Babahanoğlu R, Türkmen P. Sosyal hizmet bölümü öğrencilerinin LGBT bireylerine bakış açılarının incelenmesi. Scientific Developments 2019;38:442–48. [Article in Turkish]
31. Jones KN, Brewster ME, Jones JA. The creation and validation of the LGBT ally identity measure. Psychology of sexual orientation and gender diversity 2014;1:181–95.
32. Karataş S, Buzlu S. Turkish validity and reliability study of the LGBT ally ıdentity measure. J Med Sci 2023;4:21–9.

33. Duyan V, Gelbal S. Lezbiyen ve Geylere Yönelik Tutum Ölçeği (LGYT): Güvenirlik ve geçerlik çalışması Turkish J HIV/AIDS 2004;7:106–12. [Article in Turkish]
34. Akdemir S, Gölge ZB. Trans bireylere yönelik tutum ölçeği'nin türkçe geçerlik ve güvenirlik çalışması. Psikiyatride Güncel Yaklaşımlar - Current Approaches in Psychiatry 2019;11:261–75. [Article in Turkish]
35. UNESCO. Why comprehensive sexuality education is important. Available at: https://en.unesco.org/news/why-comprehensive-sexuality-education-important. Accessed Jujne 26, 2026.
36. Güdül Öz H, Ak Sözer H, Balcı Yangın H. Nursing students' belief in sexual myths and affecting factors. Ordu University J Nurs Stud 2020;3:136–145.
37. Özdemir Ö, Yılmaz M. Sağlık profesyonellerinin cinsel mitlere inanma durumlarının belirlenmesi. Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2020;4:221–32. [Article in Turkish]
38. Alagöz E, Karataş S. The Relation of Parent Attitudes with Sexual Myths in Nursing Students Journal of Medical Sciences 2021;2:56–63.
39. Güdül Öz H, Balcı Yangın H, Ak Sözer G. Cinsel sağlık dersinin hemşirelik öğrencilerinin cinsel mitleri üzerine etkisi. STED 2022;30:400–8. [Article in Turkish]
40. Karakurt P, Köse Tuncer S. Determining university students' attitudes towards sexual health: the case of nursing students. Gevher Nesibe Journal Of Medical And Health Sciences 2022;7:131–9.
41. Judith BC, Jennifer C. A survey of nursing students' knowledge of and attitudes toward LGBT health care concerns. Nursing Education Perspectives 2015;36:176–8.
42. Koçoğlu E, Avcı YE. Privacy Education in Turkey Based on the Views of School Principals. Pamukkale University Journal of Education 2022;54:385–409.
43. Gönenç IM, Erenel Şentürk A. Determining homophobic attitudes of nursing students in Turkey and the factors affecting them. Clin Exp Health Sci 2019;9:21–8.
44. Ekitli BG, Eroğlu S. The views and attitudes of nursing faculty students towards homosexuality. In: Proceedings of the IV International, VIII National Psychiatric Nursing Congress. Manisa, Türkiye; 6–9 November 2016. p. 297.
45. Andersen E. Openly Gay athletes: contesting hegemonic masculinity in a homophobic environment. Gender&Society 2002;16:1–18.
46. Sakalli N, Uğurlu O. Effects of social contact with homosexuals on heterosexual Turkish university students' attitudes towards homosexuality. J Homosex 2001;42:53–62.
47. Ardman E, Anh VM, Thuy DTD, Giang LM. Attitudes and Knowledge of Medical Students in Hanoi regarding Lesbian and Gay People. J Homosex 2021;68:2359–74.
48. Kaiafas KN, Kennedy T. Lesbian, gay, bisexual, transgender, queer cultural competency training to ımprove the quality of care: an evidence-based practice project. J Emerg Nurs 2021;47:654–60.
49. Russell S, Corbitt N. Addressing cultural competency: lesbian, gay, bisexual, transgender, and queer cancer care. Clinical Journal of Oncology Nursing 2022;26:183–9.
50. McEwing E. Delivering culturally competent care to the lesbian, gay, bisexual, and transgender (LGBT) population: Education for nursing students. Nurse Educ Today 2020;94:104573.
51. Carabez R, Pellegrini M, Mankovitz A, Eliason MJ, Dariotis WM. Nursing students' perceptions of their knowledge of lesbian, gay, bisexual, and transgender issues: effectiveness of a multi-purpose assignment in a public health nursing class. J Nurs Educ 2015;54:50–3.
52. Napolitano F. Implementation and analysis of a LGBTQ cultural competency module on pharmacy student knowledge. Curr Pharm Teach Learn 2022;14:266–75.
53. Strong KL, Folse VN. Assessing undergraduate nursing students' knowledge, attitudes, and cultural competence in caring for lesbian, gay, bisexual, and transgender patients. J Nurs Educ 2015;54:45–9.
54. Hardacker CT, Rubinstein B, Hotton A, Houlberg M. Adding silver to the rainbow: the development of the nurses' health education about LGBT elders (HEALE) cultural competency curriculum. J Nurs Manag 2014;22:257–66.
55. Leyva VL, Breshears EM, Ringstad R. Assessing the efficacy of LGBT cultural competency training for aging services providers in California's Central Valley. J Gerontol Soc Work 2014;57:335–48.
56. Sequeira GM, Chakraborti C, Panunti BA. Integrating Lesbian, Gay, Bisexual, and Transgender (LGBT) Content Into Undergraduate Medical School Curricula: A Qualitative Study. Ochsner J 2012;12:379–82.



Appendix 1. Total CONSORT Statement flow diagram.

Appendix 2. Some descriptive characteristics of students

	Intervent.		Control		Total		X^2	p
	n	%	n	%	n	%		
Gender							0.068	0.795
Female	34	79.1	33	76.7	67	77.9		
Male	9	20.9	10	23.3	19	22.1		
Home community							1.628	0.677
Village	1	2.3	3	7.0	4	4.7		
Urban	9	20.9	7	16.3	16	18.6		
Smaller city	9	20.9	7	16.3	16	18.6		
Metropolitan area	24	55.8	26	60.5	50	58.1		
Religionial Belief							3.633	0.236
I believe in religion, I perform rituals	30	69.8	35	81.4	65	75.6		
I believe in religion, I do not perform rituals	11	25.6	8	18.6	19	22.1		
Other	2	4.7	0	0.0	2	2.3		
Mother's education								
Illiterate	4	9.3	2	4.7	6	7.0	2.110	0.744
Literate	3	7.0	2	4.7	5	5.8		
Primary school	12	27.9	17	39.5	29	33.7		
High school	22	51.2	21	48.8	43	50.0		
University	2	4.7	1	2.3	3	3.5		
Father's education								
Illiterate	0	0.0	0	0.0	0	0.0	5.668	0.184
Literate	1	2.3	2	4.7	3	3.5		
Primary school	14	32.6	17	39.5	31	36.0		
High school	19	44.2	22	51.2	41	47.7		
University	9	20.9	2	4.7	11	12.8		
Mother's job								
Home income generating	3	7.0	2	4.7		5.8	12.591	0.101
Non-home income generating (housewife)	28	65.1	26	60.5	54	62.8		
Worker	2	4.7	8	18.6	10	11.6		
Officer	4	9.3	0	0.0	4	4.7		
Freelance	2	4.7	2	4.7	4	4.7		
Retired	4	9.3	3	7.0	7	8.1		
Other	0	0.0	2	4.7	2	2.3		
Father's job								
Unemployed	0	0.0	2	4.7	2	2.3	5.881	0.395
Worker	15	34.9	10	23.3	25	29.1		
Officer	4	9.3	3	7.0	7	8.1		
Freelance	11	25.6	9	20.9	20	23.3		
Retired	5	11.6	10	23.3	15	17.4		
Other	8	18.6	9	20.9	17	19.8		
Parental Attitude								
Democratic	8	18.6	4	9.3	12	14.0	3.002	0.434
Protective	21	48.8	26	60.5	47	54.7		
Authoritarian	12	27.9	9	20.9	21	24.4		
Other	2	4.7	4	9.3	6	7.0		

Appendix 3. Some characteristics of students related to sexual minorities

	Intervent.		Control		Total		X^2	p
	n	%	n	%	n	%		
Do you have a gay or lesbian friend?							0.434**	0.510
Yes	16	37.2	19	44.2	35	40.7		
No	27	62.8	24	55.8	51	59.3		
Would you be friends with a lesbian or gay?								
Yes	28	65.1	24	55.8	52	60.5	0.778	0.378
No	15	34.9	19	44.2	34	39.5		
Do you have a transgender friend?								
Yes	4	9.3	4	9.3	8	9.3	0.000*	1.000
No	39	90.7	39	90.7	78	90.7		
Would you be friends with a transgender?								
Yes	21	48.8	22	51.2	43	50.0	0.047	0.829
No	22	51.2	21	48.8	43	50.0		
Do you talked about LGBT issues in your family?								
Yes	15	34.9	7	16.3	22	25.6	3.909	0.048*
No	28	65.1	36	83.7	64	74.4		
What are your parents' attitudes toward LGBT individuals?								
Positive	1	2.3	2	4.7	3	3.5	0.463	0.872
Negative	21	48.8	19	44.2	40	46.5		
Neither positive nor negative	21	48.8	22	51.2	43	50.0		
What do you think about providing care to a lesbian/gay patient?								
No different	28	65.1	33	76.7	61	70.9	4.700	0.215
I would prefer not to provide care	5	11.6	1	2.3	6	7.0		
I provide care for my job	2	4.7	4	9.3	6	7.0		
Other	8	18.6	5	11.6	13	15.1		
What do you think about providing care to a transgender patient?								
No different	26	60.5	33	76.7	59	68.6	6.633	0.109
I would prefer not to provide care	6	14.0	1	2.3	7	8.1		
I provide care for my job	2	4.7	4	9.3	6	7.0		
Other	9	20.9	5	11.6	14	16.3		
What do you think about receiving care from a lesbian/gay healthcare professional?							1.108	0.575
No different	31	72.1	32	74.4	63	73.3		
I would prefer not to receive care	8	18.6	5	11.6	13	15.1		
Other	4	9.3	6	14.0	10	11.6		
What do you think about receiving care from a transgender healthcare professional?								
No different	25	58.1	33	76.7	58	67.4	4.447	0.108
I would prefer not to receive care	11	25.6	4	9.3	15	17.4		
Other	7	16.3	6	14.0	13	15.1		
If you have information about LGBT. where did you get this information?								
Family	1	2.3	2	4.7	3	3.5	12.369	0.023*
School	0	0.0	3	7.0	3	3.5		
Friend	14	32.6	16	37.2	30	34.9		
Internet	28	65.1	18	41.9	46	53.5		
Other	0	0.0	4	9.3	4	4.7		
What is your level of knowledge about LGBT?								
Sufficient	9	20.9	21	48.8	30	34.9	7.400	0.025*
Insufficient	24	55.8	16	37.2	40	46.5		
No idea	10	23.3	6	14.0	16	18.6		

*: $p<0.05$, X^2: Ki Kare test, **: Fisher Ki kare test.

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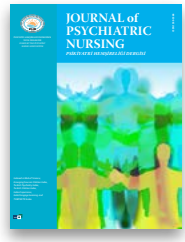

Original Article

Somatic symptom burden in patients with euthyroid Hashimoto's thyroiditis compared with healthy and non-autoimmune thyroid disease controls

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Abstract

Objectives: To evaluate whether somatic symptom burden is elevated in euthyroid patients with Hashimoto's thyroiditis compared with two control groups: healthy controls (HC) and patients with non-autoimmune thyroid diseases (NATD), including those with euthyroid nodular goiter and those who underwent thyroidectomy for benign indications.

Methods: This cross-sectional study included 90 adults (38 HC, 28 HT, and 24 NATD). The Patient Health Questionnaire-15 (PHQ-15) and Hospital Anxiety and Depression Scale-Total (HADS-Total) were used for psychometric assessment. Group differences were assessed using the Chi-square and Kruskal–Wallis tests with Bonferroni-adjusted post-hoc comparisons. Three linear regression models were used to evaluate the independent predictors of somatic burden. Spearman correlation analysis was used to examine the associations between thyroid markers (TSH, FT3, FT4, anti-TPO, and anti-TG) and symptom scores within the HT group.

Results: Somatic symptom burden differed significantly across the groups ($p<0.001$). The HT group showed higher PHQ-15 scores than both HC ($p=0.002$) and NATD patients ($p=0.031$). HADS-Total scores also differed overall ($p=0.0019$); however, only the comparison between patients with HT and HC remained significant after adjustment ($p<0.001$), whereas patients with HT and NATD did not differ. In multivariable regression analysis, Hashimoto's thyroiditis remained independently associated with higher somatic symptom burden ($\beta=2.84$, $p=0.013$), alongside psychological distress ($\beta=0.25$, $p<0.001$). Thyroid markers, including TSH, FT3, FT4, anti-TPO, and anti-TG, showed no significant correlations with PHQ-15 or HADS-Total scores within the HT group.

Conclusion: In euthyroid Hashimoto's thyroiditis, somatic symptom burden is elevated and appears to be driven mainly by psychological distress rather than by thyroid hormone levels or autoantibody titers. These findings suggest that the PHQ-15 may help identify patients who are more likely to benefit from psychosocial rather than endocrine-focused interventions.

Keywords: Anxiety; depression; Hashimoto disease; psychological distress; somatic symptom disorder

Hashimoto's thyroiditis (HT) is one of the most common endocrine diseases and has frequently been linked to increased rates of depressive and anxiety disorders, even when thyroid function is biochemically normal.[1] Meta-analytic evidence suggests that euthyroid HT is associated with a higher likelihood of anxiety and, to a lesser extent, depression compared with HC.[2] Beyond discrete psychiatric diagnoses, patients with HT often report impairments in health-related quality of

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life, including reduced physical functioning, general health, and mental health, despite adequate levothyroxine replacement and biochemical euthyroidism.[3] Somatization, obsessive–compulsive symptoms, and global psychological distress have also been associated with anti-thyroid peroxidase (anti-TPO) positivity in euthyroid HT, underscoring that symptom burden extends beyond classic hypothyroid manifestations.[4,5]

The broader literature on thyroid disease and mental health, however, is inconsistent. Some studies report similar rates of depression and anxiety in euthyroid HT and euthyroid goiter compared with healthy controls, suggesting that chronic thyroid disorder itself, rather than autoimmunity, may contribute to psychiatric symptoms.[6] Others have proposed associations between thyroid autoimmunity and psychiatric conditions, but these observations are often limited by heterogeneous thyroid function status and a lack of detailed clinical characterization.[7,8] Large population-based data using the Hospital Anxiety and Depression Scale (HADS) have found no independent association between anti-TPO positivity and anxiety or depression when age, gender, and thyroid hormones are taken into account.[9] A meta-analysis across autoimmune thyroiditis (AIT) also reported elevated affective symptoms but did not fully disentangle the roles of biochemical status and autoimmune activity.[10] Moreover, somatic symptom disorder appears highly prevalent among women with thyroid disease, emphasizing the importance of somatic distress and symptom amplification in this population.[11]

Parallel evidence from hypothyroid cohorts indicates that residual symptoms frequently persist despite biochemical normalization. Within a biopsychosocial framework, such complaints may fall under the concept of medically not yet explained symptoms (MNYES).[12–15] Patients often attribute fatigue, pain, and gastrointestinal symptoms to thyroid disease or its treatment, even when laboratory indices are normal, and misattribution may foster central sensitization and chronic symptom perception.[13,15]

Despite growing interest, it remains unclear whether symptom burden in euthyroid Hashimoto's thyroiditis reflects residual endocrine effects or predominantly non-biological mechanisms.

In this context, the present study aimed to assess somatic symptom burden in euthyroid Hashimoto's thyroiditis, taking into account psychological distress as the primary factor influencing symptom expression, alongside relevant sociodemographic variables and thyroid function parameters.

What is presently known on this subject?

- Although Hashimoto's thyroiditis has been associated with affective and physical symptoms, very few studies have directly compared strictly euthyroid patients with both healthy individuals and non-autoimmune thyroid disease controls using validated somatic measures. As a result, it remains unclear whether these complaints reflect biological thyroid disease, illness attribution, or unrecognized psychosomatic amplification.

What does this article add to the existing knowledge?

- This study clarifies that the diagnosis of Hashimoto's thyroiditis itself, together with underlying emotional distress, rather than thyroid hormone status, primarily explains why complaints persist despite long-term biochemical control.

What are the implications for practice?

- Clinicians should avoid unnecessary thyroid treatment escalation in biochemically euthyroid patients and instead implement structured distress screening, symptom validation, psychoeducation, and psychosomatic referral pathways to prevent reinforcement of illness identity and medicalization of distress.

Materials and Method

Type and Design

This cross-sectional observational study was designed to evaluate whether somatic symptom burden is elevated in euthyroid HT compared with two control groups: HC and patients with NATD, including those with nodular goiter and those who underwent thyroidectomy.

Place and Date

The study was conducted between February 2024 and June 2025 at the Endocrinology and Metabolism outpatient clinic of İzmir Katip Çelebi University Atatürk Training and Education Hospital.

Population and Sample

Participants were adults aged ≥18 years who presented to the endocrinology clinic for routine evaluation. To ensure that somatic and psychological symptoms were not confounded by thyroid dysfunction, only individuals with strictly normal thyroid function tests (TSH, FT4, and FT3) for at least 3 months before enrollment and at the time of questionnaire administration were included. Euthyroid status was defined as the presence of TSH, FT4, and FT3 levels within the laboratory reference range.

Participants were excluded if they had any chronic medical disease, were receiving any medication other than levothyroxine, or were pregnant or lactating. Participants with a known psychiatric diagnosis, previous psychiatric treatment, or psychotropic medication use were excluded based on self-reported medical history and available clinical records. A structured psychiatric interview was not performed.

Although a formal a priori power calculation was not performed, the study population was defined using highly restrictive inclusion criteria, including sustained euthyroid status for at least 3 months, absence of chronic medical or psychiatric comorbidity, and absence of confounding medication use. These criteria inherently limit sample size but enhance internal validity by allowing a more precise evaluation of somatic symptom burden independent of biochemical thyroid dysfunction or psychiatric disease.

Data Collection Tools

Somatic symptom burden was assessed using the Patient Health Questionnaire-15 (PHQ-15), a validated and widely used instrument specifically designed to quantify somatic symptom severity in both clinical and general populations. The PHQ-15 has demonstrated robust psychometric properties and has been validated in the Turkish population. Given that the primary outcome of this study was somatic symptom burden rather than psychiatric diagnosis, the PHQ-15 was considered the most appropriate tool for capturing the spectrum of medically unexplained and nonspecific physical symptoms.[16,17]

Anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS), developed by Zigmond and Snaith (1983) and validated in Turkish.[18–20] Both the anxiety (HADS-A) and depression (HADS-D) subscales were recorded; however, HADS-Total was selected as the primary adjustment variable because it provides a global index of psychological distress. Using the total score also avoids overfitting and better captures the overall psychological burden relevant to somatic symptom reporting, whereas subscale scores reflect narrower symptom domains.[21]

Thyroid-related biochemical parameters were recorded, including TSH for all participants and free T3, free T4, anti-TPO, and anti-TG antibody levels when available. These markers were used to confirm euthyroid status and classify individuals. Within the HT group, available biochemical variables were further examined through correlation analyses to evaluate whether somatic symptom burden or psychological distress was related to variations in thyroid function or antibody titers.

Sociodemographic variables included age, gender, marital status, having children, smoking status, alcohol consumption, income level, and occupational status.

Data Collection Process

At the time thyroid function results confirmed euthyroidism, eligible patients were enrolled and invited to complete the PHQ-15, HADS-Anxiety, and HADS-Depression questionnaires independently. Total scores for each instrument were recorded for analysis.

Process

The NATD group consisted of euthyroid participants with benign thyroid nodules or those who had undergone thyroidectomy for benign, non-autoimmune indications. Individuals with prior thyroidectomy were not included in the HT group. The HT group was defined strictly based on the presence of thyroid autoimmunity (anti-TPO and/or anti-TG positivity and/or ultrasonographic features consistent with autoimmune thyroiditis), regardless of treatment status.

Participants were categorized into three groups: HC, HT, and NATD. HC consisted of individuals with no known medical, psychiatric, or thyroid disease, recruited from hospital staff and their relatives who attended routine health evaluations. The HT group included euthyroid individuals with either positive anti-TPO or anti-thyroglobulin antibodies (anti-TG) or ultrasonographic features consistent with autoimmune thyroiditis. The NATD group consisted of euthyroid participants with benign thyroid nodules (n=16) or those who had undergone thyroidectomy for benign, non-autoimmune indications (n=8). Individuals with prior thyroidectomy were not included in the HT group. The HT group was defined strictly based on the presence of thyroid autoimmunity (anti-TPO and/or anti-TG positivity and/or ultrasonographic features consistent with autoimmune thyroiditis), regardless of treatment status. Participants in both the HT and NATD groups were eligible for inclusion regardless of levothyroxine therapy status; individuals either receiving or not receiving levothyroxine were enrolled in the study.

Because the HC group was intended to represent individuals without known medical or psychiatric disease, participants with HADS-Anxiety or HADS-Depression scores ≥11 were excluded from this group.[18] However, the same exclusion criterion was not applied to the clinical thyroid disease groups, since psychological distress may reflect part of the clinical symptom experience in chronic thyroid disease. Because the study aimed to evaluate somatic symptom burden and accompanying psychological distress in euthyroid thyroid disease, HADS scores were interpreted as dimensional indicators of psychological distress rather than diagnostic markers of psychiatric disorder.

A total of 103 participants initially completed the questionnaires; after applying the HADS exclusion criteria for HC, 90 participants were included in the final analysis.

Ethical Responsibilities

The study was approved by the Health Research Ethics Committee of İzmir Katip Çelebi University (ethics approval number: 0074, date: 15.02.2024). The study protocol was approved by the institutional ethics committee and complied with the Declaration of Helsinki. All participants provided written informed consent before enrollment.

Data Analysis

All analyses were performed using IBM SPSS Statistics. For descriptive statistics, continuous variables were summarized as mean±standard deviation and median [interquartile range]. Categorical variables were presented as frequencies and percentages. Categorical variables were compared using Chi-square tests. Continuous variables were evaluated using the Kruskal–Wallis test due to non-normal distribution or unequal

Table 1. Categorical baseline characteristics of the study population

Categorical characteristics		HC (n=38)	HT (n=28)	NATD (n=24)	p
Gender	Female	29 (76.3%)	27 (96.4%)	22 (91.7%)	**0.042**
	Male	9 (23.7%)	1 (3.6%)	2 (8.3%)	
Marital status	Married	31 (81.6%)	25 (89.3%)	23 (95.8%)	0.238
	Single	7 (18.4%)	3 (10.7%)	1 (4.2%)	
Children	Yes	24 (63.2%)	22 (78.6%)	20 (83.3%)	0.163
	No	14 (36.8%)	6 (21.4%)	4 (16.7%)	
Smoking	Yes	10 (26.3%)	6 (21.4%)	3 (12.5%)	0.430
	No	28 (73.7%)	22 (78.6%)	21 (87.5%)	
Alcohol Use	Yes	10 (26.3%)	3 (10.7%)	0 (0.0%)	**0.013**
	No	28 (73.7%)	25 (89.3%)	24 (100%)	
Income Level	Negative	6 (15.8%)	6 (21.4%)	6 (25.0%)	**0.032**
	Balanced	18 (47.4%)	18 (64.3%)	17 (70.8%)	
	Positive	14 (36.8%)	4 (14.3%)	1 (4.2%)	
Occupation	Working	24 (63.2%)	12 (42.9%)	7 (29.2%)	0.128
	Not working	11 (28.9%)	10 (35.7%)	11 (45.8%)	
	Student	2 (5.3%)	2 (7.1%)	1 (4.2%)	
	Retired	1 (2.6%)	4 (14.3%)	5 (20.8%)	

Chi-square tests were performed for overall group comparisons. Bold p-values indicate statistical significance at α=0.05. HC: Healthy controls, HT: Hashimoto's thyroiditis, NATD: Non-autoimmune thyroid diseases.

variances. For variables with significant Kruskal–Wallis results, Mann–Whitney U tests with Bonferroni correction were used to determine which specific groups differed. Adjusted p-values are reported.

To identify independent predictors of somatic symptom burden (PHQ-15), the following three linear regression models were constructed.

Model 1 (Crude): PHQ-15 predicted by diagnostic group only.

Model 2 (Adjusted for Distress): Diagnostic group + HADS-Total.

Model 3 (Fully Adjusted): Diagnostic group + HADS-Total + age + gender + alcohol use + income level + TSH. Only variables showing significant between-group differences (gender, alcohol use, and income level) were included as covariates to avoid overadjustment.

To investigate the associations of thyroid hormone levels and antibody titers with psychological distress and somatic symptom burden, Spearman correlations were calculated between TSH, FT3, FT4, anti-TPO, anti-TG, PHQ-15, and HADS-Total within the HT group only. Significance was set at $p<0.05$. The study was reported in accordance with the STROBE checklist.

Results

Baseline Categorical Characteristics

A total of 90 participants were included in the final analysis, consisting of 38 HC, 28 individuals with HT, and 24 with NATD. Categorical sociodemographic characteristics varied across the groups, with significant differences observed in gender, alcohol use, and income level, whereas marital status, presence of children, smoking status, and occupation were comparable across the three groups. Women were significantly overrepresented in the HT group compared with the HC group (96.4% vs. 76.3%), resulting in a statistically significant group difference (p=0.042). Alcohol consumption differed considerably across the groups, being entirely absent in the NATD group and least common among patients with HT, yielding a significant overall difference (p=0.013). Income distribution also varied significantly, with a lower proportion of participants reporting a positive income balance in the HT and NATD groups compared with HC (p=0.032). No statistically significant differences were observed in marital status, having children, smoking status, or occupational distribution, indicating that these variables were largely balanced across the groups (Table 1).

These findings highlight key baseline sociodemographic differences that were considered in subsequent multivariable analyses. Gender, alcohol use, and income level were identified as meaningful baseline differences between the groups, supporting their inclusion in the multivariable regression model assessing predictors of somatic symptom burden.

Continuous Baseline Characteristics

Significant differences were also observed in continuous baseline characteristics across the three groups (Table 2). Participants with HT were older than HC, with median ages

Table 2. Continuous baseline characteristics of the study population

Variable	HC (n=38)	HT (n=28)	NATD (n=24)	p*
Age (years)	38.11±8.75; 39.0 (31.0–44.0)	44.93±13.29; 45.5 (33.8–52.2)	45.54±11.65; 48.0 (35.5–52.0)	**0.012**
TSH (mIU/L)	2.64±1.10; 2.7 (1.8–3.5)	2.25±1.09; 2.1 (1.5–2.6)	1.89±1.03; 1.8 (1.0–2.9)	**0.030**
HADS-A	5.92±2.61; 6.0 (4.0–8.0)	9.89±4.36; 10.0 (7.8–13.0)	8.67±5.47; 8.5 (3.8–12.2)	**<0.001**
HADS-D	5.34±2.84; 5.0 (3.0–8.0)	7.14±3.00; 7.5 (5.0–9.0)	6.67±4.56; 6.5 (3.0–9.2)	0.102
HADS-total	11.29±4.89; 11.0 (7.2–15.0)	17.04±6.51; 18.0 (13.8–21.0)	15.33±9.54; 14.5 (8.0–19.2)	**<0.001**
Somatic Burden (PHQ-15 score)	5.89±4.98; 4.5 (2.0–9.0)	10.32±5.00; 8.5 (7.0–14.2)	6.54±4.31; 5.0 (3.0–10.2)	**<0.001**

*: Kruskal–Wallis test for overall group comparison. Continuous variables shown as mean±SD; median [IQR]. Significant p-values are bolded. HC: Healthy controls, HT: Hashimoto's thyroiditis, NATD: Non-autoimmune thyroid diseases, TSH: Thyroid-stimulating hormone, HADS-A: Hospital Anxiety and Depression Scale – Anxiety subscale, HADS-D: Hospital Anxiety and Depression Scale – Depression subscale, HADS-Total: Hospital Anxiety and Depression Scale – Total score.

of 45.5 vs. 39.0 years, respectively (p=0.012). Age was comparable between the HT and NATD groups, reflecting the typical age distribution of patients with benign thyroid disease.

Serum TSH levels also differed significantly across the groups (p=0.030). The HC group had the highest TSH values (median 2.7 mIU/L), followed by patients with HT (median 2.1 mIU/L), whereas the NATD group demonstrated the lowest median TSH level (1.8 mIU/L).

Regarding psychological measures, the HT group exhibited markedly elevated HADS-Anxiety (HADS-A) scores compared with HC (median 10.0 vs. 6.0, p<0.001), whereas HADS-Depression (HADS-D) scores were not significantly different across the groups (p=0.102). HADS-Total scores showed significant differences, with patients with HT demonstrating higher overall psychological distress (median 18.0) than the other groups (p<0.001).

Most importantly, somatic symptom burden (PHQ-15) differed significantly across the groups (p<0.001). Patients with HT reported the highest somatic load (median 8.5), followed by the NATD group (median 5.0), whereas HC reported the lowest symptom burden (median 4.5).

Post-hoc Pairwise Comparisons

Because the Kruskal–Wallis tests demonstrated significant overall group differences in somatic symptom burden, psychological distress, age, and TSH, Bonferroni-adjusted pairwise comparisons were performed to identify which groups differed from each other (Table 3).

Somatic Symptom Burden (PHQ-15): Post-hoc tests revealed that individuals with HT had significantly higher somatic symptom burden compared with HC (p=0.002) and the NATD group (p=0.031). No significant difference was observed between the HC and NATD groups (p=1.000).

Table 3. Bonferroni-adjusted post-hoc pairwise comparisons

Comparison	Somatic Burden p(adj)*	HADS-total p(adj)*	TSH p(adj)*	Age p(adj)*
HC vs HT	**0.002**	**<0.001**	**0.042**	**0.033**
HC vs NATD	1.000	0.344	0.261	0.246
HT vs NATD	**0.031**	0.834	0.534	0.660

*: Bonferroni-adjusted Mann–Whitney U tests were performed following significant Kruskal–Wallis results. Significant p-values (p<0.05 after adjustment) are bolded. HC: Healthy controls, HT: Hashimoto's thyroiditis, NATD: Non-autoimmune thyroid diseases, TSH: Thyroid-stimulating hormone, HADS-Total: Hospital Anxiety and Depression Scale – Total score.

Psychological Distress (HADS-Total): Similarly, patients with HT exhibited markedly higher psychological distress than HC (p<0.001). There was no difference between the HC and NATD groups (p=0.344) or between the HT and NATD groups (p=0.834).

TSH Levels: Post-hoc testing showed that TSH was significantly lower in the HT group compared with HC (p=0.042). No other pairwise differences reached significance.

Age: Patients with HT were significantly older than HC (p=0.033), but age did not differ between the HC and NATD groups or between the HT and NATD groups.

Multivariable Regression Analysis

To identify independent predictors of somatic symptom burden, three linear regression models were constructed with the PHQ-15 total score as the outcome variable. Variables included in the adjusted models were based on two criteria: (1) significant between-group differences in baseline comparisons (gender, alcohol use, and income level) and (2) established relevance to somatic or psychological symptom expression (HADS-Total, age, and TSH). Marital status, presence of children, smoking status, and occupation were excluded from the adjusted models due to the lack of group differences (Table 4).

Table 4. Multivariable linear regression models predicting somatic symptom burden

Predictor	Model 1 (Crude) β (95% CI), p	Model 2 (Adjusted for HADS-Total) β (95% CI), p	Model 3 (Fully Adjusted*) β (95% CI), p
Group			
HT vs HC	4.43 (2.04 to 6.81), p<0.001	2.76 (0.44 to 5.08), p=0.020	2.84 (0.61 to 5.07), p=0.013
NATD vs HC	0.65 (–1.85 to 3.15), p=0.608	-0.53 (-2.88 to 1.83), p=0.658	-0.47(-2.94 to 2.01), p=0.709
HADS-Total (per point)	—	0.29 (0.15 to 0.43), p<0.001	0.25 (0.11 to 0.40), p<0.001
Age (years)	—	—	-0.04 (-0.14 to 0.06), p=0.425
Gender (Male vs Female)	—	—	-1.62 (-4.86 to 1.61), p=0.315
Alcohol Use (No vs Yes)	—	—	0.52 (–2.83 to 3.86), p=0.757
Income level			
Balanced vs Negative	—	—	-0.71 (-3.16 to 1.74), p=0.569
Positive vs Negative	—	—	-2.41 (-5.70 to 0.87), p=0.148
TSH (per mIU/L)	—	—	0.18 (-0.80 to 1.17), p=0.720

*: Model 3 includes only variables that demonstrated significant baseline differences (gender, alcohol use, income), plus age, HADS-Total, and TSH. Bolded p values indicate p<0.05. HC: Healthy controls, HT: Hashimoto's thyroiditis, NATD: Non-autoimmune thyroid diseases, TSH: Thyroid-stimulating hormone, HADS-Total: Hospital Anxiety and Depression Scale – Total score.

Table 5. Correlations between thyroid markers and symptom scores in the hashimoto-only group

Thyroid marker	n	PHQ-15 (Somatic Burden) Spearman ρ, p	HADS-Total (Distress) Spearman ρ, p
TSH	28	-0.033, p=0.869	-0.370, p=0.052
FT3	25	-0.124, p=0.556	-0.225, p=0.279
FT4	27	0.097, p=0.631	-0.067, p=0.740
Anti-TG (antiT)	23	0.137, p=0.532	0.203, p=0.354
Anti-TPO (antiM)	25	-0.071, p=0.735	0.151, p=0.472

*: Spearman correlation coefficients calculated within the HT subgroup only. No relationships reached statistical significance (p<0.05). PHQ-15: Patient Health Questionnaire-15, TSH: Thyroid-stimulating hormone, HADS-Total: Hospital Anxiety and Depression Scale – Total score, FT3: Free triiodothyronine, FT4: Free thyroxine, Anti-TPO: Anti-thyroid peroxidase antibody.

Model 1: Crude Association Between Diagnostic Group and Somatic Burden

In the unadjusted model, participants with HT had significantly higher somatic symptom scores than HC (β=4.43; 95% CI: 2.04 to 6.81; p<0.001). The NATD group did not differ from HC (p=0.608).

Model 2: Adjusted for Psychological Distress (HADS-Total)

After adjustment for HADS-Total, the association between HT and somatic burden remained significant (β=2.76; p=0.020), although it was attenuated. HADS-Total emerged as a strong independent predictor of somatic symptoms (β=0.29 per point increase; p<0.001), indicating that psychological distress contributes substantially to somatic symptom reporting.

Model 3: Fully Adjusted Model

The final model included age, gender, alcohol use, income level, TSH, and HADS-Total. Even after full adjustment, HT remained independently associated with higher somatic symptom burden (β=2.84; 95% CI: 0.61 to 5.07; p=0.013). In contrast, the NATD group still did not differ from HC. HADS-Total remained the strongest predictor (β=0.25; p<0.001), whereas age, gender, alcohol use, income level, and TSH were not significant contributors.

Model fit improved across the steps; R^2 increased from 0.145 (Model 1) to 0.292 (Model 2) and 0.318 (Model 3). Adjusted R^2 similarly improved, reaching 0.275 in the fully adjusted model.

Correlation Analysis Within the Hashimoto Thyroiditis Group

To evaluate whether thyroid-related biochemical markers contribute directly to somatic symptom burden or psychological distress in HT, Spearman correlation analyses were performed exclusively within the HT group. This analysis isolates the autoimmune thyroid population to determine whether variations in thyroid hormone levels or thyroid antibody titers are associated with symptom severity, despite all patients being strictly euthyroid (Table 5).

No significant correlations were found between PHQ-15 somatic symptom scores and any of the thyroid function markers (TSH: ρ=-0.033, p=0.869; FT3: ρ=-0.124, p=0.556; FT4: ρ=0.097, p=0.631). Similarly, none of these markers demonstrated significant correlations with HADS-Total. Although the correlation between TSH and HADS-Total approached borderline significance (p=0.052), it did not reach the statistical threshold. Within the HT subgroup, thyroid function markers and antibody titers were not significantly correlated with PHQ-15 or HADS-Total scores. These findings indicate that no clear association was detected in the present sample; however, given the modest subgroup size, weaker relationships cannot be excluded. Neither anti-TPO nor anti-TG antibody levels were significantly correlated with PHQ-15 or HADS-Total scores (for anti-TG, PHQ-15: ρ=0.137, p=0.532; HADS-Total: ρ=0.203, p=0.354; for anti-TPO, PHQ-15: ρ=–0.071, p=0.735; HADS-Total: ρ=0.151, p=0.472).

Discussion

In this cross-sectional study of strictly euthyroid adults, patients with HT demonstrated a significantly higher somatic symptom burden than both HC and individuals with NATD. Within the HT subgroup, no significant correlations were observed between TSH, FT3, FT4, anti-TPO, or anti-TG levels and either somatic symptom burden or psychological distress. Given the modest subgroup size, these findings should be interpreted cautiously; nevertheless, they suggest that symptom persistence in euthyroid HT may not be explained by conventional thyroid biochemical parameters alone and may involve mechanisms beyond standard endocrine markers.

Given that medically unexplained symptoms account for nearly one-third of clinical consultations and that untreated subclinical hypothyroidism does not differ from euthyroid status in population-based symptom studies, our findings support a framework in which persistent symptoms in euthyroid HT are shaped primarily by psychological distress, somatic amplification, and illness-related sensitization rather than by thyroid hormone levels or autoantibody titers.[12,22] This interpretation is consistent with large epidemiologic work showing that individuals aware of having thyroid disease report greater mood symptoms than newly diagnosed patients despite similar biochemistry, suggesting that illness identity may meaningfully influence symptom perception.[23] Together, these findings suggest that individuals newly diagnosed with a chronic disease may experience psychological distress, such as anxiety and depression, as a result of uncertainty regarding disease management, which may in turn lead to an increase in somatic complaints.

The use of HADS-Total in the present study is supported by broader psychometric work demonstrating that the total score validly reflects global emotional distress and is useful as a dimensional measure of symptom burden in both general and clinical populations.[24–26] However, no disease-specific cutoffs have been established for HT, and prior work has shown that thresholds optimized in oncology or primary care may not generalize to other high-symptom populations, underscoring the need for cautious interpretation of HADS scores in thyroid cohorts.[27] In our design, HADS-Total was used as a continuous covariate rather than to define cases, which is appropriate given these limitations. Beyond emotional distress, our findings highlight the clinical utility of PHQ-15 for evaluating nonspecific somatic symptoms frequently reported by patients with HT. In our study, PHQ-15 differentiated patients with HT from both HC and those with NATD, whereas HADS-Total distinguished only between HT and HC. This pattern suggests that somatic symptom measures capture a broader range of symptom experiences than emotional scales alone and may be particularly informative for patients presenting with diffuse, persistent, medically unexplained bodily complaints.

Our results are consistent with prior studies showing that residual symptoms such as fatigue, bodily pain, and emotional vulnerability may persist despite normalization of thyroid function and stable TPO-Ab levels.[2] At the same time, they nuance earlier reports suggesting that chronic thyroid pathology per se may drive psychiatric morbidity, as some work has found similar rates of depression and anxiety in euthyroid HT and euthyroid goiter compared with HC.[6] Although total thyroidectomy has been shown to improve fatigue and general health in selected euthyroid patients with HT and very high anti-TPO levels, the absence of preoperative evaluation of somatization, central sensitization, or illness perception limits causal inferences.[28] Psychological mechanisms, including the symbolic meaning of surgery as a definitive "cure," may partly explain the observed improvements.

The elevated somatic burden observed in our HT group aligns with data indicating a high prevalence of somatic symptom disorder among women with thyroid disease and strong links between somatic distress and affective symptoms.[11] Behavioral and psychosocial studies in HT also highlight the importance of the somatic domain for health-promoting behaviors and life satisfaction, suggesting heightened bodily focus and concern about physical health.[29] Moreover, work in psychosomatic populations has shown that somatic symptom scores are closely related to indices of central sensitization, even when anxiety and depression are not significantly elevated.[30] This pattern is mirrored in our findings, in which PHQ-15 differentiated HT from both comparison groups, whereas HADS-Total separated HT only from HC, not from NATD. Such dissociation supports the idea that somatic amplification and central sensitization, rather than overt emotional dysregulation alone, contribute substantially to the symptom profile of euthyroid HT.

The absence of associations between symptom scores and thyroid function tests or autoantibody titers in our HT subgroup is also in line with studies in euthyroid or subclinical hypothyroid populations that have found weak or inconsistent relationships between FT3 or TSH and distress measures.[21,31] Longitudinal work in subclinical hypothyroidism has further demonstrated substantial within-person variability in HADS and symptom scores that is unrelated to thyroid hormone fluctuations, raising concern about overinterpreting small symptom changes in the absence of biochemical change.[31] Large population-based studies have similarly shown no consistent association between biochemical thyroid categories and mood disorders, while individuals with a history of thyroid disease, rather than newly diagnosed cases, exhibit an increased risk of anxiety and depression, suggesting that illness identity and central sensitization may be key drivers of persistent symptoms.[23]

The strict inclusion criteria applied in this study, particularly the requirement for sustained euthyroidism and the absence of psychiatric or systemic comorbidity, allowed for a more isolated evaluation of somatic symptom burden attributable to Hashimoto's thyroiditis itself. Although this approach limits its sample size, it strengthens internal validity and reduces confounding, which is a common limitation in studies examining symptom burden in thyroid disease. Given the modest sample size, the findings should be interpreted as exploratory and hypothesis-generating.

Validated Turkish versions of HADS and PHQ-15 enhanced measurement reliability, and the inclusion of both HC and NATD controls provided meaningful clinical comparisons. However, several limitations should be acknowledged. The exclusion of participants with HADS-Anxiety or HADS-Depression scores ≥11 from HC may have produced a psychologically healthier control group and may have amplified between-group differences in psychological distress and somatic symptom burden. The cross-sectional design precludes causal inference, and residual confounding cannot be fully excluded despite adjustment for psychological distress and relevant baseline differences. Accordingly, the observed association should not be interpreted as evidence of a direct causal effect of thyroid autoimmunity, but rather as an independent association between HT status and somatic symptom burden in a strictly euthyroid cohort. Levothyroxine therapy was not included as an additional covariate because of the modest sample size and the risk of model overfitting. Additional limitations include the modest sample size, single-center design, lack of direct assessment of central sensitization or illness perception, and clinical heterogeneity within the NATD group, which included both benign nodular thyroid disease and post-thyroidectomy status. Therefore, these findings should be interpreted cautiously and may not be generalizable beyond similar clinical populations. Further multicenter studies including larger samples and more homogeneous thyroid disease groups are warranted to confirm the present findings.

Conclusion and Recommendations

These findings highlight the importance of recognizing somatic symptom burden as a distinct clinical dimension in euthyroid Hashimoto's thyroiditis, beyond conventional biochemical assessment. Euthyroid patients with HT exhibit a higher somatic symptom burden than both healthy controls and individuals with non-autoimmune thyroid disease, independent of thyroid hormone levels or antibody titers. This pattern supports a predominantly biopsychosocial model in which psychological distress, somatic amplification, illness identity, and central sensitization contribute to persistent symptoms. Clinically, these findings argue against intensifying thyroid-directed therapy in biochemically euthyroid patients with nonspecific complaints and instead support structured symptom validation, patient education, and psychosocial or behavioral interventions when appropriate. Integrating consultation-liaison psychiatry and multidisciplinary approaches into endocrine care may further improve patient-centered evaluation and management.

Ethics Committee Approval: The study was approved by the Health Research Ethics Committee of İzmir Katip Çelebi University (no: 0074, date: 15/02/2024).

Informed Consent: Written informed consents were obtained from patients who participated in this study.

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References

1. Aydin E, Bingöl Aydin D, Çarkaxhiu Bulut G, İşgüven ŞP. Psychopathological analysis of adolescent girls with autoimmune thyroiditis. Cureus 2023;15:e50418.
2. Winther KH, Cramon P, Watt T, Bjorner JB, Ekholm O, Feldt-Rasmussen U, et al. Disease-specific as well as generic quality of life is widely impacted in autoimmune hypothyroidism and

improves during the first six months of levothyroxine therapy. PLoS One 2016;11:e0156925.
3. Yalcin MM, Altinova AE, Cavnar B, Bolayir B, Akturk M, Arslan E, et al. Is thyroid autoimmunity itself associated with psychological well-being in euthyroid Hashimoto's thyroiditis? Endocr J 2017;64:425–9.
4. Müssig K, Künle A, Säuberlich AL, Weinert C, Ethofer T, Saur R, et al. Thyroid peroxidase antibody positivity is associated with symptomatic distress in patients with Hashimoto's thyroiditis. Brain Behav Immun 2012;26:559–63.
5. Leyhe T, Müssig K. Cognitive and affective dysfunctions in autoimmune thyroiditis. Brain Behav Immun 2014;41:261–6.
6. Giynas Ayhan M, Uguz F, Askin R, Gonen MS. The prevalence of depression and anxiety disorders in patients with euthyroid Hashimoto's thyroiditis: a comparative study. Gen Hosp Psychiatry 2014;36:95–8.
7. Carta MG, Loviselli A, Hardoy MC, Massa S, Cadeddu M, Sardu C, et al. The link between thyroid autoimmunity (antithyroid peroxidase autoantibodies) with anxiety and mood disorders in the community: a field of interest for public health in the future. BMC Psychiatry 2004;4:25.
8. Carta MG, Hardoy MC, Carpiniello B, Murru A, Marci AR, Carbone F, et al. A case control study on psychiatric disorders in Hashimoto disease and Euthyroid Goitre: not only depressive but also anxiety disorders are associated with thyroid autoimmunity. Clin Pract Epidemiol Ment Health 2005;1:23.
9. Engum A, Bjøro T, Mykletun A, Dahl AA. Thyroid autoimmunity, depression and anxiety; are there any connections? An epidemiological study of a large population. J Psychosom Res 2005;59:263–8.
10. Siegmann EM, Müller HHO, Luecke C, Philipsen A, Kornhuber J, Grömer TW. Association of depression and anxiety disorders with autoimmune thyroiditis: a systematic review and meta-analysis. JAMA Psychiatry 2018;75:577–84.
11. Marchetti D, Di Nardo M, Di Benedetto S, Porcelli P. Prevalence of somatic symptom disorder and influence of alexithymia in women with thyroid diseases. J Psychiatr Res 2025;189:231–5.
12. Hegedüs L, Van Der Feltz-Cornelis CM, Papini E, Nagy EV, Weetman AP, Perros P. Medically not yet explained symptoms in hypothyroidism. Nat Rev Endocrinol 2024;20:685–93.
13. Perros P, Nagy EV, Papini E, Van Der Feltz-Cornelis CM, Weetman AP, Hay HA, et al. Hypothyroidism and somatization: results from e-mode patient self-assessment of thyroid therapy, a cross-sectional, international online patient survey. Thyroid 2023;33:927–39.
14. Perros P, Nagy EV, Papini E, Abad-Madroñero J, Lakwijk P, Poots AJ, Mols F, et al. Hypothyroidism and Type D personality: results from E-MPATHY, a cross-sectional international online patient survey. J Clin Endocrinol Metab 2024;110:e97–e108.
15. Volcheck MM, Graham SM, Fleming KC, Mohabbat AB, Luedtke CA. Central sensitization, chronic pain, and other symptoms: Better understanding, better management. Cleve Clin J Med 2023;90:245–54.
16. Sarıkavak T, Balıkçı K, Aydemir Ö, et al. Reliability and validity of Turkish forms of the DSM-5 somatic symptom scale and level 2 somatic symptom scale. Anatolian J Psychiatry 2017;18:6367. [Article in Turkish]
17. Yazici Güleç M, Güleç H, Simşek G, Turhan M, Aydin Sünbül E. Psychometric properties of the Turkish version of the Patient Health Questionnaire-Somatic, Anxiety, and Depressive Symptoms. Compr Psychiatry 2012;53:623–9.
18. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983;67:361–70.
19. Tetik Küçükelçi D. Hastane Anksiyete ve Depresyon Ölçeği (HADS) Üzerine Bir Çalışma. Yaşam Becerileri Psikoloji Dergisi 2019;3:85–91. [Article in Turkish]
20. Aydemir Ö, Güvenir T, Küey L, Kültür S. Reliability and validity of the Turkish version of the hospital anxiety and depression scale. Turk Psikiyatri Derg 1997;8:280–7. [Article in Turkish]
21. Ali Naushad A, Lu C, S N, Sourabh S, Kolla B, Selvan C, et al. Correlation of Residual Symptoms With Triiodothyronine (T3) in patients treated for hypothyroidism. Cureus 2025;17:e78095.
22. Carlé A, Karmisholt JS, Knudsen N, Perrild H, Thuesen BH, Ovesen L, et al. Does subclinical hypothyroidism add any symptoms? evidence from a danish population-based study. Am J Med 2021;134:1115–26.e1.
23. Engum A, Bjøro T, Mykletun A, Dahl AA. An association between depression, anxiety and thyroid function--a clinical fact or an artefact? Acta Psychiatr Scand 2002;106:27–34.
24. Hinz A, Brähler E. Normative values for the hospital anxiety and depression scale (HADS) in the general German population. J Psychosom Res 2011;71:74–8.
25. Singer S, Kuhnt S, Götze H, Hauss J, Hinz A, Liebmann A, et al. Hospital anxiety and depression scale cutoff scores for cancer patients in acute care. Br J Cancer 2009;100:908–12.
26. Clover K, Carter GL, Mackinnon A, Adams C. Is my patient suffering clinically significant emotional distress? Demonstration of a probabilities approach to evaluating algorithms for screening for distress. Support Care Cancer 2009;17:1455–62.
27. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the Hospital Anxiety and Depression Scale. An updated literature review. J Psychosom Res 2002;52:69–77.
28. Guldvog I, Reitsma LC, Johnsen L, Lauzike A, Gibbs C, Carlsen E, et al. Thyroidectomy versus medical management for euthyroid patients with Hashimoto disease and persisting symptoms: a randomized trial. Ann Intern Med 2019;170:453–64.
29. Gacek M, Wojtowicz A, Kędzior J. Pro-health behaviours and depressive symptoms as well as satisfaction with and quality of life among women with Hashimoto's disease. Eur J Investig Health Psychol Educ 2025;15:97.
30. Takeuchi T, Hashimoto K, Koyama A, Asakura K, Hashizume M. The Association of central sensitisation with depression, anxiety, and somatic symptoms: a cross-sectional study of a mental health outpatient clinic in Japan. Life (Basel) 2024;14:612.
31. Karmisholt J, Andersen S. Detecting true change in the hospital anxiety and depression scale, sf-36, and hypothyroid score when monitoring patients with subclinical hypothyroidism. Eur Thyroid J 2019;8:144–51.

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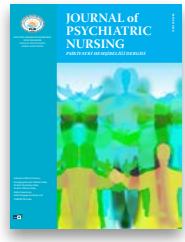

Original Article

The effect of interpersonal relational role analysis on nursing students experiencing dating violence

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Abstract

Objectives: This study was conducted to determine the effect of Interpersonal Relational Role Analysis (IRRA) Group Therapy on attitudes toward dating violence, social problem-solving skills, self-esteem, and interpersonal awareness among nursing students who had experienced dating violence.

Methods: This study employed a single-group, pretest, posttest, and follow-up quasi-experimental design and included 22 female nursing students who had experienced dating violence. Participants received 20 sessions of IRRA Group Therapy between April 2022 and September 2022. Data were collected using a Personal Information Form, the Attitudes Toward Dating Violence Scales, the Revised Social Problem-Solving Inventory, the Rosenberg Self-Esteem Scale, and the Interpersonal Mindfulness Scale. The scales were administered to participants before group therapy, immediately after group therapy, and at one-month and three-month follow-ups. Descriptive statistics (mean±standard deviation for continuous variables and frequencies and percentages for categorical variables), the Friedman test, and the Wilcoxon signed-rank test with Bonferroni correction were used for data analysis.

Results: The findings revealed that IRRA Group Therapy had a significant positive effect on participants' mean scores on the Attitudes Toward Male Psychological Dating Violence Scale ($p<0.001$) and the total Social Problem-Solving Inventory ($p<0.001$), and that this effect persisted in follow-up measurements. IRRA Group Therapy did not produce statistically significant differences in participants' mean scores on the Rosenberg Self-Esteem Scale ($p=0.119$) or the Interpersonal Mindfulness Scale ($p=0.172$) across pretest, posttest, and follow-up measurements.

Conclusion: IRRA Group Therapy was found to be effective in reducing participants' mean scores on the Attitudes Toward Male Psychological Dating Violence Scale and improving their social problem-solving skills. However, the therapy had no significant effect on participants' mean scores on the Attitudes Toward Male Physical Dating Violence Scale, the Rosenberg Self-Esteem Scale, or the Interpersonal Mindfulness Scale. In line with these results, it is recommended to increase psychosocial interventions in which students can express themselves and share their problems within group activities to generate solutions, conduct studies with different samples and problem areas to determine the effectiveness of IRRA group sessions, and extend the duration of interventions.

Keywords: Awareness; dating violence; group therapy; nursing; problem-solving; self-esteem; women

The World Health Organization (WHO) defines dating violence as a type of abuse perpetrated by a spouse or intimate partner.[1] Dating relationships can make positive contributions to individuals' mental and social development; however, they can occasionally have negative impacts on mental health.[2]

This study is derived from the PhD thesis titled "The Effect of Interpersonal Relational Role Analysis on Nursing Students Experiencing Dating Violence" completed by Şule ÇINAKLI in 2024 at the Department of Mental Health and Diseases Nursing, Institute of Health Sciences, Aydın Adnan Menderes University.

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During or after dating relationships, partners may desire to have control over each other, or one partner may pursue this control.[3] Dating violence can occur in all age groups and both sexes, but adolescents and young adults are considered the most at-risk groups.[4] Females are reportedly more exposed to such violence.[1,5] Studies conducted in Türkiye demonstrate that the prevalence of dating violence among university students varies between 19% and 45.8%.[6–9]

Young people who leave their families due to university education start spending more time with their social circles. In particular, negative life experiences during this period, such as unmet affection needs among young people, not being valued, and rejection by others, can lead them to engage in violent behavior toward their partners.[10] A jealous, controlling, and violent male in a dating relationship can push his partner toward an obedient, accepting, and passive role. Women can maintain these obedient roles in interpersonal relationships in their social lives.[11]

A significant factor in accepting and maintaining this obedient, accepting, and passive role among female students is their self-esteem. In a study with 440 university students, Güner et al.[12] reported that low self-esteem increased the incidence of exposure to dating violence and tolerance of such violence. Another study conducted on university students also drew attention to a similar relationship, demonstrating that exposure to dating violence negatively affected students' interpersonal relationships.[13] Previous research has shown that experiencing dating violence leads to decreased self-esteem, reduced social support-seeking behavior, and negative impacts on psychological well-being.[14,15]

Since some behaviors in dating relationships are interpreted as signs of affection from the male partner, women may not be aware of the violence they are experiencing. The most prominent of these behaviors include suppressing the partner, exerting power, dominating the relationship, restricting, controlling, and devaluing.[16] Improving women's self-awareness in interpersonal relationships is crucial for preventing dating violence against women.[17]

Important findings have been reported in studies on dating violence awareness. For example, in a study conducted in Mexico, 12% of university students reported experiencing violence. Of these participants, 52% stated that they were intimidated, and 27% stated that they felt trapped in their relationship. In a study conducted with nursing students in Türkiye, jealousy, pinching, neglect, stalking, not taking their opinions into account in critical decisions, giving nicknames, mocking, raising one's voice, cheating, and belittling were not recognized as signs of violence.[6] These results indicate that nursing students have low awareness of dating violence behaviors.[18]

Various interventional methods have been applied to women who experience dating violence. Of these methods, group therapy has been reported to be effective in increasing social support-seeking behavior among female victims of violence,[19] reducing their tolerance of violence,[20,21] improving their self-esteem,[21,22] and developing new problem-solving skills.[19,23,24] In a study conducted to investigate the impact of group intervention on protective and risk factors related to dating violence among university students, it was found that group intervention decreased the restriction of emotions, acceptance of traditional and stereotyped gender roles, use of conflict-escalating strategies, and negative attributions toward the target of anger in the experimental group. In addition, group intervention significantly increased self-awareness regarding anger and healthy entitlement.[25]

It is very important to raise awareness among university students during their education process to determine their attitudes toward dating relationships, promote their self-esteem, improve their problem-solving skills, and increase their awareness of dating violence. Nursing students must first have knowledge about the subject themselves so that they can identify and help victims of violence they encounter in clinics during their professional practice and professional lives.[26] In addition, members of the nursing profession must be able to provide counseling and care for the protection and development of individual and community health, early detection of problems, prevention of their progression, and protection and strengthening of mental health.[27,28] Considering all these factors, this study aimed to determine the impact of Interpersonal Relational Role Analysis Group Therapy applied to nursing students experiencing dating violence on their attitudes toward dating violence, social problem-solving skills, self-esteem, and interpersonal mindfulness.

What is presently known on this subject?

- Exposure to dating violence is common among university students, and its prolonged continuation leads to significant physical and mental health problems. In addition, dating violence reduces self-esteem and problem-solving skills, and experiencing dating violence is associated with lower levels of mindfulness.

What does this article add to the existing knowledge?

- Interpersonal Relational Role Analysis Group Therapy was found to contribute to a decrease in the level of acceptance of psychological dating violence and an increase in social problem-solving skills.

What are the implications for practice?

- Interpersonal Relational Role Analysis Group Therapy helps nursing students, who will be the professionals of the future, recognize psychological dating violence and improve their social problem-solving skills. Such interventional studies contribute to the protection and improvement of individual and public health, the early recognition of communication problems, and the strengthening of mental health.

Hypotheses of the Study

H1a: There will be differences between the pretest, posttest, 1-month follow-up, and 3-month follow-up mean scores of the Attitude Toward Psychological Violence Scale among students exposed to dating violence who received IRRA group therapy.

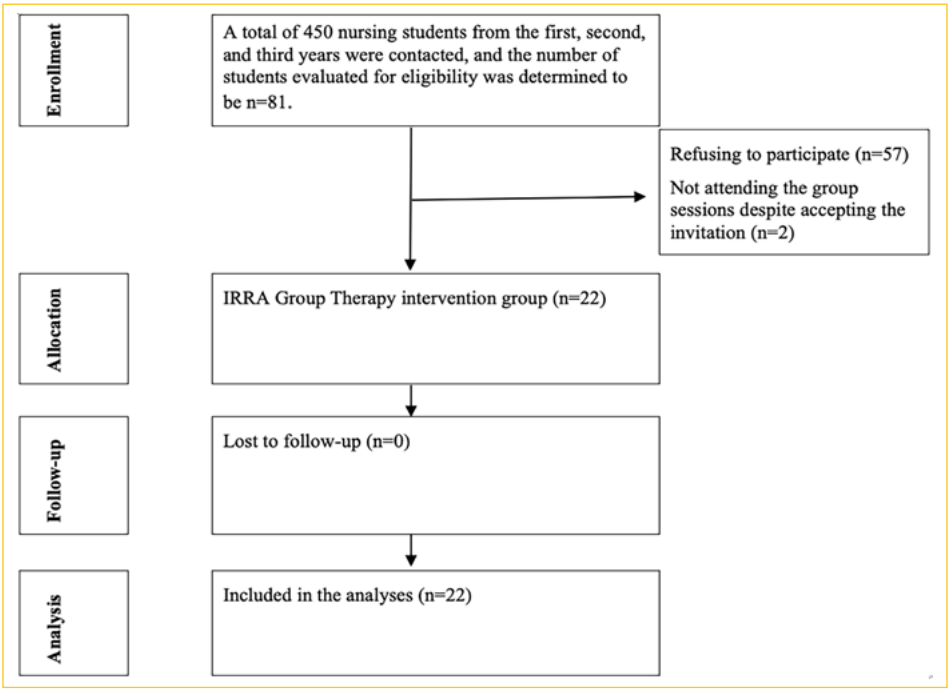

Figure 1. Flowchart of the study.

H1b: There will be differences between the pretest, posttest, 1-month follow-up, and 3-month follow-up mean scores of the Attitude Toward Physical Violence Scale among students exposed to dating violence who received IRRA group therapy.

H1c: There will be differences between the pretest, posttest, 1-month follow-up, and 3-month follow-up mean scores of the Social Problem-Solving Inventory among students exposed to dating violence who received IRRA group therapy.

H1d: There will be differences between the pretest, posttest, 1-month follow-up, and 3-month follow-up mean scores of the Rosenberg Self-Esteem Scale among students exposed to dating violence who received IRRA group therapy.

H1e: There will be differences between the pretest, posttest, 1-month follow-up, and 3-month follow-up mean scores of the Interpersonal Mindfulness Scale among students exposed to dating violence who received IRRA group therapy.

Materials and Method

The Design of the Study

This study was carried out between April 2022 and September 2022 and employed a single-group, quasi-experimental design with pretest, posttest, and 1-month and 3-month follow-up assessments.

Population and Sample

The study population consisted of first-, second-, and third-year female nursing students at a university in Western Türkiye. Sample size calculation was based on a one-group t-test. Accordingly, the sample size was estimated to be 19 participants using G*Power 3.1, based on an effect size of 0.8, α=0.05, and a power value of 0.90. Considering potential attrition, the sample size was increased by 15%, resulting in a total of 22 female nursing students.

Sample

There were 509 female nursing students in the first, second, and third years at the relevant university during the 2021–2022 academic year. A total of 59 students who were absent on the day of the study or did not wish to participate were excluded. The remaining 450 female students were given the Personal Information Form and the Dating Violence Attitude Scale (DVAS). A total of 369 female students who indicated on the Personal Information Form that they had not experienced dating violence or who scored high on the DVAS were excluded from the study.

Students who reported experiencing dating violence and were found to support dating violence according to their DVAS scores were ranked in ascending order according to their scale scores. It was determined that 81 female students scored low on the DVAS. In cases where a student who scored low on the scale did not agree to participate in the study, another student in the ranking was contacted by phone and invited to participate. This process was repeated until the necessary sample group was formed. During this process, 57 students who had been invited to the study declined to participate, and two students who had previously accepted the invitation did not attend the interview. Twenty-two female nursing students who agreed to participate and attended the interview were included in the study (Fig. 1).

The inclusion criteria were being a first-, second-, or third-year nursing student, reporting experience of dating violence, obtaining a low score on the DVAS, which indicates support for dating violence, and being female. The exclusion criteria were having a psychiatric diagnosis, being male, being a fourth-year nursing student, and failing to attend three sessions of IRRA group therapy. Fourth-year nursing students were excluded from the study due to their demanding course and clinical practice schedules and preparation for the Public Personnel Selection Test.

Data Collection Instruments

Personal Information Form

The Personal Information Form, created by the researchers following a review of the relevant literature, consists of a total of 15 questions, including eight questions about students' sociodemographic characteristics, five about their current dating relationship status and characteristics related to exposure to violence in both current and previous dating relationships, and two about domestic violence experienced or witnessed.[3,18,29,30]

In the Personal Information Form, items regarding students' exposure to violence in their current and previous dating relationships were designed as yes/no questions. Those responding "Yes" to the question "Have you ever experienced violence in your current or previous dating relationships?" were asked to specify the type of violence they experienced. No information about the types of behavior recognized as violence was provided before the measurements. Students completed the form individually, entirely based on their own level of awareness about dating violence.

The Dating Violence Attitude Scale (DVAS)

The DVAS was created by Terzioğlu et al.[31] It contains 28 five-point Likert-type items. Scores for each item on the scale range from 1 to 5. A mean scale score close to 5 indicates that the person's attitudes toward dating violence do not support dating violence.[31] The internal consistency coefficient of the scale is α=0.90. In the present study, the internal consistency coefficient of the scale was found to be α=0.85. Due to the possibility that the sample group might become familiar with the scale content and that this could lead to research bias, the scale was used only once in the study during selection of the sample group.

The Attitudes Toward Dating Violence Scales (ATDVS)

The Turkish validity and reliability study of the ATDVS was conducted by Yumuşak and Şahin.[32] This instrument consists of four scales: the Attitudes Toward Male Psychological Dating Violence Scale (15 items), the Attitudes Toward Male Physical Dating Violence Scale (12 items), the Attitudes Toward Female Psychological Dating Violence Scale (11 items), and the Attitudes Toward Female Physical Dating Violence Scale (12 items). The scales comprise five-point Likert-type items. Higher scores on the scales indicate increased acceptance of dating violence.[32] In the present study, the Attitudes Toward Male Psychological Dating Violence Scale and the Attitudes Toward Male Physical Dating Violence Scale were used. The internal consistency coefficients of these two scales are α=0.81 and α=0.87, respectively.

The Revised Social Problem-Solving Inventory-Short Form (Tr-SPSI-R)

The Social Problem-Solving Inventory was adapted into Turkish by Eskin and Aycan.[33] The Turkish-adapted Revised Social Problem-Solving Inventory-Short Form (Tr-SPSI-R) consists of 25 five-point Likert-type items. The scale basically consists of two main dimensions: problem orientation and problem-solving styles. The problem orientation dimension consists of two subscales: positive orientation to the problem and negative orientation to the problem, whereas the problem-solving style dimension consists of three subscales: rational problem-solving, careless/impulsive style, and avoidance style.

The scores for the positive orientation to the problem (items 4, 5, 13, 15, and 22) and rational problem-solving (items 12, 16, 19, 21, and 23) subscales are obtained by dividing the total scores of the relevant items by 5. The scores for the negative orientation to the problem (items 1, 3, 7, 8, and 11), careless/impulsive style (items 2, 14, 20, 24, and 25), and avoidance style (items 6, 9, 10, 17, and 18) subscales are calculated by subtracting the total score of the items of the relevant subscale from 20 and dividing the result by 5. The total score of the Tr-SPSI-R is obtained by summing the total scores of all subscales. Higher scores indicate better problem-solving ability. The internal consistency coefficients of the subscales of the scale range from 0.62 to 0.92.[33] In the present study, the internal consistency coefficients of the Tr-SPSI-R were found to be α=0.82 for the positive orientation to the problem subscale, α=0.81 for the negative orientation to the problem subscale, α=0.76 for the rational problem-solving subscale, α=0.58 for the careless/impulsive style subscale, α=0.83 for the avoidance style subscale, and α=0.52 for the total scale score.

The Rosenberg Self-Esteem Scale (RSES)

The Turkish validity and reliability study of the RSES was carried out by Çuhadaroğlu.[34] The scale consists of 10 four-point Likert-type items. Items 3, 5, 8, 9, and 10 are reverse-scored. Scores on the scale range from 10 to 40. Higher scores indicate higher self-esteem. The internal consistency coefficient of the scale is α=0.81. In the present study, the internal consistency coefficient of the scale was found to be α=-0.25.

The Interpersonal Mindfulness Scale (IMS)

The IMS was created by Erus and Tekel[35] as a 13-item, five-point Likert-type instrument. Items 2, 6, and 10 are reverse-scored. A high score indicates a high level of mindfulness in the individual's interpersonal relationships. The scale consists of two subscales: awareness and being in the moment. The internal consistency coefficient of the scale was found to be α=0.83. In the present study, the total internal consistency coefficient of the IMS was found to be α=0.76.

The Steps and Content of the Interpersonal Relational Role Analysis

As a group intervention method, IRRA consists of six phases: identification of the role, costs of the role, benefits of the role, acquisition of the role, role-symptom relationship, and self-recovery.[11]

Identification of the role: Participants in the IRRA group first identify and name the roles they use within the group or in interpersonal relationships together with the group. Group members, together with other participants, name the stereotyped role they assume in their social lives using an appropriate metaphor. This metaphor can be the nicknames individuals use in their social lives or characters from fairy tales, films, or novels with whom they identify.

Costs of the role: The purpose of this step is to determine the costs and losses of the role for the individual. In this step, participants become aware of how their roles affect themselves and other group members or individuals in their social environment, as well as the negative emotions, behaviors, and thoughts that this role creates.

Benefits of the role: In this stage, members, together with the group, identify the benefits the role provides to themselves and their environment, and they gain awareness of why they maintain this role. The main purpose of the costs and benefits of the role stages is to understand both the positive and negative impressions, emotions, and thoughts that the role generates in the individual and their social environment and to increase awareness of the role.

Acquisition of the role: In this stage, group members share how they have acquired their roles throughout their lives and their experiences related to this process. The role acquisition stage aims to increase awareness of the behavioral learning process of the role. Individuals discuss how they acquired the role, whether during childhood or at any point in their lives.

Role-symptom relationships: This stage addresses the relationship between the role a person uses in interpersonal relationships and the problems they report. It focuses on how the adopted role may have caused the psychological symptoms experienced or the existing diagnosis of a mental disorder.

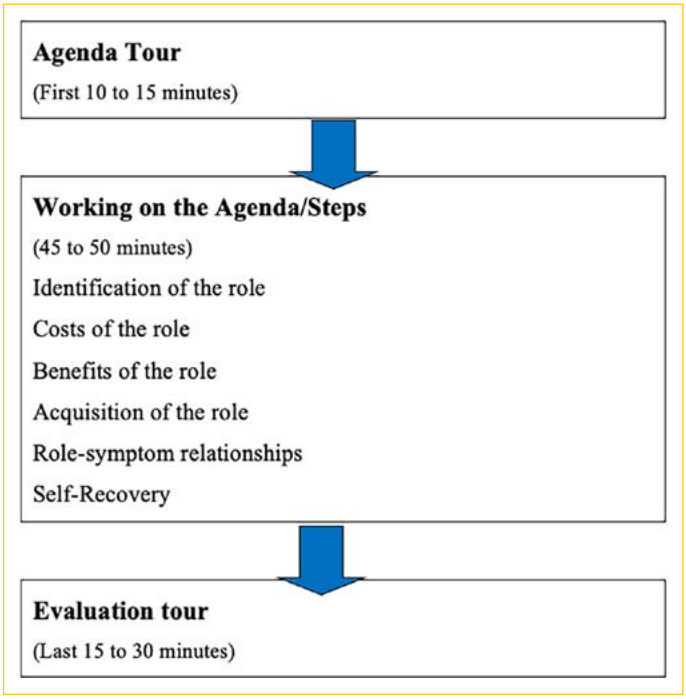

Figure 2. Flowchart of IRRA group therapy sessions.[11]

Self-recovery: In this stage, participants are expected to make recoveries regarding problems related to the role that they have consciously or unconsciously adopted. The goal of this stage is for individuals to liberate themselves and experience a change in the role they have assumed. This change can include options such as completely abandoning the role, modifying it, or maintaining it. The intended change encompasses options such as giving up the assumed role, replacing it with new behavioral or cognitive patterns, or continuing the current role.

The Implementation Process of the Interpersonal Relational Role Analysis (IRRA) Group Therapy

IRRA group therapy consists of three 90-minute phases: agenda setting, working through the agenda/steps, and evaluation (Fig. 2).[11] The IRRA application process ends when the participating group members complete all six steps. The time required to complete the steps varies depending on the members. In the present study, the average time required to complete the steps included 20 sessions for each participant. The overall implementation process of the study is presented in Figure 3.

Participants were divided into two separate groups (11+11 participants) by the researcher through random allocation so that IRRA group therapy could be more effective. The therapy was applied to both groups separately twice a week. A WhatsApp group was created to facilitate communication with group members before IRRA group therapy began. A reminder message was sent to the students on the morning of each therapy session to remind them of the scheduled sessions.

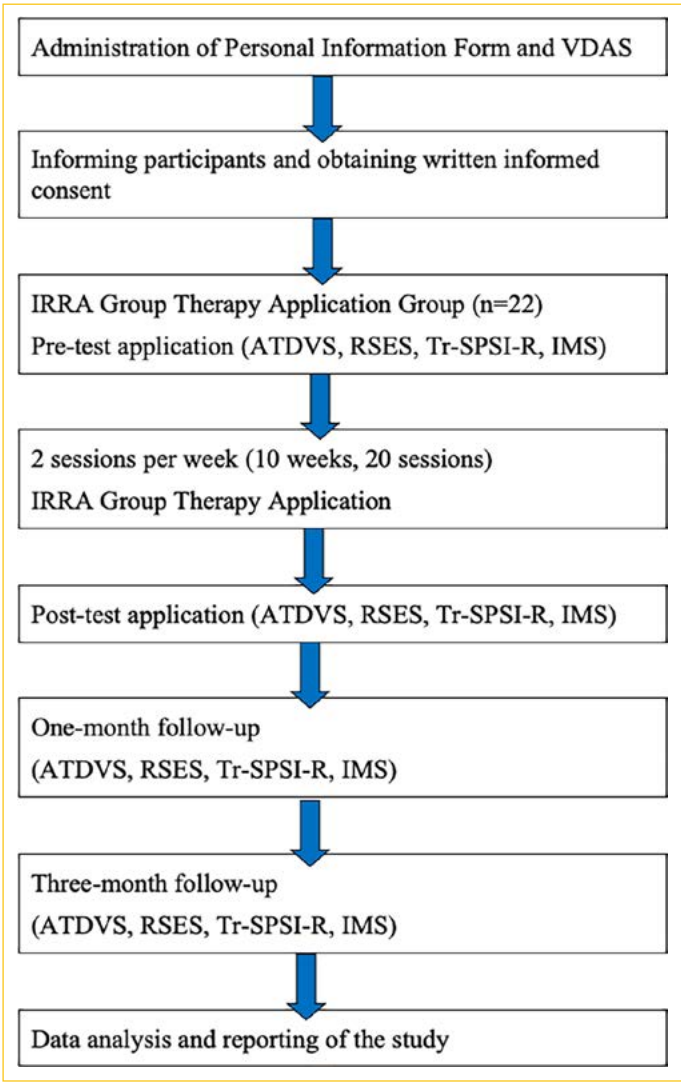

Figure 3. Implementation flowchart of the study.

IRRA group therapy sessions were held for both groups on the same day and at the same time each week in a suitable classroom at the nursing faculty, ensuring privacy. The sessions were conducted by the primary researcher. Five graduate students served as observers outside the group during the therapy sessions. The sessions were conducted in a circular seating arrangement, in accordance with group therapy principles. A small table was placed in the center of the circle, and tissue paper and artificial flowers were placed on the table.

Variables of the Study

The dependent variables of the study were the scores obtained from the Attitudes Toward Male Physical Dating Violence Scale, the Attitudes Toward Male Psychological Dating Violence Scale, the Revised Social Problem-Solving Inventory-Short Form (Tr-SPSI-R), the Rosenberg Self-Esteem Scale (RSES), and the Interpersonal Mindfulness Scale (IMS). The independent variable of the study was the IRRA group therapy intervention.

Data Analysis

The SPSS 26.0 software package was used to analyze the study data. The normal distribution of quantitative variables was checked with the Kolmogorov–Smirnov test. Descriptive statistics included mean±standard deviation ($\bar{X}$±SD) for quantitative variables and frequencies (n) and percentages (%) for categorical variables. Due to the non-normal distribution of the data, the Friedman test was used for repeated measures. The Bonferroni-corrected Wilcoxon signed-rank test was employed to determine the measurement results causing significant differences between repeated measurements. The significance level for this test was set at p=0.05/6=0.008.

Ethical Aspects of the Study

Written permission was obtained from the researchers who developed or established the validity of the scales used in this study. In addition, ethical approval was obtained from the Non-interventional Clinical Research Ethics Committee of a university (decision number: I; date: 14.03.2022; number: E-76261397-050.99-150979), and written permission was obtained from the institution where the study would be carried out. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Before the study was initiated, students were informed about the purpose and procedures of the study, and written informed consent was obtained from all participants who agreed to participate.

Results

Participants' demographic characteristics are presented in Table 1. The mean age was 20.36±1.87 years, 54.5% of the participants were in the third year, the mothers of 40.9% of the participants had primary or secondary school education, and 40.9% of the fathers had primary school education. According to the findings, 36.4% of the participants had one or two siblings, 90.9% lived in a nuclear family, 63.6% had lived the longest in a provincial center or town, and 63.6% reported that their income and expenses were equal (Table 1).

It was determined that the mean duration of students' current relationships was 13.5±10.9 months, 36.4% had experienced psychological dating violence in their current relationships, and 52.4% had experienced it in their previous relationships (Table 2).

No significant differences were found between participants' pretest, posttest, and follow-up measurement scores on the Attitudes Toward Male Physical Dating Violence Scale (χ^2=1.421, p=0.701). However, significant differences were found between their mean scores on the Attitudes Toward Male Psychological Dating Violence Scale (χ^2=28.625, p<0.001). These differences were determined to stem from the differences between the pretest and 3-month follow-up measurement scores

Table 1. Participants' demographic characteristics (n=22)

Variables	Frequency (n)	Percentage (%)
Age ($\bar{X}$±SD)	20.36±1.87	
School year		
First	4	18.2
Second	6	27.4
Third	12	54.5
Mother's education		
Primary school	9	40.9
Secondary school	9	40.9
University and higher	4	18.2
Father's education		
Primary school	9	40.9
Secondary school	8	36.4
University and higher	5	22.7
Number of siblings		
Only child	2	9.1
1	8	36.4
2	8	36.4
≥3	4	18.2
Family type		
Core	20	90.9
Extended	2	9.1
The longest place of residence		
Provincial center or town	14	63.6
Metropolis	8	36.4
Monthly income		
Income<expenses	8	36.4
Income=expenses	14	63.6

n: Number, $\bar{X}$: Mean.

(Z=-3.593, p<0.001) and between the posttest and 3-month follow-up measurement scores (Z=-3.691, p<0.001) (Table 3).

The comparison of the pretest, posttest, and follow-up mean scores of the Tr-SPSI-R positive orientation to the problem subscale yielded no significant differences (χ^2=4.605, p=0.203). However, a significant difference was found when the pretest, posttest, and follow-up mean scores of the Tr-SPSI-R negative orientation to the problem subscale were compared (χ^2=11.746, p=0.008). This difference was determined to be due to the difference between the pretest and 3-month follow-up scores (Z=-2.680, p=0.007). No significant changes were detected when the pretest, posttest, and follow-up mean scores of the Tr-SPSI-R rational problem-solving subscale were compared (χ^2=6.676, p=0.083).

The comparison of the pretest, posttest, and follow-up mean scores of the Tr-SPSI-R careless/impulsive style subscale yielded statistically significant differences (χ^2=21.808, p<0.001). These differences were determined to be due to the differences between the pretest and 3-month follow-up measurement scores (Z=-3.609, p<0.001) and between the posttest and 3-month follow-up measurement scores (Z=-3.127, p=0.002). No statistically significant differences were observed when the pretest, posttest, and follow-up mean scores of the Tr-SPSI-R avoidance style subscale were compared (χ^2=6.597, p=0.086).

On the other hand, statistically significant differences were observed when the mean pretest, posttest, and follow-up measurement scores of the total Tr-SPSI-R were compared (χ^2=13.633, p=0.003). These differences were determined to be due to the difference between the pretest and 3-month follow-up measurement scores (Z=-2.939, p=0.003) (Table 4).

When the mean pretest, posttest, and follow-up scores of the Rosenberg Self-Esteem Scale were compared, no statistically significant differences were found (χ^2=5.844, p=0.119). Similarly, no statistically significant differences were detected between the mean pretest, posttest, and follow-up scores of the total Interpersonal Mindfulness Scale and its subscales, awareness and being in the moment (χ^2=6.827, p=0.078; χ^2=0.547, p=0.908; χ^2=4.991, p=0.172, respectively) (Table 5).

Discussion

This study aimed to investigate the impact of IRRA Group Therapy on attitudes toward dating violence, social problem-solving skills, self-esteem, and interpersonal mindfulness among female nursing students who experienced dating violence.

The findings of the study demonstrated that IRRA Group Therapy did not create a change in female students' attitudes toward male physical dating violence. This result can be explained by Social Learning Theory. According to Bandura, the founder of Social Learning Theory, modeling is the most effective way to convey values, attitudes, and behaviors among individuals. Learning through modeling and observation is not simply the imitation of behavior but also the knowledge gained through the cognitive processing of that behavior.[36] Based on this explanation, it can be assumed that the values of the society in which the students were born and raised have an influence on their attitudes toward violence. In patriarchal systems, gender roles are learned from childhood through parental modeling, according to Social Learning Theory. These roles prioritize men and place women in a subordinate position, which may contribute to the normalization of violence against women. Considering the values of the society in which one lives, it can be assumed that role modeling used in social learning may have influenced female students' attitudes toward physical violence. In a study in which a series of focus group interviews were conducted, Fredland et al.[37] stated that adolescents identified the acceptability of violence as a

Table 2. Students' dating relationships and exposure to dating or domestic violence (n=22)

Variables	Frequency (n)	Percentage (%)
Having a current dating relationship		
No	0	0
Yes	22	100
Duration of the current dating relationship (months) ($\bar{X}$±SD)	13.50±10.90	
Types of violence experienced during the current dating relationship		
Physical violence	2	9.1
Psychological violence	8	36.4
Sexual violence	3	13.6
Psychological and sexual violence	3	13.6
Physical and psychological violence	6	27.3
History of experiencing dating violence in a previous relationship		
No	1	4.5
Yes	21	95.5
Type of violence experienced during a previous dating relationship		
Physical violence	1	4.8
Psychological violence	11	52.4
Sexual violence	3	14.3
Psychological and sexual violence	3	14.3
Physical and psychological violence	3	14.3
History of domestic violence		
No	17	77.3
Yes	5	22.7
Is there anyone else in the family who is a victim of domestic violence? (Mother, father, siblings, etc.)		
No	17	77.3
Yes	5	22.7

n: Number, $\bar{X}$: Mean.

Table 3. Comparison of participants' pre-test, post-test, and first- and third-month follow-up mean scores on the ATDVS (n=22)

	Median (IQR) [Min-max]	Mean rank	χ^2	p*		Wilcoxon Test	
						Z	p**
ATMPhDS							
T1	28 (28.00–28.25) [24–34]	2.66	1.421	0.701	T1-T2	-0.484	0.628
T2	28 (27.00–28.50) [24–48]	2.39			T1-T3	-0.982	0.326
T3	28 (28.00–28.00) [24–34]	2.36			T1-T4	-0.238	0.812
T4	28 (28.00–28.00) [26–31]	2.59			T2-T3	-0.632	0.528
					T2-T4	-0.422	0.673
					T3-T4	-1.131	0.258
ATMPsDS							
T1	40 (37.75–41.25) [36–46]	3.11	28.625	<0.001*	T1-T2	-1.433	0.152
T2	41 (37.75–47.00) [33–52]	3.32			T1-T3	-2.561	0.010
T3	36 (35.00–37.50) [30–55]	1.95			T1-T4	-3.593	<0.001**
T4	35 (33.75–36.00) [30–40]	1.61			T2-T3	-2.554	0.011
					T2-T4	-3.691	<0.001**
					T3-T4	-1.091	0.275

*: Friedman test, p<0.05; **: Bonferroni-corrected Wilcoxon Signed-Rank Test, p<0.008. ATDVS: Attitudes toward Dating Violence Scales, ATMPhDS: Attitudes toward Male Physical Dating Violence Scale, ATMPsDS: Attitudes toward Male Psychological Dating Violence Scale, n: Number; IQR: Interquartile range, Min.: Minimum, Max.: Maximum, T1: Pre-test; T2: Post-test, T3: One-month follow-up, T4: Three-month follow-up.

Table 4. Comparison of participants' pre-test, post-test, and first- and third-month follow-up mean scores on the total and subscales of the Tr-SPSI-R (n=22)

	Median (IQR) [Min-max]	Mean rank	χ^2	p*		Wilcoxon test	
						Z	p**
Tr-SPSI-R							
T1	12.60 (10.35–13.80) [2.80–15.40]	1.73	13.633	**0.003**	T1-T2	-1.599	0.110
T2	14.40 (12.40–16.00) [3.40–18.60]	2.39			T1-T3	-1.965	0.049
T3	15.90 (13.55–17.50) [2.80–18.80]	3.00			T1-T4	-2.939	**0.003****
T4	16.60(13.00–17.05) [5.20–19.00]	2.89			T2-T3	-1.202	0.229
					T2-T4	-1.321	0.186
					T3-T4	-0.374	0.709
POP							
T1	3.00 (2.30–3.25) [0.40–3.60]	2.11	4.605	0.203	T1-T2	-0.797	0.426
T2	3.00 (2.20–3.85) [1.20–4.00]	2.52			T1-T3	-1.903	0.057
T3	3.60 (2.90–4.00) [1.00–4.00]	2.93			T1-T4	-0.854	0.393
T4	3.20 (1.95–3.80) [1.60–4.00]	2.43			T2-T3	-1.010	0.313
					T2-T4	-0.070	0.944
					T3-T4	-1.097	0.273
NOP							
T1	1.80 (1.10–2.60) [0.20–3.40]	1.70	11.746	**0.008***	T1-T2	-2.192	0.028
T2	2.80 (1.85–3.20) [0.00–4.00]	2.66			T1-T3	-2.192	0.028
T3	3.10 (1.80–3.10) [0.00–3.80]	2.84			T1-T4	-2.680	**0.007****
T4	2.40 (2.15–3.60) [0.00–4.00]	2.80			T2-T3	-0.019	0.985
					T2-T4	-0.244	0.807
					T3-T4	-0.094	0.925
RPS							
T1	2.70 (1.85–2.85) [0.40–3.20]	1.98	6.676	0.083	T1-T2	-1.189	0.234
T2	2.80 (1.95–3.60) [0.80–4.00]	2.39			T1-T3	-1.771	0.077
T3	3.00 (2.35–3.80) [0.20–4.00]	2.84			T1-T4	-2.151	0.031
T4	3.20(1.95–3.80) [1.60–4.00]	2.80			T2-T3	-0.836	0.403
					T2-T4	-0.818	0.413
					T3-T4	-0.150	0.881
C/IS							
T1	2.00 (1.40–2.60) [0.60–3.20]	1.82	21.808	**<0.001***	T1-T2	-1.271	0.204
T2	2.20 (1.95–2.85) [0.40–3.40]	2.09			T1-T3	-2.212	0.027
T3	2.60 (2.15–3.40) [0.80–4.00]	2.64			T1-T4	-3.609	**<0.001****
T4	3.20 (3.00–3.60) [1.00–3.80]	3.45			T2-T3	-1.656	0.098
					T2-T4	-3.127	**0.002****
					T3-T4	-2.169	0.030
AS							
T1	3.00 (2.60–3.45) [0.60–4.00]	2.09	6.597	0.086	T1-T2	-0.470	0.638
T2	3.20 (2.90–3.80) [0.60–4.00]	2.25			T1-T3	-0.610	0.542
T3	3.40 (2.70–3.85) [0.80–4.00]	2.73			T1-T4	-1.830	0.067
T4	3.80 (2.80–4.00) [0.60–4.00]	2.93			T2-T3	-0.337	0.736
					T2-T4	-1.417	0.156
					T3-T4	-0.877	0.381

*: Friedman test, p<0.05, **: Bonferroni-corrected Wilcoxon Signed-Rank Test, p<0.008. Tr-SPSI-R: Revised Social Problem-Solving Inventory, POP: Positive Orientation to the Problem, NOP: Negative Orientation to the Problem, RPS: Rational Problem-Solving, C/IS: Careless/Impulsive Style, AS: Avoidance Style, n: Frequency, IQR: Interquartile Range, Min: Minimum, Max: Maximum, T1: Pre-test, T2: Post-test, T3: One-month follow-up, T4: Three-month follow-up.

factor in dating violence. Similarly, Williams et al.[38] reported that high acceptability of violent behavior was associated with repeated exposure to violence.

In dating relationships, a man's jealousy toward the woman he loves, interference with her social circle and clothing preferences, and ignoring the woman are indicators of violence;

Table 5. Comparison of participants' mean pre-test, post-test, and first- and third-month follow-up scores on the total and subscales of the RSES and the IMS (n=22)

	Median (IQR) [Min-max]	Mean rank	χ^2	p*		Wilcoxon Test	
						Z	p**
RSES							
T1	22.00 (22.00–23.00) [17–25]	1.98	5.844	0.119	T1-T2	-0.979	0.328
T2	23.00 (21.00–23.25) [17–27]	2.48			T1-T3	-1.965	0.049
T3	24.00 (20.00–28.00) [15–28]	2.82			T1-T4	-2.465	0.014
T4	22.00 (21.00–25.00) [17–25]	2.73			T2-T3	-0.571	0.568
					T2-T4	-1.053	0.292
					T3-T4	-0.056	0.955
IMS							
T1	48.00 (44.25–50.00) [29–56]	2.07	4.991	0.172	T1-T2	-1.447	0.148
T2	50.00 (45.00–54.50) [27–56]	2.64			T1-T3	-1.140	0.254
T3	49.00 (46.00–51.00) [35–55]	2.41			T1-T4	-1.670	0.095
T4	51.00 (45.75–53.25) [26–57]	2.89			T2-T3	-0.449	0.653
					T2-T4	-0.187	0.852
					T3-T4	-0.748	0.454
Awareness							
T1	38.00 (32.75–40.00) [18–43]	1.95	6.827	0.078	T1-T2	-1.357	0.175
T2	40.00 (34.00–41.50) [19–44]	2.73			T1-T3	-1.090	0.276
T3	37.00 (36.00–40.25) [20–44]	2.43			T1-T4	-1.481	0.138
T4	36.5 (35.50–45.00) [15–45]	2.89			T2-T3	-0.337	0.736
					T2-T4	-0.504	0.614
					T3-T4	-0.888	0.375
Being in the moment							
T1	10.50 (9.75–13.00) [7–14]	2.57	0.547	0.908	T1-T2	-0.357	0.721
T2	11.50 (9.75–13.00) [8–13]	2.59			T1-T3	-0.244	0.807
T3	11.00 (10.00–12.00) [8–15]	2.50			T1-T4	-0.588	0.556
T4	11.00 (9.00–12.00) [8–13]	2.34			T2-T3	-0.247	0.805
					T2-T4	-1.080	0.280
					T3-T4	-0.977	0.328

*: Friedman test, p<0.05, **: Bonferroni-corrected Wilcoxon Signed-Rank Test, p<0.008. RSES: Rosenberg Self-Esteem Scale, IMS: Interpersonal Mindfulness Scale, n: Frequency, IQR: Interquartile range, Min: Minimum, Max: Maximum, T1: Pre-test, T2: Post-test, T3: One-month follow-up, T4: Three-month follow-up.

however, these behaviors are sometimes also perceived as signs of love. At this point, cultural values come to the forefront, and the saying "he who loves is jealous" reveals how violence is normalized. This situation negatively affects women's awareness in dating relationships and causes the normalization of violence perpetrated by men.[39] Male students who participated in the study by Sünetçi et al.[40] stated that they approved of attempts to change their partners' behavior in dating relationships and of interfering in their social environment. More than half of the male students participating in the study considered it necessary to interfere with and restrict their partners' clothing when they did not like or find it appropriate, and they did not consider these behaviors to be violence. When this situation is considered in terms of the roles used in interpersonal relationships, the role offered to the other party by the male partner, who has a dominant and restrictive role, is obedience and submission.[11] In contrast to the findings of the present study, studies in the international literature involving women who are victims of dating violence have shown that group therapy based on cognitive-behavioral therapy is effective in reducing tolerance of violent behaviors.[21,41] A systematic review and meta-analysis of randomized clinical trials conducted to evaluate the effectiveness of sexual and physical dating violence prevention programs in adolescents indicated that such programs may be effective in reducing physical dating violence among adolescents; however, there is no clear evidence regarding their effect on sexual violence outcomes.[42] Another study demonstrated that university dating violence prevention programs were effective in increasing knowledge and attitudes toward dating violence and bystander skills, but they were not influential in increasing bystander behavior.[43] Another meta-analysis indicated that dating violence prevention programs during adolescence could reduce the risk of inflicting emotional, physical, and sexual violence, as well as the risk of emotional and physical victimization.[44] The differences between the findings of these studies may stem from cultural

differences in the study populations and intervention methods. In light of these results, and considering patriarchal social structure and gender roles, more research is needed regarding attitudes toward male physical dating violence.

IRRA Group Therapy was found to be effective in reducing approval of male dating violence among female students who experienced dating violence. No intervention studies have been found to support this finding. However, in IRRA Group Therapy, group members explore the roles in which they are stuck within interpersonal relationships and the positive and negative emotions these roles evoke in themselves with the help of the group. In addition, through this exploration, they can notice the association between their adverse experiences and the roles they employ in interpersonal relationships. Although individuals may not want to share their experiences in full detail, they may still benefit from the experiences shared by other group members. This sharing may have helped increase students' awareness of the psychological violence they experienced in dating relationships and may have decreased their acceptance of psychological violence.[11,45–47] A slight increase was observed in students' mean posttest scores regarding the acceptance of psychological violence. Yalom[48] stated that it takes time for the skills acquired in group therapy to be internalized by participants and that therapeutic change continues even after therapy is completed. The increase in the mean posttest scores may have resulted from the termination of students' group support. In follow-up measurements, students may have internalized the therapeutic gains acquired in group therapy over time and transferred them to their interpersonal relationships in daily life.

In the present study, IRRA Group Therapy was found to be effective in increasing the mean total scores for social problem-solving skills among students who were victims of dating violence, and this increase was maintained in the 1-month and 3-month follow-up measurements. This finding suggests that IRRA Group Therapy is effective in developing social problem-solving skills. Tourigny et al.[19] concluded in their study with adolescent victims of violence that group therapy was effective in enhancing adolescents' problem-solving skills. In another study conducted with 23 women who were victims of dating violence in Portugal, group therapy was reported to be an effective method for identifying common difficulties, facilitating learning, and developing problem-solving skills.[21] Kaplan and Ançel[45] investigated the effect of IRRA Group Therapy on nursing students' anxiety levels, gender role attitudes, and interpersonal problem-solving orientations. The results of the study demonstrated that IRRA Group Therapy had a positive effect on anxiety and interpersonal problem-solving orientations. In IRRA Group Therapy, students share their emotional experiences in a completely safe environment, and group members adequately support each other. This allows students to better analyze their roles in interpersonal relationships, and with feedback from other group members, students who take the risk of sharing their emotional experiences have the opportunity to examine their own experiences. Thus, they can handle the event from different perspectives and have the opportunity to address the effects of their victimization on interpersonal relationships more deeply with the help of the group. This sharing may improve students' awareness of the problems they experience and their social problem-solving skills.[11]

The evaluation of the subscales of social problem-solving skills demonstrated that there was an increase in the scores for positive orientation to the problem and rational problem-solving approach; however, this increase did not provide a statistically significant difference. Significant differences were observed in the mean scores of the negative orientation to the problem and careless/impulsive style subscales, which are considered ineffective problem-solving approaches.[33] There was an increase in avoidance style scores, another ineffective approach to problem-solving, but no statistically significant change was found. This finding may be interpreted as follows: during the implementation of the IRRA steps, there were differences in how participants evaluated events and handled problems based on scientific principles. The reason for these differences stems from the way participants in group sessions handle problems. The understanding on which IRRA Group Therapy is based is rooted in the individual's personality, harmony in interpersonal relationships, and ego functioning.[11,46,47] According to Yalom,[48] one of the factors that helps individuals in group therapy is universality. At the beginning of the group therapy process, many participants think that they are the only ones who are suffering and that they have unbearable problems that no one can solve. This mindset negatively affects individuals' ability to find solutions to their problems and seek support. During the IRRA steps, each member's agenda is handled from different perspectives by both the therapist and other group members. This method offers group members different perspectives on their problems.[11,48] Due to these differences in perspective, students improve their ability to establish cause-and-effect relationships between events in dating relationships, and as they progress through the IRRA steps, their awareness of the costs of the roles they use in interpersonal relationships may increase. Accordingly, their behaviors in dating relationships change, leading to negative reactions from their partners. It is thought that group members may have had a more negative orientation toward their problems and that this may have increased their careless/impulsive style to protect themselves from being victims of violence.[11,48]

Following the IRRA Group Therapy intervention, there was an increase in students' pretest, posttest, 1-month follow-up, and 3-month follow-up self-esteem scores; however, this increase was not statistically significant. Although there was an increase

in students' mean self-esteem scores, this result was not statistically significant. During the IRRA Group Therapy process, students provided constructive feedback to one another in a trusting environment, which may have increased their sense of belonging to the group, allowed them to express themselves freely, and made them feel valued. In contrast to the findings of the present study, the results of group therapy interventions conducted with different approaches among women who were victims of dating violence have shown that group therapy helps participants understand that they are not alone, that their feelings of fear and hopelessness are valid, and that similar experiences are shared by others. Moreover, these interventions have been found to have positive effects on increasing self-esteem.[20,21,49,50] In a study investigating the role of awareness in the relationships between dating violence, self-esteem, and psychological distress in adolescents, Dion et al.[51] found that participants' experience of violence in previous dating relationships was associated with low self-esteem. Lynch and Graham-Bermann[52] stated that self-esteem can significantly decrease in abusive relationships, that ongoing psychological, physical, and/or sexual violence leads to increased feelings of guilt and responsibility for the violence and heightened socialization, and that this negatively affects self-esteem. Santos et al.[21] reported a decrease in participants' experiences of violence and an increase in their self-esteem in a study examining the effectiveness of an 8-week group intervention program among 23 women who were victims of domestic violence. A review of the literature indicated that there were no studies using Interpersonal Relational Role Analysis Group Therapy among students who experienced dating violence. Several studies with adult women who are victims of partner violence have indicated that group therapy has an effect on self-esteem.[21,50,53] Kim and Kim,[22] similar to the findings of the present study, reported that group therapy did not have a positive impact on increasing self-esteem in their study with Korean women who experienced dating violence. Self-esteem may increase with longer-term interventions. It varies according to the degree of personal satisfaction or frustration experienced by the individual in interpersonal relationships. Low self-esteem is a result of events that negatively influence the self. This negative situation may make it difficult for individuals to realistically perceive their situation and make efforts to change adverse conditions.[54]

In the present study, there was an increase in the mean scores of the total Interpersonal Mindfulness Scale and its awareness subscale; however, this increase was not statistically significant. This may be due to the number of therapy sessions. Indeed, in a study using IRRA in inpatients, Dereboy et al.[55] reported that the number of therapy sessions attended was effective and was considered an important component of treatment, particularly among patients who attended 10 or more sessions. In the same study, this finding was interpreted as being consistent with the dose-response model of psychotherapy.[56] Similarly, Hebert and Monan,[57] in a study evaluating the effectiveness of group interventions among women who were victims of violence, reported that if gains observed in 3-month follow-up measurements decreased, this suggested that the number of intervention sessions was insufficient and that follow-up sessions were necessary.

Limitations of the Study

This study has several limitations. First, the study was conducted in a single school in the western part of Türkiye; therefore, this limits the generalizability of the findings to students across the entire country. The results are limited to statistical tests and responses to scales. Another limitation is that some of the scales used in the study had low Cronbach's alpha values. Furthermore, due to the limited number of studies in the literature on the subject, the study was discussed in comparison with other studies applying group therapy. The lack of a control group is another important limitation.

Conclusion

The results of the present study demonstrated that while IRRA did not contribute to any changes in the acceptance of male physical dating violence among students experiencing dating violence, it was effective in reducing the acceptance level of male psychological dating violence. IRRA was also observed to be effective in improving the social problem-solving skills of students who were victims of dating violence. Female students who were victims of dating violence had slightly increased self-esteem scores following IRRA group therapy, and this increase persisted during follow-up; however, no statistically significant differences were found. Based on these findings, it is recommended that psychosocial interventions in which students can express themselves and share their problems and produce solutions within a group setting be increased, that the effectiveness of IRRA group sessions be investigated using different populations and problem areas, and that these sessions be conducted over longer durations.

Ethics Committee Approval: The study was approved by the Aydın Adnan Menderes University Non-interventional Clinical Research Ethics Committee (no: E-76261397-050.99-150979, date: 14/03/2022).

Informed Consent: Written informed consents were obtained from patients who participated in this study.

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

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References

1. World Health Organization. Violence against women prevalence estimates, 2018: Global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women.2021. Available at:https://apps.who.int/iris/bitstream/handle/10665/341337/9789240022256eng.pdf?sequence=1&isAllowed=y. Accessed June 26, 2026.
2. Öztürk M, Bilican Gökkaya V. Üniversite öğrencilerinin flört şiddeti mağduriyetleri ile mücadele stratejileri. Firat University Journal of Social Sciences 2022;32:795–806. [Article in Turkish]
3. Aslan R, Bulut M, Arslantaş H. Flört şiddeti. The J of Social Science 2020;7:365–84. [Article in Turkish]
4. Akış N, Haşıl Korkmaz N, Taneri PE, Özkaya G, Güney E. Üniversite öğrencilerinde flört şiddeti sikliği ve etkileyen etmenler - frequency and effecting factors of dating violence in students of a university. ESTÜDAM Halk Sağlığı Dergisi 2019;4:294–300. [Article in Turkish]
5. Wincentak K, Connolly J, Card N. Teen dating violence: A meta-analytic review of prevalence rates. Psychology of Violence 2017;7:224–41.
6. Aslan D, Vefikuluçay D, Zeyneloğlu S, Erdost T, Temel F. Ankara'da iki hemşirelik yüksekokulunun birinci ve dördüncü sınıflarında okuyan öğrencilerinin flört şiddetine maruz kalma, flört ilişkilerinde şiddet uygulama durumlarının ve bu konudaki görüşlerinin saptanması araştırması. Ankara: Hacettepe Üniversitesi Kadın Sorunları Araştırma ve Uygulama Merkezi; 2008. Available at: http://www.huksam.hacettepe.edu.tr/Turkce/SayfaDosya/flort_siddeti.pdf. Accessed June 26, 2026. [in Turkish]
7. Kızılca Çakaloz D, Çoban A, Irmak A. Aydın Adnan Menderes Üniversitesi öğrencilerinin flört şiddet kapsamındaki davranışlara ilişkin görüşleri. Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2020;4:100–6. [Article in Turkish]
8. İftar M, Güler G. Attitudes and behaviors of university students toward dating violence. International Anatolia Academic Online Journal Health Sciences 2020;6:151–67.
9. Cangür Ş, Başver T, Temür B, Odabaş S, Demir F, Kılıç S, et al. Sağlık Bilimleri Fakültesi öğrencilerinin flört şiddetine yönelik tutumlarının değerlendirilmesi. J DU Health Sci Inst 2021;11:331–40. [Article in Turkish]
10. Schumacher AJ, Feldbau-Kohn S, Smith-Slep M, Heyman R. Risk factors for male-to-female partner physical abuse. Aggression and Violent Behaviour 2004;6:281–352.
11. Arslantaş H, Dereboy İF. Psikiyatri servislerinde yapılandırılmış grup psikoterapisi: kişilerarası ilişkisel rol analizi. Turkiye Klinikleri J Psychiatr Nurs Spec Top 2016;2:34–8. [Article in Turkish]
12. Akyol Güner T, Açıkgöz GN, Palabaş N, Çoban M. Üniversite öğrencilerinin flört şiddetine ilişkin tutumlarının benlik saygısı ve toplumsal cinsiyet algıları ile ilişkisi. J Higher Edu Sci 2025;15:134–41. [Article in Turkish]
13. Mermertaş A. Üniversite öğrencilerinde flört şiddeti, depresyon ve benlik saygısı arasındaki ilişkinin incelenmesi [master's thesis]. İstanbul: Haliç Üniversitesi Lisansüstü Eğitim Enstitüsü; 2020. [in Turkish]
14. Biçer Fİ. Üniversite öğrencilerinin flört şiddeti ve flört şiddetine yönelik tutumlarında benlik saygısı ve kişilik özelliklerinin rolü [master's thesis]. İstanbul: İstanbul Üniversitesi Lisansüstü Eğitim Enstitüsü; 2022. [Thesis in Turkish]
15. Yolcu D, Akbay SE. Dating violence among university students: The role of self-esteem, perceived relationshıp self-efficacy and attachment styles. European Journal of Education Studies 2020;7:241–56.
16. Fidan F, Yeşil Y. Nedenleri ve sonuçları itibariyle flört şiddeti. Balkan and Near Eastern Journal of Social Sciences 2018;4:16–24. [Article in Turkish]
17. Çakır Koçak Y, Öztürk Can H. Flört şiddeti: tanımı, sınıflaması ve değerlendirmesi. In: Özbaşaran F, editor. Toplumsal cinsiyet ve kadın. 1st ed. Ankara: Türkiye Klinikleri; 2019. p. 43–53.
18. Cortés Ayala ML, Molleda CB, Rodríguez-Franco L, Galaz MF, Ramiro-Sánchez T, et al. Unperceived dating violence among Mexican students. International Journal of Clinical and Health Psychology 2014;14:39–47.
19. Tourigny M, Hébert M, Daigneault I, Simoneau AC. Efficacy of a group therapy for sexually abused adolescent girls. J Child Sex Abus 2005;14:71–93.
20. Riojas NG, Cisneros CBE. Intervención centrada en soluciones-cognitivo conductual en un caso de violencia en el noviazgo. Revista Electrónica de Psicología Iztacala 2013;16:476-503. [Article in Spanish]
21. Santos A, Matos M, Machado A. Effectiveness of a group intervention program for female victims of intimate partner violence. Small Group Research 2017;48:34–61. [Article in Portuguese]
22. Kim S, Kim J. The effects of group intervention for battered women in Korea. Arch Psychiatr Nurs 2001;15:257–64.
23. Ezhumalai S, Muralidhar D, Dhanasekarapandian R, Nikketha BS. Group interventions. Indian J Psychiatry 2018;60(Suppl 4):S514–21.
24. Pratiwi CP, Budiningsih ET, Mahanani KF, Budiningsih TE, Halim AJ. We are in the same boat: Group therapy as a treatment for psychological distress in dating violence survivors. Journal of Educational, Health and Community Psychology 2022;11:33–55.

25. Schwartz JP, Magee MM, Griffin LD, Dupuis CW. Effects of a group preventive intervention on risk and protective factors related to dating violence. Group Dyn Theory Res Pract 2004;8:221–31.
26. Balcı Devrim S, Beydağ KD. Hemşirelik öğrencilerinin toplumsal cinsiyet algısının flört şiddeti tutumuna etkisi. FBU-JOHS 2022;2:413–23. [Article in Turkish]
27. Kirk L, Terry S, Lokuge K, Watterson JL. Effectiveness of secondary and tertiary prevention for violence against women in low and low-middle-income countries: A systematic review. BMC Public Health 2017;17:1–21.
28. Kilci Ş, Seval M, Doğan N. Hemşirelik öğrencilerinin kadına yönelik şiddet belirtilerini tanıyabilme durumları. EGEHFD 2021;37:1–9. [Article in Turkish]
29. Tarı Selçuk K, Avcı D, Mercan Y. Üniversite öğrencilerinde flört şiddetine maruziyet: Flört şiddetine yönelik tutumların ve toplumsal cinsiyet algısının şiddete maruziyet ile ilişkisi. ACU Sağlık Bil Derg 2018;9:302–8. [Article in Turkish]
30. Karatay G. Üniversite öğrencilerinin flört şiddetine ilişkin tutum ve davranışları. STED 2018;27:62–71. [Article in Turkish]
31. Gönenç İM, Terzioğlu F, Özdemir F, Güvenç G, Kök G, Yılmaz Sezer N, et al. Flört şiddeti tutum ölçeği geçerlik ve güvenirlik çalişmasi. Journal of Anatolia Nursing and Health Sciences 2017;19. [Article in Turkish]
32. Yumuşak A, Şahin R. Flörtte şiddete yönelik tutum ölçeklerinin güvenirlik ve geçerlik çalişmasi. esosder 2014;13:233–52. [Article in Turkish]
33. Eskin M, Aycan Z. Gözden Geçirilmiş Sosyal Sorun Çözme Envanteri'nin Türkçe'ye (Tr-SPSI-R) uyarlanması, güvenirlik ve geçerlik analizi. Türk Psikoloji Yazıları 2009;12:1–10. [Article in Turkish]
34. Çuhadaroğlu F. Adolesanlarda benlik saygısı [Specialist Thesis]. Ankara: Hacettepe Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı; 1986. [Article in Turkish]
35. Erus SM, Tekel E. Development of Interpersonal Mindfulness Scale-TR (IMS-TR): a validity and reliability study. European Journal of Educational Research 2020;9:103–15. [Article in Turkish]
36. Bandura A. Self-efficacy in changing societies. New York: Cambridge University Press; 1995.
37. Fredland NM, Ricardo IB, Campbell JC, Sharps PW, Kub JK, Yonas M. The meaning of dating violence in the lives of middle school adolescents: A report of a focus group study. Journal of School Violence 2005;4:95–114.
38. Williams TS, Connolly J, Pepler D, Craig W, Laporte L. Risk models of dating aggression across different adolescent relationships: a developmental psychopathology approach. J Consult Clin Psychol 2008;76:622–32.
39. Toplu-Demirtaş E. Flört şiddeti konusunda lise gençlerinin çözüm önerileri: araştırma raporu. İstanbul: Cinsel Şiddetle Mücadele Derneği; 2018. [Article in Turkish]
40. Sünetçi B, Say A, Gümüştepe B, Enginkaya B, Yıldızdoğan Ç, Yalçın M. Üniversite öğrencilerinin flört şiddeti algıları üzerine bir araştırma. UÖBİD 2016;16:56–83. [Article in Turkish]
41. Bennett L, Riger S, Schewe P, Howard A, Wasco S. Effectiveness of hotline, advocacy, counseling, and shelter services for victims of domestic violence: a statewide evaluation. J Interpers Violence 2004;19:815–29.
42. Piolanti A, Foran HM. Efficacy of Interventions to Prevent Physical and Sexual Dating Violence Among Adolescents: A Systematic Review and Meta-analysis. JAMA Pediatr 2022;176:142–9.
43. McArthur J, Blais J, Ternes M. Digital dating abuse: an application of the theory of planned behavior. J Interpers Violence 2024;39:1308–26.
44. Russell KN, Voith LA, Lee H. Randomized controlled trials evaluating adolescent dating violence prevention programs with an outcome of reduced perpetration and/or victimization: A meta-analysis. J Adolesc 2021;87:6–14.
45. Kaplan V, Ançel G. The effect of interpersonal relational role analysis on nursing students' anxiety levels and interpersonal problem-solving orientation. Perspect Psychiatr Care 2021;57:1175–86.
46. Yalom ID. Inpatient group psychotherapy. 1st ed. New York: Basic Books; 1983.
47. Livesley WJ. Suggestions for a framework for an empirically based classification of personality disorder. Can J Psychiatry 1998;43:137–47.
48. Yalom ID. Grup psikoterapisinin teori ve pratiği. In: Tongar A, Karaçam Ö, editors. 3rd ed. İstanbul: Pegasus Yayınları; 2015. [in Turkish]
49. Crespo M, Arinero M, Soberón C. Analysis of effectiveness of individual and group trauma-focused interventions for female victims of intimate partner violence. Int J Environ Res Public Health 2021;18:1952.
50. Tutty LM, Babins-Wagner R, Rothery MA. You're not alone: Mental health outcomes in therapy groups for abused women. J of Fam Violence 2016;31:489–97.
51. Dion J, Smith K, Dufour MP, Paquette L, Dubreuil J, Godbout N. The mediating role of dispositional mindfulness in the associations between intimate violence, self-esteem, and distress among adolescents. Mindfulness 2021;12:3060–72.
52. Lynch S, Graham-Bermann S. Woman abuse and self-affirmation: Influences on women's self-esteem. Violence Against Women 2000;6:178–97.
53. Cox JW, Stoltenberg CD. Evaluation of a treatment program for battered wives. J of Fam Violence 1991;6:395–413.
54. Kaner S. Self-esteem and body image in orthopedically handicapped and nonhandicapped male adolescent. Özel EğitimDergisi 2000;2:13–22.
55. Dereboy İF, Arslantaş H, Şair YB, Salkın G, Şahin P. Yatan hastalara yönelik yeni bir grup terapi tekniğinin katılanlar tarafından değerlendirilmesi. In: 46. Ulusal Psikiyatri Kongresi Bildiri Kitabı. İzmir; 2010. [Article in Turkish]
56. Page AC, Hooke GR. Best practices: increased attendance in inpatient group psychotherapy improves patient outcomes. Psychiatr Serv 2009;60:426–8.
57. Hébert M, Bergeron M. Efficacy of a group intervention for adult women survivors of sexual abuse. J Child Sex Abus 2007;16:37–61.

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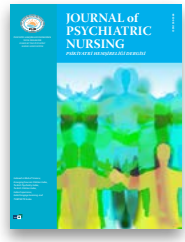

Original Article

Bibliometric analysis on mental health and psychological well-being

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Abstract

Objectives: This study aimed to analyze publication and citation trends, productive journals, influential authors, university productivity, and conceptual structures in the field of mental health and psychological well-being using bibliometric analysis methods.

Methods: This bibliometric study was conducted using 522 research articles from the Web of Science database. The analysis evaluated annual publication counts, citation counts, author and institutional performance, regional distribution, co-citation networks, thematic mapping, and citation networks. Core journals in the field were also identified using Bradford's Law.

Results: The findings indicate that while the number of annual publications has increased over time, citation counts have fluctuated. The most productive journal was identified as Personality and Individual Differences. The most frequently used concepts in the field were mental health, depression, and stress. Among 1,849 authors, Creed PA stood out with 5 publications, and Crocker J. with 826 citations. In terms of institutions, publication output was concentrated at universities such as the University of Michigan, Griffith University, and Syracuse University. The United States was central in terms of regional distribution. Thematic and co-occurrence networks showed that the concept of "mental health" was central. Citation networks indicated a limited number of key studies in the field. Bradford's Law indicated that the literature was concentrated in certain areas.

Conclusion: The field of mental health and psychological well-being has developed around certain authors, journals, and institutions. The number of publications has increased, but citation visibility has remained limited. Fundamental concepts related to the field continue to shape its structure.

Keywords: Mental health; psychological health; psychological well-being

In our globalizing world, mental health has become an issue that cannot be ignored. Mental health is an essential part of overall health and well-being. Positive mental health means that individuals are empowered to build relationships with each other, cope, and heal.[1] Mental health, which is an integral part of overall health, directly affects individual life outcomes. Good mental health enables individuals to be more resilient in the face of stress, work productively, and maintain their social relationships.[2] A person's mental health is regarded as an indispensable part of life, enabling them to experience fulfillment by establishing relationships, finding employment, pursuing education, securing housing, and making other daily choices. Problems that arise can negatively affect these abilities and lead to serious deprivation not only on a personal level but also within society and the family.[3]

In this context, various positive and negative factors affect mental health. Factors that cause mental health to deteriorate include environmental conditions, economic reasons, and anxiety about the future.[4] When considering the negative

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and positive aspects of mental health, maintaining mental well-being and managing potential problems are important not only for society's attitudes and opinions but also for increasing productivity, strengthening self-image, and developing a sense of inner peace. When viewed negatively, physical health, economic well-being, and social relationships may be at risk.[5] In this context, strong mental health, its effects on individuals, and its importance have gained considerable value. One of the main factors that constitute mental health is the concept of psychological well-being.

Psychological well-being is a concept that emerged in the mid-1980s and directly influences quality of life.[6] It is considered just as important as physical activity and contributes to individuals functioning at their full potential and adapting to their environment.[7,8] Psychology defines well-being as a sense of deep fulfillment and happiness in daily life.[9] It also supports a healthy lifestyle, strengthens social relationships, and enhances individual performance.[10]

There are two approaches to this concept: the hedonistic perspective explains happiness in terms of the pursuit of pleasure and the avoidance of pain; the second approach, however, views happiness in terms of the realization of an individual's potential and their contribution to a virtuous life.[11] According to Ryff's 1989 model of psychological well-being, the concept consists of six dimensions: self-acceptance, positive relationships, autonomy, environmental mastery, life purpose, and personal growth.[12] Psychological well-being in the scientific field is generally examined in terms of development and aging, personality, family experiences, work-life experiences, health, and biological categories.[13] The presence of these positive qualities enhances people's overall quality of life while also providing them with opportunities to achieve fundamental outcomes in social and economic spheres.

Mental health and psychological well-being are critically important in psychiatric nursing. Psychiatric nurses are responsible for identifying, monitoring, and improving individuals' mental health, which involves complex clinical and ethical decisions, particularly because patients often belong to vulnerable groups. Therefore, psychiatric nursing is defined as a holistic field that supports the physical and psychosocial well-being of individuals with mental health problems or those at risk of developing them. It emphasizes therapeutic interpersonal relationships, effective communication, and consideration of environmental factors, aiming to create a safe and supportive care environment that promotes positive behavioral change.[14,15] Mental health and psychological well-being are fundamental and complementary components of this practice. Accordingly, reviewing the relevant literature contributes to strengthening academic knowledge and improving the quality and effectiveness of psychiatric nursing care.

What is presently known on this subject?

- Mental health and psychological well-being are rapidly evolving fields of research; however, existing studies generally focus on specific topics, populations, or interventions, and a detailed understanding of the field's overall body of knowledge and structure remains limited.

What does this article add to the existing knowledge?

- This study analyzes publication trends, influential authors and journals, research themes, and collaboration networks in the field and provides a comprehensive overview of the intellectual landscape of mental health and psychological well-being.

What are the implications for practice?

- The findings highlight the core body of knowledge and emerging themes in mental health and psychological well-being research, thereby serving as a guide for supporting evidence-based practices, informing policy development, and shaping the direction of future research.

This study aimed to review the literature on mental health and psychological well-being and to conduct a bibliometric analysis of studies published in the Web of Science (WoS) database using relevant search terms. The analysis examined authors, publication years, source journals, citation counts, and research trends. In addition, SALSA analysis was used to explore collaboration networks, and the main themes were systematically presented in tables.

Materials and Method

Research Type and Purpose

The purpose of this study was to examine academic studies that address the keywords mental health and psychological well-being together. The bibliometric analysis method was chosen for this study. This analysis method is a technique that categorizes bibliometric materials according to articles, authors, and journals, thereby enabling a general description of research fields.[16] The analysis presents an overview of the concepts included in the study.[17] Bibliometric analysis makes the numerical readings and analyses of the data obtained visible by converting all kinds of data on the relevant subject into graphs and tables.[18]

Choosing the Research Data Source

Choosing appropriate data sources is critical for the scientific validity and reliability of a study. In this context, Web of Science is a database that evaluates the impact of scientific journals across disciplines, the citation counts of academic studies, and the productivity of authors and their publications.[19] The rapid growth of scientific studies and the increasing fragmentation of publications make access to the literature more difficult. Therefore, scientific classification is considered essential in bibliometric analyses, as in other fields.[20] Accordingly, the Web of Science database was selected to ensure reliability and scientific validity. The dataset covers the SCI-Expanded, SSCI, and ESCI indexes included in the Web of Science Core Collection. In this study, the key concepts of "mental health and psychological well-being" were examined together, and

Web of Science publications from 1984 to 2025 were analyzed based on a data snapshot obtained through a one-time data extraction on November 23, 2025.

Ethical Considerations

The data used in the study are secondary data; therefore, no ethics committee approval is required in this context.

Research Questions

The following questions were addressed in relation to the problematic points in this study:

- What is the status and thematic transformation of mental health and psychological well-being studies over the years in the Web of Science database?
- What are the citation impacts of articles published in the field of mental health and psychological well-being, and which studies receive the most citations?
- Which institutions collaborate most frequently on mental health and psychological well-being topics?
- What are the prominent themes in mental health and psychological well-being studies, and what concepts are frequently addressed?
- What are the core journals in the mental health and psychological well-being literature?

Procedure for Obtaining Research Data

In this study, the SALSA (Search, Appraisal, Synthesis, Analysis) framework was used for bibliometric analysis. Publications were collected using keywords selected from Web of Science and evaluated according to subject, type, and language criteria. In the synthesis phase, publication trends, conceptual relationships, and citation structures were summarized; in the analysis phase, the field's thematic and intellectual structure, as well as its research performance, were examined.

The research data were generated by examining research articles published in the Web of Science database within the framework of the concepts of mental health and psychological well-being. In the study, a topic search was first conducted in the WoS database by considering the concepts of mental health and psychological well-being together, without any time constraints, using a topic-based (Topic-TS) search strategy. At the same time, taking into account the conceptual variations in the literature, a search was performed using the terms "mental health" OR "mental wellbeing" OR "mental state" AND "psychological wellbeing" OR "psychological health."

The selected key concepts are based on fundamental concepts in research on mental health and psychological well-being in the field. An initial unfiltered search identified 10,930 studies. In the second phase, the scope was narrowed to the fields of psychology (developmental and social), interdisciplinary social sciences, management, business, and behavioral sciences, resulting in 550 studies on mental health and psychological well-being. In the third phase, publication types other than research articles were excluded, and 532 research articles containing the two key concepts were included in the analysis. The reason for prioritizing research articles in bibliometric analysis is that these studies present more original research findings and serve as a cornerstone of scientific productivity. Such studies detail research methods, data analysis, contributions to the literature, and scientific relevance. In contrast, publications such as reviews, conference papers, and book chapters may have a more limited peer-review process and typically focus on synthesizing existing knowledge. Therefore, the preference for research articles is important in terms of the reliability of standard peer-review processes and the analysis of studies that directly contribute to science. Additionally, a language restriction was applied to enhance comparability in the bibliometric analysis.

Key concepts, abstracts, and citations in different languages may vary and create inconsistency. To avoid this, English was selected as the primary language due to its widespread use in the scientific literature. After excluding other languages, 522 studies remained for bibliometric analysis. The inclusion and exclusion criteria are presented in Figure 1.

Evaluation of Research Data

By using bibliometric analysis, it is possible to identify the topics of studies conducted in a specific field or country, the authors interested in these topics, the collaborative relationships and intensity between authors, and the subject headings that are addressed to a limited extent.[21] Şahin and Acun[22] stated that bibliometric studies are of significant importance for visualizing the structure and transformation of research fields and for developing scientific policy or strategy. In this context, bibliometric analysis was performed using the RStudio program. Access to primary data was obtained using sources from the WoS database. Annual scientific publication counts, citation trends, countries' productivity levels, citation counts, journal publication performance, prominent authors, key concepts, and institutional productivity were comprehensively evaluated.

Results

Data from 1984 to 2025 were examined as part of the bibliometric analysis. A total of 143 sources and 522 documents were identified. The annual growth rate was 10.22%, and the total number of authors was 1,849. Fifty-one of these authors were sole authors. The international co-authorship rate was 20.1%, and the average number of authors per document was

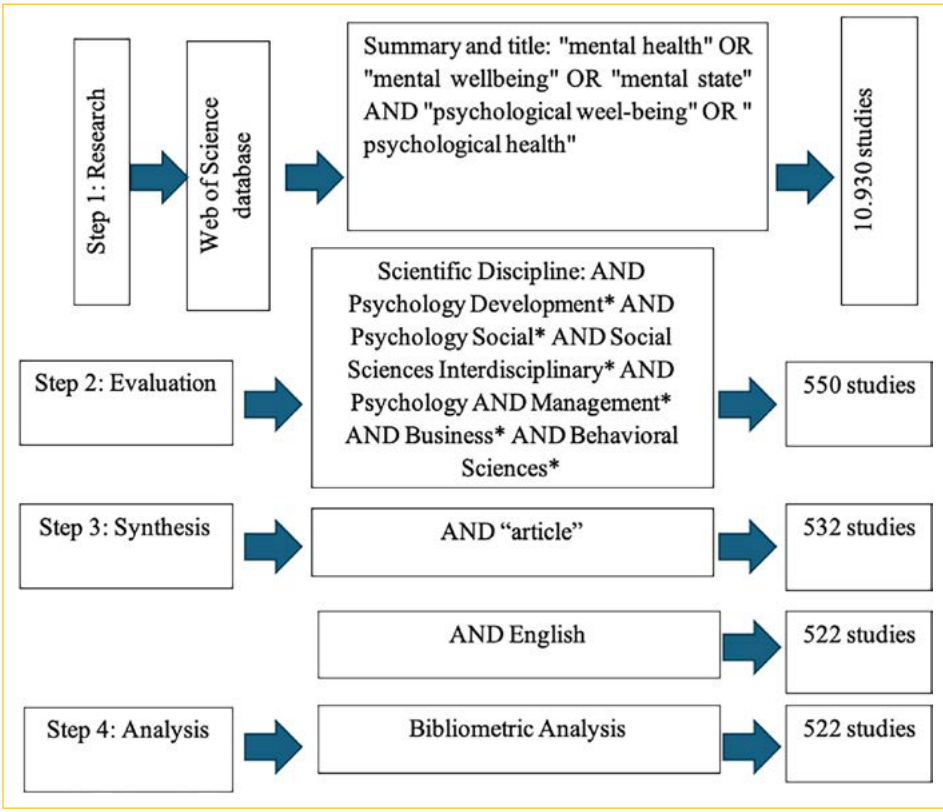

Figure 1. Steps in the SALSA data selection and analysis procedure.

SALSA: Search, Appraisal, Synthesis, Analysis.

Figure 2. Main Information.

3.8. The number of keywords was 1,510, and the total number of citations was 27,588. The average number of citations per document was 47.09, and the average document age was 7.24 years. The obtained data are presented in Figure 2.

The Evolution of Publications on Mental Health and Psychological Well-Being Over Time

Figure 3 shows the annual scientific output of key concepts, with low production in 1998, followed by a surge in 1999. An increase became evident in the late 2010s, reaching a peak in 2024 and then declining in 2025. The figure also presents average annual citation counts for mental health and psychological well-being. Citation rates peaked significantly between 1994 and 1996, declined after 1996, rose again in 2003, and then continued at a low and fluctuating level until a notable decrease in 2025.

Table 1 shows that Personality and Individual Differences is the leading journal, with 45 publications. Applied Research in Quality of Life follows with 31 articles. In terms of citations, Personality and Individual Differences also ranks first, with 2,837 citations. Another journal with a high total citation count is the Journal of Research in Personality. Overall, Personality and Individual Differences stands out as both the most productive and most cited journal, focusing on personality structure and individual differences.

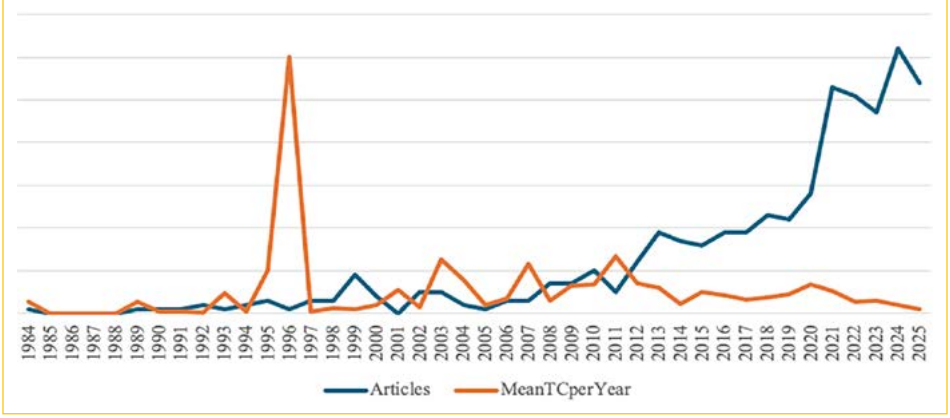

Figure 3. Annual scientific output and annual average citation counts.

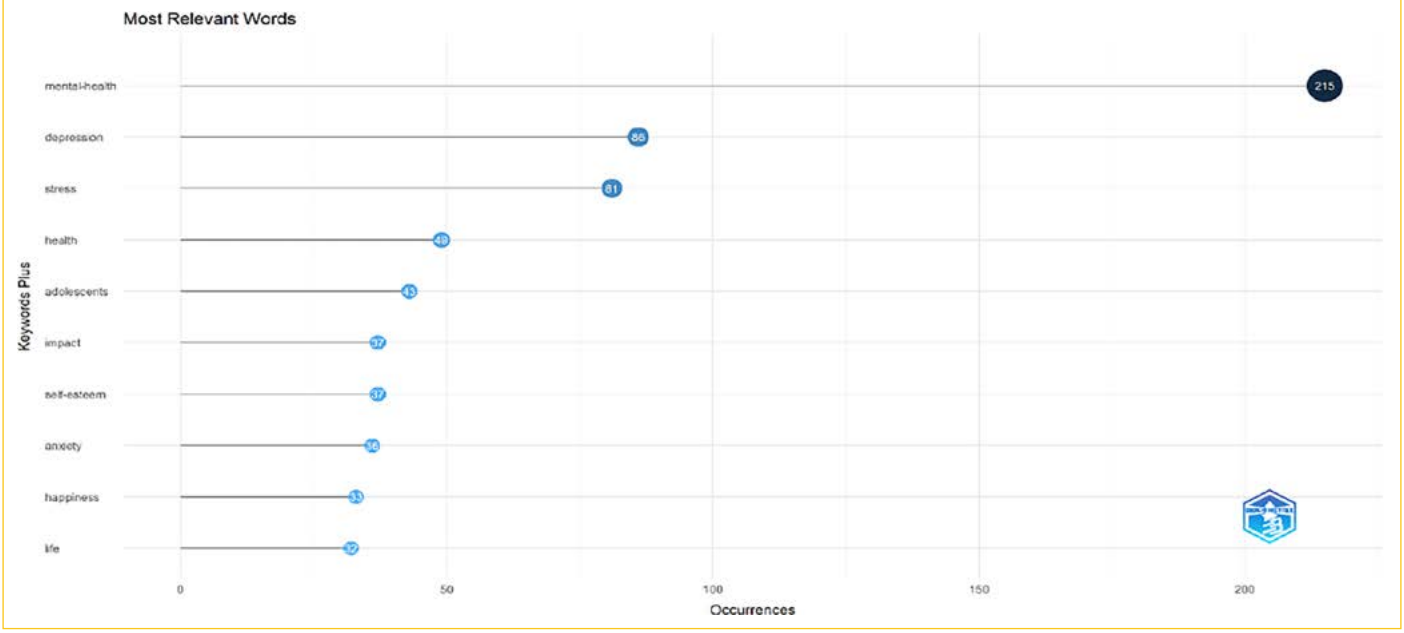

Figure 4. Most frequently used key concepts.

Figure 4 presents the 10 most frequently used concepts in mental health and psychological well-being. "Mental health" is the most dominant concept, with 215 occurrences, followed by depression (86), stress (81), and health (49). The frequencies of adolescents, impact, self-esteem, anxiety, happiness, and life range between 30 and 45.

Table 1. Most productive journals in the field of mental health and psychological well-being

Sources	Articles	Total number of citations
Personality and Individual Differences	45	2837
Applied Research in Quality of Life	31	369
Sage Open	18	44
Chıld Indicators Research	16	280
Journal of Adolescence	16	858
Journal of Autism and Developmental Disorders	16	628
Journal of Youth and Adolescence	15	815
Journal of Research in Personality	12	1888
Journal of Applied Social Psychology	11	279
International Journal of Adolescence and Youth	10	209

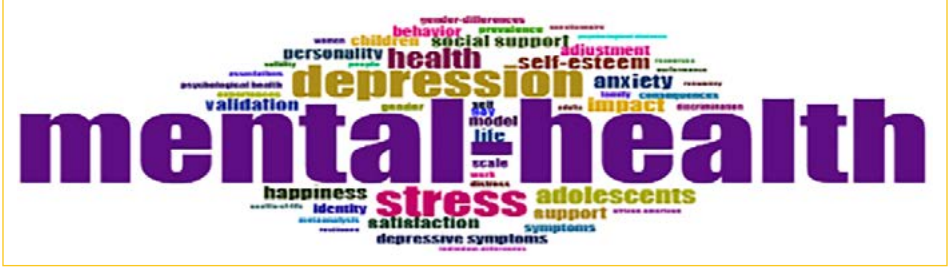

Figure 5. Word Cloud.

Figure 5 shows the word cloud of the key concepts, where "mental health" again appears as the most frequent term. It is followed by depression, stress, self-esteem, anxiety, happiness, and life as smaller but frequently used concepts. Overall, the word cloud confirms the frequency distribution of the key concepts.

Publication Capacities of Authors, Countries, and Universities in the Field of Mental Health and Psychological Well-Being

The 10 most productive authors among the 1,849 authors identified in the analysis are presented in Table 2. Creed PA is a key author in the field of mental health and psychological well-being, with 5 articles. Adler JM, Crocker J, and Hastings RP have contributed to the field with 4 articles. Crocker J stands out as the most cited researcher in the field, with 826 citations. Adler JM, with 448 citations, Fivush R, with 388 citations, and Jasinskaja-Lahti I, with 284 total citations, are among the notable researchers.

Table 2. Most productive authors in the field of mental health and psychological well-being

Authors	Article	Total citations
Creed Pa	5	217
Adler Jm	4	448
Crocker J	4	826
Hastings Rp	4	242
Arnold Src	3	184
Chen X	3	20
Fivush R	3	388
Jasinskaja-Lahti I	3	284
Joshanloo M	3	60
Kim J	3	52

A total of 823 universities contributed articles on the subject, while 364 universities contributed only one article each to the field. Table 3 lists the top 10 most productive universities in the field of mental health and psychological well-being. The most productive university was the University of Michigan, with 23 articles. Griffith University and Syracuse University followed with 17 and 16 articles, respectively, among the universities focusing on this field. There were 10 universities that published 10 or more publications related to the field.

The 522 research articles analyzed were authored by researchers from 56 different countries. Table 4 lists the top 10 most productive countries in terms of mental health and psychological well-being research and their total citations. The most productive country was the USA, with 139 articles. China (47), the United Kingdom (37), Australia (36), Canada (26), Spain (19), Italy (18), India (14), Germany (13), and the Netherlands (13) were among the top 10 most productive countries in terms of articles. When the total number of citations per country was examined, the USA emerged as a central country, with 13,251 citations. Countries such as Canada, Australia, the

Table 3. Most active universities in the field of mental health and psychological well-being

Affiliations	Articles
University of Michigan	23
Griffith University	17
Syracuse University	16
Chinese University of Hong Kong	11
King's College London	11
University of California, Los Angeles	11
University of Wisconsin	11
Monash University	10
University of California, Santa Barbara	10
University of Helsinki	10

Table 4. Most productive countries in the field of mental health and psychological well-being

Country	Articles	SCP	MCP	Total citations
USA	139	114	25	13251
China	47	38	9	668
United Kingdom	37	24	13	1205
Australia	36	29	7	1624
Canada	26	23	3	2541
Spain	19	15	4	383
Italy	18	16	2	205
India	14	13	1	135
Germany	13	8	5	260
Netherlands	13	10	3	1430

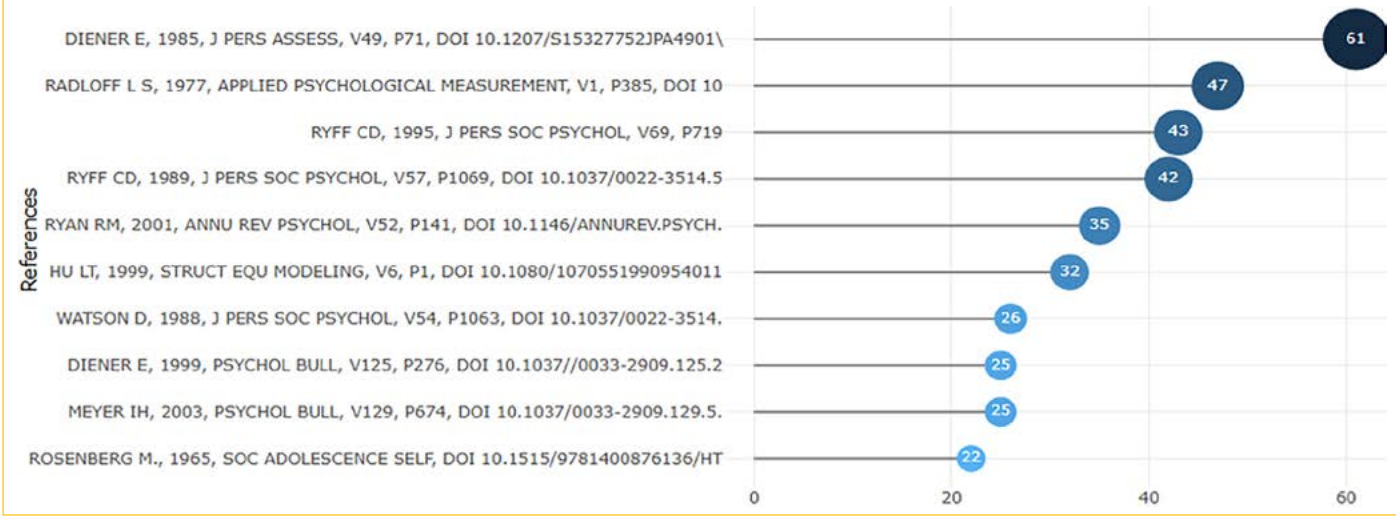

Figure 6. Most productive studies in the field of mental health and psychological well-being.

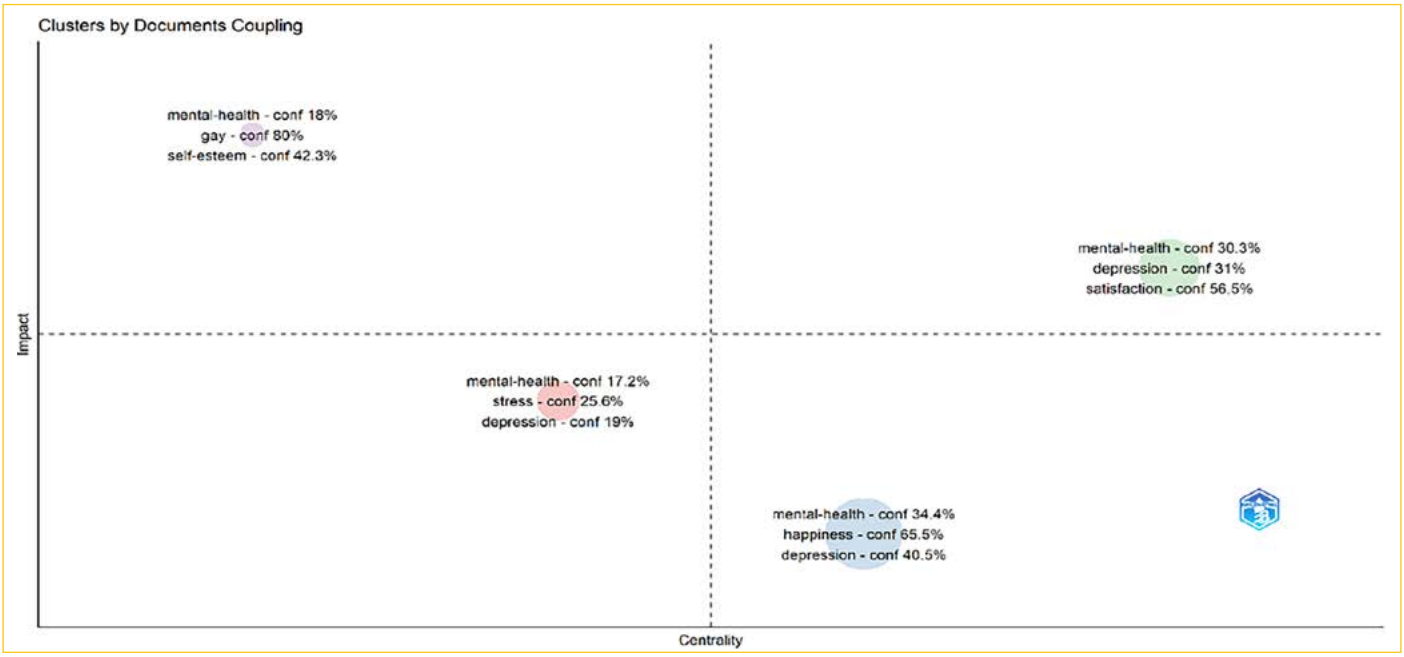

Figure 7. Thematic map related to mental health and psychological well-being.

Netherlands, and the United Kingdom were also active in the field. The SCP value identifies publications belonging to a single country, while MCP values represent multi-country publications. Again, the USA had the highest value in both single-country and multi-country publications.

Citation Analyses of Publications Related to Mental Health and Psychological Well-Being

Figure 6 shows the top 10 most cited studies among the 522 articles included in the study. E. Diener is the researcher with the highest citation count, at 61. L. S. Radloff ranks second, with 47 citations for his study "CES-D Scale: A Self-Report Depression Scale for Research in the General Population." Ryff CD's study "The Structure of Psychological Well-Being Revisited" received 43 citations, while his study "Happiness Is Everything, Right? Research on the Meaning of Psychological Well-Being" received 42 citations. The other six studies made significant contributions, with citation counts ranging from 20 to 35.

Thematic Map Analysis in the Field of Mental Health and Psychological Well-Being

In thematic map analysis, the main themes are examined in four clusters based on the dimensions of influence and centrality. While the intersection of the axes indicates average values, the size of the circles represents the level of contribution of the themes. Figure 7 shows the thematic map for the field of mental health and psychological well-being.

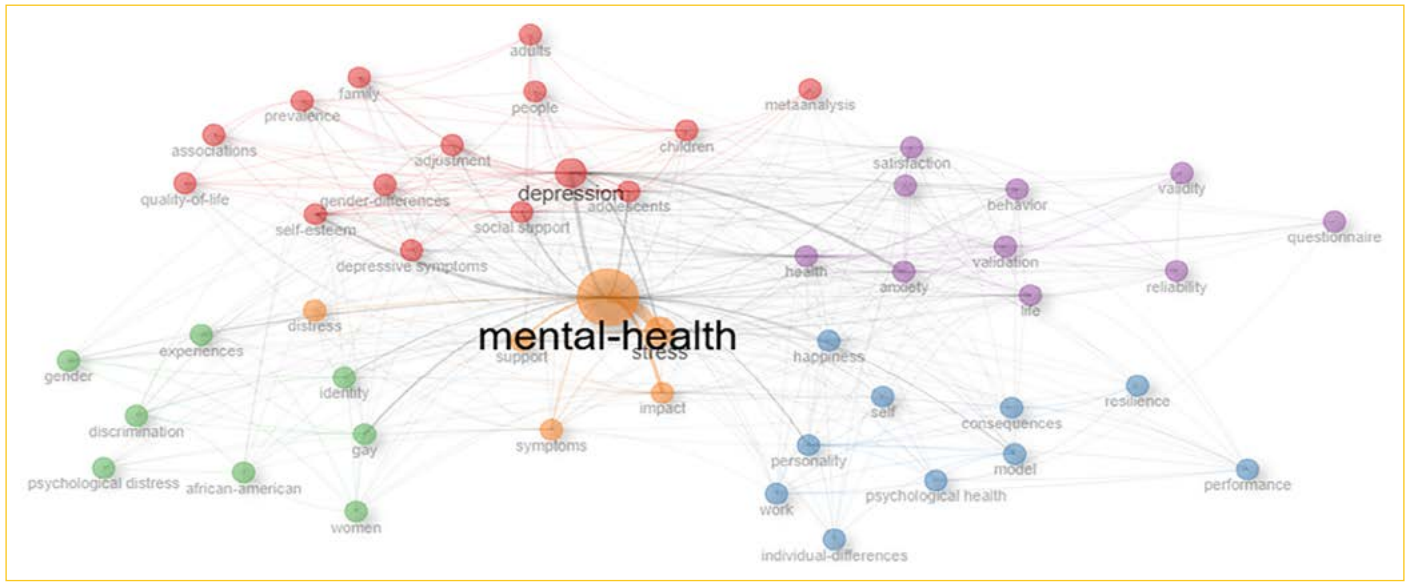

Figure 8. Concept synchronization network.

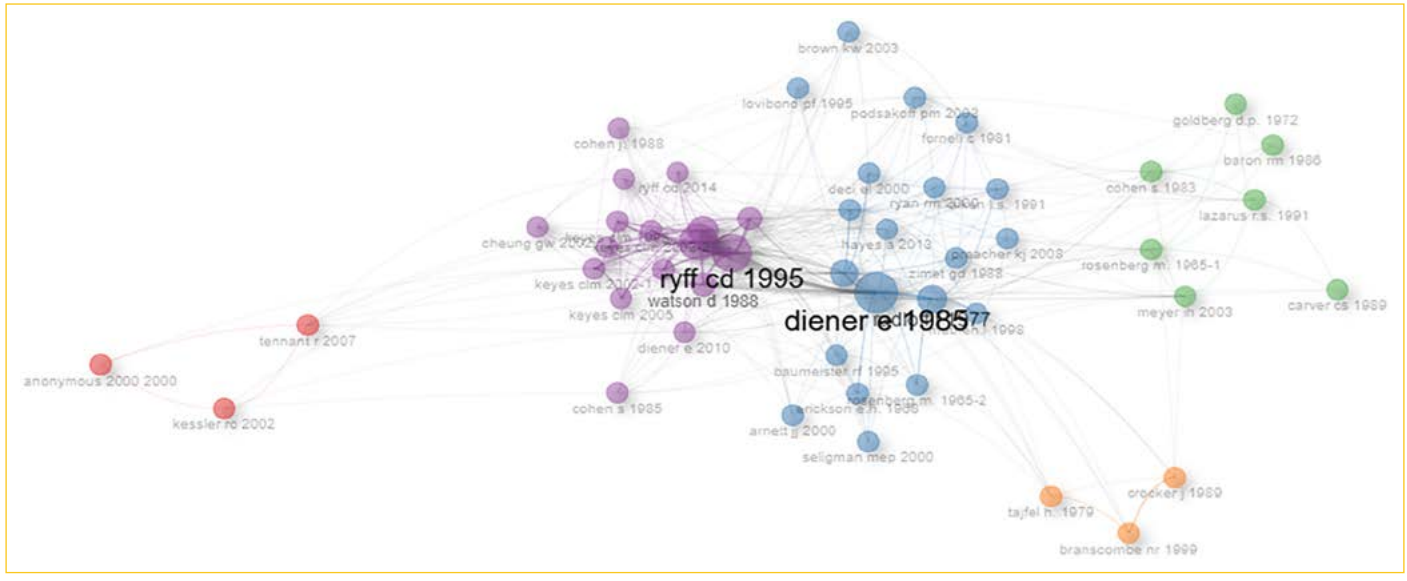

Figure 9. Citation network analysis in the field of mental health and psychological well-being.

When keyword positions were examined based on importance and frequency, the motor and central themes, such as "mental health," "depression," and "satisfaction," located in the upper-right quadrant, stood out in terms of both impact and centrality, forming the building blocks of the literature. The lower-right quadrant includes themes with high centrality but low development, such as "mental health," "happiness," and "depression." The lower-left quadrant represents undeveloped and narrower themes, including "mental health," "stress," and "depression," which appear to be emerging or declining. The upper-left quadrant includes influential but non-central themes such as "mental health," "gay-conf," and "self-esteem-conf," which have high impact but limited centrality in the overall structure.

To support this positioning, the co-occurrence network of key concepts is presented in Figure 8, aiming to show the conceptual structure and research directions. "Mental health" was identified as the most central concept, with its node size and connections indicating extensive links within the literature. Based on Figures 7 and 8, it also plays a central role alongside concepts such as "depression" and "stress."

Citation Network Analysis in the Field of Mental Health and Psychological Well-Being

The citation clustering method was used in the bibliometric analysis. This method presents the connections established between key concepts and their intensity. Figure 9 presents the citation network analysis of the field.

Table 5. Distribution of journals related to Bradford's Law

Zone	Number of journals	Number of articles	Journal percentage(%)
1	9	180	34.48
2	24	172	32.95
3	110	170	32.56
Total	143	522	100

The central part of the network is dense and large, showing the most frequently used and central concepts. Node size reflects concept frequency, while edge density indicates the strength of relationships between concepts. The purple cluster at the center forms the core of the literature. Diener E. (1985) and Ryff CD (1995) are located at the center, indicating that their works constitute the main line of mental health and psychological well-being research and are widely cited. Ryff CD is more strongly connected to the purple cluster, while Diener E. is closer to the blue cluster. The blue and purple clusters are closely linked and focus on deepening themes. The connection with the green cluster is moderate, while the orange cluster shows a more limited relationship. The red cluster has very weak connections with the center. Overall, Diener E. and Ryff CD appear to play a core role in the field.

Primary Sources According to Bradford's Law

Bradford's Law describes the distribution of literature in a specific field across journals. It ranks journals by productivity and divides them into zones containing an equal number of articles. The first zone includes the core journals with the highest number of relevant publications, while subsequent zones contain less productive journals.[23] The Bradford multiplier is used to analyze this distribution and is calculated as the ratio of journal numbers between successive zones, expressed as $1:n:n^2$.[24] The distribution of journals according to Bradford's Law is presented in Table 5.

According to the data in Table 5, 9 of the 522 research articles included in the analysis were published in core journals. A total of 24 articles were in the second tier, while 110 journals were in the third tier. The majority of citations in the region where core journals are located were made in the journals Personality and Individual Differences, Applied Research in Quality of Life, and Sage Open.

The distribution of journals and citations has progressed in line with Bradford's Law. In this context, the core journal groups presented in Figure 10 provide valuable information regarding the focus of the mental health and psychological well-being literature and the elimination of gaps in the field.

Discussion

According to the findings presented in this study, the field of mental health and psychological well-being has emerged around a strong core, but it has been concentrated in certain countries and universities in terms of publication and citation analysis. Expanding this field through international collaborations will contribute to strengthening the field and adopting new conceptual approaches in future studies. To address gaps

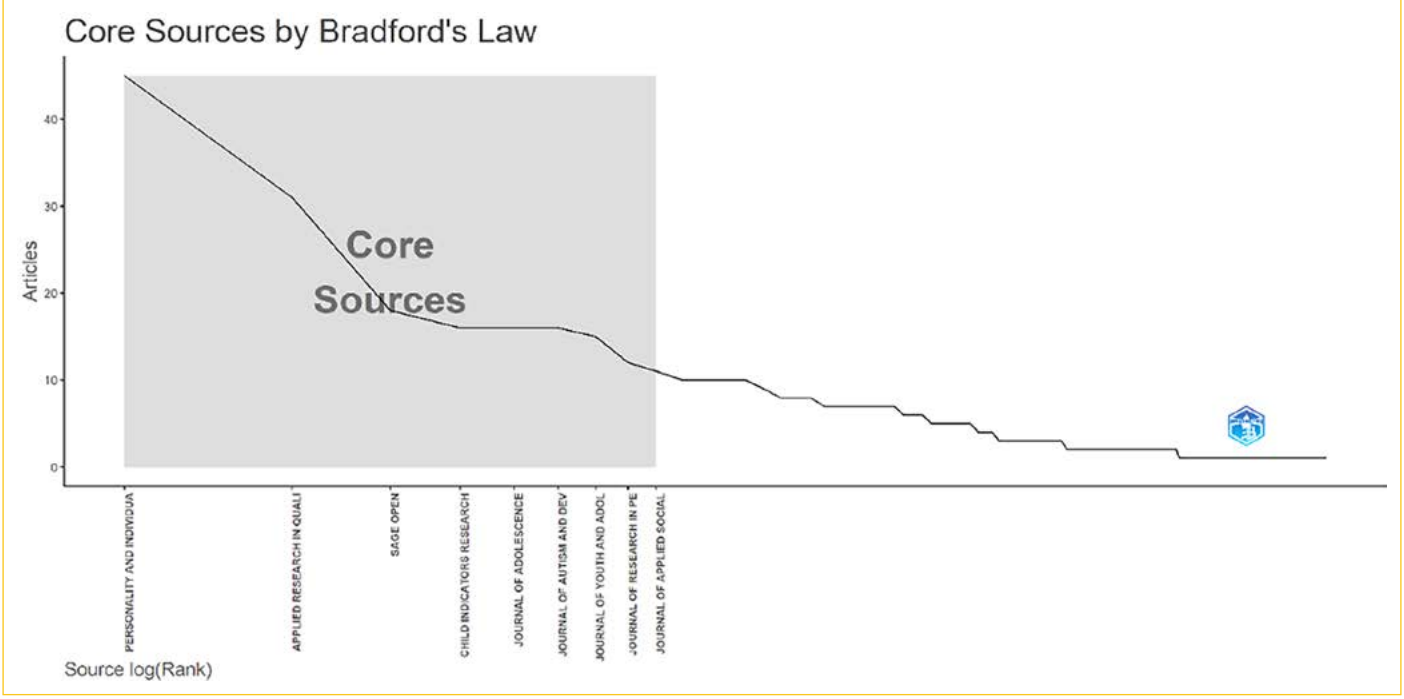

Figure 10. Primary resources according to bradford's law.

in the literature, it is recommended that the concepts identified in the thematic analysis be expanded to contribute to the formation of new thematic directions. By adding emerging themes such as digital well-being and ecological well-being to the literature, the field can be strengthened both theoretically and practically. In this context, the field can take on a more inclusive and innovative identity.

Limitations of the Study

The first limitation of this study is its dependence on a single database; the second limitation is the limited depth of content evaluation based on bibliometric analysis. The final limitation is the possibility that newly published articles may have received fewer citations due to insufficient time having passed.

Conclusion

This study shows that the field of mental health and psychological well-being is growing rapidly but is shaped around certain core factors. An analysis of 522 publications obtained from Web of Science revealed that production increased during the period, but citation dynamics fluctuated. The decline in 2025 indicates a decrease in the field's visibility. This situation can be explained by a shift in researchers' orientations or a transformation in general academic trends.

The fact that Personality and Individual Differences was identified as the journal with the most publications and citations in the field suggests that the main studies are related to individual differences. The fact that mental health, depression, and stress are the driving themes can be interpreted as the field being shaped by fundamental psychological values. The analysis of Creed PA's productivity and Crocker J's status as a reference point suggests that individual research dynamics may be decisive.

Institutionally, the dominance of the University of Michigan, Griffith University, and Syracuse University demonstrates their pioneering role in the field. The breadth of regional distribution highlights the international characteristics of the field.

Thematic analyses demonstrate that the concept of "mental health" forms a core that ensures the continuity of the field. This finding is supported by the co-occurrence network, revealing that the concept of "mental health" is a binding concept in the literature. The results of the citation network in the field reveal that the field is structured around researchers such as Diener E. and Ryff CD. This situation shows that the trend in the field is strongly based on specific studies and that the formation of the literature is shaped around these core keywords and researchers.

Research in the field of mental health and psychological well-being has been concentrated in a small number of core journals under Bradford's Law. The distribution pattern of journals aligning with Bradford's Law confirms that the field is centralized and focused on specific areas. The findings reveal critical implications for psychiatric nursing. The field's focus on mental health, stress, and depression highlights the critical role of psychiatric nurses in both preventive and therapeutic care phases. The emphasis on psychological well-being and individual differences underscores the necessity of personalized care, stress management, and the strengthening of resilience. Additionally, it highlights the need to strengthen evidence-based and theory-grounded approaches in both the practice and education of psychiatric nursing.

Ethics Committee Approval: The data used in the study are secondary data; therefore, no ethics committee approval is required in this context.

Informed Consent: Informed consent was obtained from all participants involved in the study.

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

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Use of AI for Writing Assistance: The authors declared that artificial intelligence was not used in the study.

Authorship Contributions: Concept – F.B., H.H.Ö., Ş.Y.; Design – F.B., H.H.Ö.; Supervision – F.B., H.H.Ö., Ş.Y.; Resource – F.B., H.H.Ö.; Materials – F.B., H.H.Ö., Ş.Y.; Data collection and/or processing – F.B., H.H.Ö., Ş.Y.; Analysis and/or interpretation – F.B., H.H.Ö.; Literature search – F.B., H.H.Ö., Ş.Y.; Writing – F.B., H.H.Ö.; Critical review – F.B., H.H.Ö., Ş.Y.

Peer-review: Externally peer-reviewed.

References

1. World Health Organization. World mental health report: Transforming mental health for all. 2022. Available at: https://www.who.int/publications/i/item/9789240049338. Accessed June 26, 2026.
2. Akgül İ. Ruh sağlığı ve sosyal politika. TJCL 2024;15:321–36. [Article in Turkish]
3. Çakmak C, Konca M. Seçilmiş OECD Ülkelerinin Ruh Sağlığı Hizmetleri Performansının Değerlendirilmesi. Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi 2019;7:51–6. [Article in Turkish]
4. Kıcır B. Evden çalışmanın iş-yaşam dengesine etkisi: çevirmenler üzerinde bir araştırma [Doctoral Dissertation]. Kocaeli: Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü; 2015. [In Turkish]
5. Ramchand R, Rudavsky R, Grant S, Tanielian T, Jaycox L. Prevalence of, risk factors for, and consequences of posttraumatic stress disorder and other mental health problems in military populations deployed to Iraq and Afghanistan. Curr Psychiatry Rep 2015;17:37.
6. Keleş HN. Anlamlı iş ile psikolojik iyi oluş ilişkisi. J Happiness Well-Being 2017;5:154–67. [Article in Turkish]

7. Karaçam A, Pulur A. Beden Eğitimi öğretmenlerinin başarı algılarında yordayıcı olarak akademik iyimserlik, psikolojik iyi oluş ve fiziksel öz saygı. Kastamonu Eğitim Dergisi 2019;27:209–18. [Article in Turkish]
8. Demirci İ, Şar AH. Kendini bilme ve psikolojik iyi oluş arasındaki ilişkinin incelenmesi. itobiad 2017;6:2710–28. [Article in Turkish]
9. Ramadan FH, Aly Yakout R. Psychological wellbeing and communication styles among medical surgical nursing students. IOSR Journal of Nursing and Health Science 2017;6:75–85.
10. Kermen U, İlçin Tosun N, Doğan U. Social phobia as predictor of life satisfaction and psychological well-being. JETPR 2016;2:20–9. [Article in Turkish]
11. Maddux JE, editor. Subjective well-being and life satisfaction: a social psychological perspective. 1st ed. New York: Routledge/Taylor & Francis Group; 2018.
12. Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. J Pers Soc Psychol 1989;57:1069–81.
13. Ryff CD. Psychological well-being revisited: advances in the science and practice of eudaimonia. Psychother Psychosom 2014;83:10–28.
14. Arslantaş H. Ruh sağlığı ve psikiyatri hemşireliğinde etik konular, kodlar ve standartlar. J Psy Nurs 2015;6:47–56. [Article in Turkish]
15. Stewart D. The global mental health nursing workforce. Geneva: World Health Organization; 2007.
16. Merigó JM, Yang JB. A bibliometric analysis of operations research and management science. Omega (United Kingdom) 2017;73:37–48.
17. Güney C. Türkiye'de "vergi denetimi" konusunda yazılmış lisansüstü tezlerin bibliyometrik analizi (1984–2018). In: Türkiye Vizyonu: Multidisipliner Çalışmalar 2019. Ekin Yayınevi; 2019. p. 572–95. [In Turkish]
18. Aslancı S. Araştırma sorgulamaya dayalı öğrenme : bibliyometrik bir analiz. SES 2022;6:1–25. [Article in Turkish]
19. Uludağ Üniversitesi Kütüphanesi. Web of Science. Bursa: Uludağ Üniversitesi; 2025. Available from: https://uludag.edu.tr/kutuphane/web-of-science-78194. Accessed June 26, 2026.
20. Aria M, Cuccurullo C. bibliometrix: An R-tool for comprehensive science mapping analysis. Journalof Informetrics 2017;11:959–75.
21. Umut-Zan B. Türkiye'de bilim dallarında karşılaştırmalı bibliyometrik analiz çalışması [Unpublished doctoral dissertation]. Ankara: Ankara Üniversitesi, Sosyal Bilimler Enstitüsü; 2012. [In Turkish]
22. Şahin S, Acun A. Turist rehberliği alanının bibliyometrik profili (ulusal turizm kongreleri bildirileri). BAUNSOBED 2015;18:213–234. [Article in Turkish]
23. Tonta Y, Al U. Türkçe makalelerin dergilere dağılımı ve Bradford yasası. Bilgi Dünyası 2008;9:41–66. [Article in Turkish]
24. Mercy Clarance M, Raja S. Growth and Bradford's law of scattering on research publication in genetic engineering research in India. Journal of Xidian University 2020;14:1587–99.

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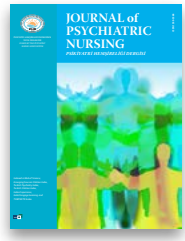

Original Article

Imposter syndrome and perceived clinical competency in nursing students in the UAE: A cross-sectional study

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Abstract

Objectives: Imposter syndrome (IS) is characterized by persistent self-doubt, fear of being exposed as incompetent, and attribution of success to external factors. Nursing students are particularly vulnerable due to high-stakes clinical training, which may affect perceived clinical competence and patient safety. This study examined the prevalence of IS and its relationship with perceived clinical competency among nursing students in the United Arab Emirates (UAE).

Methods: A cross-sectional survey was conducted across three UAE nursing campuses (Ras Al Khaimah, Fujairah, and Sharjah) between February and March 2025. A total of 294 students from the second year onward participated. Data were collected using the Clance Impostor Phenomenon Scale (CIPS) and the Clinical Competence Questionnaire (CCQ). Descriptive statistics, Pearson correlation, ANOVA, and regression analyses were used to explore associations between IS, clinical competency, and demographic/academic variables.

Results: Imposter syndrome was prevalent, with younger, less experienced, lower-GPA, and early-year students reporting higher scores. Clinical competency increased with academic progression, GPA, and experience, showing an inverse correlation with IS ($r=-0.757$, $p<0.001$). Regression analysis indicated experience duration ($\eta^2=0.133$), academic year ($\eta^2=0.120$), and GPA ($\eta^2=0.064$) as significant predictors of IS, while academic year, experience, and GPA predicted clinical competency ($\eta^2=0.230$, 0.203, and 0.143, respectively).

Conclusion: Imposter syndrome is common among UAE nursing students and negatively associated with perceived clinical competence. Targeted interventions, including mentorship, reflective practice, and experiential training, may reduce IS and enhance clinical readiness, supporting both student development and patient safety.

Keywords: Clinical competence; cross-sectional study; imposter syndrome; nursing students; UAE

Imposter syndrome (IS) is a psychological pattern in which individuals doubt their abilities, attribute their success to external factors such as luck, and fear being exposed as incompetent despite clear evidence of their skills. Since its identification in the late 1970s, IS has gained attention due to its links with anxiety, depression, burnout, and reduced professional confidence.[1] These effects are particularly concerning in health professions education, where students must quickly develop clinical skills, critical thinking, and decision-making abilities. For nursing students, who transition between theoretical learning and clinical practice, IS can hinder learning and potentially compromise safe patient care.[2]

Nursing students are especially prone to imposter feelings due to the high-pressure nature of their training, which involves constant evaluation and minimal tolerance for mistakes. Research indicates that students experiencing IS are more likely to hesitate to ask questions, avoid feedback, and doubt their clinical decisions, limiting their learning and professional de-

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velopment.[3,4] For instance, fear of judgment may lead a student to avoid performing procedures or taking on leadership roles during clinical placements, reducing opportunities to gain practical experience and build competence. As a result, IS not only affects individual well-being but can also impair team communication, delay clinical decision-making, and potentially compromise patient safety.[5] Consequently, IS has implications beyond individual well-being: it can negatively affect team communication, slow clinical decision-making, and indirectly threaten patient safety.[6]

Globally, the prevalence of IS in health-related education varies but is consistently noteworthy. Studies from the Middle East report prevalence estimates that highlight the scope of the problem among medical and allied health students. IS prevalence among medical students ranged between 23% and 57%, with clear links to lower self-esteem and difficulties during clinical transitions.[7] Al Lawati[8] found that over one-third of students at Sultan Qaboos University experienced moderate to severe impostor feelings, with women reporting higher rates than men. Systematic reviews further underscore the importance of the phenomenon: Bravata and colleagues [9] synthesized evidence from more than 6,000 participants across 32 studies and documented IS rates ranging from 9% to 82%, while also highlighting strong associations with anxiety, depression, and burnout.

Within nursing education, evidence suggests that IS is common and rising. Scanlan et al.[10] reported that a large proportion of graduate nursing students experienced moderate to intense impostor feelings, and Benjamin et al.[11] described an upward trend in IS prevalence among undergraduate cohorts. Personal traits such as perfectionism and self-criticism are frequently implicated in IS,[12] while environmental factors such as unsupportive clinical placements, lack of mentorship, and inadequate opportunities for recovery also play a substantial role.[13] The combined influence of personal predispositions and institutional culture explains why IS persists even among students who receive positive assessments from instructors; their subjective experience of incompetence can contradict objective measures of performance.

The potential consequences of IS for clinical competence are well documented. Medline et al.[14] found that IS and perfectionism were associated with increased burnout and lower self-rated clinical competence among medical students. Similarly, Gillespie et al.[15] reported that nurses with greater education and experience expressed higher levels of perceived competence, suggesting that confidence grows through practice and that novice learners remain at greater risk of impostor feelings. Students affected by IS may misinterpret constructive feedback as criticism or fail to seek clarification in critical moments, undermining clinical learning and increasing the risk of clinical errors. Therefore, addressing IS is not purely a well-being initiative but also a pedagogical and patient-safety priority.

What is presently known on this subject?

- Previous research has established that imposter syndrome is common among health profession students, including nursing students, and is associated with anxiety, burnout, and reduced self-efficacy.
- It is well documented that clinical competence improves with academic progression, practical experience, and supportive learning environments.

What does this article add to the existing knowledge?

- In addition, IS has been shown to negatively influence learning behaviors, such as reluctance to seek feedback, hesitation to perform procedures, and avoidance of leadership roles during clinical training.

What are the implications for practice?

- This study provides the first systematic evidence of the prevalence and severity of imposter syndrome among nursing students in the UAE, highlighting its strong inverse relationship with perceived clinical competence in a multicultural cohort.
- It identifies key predictors of both IS and competency, including academic year, GPA, and clinical experience, offering actionable insights for educational interventions.
- Furthermore, the study emphasizes the importance of integrating mentorship, reflective practice, and structured clinical exposure to simultaneously enhance student competence and reduce imposter feelings, ultimately improving professional readiness and patient safety.

From a psychiatric nursing perspective, imposter syndrome reflects maladaptive cognitive and emotional responses to stress, characterized by distorted self-appraisal, persistent self-doubt, and heightened anxiety despite objective competence. These features align with cognitive patterns commonly observed in anxiety-related conditions, including negative self-talk, fear of evaluation, and excessive self-monitoring. In nursing students, such patterns can impair emotional regulation, confidence, and adaptive coping during clinical learning. Psychiatric nursing theory emphasizes the interaction between individual vulnerability and environmental stressors. Role transition, frequent evaluation, and high clinical expectations may intensify impostor feelings, particularly in learners with perfectionistic traits or limited psychological safety. When unaddressed, IS may contribute to anxiety, burnout, and disengagement from learning; when recognized early, it can be mitigated through supportive supervision, reflective practice, and mentorship. Framing IS within psychiatric nursing underscores its relevance to student mental health, clinical readiness, and resilience development.[16]

Research has also explored effective approaches to mitigate IS. Interventions such as mentorship programs, structured peer support, reflective practice, and workshops aimed at normalizing failure and reframing performance expectations have shown promise. Siddiqui et al.[17] reported that structured group sessions helped clinical nurse specialists reduce impostor feelings and improve self-efficacy. Similarly, institutional measures that foster inclusive cultures and validate

achievements appear to buffer against IS, as evidenced by studies that link social support and positive feedback to lower impostor experiences.[18] These findings suggest that targeted educational strategies can reduce the incidence and impact of IS among trainees. Despite a growing international literature, important gaps remain, especially in the Middle Eastern context. The United Arab Emirates (UAE) represents a distinct educational and cultural environment: its nursing student population is diverse in nationality and background, and its health sector is experiencing rapid expansion and modernization. To date, there has been little systematic study of IS among nursing students in the UAE, which limits the ability of educators and policymakers to design context-appropriate interventions. Cultural factors, institutional expectations, and the composition of student cohorts may shape the prevalence and manifestation of IS, making region-specific research essential for effective policy and curriculum design.

This study addresses that gap by investigating the prevalence of imposter syndrome and its relationship with perceived clinical competency among nursing students in the UAE. Its novelty lies in applying established constructs and validated measurement tools to a multicultural cohort within a rapidly developing health education system, thereby extending the evidence base beyond traditionally studied Western contexts. By examining how IS relates to students' self-assessed clinical competence, the study aims to clarify whether impostor feelings translate into reduced perceived readiness for clinical practice and to identify potential points of intervention within the educational environment. The problem motivating this research is straightforward and urgent: when nursing students doubt their abilities and avoid essential clinical learning experiences, both their professional development and patient care quality suffer. Students who experience IS may decline to perform procedures, shy away from critical decision-making, and avoid seeking feedback, behaviors that impede skill acquisition and perpetuate a cycle of increased self-doubt.[19] Over time, these patterns can lead to decreased preparedness for clinical practice, impaired team communication, and reduced resilience in the face of workplace stressors. The significance of the present study is threefold. First, it fills a critical empirical gap by providing the first systematic investigation of IS among nursing students in the UAE, producing data that can inform local educational policy. Second, it evaluates the relationship between psychological factors and perceived clinical competence, yielding actionable insights for curriculum designers, clinical educators, and student support services. Third, the study has practical implications for workforce development: by identifying modifiable institutional and pedagogical factors that contribute to IS, the results can guide interventions such as mentorship schemes, reflective learning opportunities, and resilience-building workshops that strengthen students' confidence, reduce the risk of burnout, and improve patient safety. In conclusion, imposter syndrome represents a pervasive and multifaceted challenge for nursing education. Addressing it requires both individual-level support and systemic changes to educational culture. By situating this investigation within the UAE context, the current study contributes novel, locally relevant evidence to the global conversation about how best to prepare competent, confident nurses for contemporary health systems. This study aimed to explore the relationship between imposter syndrome and perceived clinical competency among second-year and higher-level nursing students in the UAE.

Materials and Method

Research Design

A cross-sectional predictive study design was utilized, which involved collecting data at a single point in time. This design is suitable for identifying correlations between variables, such as impostor syndrome and clinical competency, without requiring long-term follow-up. It also allows for efficient and cost-effective data collection, making it ideal for studies conducted under time or resource constraints. By examining participants at one point in their academic journey, this study aimed to capture a snapshot of trends and relationships within the target population.

Study Hypotheses

H1: A significant inverse relationship will exist between imposter syndrome and perceived clinical competency among nursing students.

H2: Academic year, clinical experience duration, and GPA will serve as significant predictors of imposter syndrome among nursing students.

H3: Academic year, clinical experience duration, and GPA will serve as significant predictors of perceived clinical competency among nursing students.

Research Setting

The study was conducted across three campuses in the United Arab Emirates: Ras Al Khaimah, Fujairah, and Sharjah. These campuses serve a diverse nursing student population and provide modern facilities, including simulation laboratories and clinical practice areas. Conducting the study across multiple campuses increased the generalizability of the findings and offered insights into regional differences in learning environments. An online survey format was used to ensure convenience and accessibility for all students, regardless of their location, allowing for broader participation and more representative results.

Research Population and Sample

The target population included nursing students enrolled in nursing programs from the second year onward, excluding first-year students. The target population for this study comprised approximately 800 nursing students enrolled from the second year onward across three campuses in the United Arab Emirates. The minimum required sample size was initially estimated using Slovin's formula with a 95.5% confidence level, yielding a required sample of 294 participants. This approach was appropriate for determining a representative sample from a finite population in a cross-sectional survey design. Following data collection, a post hoc power analysis was conducted to assess the adequacy of the achieved sample size for detecting statistically meaningful relationships between imposter syndrome and perceived clinical competency. Based on the observed strong negative correlation between imposter syndrome and clinical competency ($r=-0.757$), with a significance level set at $\alpha=0.05$, the achieved sample size of 294 participants provided statistical power exceeding 0.90. This confirms that the study was sufficiently powered to detect large associations between the key study variables.

Data for this study were collected over a two-month period, from February to March 2025, using a structured online survey developed through Google Forms. This platform was selected because it ensured accessibility, convenience, and anonymity for participants while allowing the researcher to efficiently manage responses from multiple campuses. The survey link was distributed electronically to nursing students enrolled in nursing programs across the Ras Al Khaimah, Fujairah, and Sharjah campuses. To reach the target group, coordination was made with program coordinators and faculty members, who shared the link through official student communication channels, including institutional emails and learning management systems.

Before beginning the survey, students were presented with an informed consent page. This page described the study purpose, procedures, voluntary nature of participation, and confidentiality measures. Only students who agreed to the consent statement could proceed to the questionnaire. To maintain anonymity, the survey was designed not to collect names, student IDs, or any personally identifiable information.

The inclusion criteria were nursing students enrolled in undergraduate nursing programs across the Ras Al Khaimah, Fujairah, and Sharjah campuses; students in the second year or above, ensuring exposure to clinical training and direct patient care; students who had completed at least one clinical placement or practicum; students who were able to read and understand English, the language of the survey instruments; and students who voluntarily agreed to participate and provided informed consent. The exclusion criteria were first-year nursing students, as they had not yet commenced formal clinical training; students who were on academic leave, internship suspension, or not actively enrolled during the data collection period; students who submitted incomplete questionnaires or withdrew consent before completing the survey; and non-nursing students or students enrolled in other health-related programs.

The questionnaire itself was divided into three sections:

Data Collection Tool

A structured, self-administered questionnaire was used, integrating two validated instruments: the Clance Impostor Phenomenon Scale (CIPS) and the Clinical Competence Questionnaire (CCQ). The questionnaire included three main sections:

Participant Demographics

This section collected information on age, academic level, GPA, social status, campus, and clinical experience. These data provided context for analyzing trends and patterns in the relationship between impostor syndrome and clinical competencies.

Clance Impostor Phenomenon Scale (CIPS)

Impostor syndrome among nursing students was measured using the Clance Impostor Phenomenon Scale (CIPS), a widely recognized and validated instrument developed by Pauline Clance in 1985. The CIPS has been extensively used in health sciences and education research to assess the extent to which individuals experience impostor-related thoughts and feelings. The tool consists of 20 self-report items, each designed to capture different aspects of impostor experiences, such as self-doubt, fear of being exposed as incompetent, discounting achievements, and attributing success to external factors such as luck. Items were rated on a five-point Likert scale ranging from 1 (not at all true) to 5 (very true). Higher scores reflect stronger agreement with impostor-related statements and indicate greater intensity of impostor experiences.

To interpret the results, individual item scores were summed to generate a total score, which was then categorized into four levels of impostor syndrome severity:

- **≤40:** Few impostor characteristics (minimal impact on daily functioning)
- **41–60:** Moderate impostor experiences (noticeable but manageable traits)
- **61–80:** Frequent impostor feelings (stronger influence on self-confidence and performance)
- **>80:** Intense impostor experiences (significant impact on well-being and self-perception)

The CIPS has demonstrated strong internal consistency reliability in previous studies, with Cronbach's alpha values typ-

ically above 0.85, confirming its suitability for research in academic and professional populations. Its application in this study provided a robust measure for identifying the prevalence and severity of impostor syndrome among nursing students and facilitated analysis of its potential relationship with perceived clinical competencies.[20]

Clinical Competency Assessment (CCQ)

Nursing students' perceived clinical competence was measured using the Clinical Competence Questionnaire (CCQ), a validated self-report tool originally developed by Liu, Wang, and colleagues in 2009 to assess nursing students' clinical performance in educational settings. The CCQ has since been widely applied in nursing education research due to its comprehensive assessment of essential clinical competencies, attitudes, and practical skills. The questionnaire is divided into three main domains, each addressing a different dimension of clinical competence: (1) The competency domain contains 47 items rated on a five-point Likert scale ranging from 1 (do not have a clue) to 5 (competent without supervision). It covers areas such as patient care, communication, technical procedures, documentation, teamwork, and safety practices. Higher scores indicate greater self-perceived competence across diverse clinical tasks. (2) The attitude domain contains eight items rated on a five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. It assesses students' motivation, confidence, and professional outlook toward clinical practice. Total scores range from 8 to 40, with higher scores reflecting more positive and motivated attitudes. (3) The practice domain consists of 13 multiple-choice questions testing knowledge of clinical procedures and practices. Correct responses are scored 1, and incorrect responses are scored 0, yielding a total score of 0–13. Scores of 7–13 represent adequate practice knowledge, while scores of 0–6 highlight areas for improvement. The CCQ has demonstrated strong psychometric properties, with reported Cronbach's alpha values typically above 0.80 across domains, confirming its internal consistency and reliability. Its use in this study provided a holistic measure of students' self-perceived competence by combining technical skills, professional attitudes, and practice knowledge. By employing the CCQ, the study ensured a robust and multidimensional evaluation of nursing students' clinical competence, which allowed for meaningful exploration of its relationship with impostor syndrome.[21]

Data Analysis

Data analysis combined descriptive and inferential methods. Descriptive statistics were used to describe participant demographics and summarize the CIPS and CCQ results. Pearson correlation analysis was used to assess the association between impostor syndrome and perceived clinical competence, providing insight into how self-doubt may influence nursing students' confidence and perceived skill levels. ANOVA was also performed. Multiple linear regression analysis was conducted using the enter method to identify predictors of imposter syndrome and perceived clinical competence. Standardized beta (β) coefficients, 95% confidence intervals (CIs), and p-values were reported to facilitate comparison of the relative contribution of each predictor variable. Model assumptions, including normality, linearity, and multicollinearity, were assessed and met. The significance level was set at $p<0.05$ for all statistical tests.

Ethical Considerations

Ethical approval for this study was obtained from the Research Ethics and Integrity Committee (REIC2025-CAP01) prior to data collection. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. All participants were fully informed about the purpose of the research, study procedures, and their rights as research participants. Participation was entirely voluntary, and informed consent was obtained electronically before completion of the questionnaire. To ensure confidentiality and privacy, no identifying information was collected. All data were stored securely on password-protected systems accessible only to the research team. Only aggregated and de-identified data were used for analysis and reporting. These measures minimized potential risks to participants and ensured compliance with international ethical standards for research involving human subjects.

Results

Sample Characteristics

A total of 294 participants participated in the current study and completed the study surveys. The study sample had a mean age of 20.85 years (SD=1.77). Most participants were single (78.6%), while 18.4% were married. Academically, 37.4% were in Year 4, followed by 33.0% in Year 3 and 29.6% in Year 2. Most students had a GPA between 2.6 and 3.0 (37.41%), while 30.27% had a GPA of 3.1–3.5. Campus distribution was fairly even, with 34.7% from Fujairah, 33.7% from RAK, and 31.3% from Sharjah. Regarding clinical experience, 30.56% had more than two years, while 25.00% had between 12 months and two years, highlighting a diverse range of hands-on training. Table 1 details these results.

Clance Imposter Phenomenon Scale (CIPS)

The survey results revealed significant concerns among participants regarding self-doubt, fear of failure, and difficulty accepting success. A considerable proportion of participants reported that they "sometimes" (30.82%) and "often" (23.29%) feared failing new assignments despite generally perform-

Table 1. Sample Characteristic of the participant (n=294)

Item	n	%
Age, mean (SD)	20.85 (1.77)	
Academic level		
Year 4	110	37.4
Year 3	97	33.0
Year 2	87	29.6
GPA		
2.6–3	110	37.41
3.1–3.5	89	30.27
2.0–2.5	57	19.39
3.6–4	32	10.88
Below 2.0	6	2.04
Social status		
Single	231	78.6
Married	54	18.4
Widowed	5	1.7
Divorced	4	1.4
Campus		
Fujairah	102	34.7
RAK	99	33.7
Sharjah	92	31.3
Unspecified	1	0.3
Clinical experience		
More than 2 years	88	30.56
12 months to 2 years	72	25.00
6 months to 11 months	64	22.22
Less than 6 months	64	22.22

SD: Standard deviation.

ing well. Similarly, 26.62% "often" and 11.95% "very true" believed their success was due to an error. Many attributed their achievements to external factors, with 26.37% "often" and 11.64% "very true" feeling that their success was due to luck, while 28.23% "often" thought it resulted from being in the right place at the right time. Difficulty accepting praise was also evident, as 22.68% "often" and 14.09% "very true" struggled to accept recognition for their intelligence or accomplishments. Moreover, 31.74% "sometimes" and 23.55% "often" compared themselves with others, believing their peers were more capable. Perfectionism was also a concern, with 28.67% "sometimes" and 23.21% "often" feeling disappointed in their achievements. These findings suggest that imposter syndrome is prevalent and may affect confidence and professional growth. Detailed results are presented in Table 2.

Clinical Competence Questionnaire (CCQ)

The survey results indicated varying levels of competency and confidence among participants in key nursing skills. Health and safety measures showed strong proficiency, with 28.91% fully competent without supervision, while 21.09% lacked confidence in practice. Preventing patient injury had a balanced distribution, with 25.85% requiring supervision and 25.85% fully competent. Adherence to confidentiality was high, with 27.55% fully competent. Critical thinking in patient care was well developed, although 19.05% lacked confidence. Communication skills with patients and healthcare professionals were solid, with 28.57% and 28.91% requiring minimal supervision, respectively.

Regarding clinical procedures, performing venipuncture (16.33%), blood transfusion (17.35%), and catheter insertion (19.39%) had the highest percentages of students who were unfamiliar with these skills. For oral medication administration, 28.23% were fully competent, while 22.45% were fully confident in IV medication administration. Wound dressing care was well practiced, with 25.17% demonstrating full competency. These findings suggest that targeted training may be needed for invasive procedures while reinforcing existing competencies in foundational skills. Detailed results are presented in Table 3.

Impostor Syndrome Across Demographic and Academic Variables

The findings of this study support the proposed hypotheses. The results also revealed notable demographic and academic differences in imposter syndrome levels. Higher scores were consistently observed among younger students (≤20 years), Year 2 students, those with a GPA below 2.0, individuals with less than six months of clinical experience, and divorced students. ANOVA tests confirmed significant differences across age, academic year, GPA, experience duration, and marital status, while campus location was not a significant factor. Furthermore, the negative correlation between age and impostor syndrome ($r=-0.65$, $p<0.001$) suggests that impostor feelings decrease with age and maturity. Table 4 details these results.

Clinical Competency Scores by Demographic and Academic Variables

Clinical competency was highest among Year 4 students, those with high GPAs (3.6–4.0), and students with >2 years of clinical experience, and lowest among Year 2 students, students with a GPA <2.0, and those with <6 months of experience. Academic year, GPA, and experience duration were statistically significant predictors of competency, while marital status and campus location were not. These findings support the proposed hypothesis. A significant negative correlation ($r=-0.757$, $p<0.001$) indicated that students with higher competency reported lower impostor syndrome. Overall, competency improved with academic progression and experience, showing an inverse pattern to impostor syndrome. Table 5 details the results.

Table 2. Clance imposter phenomena scale (CIPS) (n-294)

Item	1 Not at all true n (%)	2 (rarely) n (%)	3 (sometimes) n (%)	4 (often) n (%)	5 Very true n (%)
I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.	27 (9.25)	62 (21.23)	78 (26.37)	74 (25.0)	53 (18.15)
I can give the impression that I'm more competent than I really am.	19 (6.46)	61 (20.75)	82 (27.89)	73 (24.83)	59 (20.07)
I avoid evaluations if possible and have a dread of others evaluating me.	32 (10.88)	65 (22.11)	89 (30.27)	61 (20.75)	47 (15.99)
When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations in the future.	28 (9.52)	75 (25.51)	82 (27.89)	65 (22.11)	44 (14.97)
I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.	27 (9.18)	55 (18.71)	87 (29.59)	83 (28.23)	42 (14.29)
I'm afraid people important to me may find out that I'm not as capable as they think I am.	25 (8.5)	65 (22.11)	92 (31.29)	60 (20.41)	52 (17.69)
I tend to remember the incidents in which I have not done my best more than those times I have done my best.	28 (9.52)	68 (23.13)	85 (28.91)	73 (24.83)	40 (13.61)
I rarely do a project or task as well as I'd like to do it.	27 (9.22)	66 (22.53)	83 (28.33)	72 (24.57)	45 (15.36)
Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.	38 (12.97)	59 (20.14)	83 (28.33)	78 (26.62)	35 (11.95)
It's hard for me to accept compliments or praise about my intelligence or accomplishments.	36 (12.37)	69 (23.37)	81 (27.49)	67 (22.68)	41 (14.09)
At times, I feel my success has been due to some kind of luck.	40 (13.7)	58 (19.86)	84 (28.42)	78 (26.37)	34 (11.64)
I'm disappointed at times in my present accomplishments and think I should have accomplished much more.	29 (9.9)	68 (23.21)	84 (28.67)	68 (23.21)	44 (15.02)
Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	37 (12.59)	59 (20.07)	94 (31.97)	70 (23.81)	34 (11.56)
I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.	28 (9.59)	65 (22.26)	91 (30.82)	68 (23.29)	41 (14.04)
When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	32 (10.92)	64 (21.84)	86 (29.35)	68 (23.21)	43 (14.68)
If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.	36 (12.24)	59 (20.07)	92 (31.29)	67 (22.79)	40 (13.61)
I often compare my ability to those around me and think they may be more intelligent than I am.	34 (11.6)	60 (20.48)	93 (31.74)	69 (23.55)	37 (12.63)
I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.	35 (11.95)	66 (22.53)	76 (25.94)	82 (27.99)	34 (11.6)
If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.	28 (9.59)	55 (18.84)	88 (29.79)	85 (28.77)	38 (13.01)
I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	31 (10.54)	64 (21.77)	81 (27.55)	71 (24.15)	47 (15.99)

Regression Analysis: Predictors of Imposter Syndrome and Clinical Competency

The regression analysis results indicated that experience duration was the strongest predictor of imposter syndrome (η^2=0.133), followed by academic year (η^2=0.120) and GPA (η^2=0.064). Moderate to small effects were observed for marital status (η^2=0.037), while age was negatively correlated with imposter syndrome (r=-0.254, p<0.001). Campus location had no significant impact on imposter syndrome. Early-stage, less experienced, younger, or single students were more likely to experience higher imposter syndrome. The total predictable variance was R^2=35% for imposter syndrome. The results also showed that academic year, experience duration, and GPA were the strongest predictors of clinical competency (η^2=0.230, η^2=0.203, and η^2=0.143, respectively). Age, marital status, and

Table 3. Clinical competence questionnaire (CCQ) (n=294)

Item	Do not have a clue	Know in theory, but not confident at all in practice	Know in theory, can perform some parts in practice independently, and needs supervision to be readily available	Know in theory, competent in practice, need contactable sources of supervision	Know in theory, competent in practice without supervision
Following health and safety precautions	18 (6.12)	62 (21.09)	70 (23.81)	59 (20.07)	85 (28.91)
Taking appropriate measures to prevent or minimize risk of injury to self	11 (3.74)	56 (19.05)	76 (25.85)	75 (25.51)	76 (25.85)
Taking appropriate measures to prevent or minimize risk of injury to patients	13 (4.42)	47 (15.99)	76 (25.85)	73 (24.83)	85 (28.91)
Preventing patients from problem occurrence	13 (4.42)	47 (15.99)	78 (26.53)	88 (29.93)	68 (23.13)
Adhering to the regulation of patients' and families' confidentiality	11 (3.74)	45 (15.31)	82 (27.89)	75 (25.51)	81 (27.55)
Demonstrating cultural competence	13 (4.42)	43 (14.63)	79 (26.87)	85 (28.91)	74 (25.17)
Adhering to ethical and legal standards of practice	13 (4.42)	45 (15.31)	83 (28.23)	75 (25.51)	78 (26.53)
Maintaining appropriate appearance, attire, and conduct	14 (4.76)	41 (13.95)	86 (29.25)	75 (25.51)	78 (26.53)
Understanding patient rights	13 (4.42)	43 (14.63)	68 (23.13)	79 (26.87)	91 (30.95)
Recognizing and maximizing opportunity for learning	16 (5.44)	44 (14.97)	82 (27.89)	73 (24.83)	79 (26.87)
Applying appropriate measures and resources to solve problems	20 (6.8)	50 (17.01)	72 (24.49)	71 (24.15)	81 (27.55)
Applying or accepting constructive criticism	22 (7.48)	52 (17.69)	77 (26.19)	82 (27.89)	61 (20.75)
Applying critical thinking to patient care	18 (6.12)	56 (19.05)	79 (26.87)	64 (21.77)	77 (26.19)
Communicating verbally with precise and appropriate terminology in a timely manner with patients and families	16 (5.44)	46 (15.65)	77 (26.19)	84 (28.57)	71 (24.15)
Communicating verbally with precise and appropriate terminology in a timely manner with healthcare professionals	19 (6.46)	42 (14.29)	75 (25.51)	85 (28.91)	73 (24.83)
Understanding and supporting group goals	17 (5.78)	40 (13.61)	75 (25.51)	74 (25.17)	88 (29.93)
Taking a history for new admissions	16 (5.44)	44 (14.97)	84 (28.57)	80 (27.21)	70 (23.81)
Performing and documenting patient health assessment	18 (6.12)	54 (18.37)	66 (22.45)	90 (30.61)	66 (22.45)
Answering questions for patients or families	17 (5.78)	49 (16.67)	81 (27.55)	69 (23.47)	78 (26.53)
Educating patients or families with disease-related care knowledge	21 (7.14)	51 (17.35)	74 (25.17)	65 (22.11)	83 (28.23)
Charting and documentation	21 (7.14)	47 (15.99)	83 (28.23)	86 (29.25)	57 (19.39)
Developing care plan for patients	16 (5.44)	47 (15.99)	74 (25.17)	81 (27.55)	76 (25.85)
Performing shift report	26 (8.84)	57 (19.39)	77 (26.19)	67 (22.79)	67 (22.79)
Performing hygiene and daily care routines	18 (6.12)	39 (13.27)	79 (26.87)	69 (23.47)	89 (30.27)
Providing rest and comfort measures	23 (7.82)	45 (15.31)	77 (26.19)	70 (23.81)	79 (26.87)
Assessing nutrition and fluid balance	19 (6.46)	55 (18.71)	78 (26.53)	69 (23.47)	73 (24.83)
Assessing elimination	20 (6.8)	53 (18.03)	87 (29.59)	73 (24.83)	61 (20.75)
Assisting activities and mobility, and changing position	20 (6.8)	65 (22.11)	70 (23.81)	74 (25.17)	65 (22.11)
Providing emotional and psychosocial support	13 (4.42)	51 (17.35)	85 (28.91)	75 (25.51)	70 (23.81)
Performing venipuncture	48 (16.33)	35 (11.9)	79 (26.87)	66 (22.45)	66 (22.45)
Starting intravenous injections	44 (14.97)	43 (14.63)	71 (24.15)	73 (24.83)	63 (21.43)

Table 3. Cont.

Item	Do not have a clue	Know in theory, but not confident at all in practice	Know in theory, can perform some parts in practice independently, and needs supervision to be readily available	Know in theory, competent in practice, need contactable sources of supervision	Know in theory, competent in practice without supervision
Changing intravenous fluid bottle or bag	43 (14.63)	39 (13.27)	77 (26.19)	62 (21.09)	73 (24.83)
Administering intravenous medications (or into intravenous bags)	42 (14.29)	41 (13.95)	73 (24.83)	72 (24.49)	66 (22.45)
Administering intramuscular medications	35 (11.9)	39 (13.27)	77 (26.19)	71 (24.15)	72 (24.49)
Performing subcutaneous (or intracutaneous) injection	32 (10.88)	42 (14.29)	74 (25.17)	65 (22.11)	81 (27.55)
Administering oral medications	27 (9.18)	35 (11.9)	69 (23.47)	80 (27.21)	83 (28.23)
Administering blood transfusion	51 (17.35)	41 (13.95)	77 (26.19)	66 (22.45)	59 (20.07)
Performing urinary catheter insertion and care	32 (10.88)	42 (14.29)	74 (25.17)	65 (22.11)	81 (27.55)
Performing sterile techniques	27 (9.18)	35 (11.9)	69 (23.47)	80 (27.21)	83 (28.23)
Performing postural drainage and percussion, and oxygen therapy	51 (17.35)	41 (13.95)	77 (26.19)	66 (22.45)	59 (20.07)
Performing preoperation/postoperation care	57 (19.39)	48 (16.33)	81 (27.55)	55 (18.71)	53 (18.03)
Performing enema	38 (12.93)	35 (11.9)	82 (27.89)	65 (22.11)	74 (25.17)
Performing upper airway suction	36 (12.24)	53 (18.03)	78 (26.53)	53 (18.03)	74 (25.17)
Performing tracheotomy care	28 (9.52)	49 (16.67)	79 (26.87)	72 (24.49)	66 (22.45)
Performing nasogastric tube feeding and care	38 (12.93)	68 (23.13)	72 (24.49)	64 (21.77)	52 (17.69)
Performing chest tube care with underwater seal management	29 (9.86)	49 (16.67)	80 (27.21)	74 (25.17)	62 (21.09)
Performing wound dressing care	28 (9.52)	58 (19.73)	69 (23.47)	68 (23.13)	71 (24.15)

campus location had no significant impact on clinical competency. Experience and academic year were universal predictors affecting both outcomes. Table 6 details these results.

Discussion

This study explored the prevalence of imposter syndrome (IS) among nursing students in the UAE and its association with perceived clinical competence. The findings highlight the pervasiveness of IS and its implications for both educational outcomes and professional preparedness.

Prevalence of Imposter Syndrome

The results indicate that IS is highly prevalent among nursing students, consistent with prior studies in healthcare education. Approximately 30–40% of participants reported moderate to frequent impostor feelings, with 12% experiencing intense levels. These findings align with global reports showing IS prevalence ranging from 23% to 57% among medical and nursing students[7,8] and highlight the significant psychological burden placed on students in demanding clinical environments. The high prevalence underscores that IS is not merely an individual trait but a systemic concern in health professions education, potentially impeding learning, confidence, and patient safety.[22,23] Compared with Western contexts, the multicultural UAE setting may further influence the manifestation of IS, as students navigate diverse clinical expectations, cultural norms, and language barriers.

From a psychiatric nursing perspective, the high prevalence of IS warrants recognition as a mental health-related vulnerability rather than a benign academic concern. Persistent self-doubt, fear of negative evaluation, and internalized inadequacy mirror cognitive distortions commonly addressed in psychiatric nursing practice, such as maladaptive self-appraisal and anxiety-related thought patterns. If unrecognized, IS may contribute to psychological distress, burnout, and impaired coping during clinical training. These findings emphasize the importance of integrating routine psychological screening, mental health literacy, and early psychosocial interventions within nursing education to promote resilience and emotional well-being.

Differences in IS According to Demographic and Academic Variables

The study identified clear demographic and academic patterns in IS. Younger students (≤20 years), early-year students

Table 4. Impostor syndrome across demographic and academic variables (n=294)

Variable	Group	n	Mean	Notes
Age	≤20 years	133	3.41	Highest
	21–22 years	116	2.91	Moderate
	23–24 years	33	2.63	Lowest
	≥25 years	9	2.86	Low
	ANOVA		F (3, 287)=17.76	p<0.001***
	Correlation		r=-0.65	p<0.001***
Academic year	Year 2	15	3.38	Highest
	Year 3	142	3.06	Moderate
	Year 4	137	3.04	Lowest
	ANOVA		F (2, 291)=19.80	p<0.001***
GPA range	Below 2.0	5	3.40	Highest
	2.0–2.5	17	3.29	High
	2.6–3.0	50	3.17	Mod-high
	3.1–3.5	118	3.01	Moderate
	3.6–4.0	104	2.95	Lowest
	ANOVA		F(4, 289)=4.90	p<0.001***
Experience	<6 months	58	3.38	Highest
	6–11 months	55	3.17	High
	12–24 months	61	3.05	Moderate
	>2 years	114	2.84	Lowest
	ANOVA		F(3, 284)=14.80	p<0.001***
Marital status	Divorced	4	3.48	Highest
	Widowed	5	3.40	High
	Single	238	3.09	Moderate
	Married	47	2.96	Lowest
	ANOVA		F(3, 290)=3.70	p=0.012*
Campus	RAK	83	3.08	–
	Fujairah	77	3.04	–
	Sharjah	71	3.16	–
	ANOVA		F(2, 228)=0.70	p=0.475 ns

*: p<0.05, ***: p<0.001. ANOVA: Analysis of variance, GPA: Grade point average, ns: Not significant.

(Year 2), and those with lower GPAs (<2.0) reported higher IS scores. Similarly, students with less than six months of clinical experience were more prone to impostor feelings. These findings suggest that IS is linked to developmental, experiential, and performance-related factors, corroborating previous studies that associate IS with early-career vulnerability and lack of exposure.[10,11] Marital status also showed a small but significant effect, with divorced students reporting higher IS, potentially reflecting reduced social or emotional support.[24] In contrast, campus location had no significant influence, suggesting that the phenomenon transcends regional educational settings within the UAE. Regression analysis confirmed that experience duration, academic year, and GPA were the strongest predictors of IS, collectively explaining approximately 35% of the variance. These results highlight the critical role of experiential learning, academic achievement, and progression in mitigating impostor feelings.[25,26]

Psychiatric nursing theory offers valuable insight into these demographic patterns. Early-stage students may have underdeveloped coping mechanisms and limited exposure to stress inoculation, which may increase their vulnerability to anxiety, self-doubt, and negative self-schema. Lower academic performance may further reinforce maladaptive cognitive cycles, in which perceived failure can amplify impostor beliefs. The finding related to marital status highlights the potential protective role of social support, a well-established determinant of mental health in the psychiatric nursing literature. Collectively, these results suggest that structured mentoring models, peer-support groups, and faculty-guided reflective practice—core strategies in psychiatric nursing—may be particularly beneficial for at-risk subgroups.

Table 5. Clinical competency scores by demographic and academic variables

Variable	Group	n	Mean	Notes
Academic year	Year 4	137	3.79	Highest competency
	Year 3	142	3.49	Moderate
	Year 2	15	3.08	Lowest
	ANOVA		F(2, 293)=43.40	p<0.001***
GPA range	3.6–4	104	3.77	Highest
	3.1–3.5	118	3.58	High
	2.6–3	50	3.47	Moderate
	2.0–2.5	17	3.28	Lower
	<2.0	5	2.79	Lowest
	ANOVA		F(4, 293)=12.10	p<0.001***
Experience duration	>2 years	114	3.85	Highest
	12–24 months	61	3.56	High
	6–11 months	55	3.39	Moderate
	<6 months	58	3.25	Lowest
	ANOVA		F(3, 284)=24.80	p<0.001***
Marital status	Married	47	3.65	–
	Single	238	3.55	–
	Divorced	4	3.47	–
	Widowed	5	3.40	–
	ANOVA		F(3, 293)=1.10	p=0.37 ns
Campus location	Sharjah	71	3.58	–
	RAK	83	3.57	–
	Fujairah	77	3.54	–
	ANOVA		F(2, 228)=0.20	p=0.80 ns
Correlation	Competency vs Impostor Syndrome		r=-0.757	p<0.001*

*: p<0.05, ***: p<0.001. ANOVA: Analysis of variance, GPA: Grade point average, η^2: Partial eta squared (effect size), r: Pearson correlation coefficient, ns: Not significant.

Relationship Between Imposter Syndrome and Clinical Competence

A strong inverse correlation between IS and perceived clinical competence was observed. Students with higher IS scores reported lower self-rated confidence across competency domains, reflecting that self-doubt can undermine perceived readiness for clinical practice.[27] This finding is consistent with prior research indicating that impostor feelings negatively affect performance, engagement, and feedback-seeking behaviors.[6,15] In practice, students experiencing high IS may hesitate to perform critical procedures, avoid leadership roles during rotations, or misinterpret constructive feedback as criticism, thereby limiting skill acquisition and potentially compromising patient care.[28] This highlights the need for early identification and support strategies to address IS, particularly for students at higher risk due to younger age, lower GPA, or limited clinical experience.

From a psychiatric nursing lens, this relationship reflects the impact of cognitive and emotional factors on functional performance. Imposter syndrome may contribute to heightened performance anxiety, avoidance behaviors, and reduced self-efficacy, all of which are commonly addressed through cognitive-behavioral and supportive nursing interventions. Early diagnosis of IS through screening tools embedded in student support services could enable timely referral for counseling, stress management training, or cognitive reframing strategies. Such interventions may help students reinterpret feedback constructively, engage more confidently in clinical tasks, and enhance therapeutic communication skills essential for psychiatric and general nursing practice.

Clinical Competence Levels and Predictors

Perceived clinical competence varied across domains. Foundational skills, such as health and safety, patient communication, and confidentiality, showed high competence levels, whereas invasive procedures, such as venipuncture, IV administration, and catheter insertion, revealed skill gaps, suggesting areas where targeted training is required. Regression analysis identified academic year, GPA, and clinical experience as significant predictors of clinical competency, with experience duration and

Table 6. Regression analysis: Predictors of ımposter syndrome and clinical competency

Outcome	Predictor	F	p	η^2	Significance
Imposter syndrome	Academic year	19.80	<0.001	0.120	***
	GPA range	4.90	0.001	0.064	***
	Marital status	3.71	0.012	0.037	*
	Experience	14.85	<.001	0.133	***
	Age (continuous)	–	<0.001	–	r=-0.254***
	Campus location	–	ns	–	–
Clinical competency	Academic year	43.37	<0.001	0.230	***
	GPA range	12.06	<0.001	0.143	***
	Experience	24.75	<0.001	0.203	***
	Age (continuous)	–	0.31	–	–
	Marital status	–	ns	–	–
	Campus location	–	ns	–	–

*: p<0.05, ***: p<0.001. ANOVA: Analysis of variance, GPA: Grade point average, η^2: Partial eta squared (effect size), r: Pearson correlation coefficient, ns: Not significant.

academic progression exerting the strongest influence.[29] These findings reinforce the principle that clinical exposure and hands-on practice are essential for competence development.[30,31] The inverse relationship between IS and competency indicates that as students gain experience and skill mastery, impostor feelings tend to decrease, emphasizing the role of positive reinforcement and practical proficiency in reducing self-doubt. Psychiatric nursing practice underscores the importance of supportive learning environments that normalize uncertainty and gradual skill acquisition. Simulation-based learning, supervised practice, and reflective debriefing—widely used in psychiatric nursing education—may reduce anxiety associated with complex procedures while strengthening competence and confidence. Faculty feedback delivered using trauma-informed and strengths-based approaches may further mitigate impostor feelings by validating students' progress and reinforcing adaptive coping.

Collectively, the findings underscore a cyclical relationship: early-stage, less experienced, or lower-performing students are more likely to experience IS, which can limit engagement in clinical learning, slow skill acquisition, and perpetuate self-doubt. Conversely, structured mentorship, reflective practice, and scaffolded clinical exposure can simultaneously enhance competence and mitigate IS, improving both student well-being and readiness for clinical practice. Embedding psychiatric nursing-informed interventions, such as mentoring, psychosocial support, early screening, and targeted counseling, within nursing curricula may therefore play a critical role in fostering psychologically safe learning environments and preparing resilient, competent future nurses.

Limitations

This study has several notable strengths. First, data were collected from three nursing campuses across the UAE, enhancing the generalizability of the findings and providing insights into a diverse, multicultural student population. Second, the use of validated and widely recognized instruments, the Clance Impostor Phenomenon Scale (CIPS) and the Clinical Competence Questionnaire (CCQ), ensured robust and reliable measurement of both IS and perceived clinical competency. Third, combining descriptive, correlational, and regression analyses allowed for an in-depth exploration of predictors and relationships between variables, highlighting factors that contribute to IS and clinical competence in a meaningful way.

However, several limitations must be acknowledged. The cross-sectional design precludes causal inference, limiting the ability to determine whether IS directly causes reduced clinical competence or vice versa. The reliance on self-reported data may introduce bias, as students could overestimate or underestimate their competence or feelings of self-doubt. Finally, cultural factors unique to the UAE may influence both IS and self-reported competence, and these nuances may not be fully captured by the instruments, which were developed in different contexts.

Implications for Policy and Clinical Practice

The findings of this study have significant implications for nursing education and practice. From a curricular perspective, nursing programs should integrate structured mentorship programs, reflective practice opportunities, and scaffolded clinical experiences to help students gradually build confidence and reduce impostor feelings. Early-year students and those with lower academic performance may benefit from targeted interventions designed to strengthen skill mastery and self-efficacy. In terms of student support, workshops focusing on resilience, coping with self-doubt, and managing perfectionism could provide psychological tools to address IS and

enhance engagement in clinical learning. Furthermore, institutional policies that promote positive feedback, recognition of achievements, and inclusive learning environments may buffer against IS and improve both individual and team performance. Implementing these strategies can ultimately enhance student competence, professional development, and patient safety outcomes.

Conclusion

In conclusion, Impostor Syndrome is prevalent among nursing students in the UAE and is inversely associated with perceived clinical competence. Younger students, those in earlier academic years, students with lower GPAs, and those with limited clinical experience are at the highest risk of experiencing IS. Conversely, academic progression, GPA, and clinical exposure positively predict clinical competence, suggesting that hands-on experience and skill mastery reduce impostor feelings. These findings underscore the need for targeted educational interventions, mentorship, and structured clinical experiences to enhance students' confidence, professional competence, and preparedness for clinical practice. Addressing IS is not only a psychological or educational concern but also a crucial factor in ensuring patient safety and workforce readiness.

Ethics Committee Approval: The study was approved by the Research Ethics and Integrity Ethics Committee (no: RE-IC2025-CAP01, date: 24/02/2025).

Informed Consent: Before beginning the survey, students were presented with an informed consent page. This page described the study purpose, procedures, voluntary nature of participation, and confidentiality measures. Only students who agreed to the consent statement could proceed to the questionnaire.

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References

1. Chatterjee D. Imposter syndrome and its relationship with self-efficacy and achievement of success. 2024. Available from: https://ssrn.com/abstract=4815409. Accessed Jun 26, 2026.
2. Rivera N, Feldman EA, Augustin DA, Caceres W, Gans HA, Blankenburg R. Do i belong here? confronting imposter syndrome at an individual, peer, and institutional level in health professionals. MedEdPORTAL 2021;17:11166.
3. Gill P. Imposter syndrome- why is it so common among nurse researchers and is it really a problem? Nurse Res 2020;28:30–6.
4. Gómez-Morales A. Impostor phenomenon: a concept analysis. Nurs Sci Q 2021;34:309–15.
5. Heslop G, Bonilla Velez J, Faucett EA, Cabrera Muffly C. Understanding and overcoming the psychological barriers to diversity: imposter syndrome and stereotype threat. Curr Otorhinolaryngol Rep 2023;11:63–70.
6. Mullangi S, Jagsi R. Imposter syndrome: treat the cause, not the symptom. JAMA 2019;322:403–4.
7. Chua SM, Tan IYK, Thummachai ME, Chew QH, Sim K. Impostor syndrome, associated factors and impact on well-being across medical undergraduates and postgraduate medical professionals: a scoping review. BMJ Open 2025;15:e097858.
8. Al Lawati A, Al Wahaibi A, Al Kharusi F, Fai Chan M, Al Sinawi H. Investigating impostorism among undergraduate medical students at Sultan Qaboos University: a questionnaire-based study. Cureus 2023;15:e45752.
9. Bravata DM, Watts SA, Keefer AL, Madhusudhan DK, Taylor KT, Clark DM, et al. Prevalence, predictors, and treatment of impostor syndrome: a systematic review. J Gen Intern Med 2020;35:1252–75.
10. Scanlan JM, Laurencelle F, Plohman J. Understanding the impostor phenomenon in graduate nursing students. Int J Nurs Educ Scholarsh 2023;20.
11. Benjamin LS, Shanmugam SR, Magwilang JO, Hashim SMA, Chellathurai A, Habbash AS, et al. The relationship of imposter phenomenon, self-esteem, and resilience: promoting well-being among registered nurses. BMC Nurs 2025;24:916.
12. Grubb III WL, Grubb LK. Perfectionism and the imposter phenomenon. J Organ Psychol 2021;21.
13. LeBeau M. The lived experiences of clinical supervision for stress mitigation among master's counseling students in internship. 2024. Available from: https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=17558&context=dissertations. Accessed June 26, 2026.
14. Medline A, Grissom H, Guissé NF, Kravets V, Hobson S, Samora JB, et al. From self-efficacy to imposter syndrome: the intrapersonal traits of Surgeons. J Am Acad Orthop Surg Glob Res Rev 2022;6:e22.00051.
15. Gillespie BM, Harbeck EB, Falk-Brynhildsen K, Nilsson U, Jaensson M. Perceptions of perioperative nursing competence: a cross-country comparison. BMC Nurs 2018;17:12.
16. El-Ashry AM, Taha SM, Elhay ESA, Hammad HA, Khedr MA, El-Sayed MM. Prevalence of imposter syndrome and its association with depression, stress, and anxiety among nurs-

ing students: a multi-center cross-sectional study. BMC Nurs 2024;23:862.
17. Siddiqui ZK, Church HR, Jayasuriya R, Boddice T, Tomlinson J. Educational interventions for imposter phenomenon in healthcare: a scoping review. BMC Med Educ 2024;24:43.
18. Gottlieb M, Chung A, Battaglioli N, Sebok-Syer SS, Kalantari A. Impostor syndrome among physicians and physicians in training: A scoping review. Med Educ 2020;54:116–24.
19. Agarwaal P. The unshakable focus: overcoming self-doubt, building confidence, and achieving peak performance. 2025. Available at: https://shashwatpublication.com/the-unshakable-focus-book?srsltid=AfmBOopSPK7qMPKmuwejEVsuYSBHolqAtAyaNrNmQdviklZYjKNQ-my2. Accessed Jun 26, 2026.
20. Wang B, Andrews W, Bechtoldt MN, Rohrmann S, de Vries RE. Validation of the short Clance impostor phenomenon scale (CIPS-10). Eur J Psychol Assess 2022;40:158–68.
21. Liou SR, Cheng CY. Developing and validating the Clinical Competence Questionnaire: A self-assessment instrument for upcoming baccalaureate nursing graduates. J Nurs Educ Pract 2014;4:56.
22. Hassen T. The prevalence of the imposter phenomenon among chiropractors in South Africa: a cross-sectional survey. 2024. Available from: https://ujcontent.uj.ac.za/esploro/outputs/graduate/The-prevalence-of-the-imposter-phenomenon/9951207007691. Accessed Jun 26, 2026.
23. Badawy W, Shaban M. The impact of imposter syndrome on ego integrity and gender dynamics among aging nurses: A mixed-methods study. Geriatr Nurs 2025;65:103467.
24. El-Ashry AM, Taha SM, Elhay ESA, Hammad HA, Khedr MA, El-Sayed MM. Prevalence of imposter syndrome and its association with depression, stress, and anxiety among nursing students: a multi-center cross-sectional study. BMC Nurs 2024;23:862.
25. Peteet BJ, Montgomery L, Weekes JC. Predictors of imposter phenomenon among talented ethnic minority undergraduate students. J Negro Educ 2015;84:175–86.
26. de Jesus Silva TB, Manoel de Sousa A, Martins Simã F. Study time and academic performance: do the level of self-regulated learning and impostor syndrome matter? Adv Sci Appl Account 2023;16.
27. Batur A, Arslan V, Turan S. Analysis of the relationship between medical achievement self-efficacy perception and impostor phenomenon in the postgraduate education process: a cross-sectional study. BMC Med Educ 2024;24:1536.
28. Bowen T, Botha PA. Assessing the influence of the imposter phenomenon on critical leadership competencies: conceptual framework proposal. J Res Initiat 2023;8:2.
29. Vasli P, Shahsavari A, Estebsari F, AsadiParvar-Masouleh H. The predictors of nursing students' clinical competency in pre-internship objective structured clinical examination: The roles of exam anxiety and academic success. Nurse Educ Today 2021;107:105148.
30. Horwitz HM, Struckmeyer LR, MacPherson KL, Morgan-Daniel J, Gerry G, Myers C. Predictors of clinical experience performance in occupational therapy and physiotherapy: A scoping review. Aust Occup Ther J 2023;70:514–32.
31. Kim T, Chang JY, Myung SJ, Chang Y, Park KD, Park WB, et al. Predictors of undergraduate and postgraduate clinical performance: a longitudinal cohort study. J Surg Educ 2016;73:715–20.

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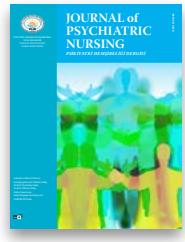

Original Article

The effect of mindfulness-based cognitive counseling group on social anxiety, assertiveness, and self-confidence in nursing students: A randomized controlled trial

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Abstract

Objectives: To assess the effect of group mindfulness-based cognitive counseling on social anxiety, assertiveness, self-confidence and the relationship between variables and their changes over time among nursing students.

Methods: The study was conducted as a randomized controlled trial with nursing students, who were divided into two groups: an intervention group and a control group. The intervention group (n=21) received eight weeks of mindfulness-based cognitive counseling, while the control group (n=24) received a single-session debriefing meeting after the program was implemented in the intervention group. Competencies were assessed using the Liebowitz Social Anxiety Scale, the Assertiveness Scale, and the Self-Confidence Scale. Data were obtained at pre-test, post-test, and sixth-month follow-up.

Results: The intervention group showed significant improvements in social anxiety, assertiveness, and self-confidence levels compared with the control group. The group×time interaction for social anxiety, assertiveness, and self-confidence levels was statistically significant in the intervention group. In terms of differences between measurement scores over time, a negative relationship was found between social anxiety and assertiveness and self-confidence, while a positive relationship was found between assertiveness and self-confidence levels.

Conclusion: A mindfulness-based cognitive group counseling program appears to produce positive changes in student nurses' self-confidence and assertive behaviors and is an effective intervention for reducing social anxiety. This study demonstrates that it is a promising interventional approach for reducing anxiety, strengthening assertive behavior, and increasing self-confidence in nursing students with social anxiety.

Keywords: Assertiveness; mindfulness; nursing students; psychiatric nursing; self-confidence; social anxiety

Assertiveness affects communication styles and serves as a key factor in maintaining balance in interactions, enhancing satisfaction, and facilitating mutual understanding.[1] On the other hand, difficulty in applying communication skills appropriately can increase vulnerability to social anxiety. Social anxiety is characterized as a significant fear or worry that occurs in situations in which an individual believes they may be judged or observed.[2] The prevalence of social anxiety has been reported to range between 7% and 33% among university students.[3–5] Furthermore, 32.8% of students studying health sciences[6] and 27.4% of nursing students[7] were found to experience social anxiety.

If social anxiety is underestimated and left untreated, it continues to affect individuals' interpersonal relationships and mental health.[8] Therefore, considering the burden of social anxiety at both individual and community levels, it is import-

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ant to plan and implement interventions in the early phase, along with addressing the associated factors.[9]

Social anxiety is an anxiety disorder in which an individual is concerned about being humiliated in social environments and judged by other people, experiences prominent and constant fear regarding this issue, and tends to avoid these environments as much as possible.[10] Moreover, this avoidance behavior, displayed toward conditions/events perceived as threats, causes a decrease in motivation.[11] The anxiety and avoidance cycle may trigger passive behaviors instead of assertive actions in interpersonal relationships, and thus, individuals may experience a lack of self-confidence. Individuals who display assertive behaviors have active listening skills and are prone to collaborative attitudes in their interactions and communication with others.[12] Individuals' belief in their ability to achieve a desired condition/event is described as self-confidence. Self-confidence is a capability that allows individuals to maintain a positive and rational view of themselves and the situations they are in.[13,14]

In the literature, cognitive-behavioral methods,[15] emotion-focused counseling methods,[16] behavioral methods,[17] and cognitive methods[18] are reported to be among the most commonly used interventions to cope with social anxiety and associated factors. Educators have become more inclined to adopt health promotion interventions to control social anxiety and support effective communication among university students. Mindfulness practices are among the recent and widely used interventions.[19–22]

The mindfulness-based cognitive counseling program is noteworthy in terms of raising awareness, experiencing the present moment, and improving skills by accepting the current situation. Awareness is defined as "focusing consciously and nonjudgmentally on what develops moment by moment and is happening in the present moment."[23] Living with awareness is influential in shaping the future. It facilitates a richer life and increases the quality of relationships. If the present moment is experienced with full awareness, the subsequent moment may be shaped more adaptively.[23] Enhancing mindfulness, maintaining present-moment focus, and moving away from autopilot mode are essential in supporting individuals' attitudes toward their current experiences; therefore, improving mindfulness skills is considered important.[24]

In addition to these conceptualizations, mindfulness-based interventions are suggested to operate through several interrelated psychological mechanisms. First, they enhance attention regulation, enabling individuals to intentionally focus on present-moment experiences rather than becoming entangled in anxiety-provoking thoughts.[25] This shift in attentional processes may help reduce maladaptive self-focused attention commonly observed in social anxiety. Second, mindfulness fosters cognitive reappraisal by promoting a decentered perspective, allowing individuals to observe thoughts as transient mental events rather than accurate reflections of reality.[26] Third, these approaches may reduce experiential avoidance by encouraging acceptance of internal experiences instead of efforts to suppress or avoid them.[27] Together, these processes may contribute to more adaptive emotional regulation and may help alleviate symptoms associated with social anxiety.

What is presently known on this subject?

- Mindfulness-based interventions are reported to have a significant impact on stress, depression, anxiety, burnout, well-being, and emotion regulation among nurses and nursing students. Performing mindfulness-based activities effectively with nursing students is also associated with improving profession-related standards. Although it is not possible to completely eradicate stress and anxiety, increasing emotional regulation capacity can improve emotional well-being among nurses and nursing students and help maintain satisfactory therapeutic relationship skills with their patients.

What does this article add to the existing knowledge?

- This study provides evidence that the eight-week mindfulness-based cognitive counseling group implemented for nursing students can effectively reduce social anxiety levels and increase assertiveness skills and self-confidence. Assertiveness and self-confidence affect nurses' communication manners, and the inability to use communication skills effectively may pave the way for the development of social anxiety. Mindfulness-based group practices are effective for the mental well-being of nursing students. Mindfulness-based group practices positively affect the acquisition of professional nursing skills.

What are the implications for practice?

- The results suggest that the mindfulness-based cognitive counseling group program can be integrated into the nursing education process. Performing mindfulness-based activities effectively with nurses/nursing students is associated with improving profession-related skills. Incorporating such interventions either as elective modules or as part of the Mental Health and Psychiatric Nursing course content has the potential to produce sustained positive outcomes.

The effects of the adaptation process to campus life could be transformed into positive outcomes with the help of mindfulness-based programs, which involve experiencing and accepting the present moment without judgment. Periodically implemented mindfulness-based interventions are reported to have a significant impact on stress, depression, anxiety, burnout, well-being, and emotion regulation among nurses and nursing students.[28,29] Performing mindfulness-based activities effectively with nursing students is also associated with improving profession-related standards. Although it is not possible to completely eradicate stress and anxiety, increasing emotional regulation capacity can improve emotional well-being among nurses and nursing students and help maintain satisfactory therapeutic relationship skills with their patients.[30,31] In this regard, the present study aimed to examine the impact of a mindfulness-based cognitive counseling group intervention on social anxiety, assertiveness, and self-confidence among nursing students, as well as to evaluate how the relationships among these variables changed over time. The hypotheses of the study were determined as follows: (1) social anxiety levels would be lower, and assertiveness and self-confidence lev-

els would be higher among students receiving mindfulness-based cognitive counseling group intervention compared with the control group; and (2) the decrease in social anxiety levels and the increase in assertiveness and self-confidence levels among students receiving mindfulness-based cognitive counseling group intervention would be interrelated.

Materials and Method

Study Type

The study was a randomized controlled trial. The present study was registered at ClinicalTrials.gov with the (Clinical Trial ID: NCT05602012) trial ID.

Participants

The present study was conducted in the nursing department of the Faculty of Health Sciences at a state university. An online invitation announcement for the study was posted on the department's website to identify volunteer students (n=218). Applicant students were requested to complete the informed consent form, a sociodemographic data form, and the Liebowitz Social Anxiety Scale (LSAS) via the created Google Forms link. Students who met the inclusion criteria were identified (n=72). The inclusion criteria were as follows: volunteering to participate in the research, being 18 years of age or older, and having moderate or marked levels of social anxiety (LSAS score of 50–80). The exclusion criteria were as follows: having any psychiatric disorder, currently attending another individual or group psychosocial intervention program, and having difficulty speaking or understanding Turkish. The termination criteria were as follows: willingness to leave the study at any stage, being newly diagnosed with any psychiatric disorder during the study, and not participating or being unable to participate in more than two sessions.

Students who fulfilled the inclusion criteria (n=72) were invited to a face-to-face preliminary interview. During the preliminary interview, written informed consent was obtained, and the pre-test was administered. Students who did not participate in the preliminary interview and whose repeated total LSAS scores were less than 50 were excluded from the study. Finally, a total of n=50 students were determined to be assigned to the groups (Fig. 1).

Sample Size Calculation and Randomization

A power analysis was performed using the G*Power 3.1 software program to calculate the sample size.[32] In the power analysis, the ANOVA: repeated measures test between factors was used with 95% power and a 0.05 significance level. Two studies in the literature that were similar in terms of research design and the measurement tool used (Liebowitz Social Anxiety Scale) were examined to determine the effect size. The required sample size was calculated as a total of 33 participants according to the study by Goldin et al.[33] and as a total of 38 participants according to the study by Ştefan et al.[34] Considering a potential attrition rate of 20%, the required sample size was increased to at least 46 participants, with a minimum of 23 participants per group. Based on this estimation, all eligible students identified during the preliminary assessment phase (n=50) were included and planned to be randomly assigned to the intervention and control groups.

Participants who met the inclusion criteria (n=50) were assigned identification numbers according to their order of application using Microsoft Excel. Group allocation was performed using a simple randomization method, with the randomization sequence generated and implemented by an independent statistician. No stratification or matching procedures were applied during the randomization process. Baseline comparability between the intervention and control groups was assessed after randomization. The intervention group was further divided into two subgroups of 12–13 participants to facilitate group counseling sessions.

Blinding and Potential Bias

Blinding of participants and facilitators was not feasible due to the nature of the mindfulness-based intervention, which may have introduced potential sources of bias, such as expectancy effects and self-report bias. Participants in the intervention group may have been more aware of the study aims, potentially influencing their responses. However, several measures were taken to reduce bias, including random allocation by an independent statistician and the use of standardized procedures and validated measurement tools.

Procedure

Intervention Group

Students in the intervention group participated in an eight-week Mindfulness-Based Cognitive Counseling Group Program. The research team prepared the Mindfulness-Based Cognitive Counseling Group Program based on the related literature,[23,35,36] and the structure, objectives, and session materials were finalized prior to implementation (Table 1).

The intervention consisted of eight face-to-face sessions delivered weekly, each lasting approximately 90–120 minutes. Across the eight sessions, participants were guided to develop attentional control and awareness through formal mindfulness practices such as breath awareness, body scan, sitting meditation, and gentle mindful movement (e.g., yoga). The intervention also emphasized recognizing cognitive and emotional reactivity, particularly in response to unpleasant experiences, and fostering adaptive coping through acceptance, allowing experiences as they are, and self-care. In later ses-

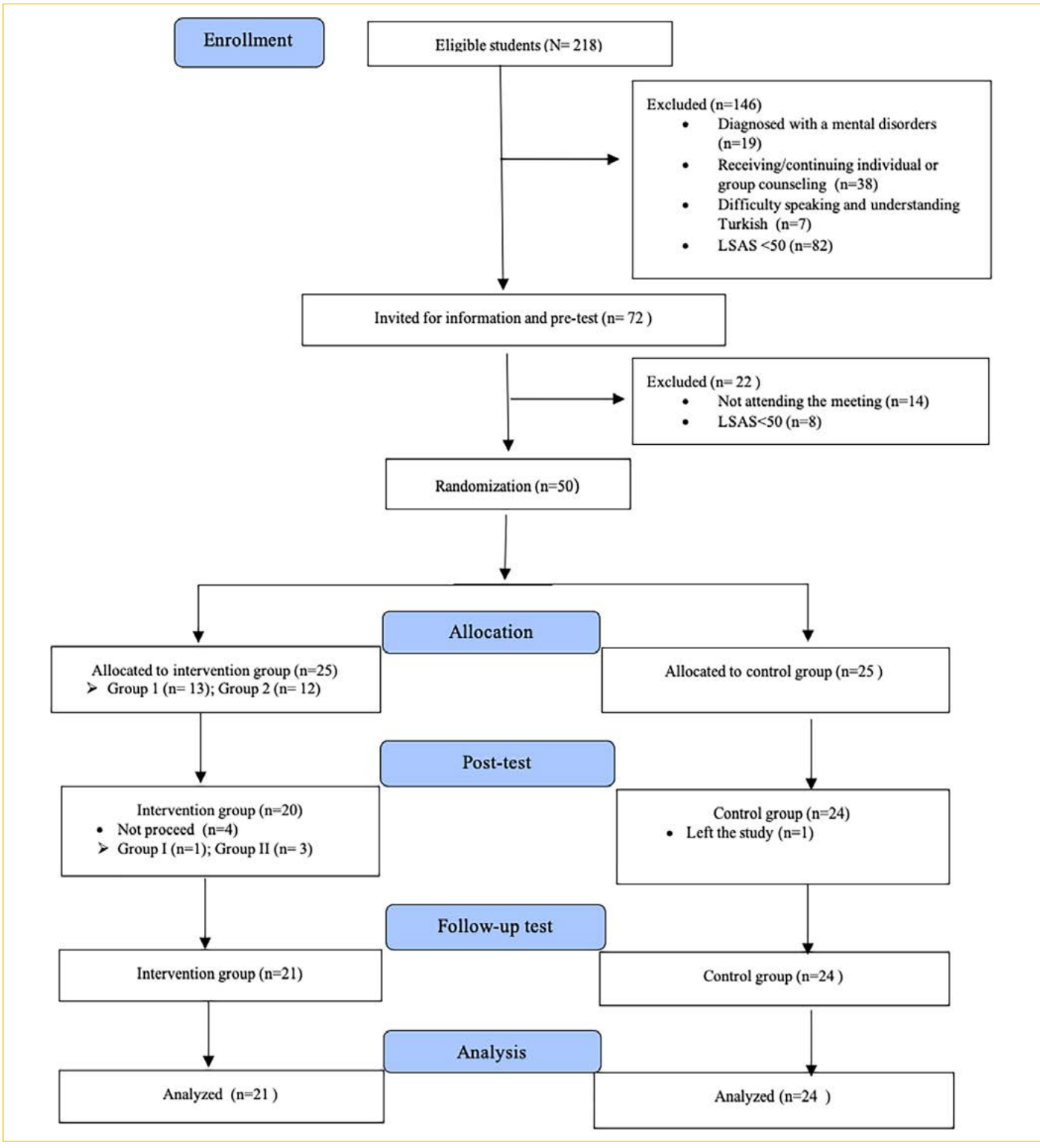

Figure 1. Consort flow diagram.

sions, the program focused on integrating mindfulness into daily life, encouraging participants to engage in nourishing activities, increasing awareness of pleasant and unpleasant experiences, and cultivating a balanced and compassionate perspective toward themselves and others (Table 1).

All sessions were conducted by psychiatric nurse researchers who had formal training and experience in Mindfulness-Based Cognitive Counseling. To ensure consistency, the same primary facilitator led all sessions, while a second researcher served as an assistant and observer.

Table 1. Mindfulness based cognitive counseling group programme

Session	Phase	Aim	Practices
1	Mindfulness and Autopilot	Awareness of attention, intentions and attitudes towards feelings, thoughts and behaviors	Mindful raisin-eating exercise, Body Scan, Awareness of Breath
2	Living in Mind	Understanding the importance of choosing to be in the moment rather than being trapped in negative thoughts	Body Scan, Awareness of Breath
3	Gathering the Scattered Mind	Mindfully reconnecting with the mind through breath and body, noticing the distraction of the mind	Awareness of Breath, Sitting Meditation, Standing Yoga
4	Noticing the Unpleasant	Raising awareness about how they cope or fail to cope with challenging events	Awareness of Breath, Mountain meditation, Exploring Difficulty
5	Allowing/ let it be	Rather than trying to create another situation, it is about allowing the experience, accepting it as it is, and developing 'voluntariness'	Awareness of Breath, Exploring Challenges
6	How can I take care of myself ?	Raising awareness about some aspects of life that cannot be changed and increasing the time spent on consciously nourishing activities.	Awareness of Breath, Using the Breathing Space: The Action Step
7	Being able to dance again	Accepting difficult situations, getting out of the funnel of burnout with nourishing activities, and becoming aware of the activities that consume and empower.	Awareness of Breath, Pleasant and unpleasant event calendar
8	Your Precious Life in the Moment	Awareness of the thoughts constantly going around in the mind, focusing on living in the moment	Awareness of Breath, Sympathetic Joy: Opening Hearth to the Happiness of Others

To ensure intervention fidelity, the program was implemented using a structured protocol developed prior to the study. Session content and procedures were standardized, and no modifications were made during the implementation process. In addition, the presence of an assistant observer during each session supported adherence to the protocol.

Mindfulness practices conducted during the sessions were audio-recorded simultaneously and subsequently shared with participants to support home practice throughout the week. The program was implemented in the nursing practice laboratory of the institution, where the environment was arranged with floor mats to enhance participants' comfort and facilitate engagement in mindfulness exercises.

Control Group

The control group functioned as a wait-list control group. Data collection tools were administered to the control group simultaneously with the intervention group at baseline. No intervention was provided to the control group during the study period. Following the completion of the follow-up assessment in the intervention group, participants in the control group received a single-session practice prepared by the researchers within the framework of the Mindfulness-Based Cognitive Counseling Program. The session included breath-focused meditation, psychoeducation on automatic behaviors and mindful attitudes through the mindful raisin-eating exercise, and body scan practices.

Measures

The primary outcome of the study was social anxiety. The secondary outcomes were assertiveness and self-confidence levels. The data were collected using a questionnaire, the Liebowitz Social Anxiety Scale, the Assertiveness Scale, and the Self-Confidence Scale. Data collection tools were applied three times: pre-test, post-test, and six-month follow-up test. The study procedure was implemented between February 22, 2022, and March 22, 2023.

The Questionnaire

The questionnaire was prepared by the researchers and included the sociodemographic characteristics of the counseling students within the scope of the study.

Liebowitz Social Anxiety Scale

The scale was developed by Liebowitz et al.[37] to determine fear and/or avoidance levels in social interaction and performance situations. The Turkish adaptation of the scale was conducted by Soykan et al.[38] The scale contains 24 items and two subscales, fear and avoidance, and is a 4-point Likert-type scale. The total score is obtained by summing the fear and avoid-

ance subscale scores; the lowest score that can be obtained from the total scale is 0, and the highest score is 144. The Cronbach's alpha of the scale was reported as 0.98 by Soykan et al.[38] In our study, the Cronbach's alpha value was 0.93.

The Assertiveness Scale

The scale was developed as a 28-item scale by Voltan Acar and Öğretmen.[39] It is a 6-point Likert-type scale. The total score that can be obtained from the scale ranges between 28 and 168. The higher the total score, the higher the assertiveness level. The Cronbach's alpha of the scale was reported as 0.87 by Voltan Acar and Öğretmen. In our study, the Cronbach's alpha value was 0.89.

The Self-Confidence Scale

The development, validity, and reliability study of the scale was conducted by Akın.[40] It is a 5-point Likert-type scale with 33 items. The total score that can be obtained from the scale ranges between 33 and 165. The higher the total score, the higher the self-confidence level. The Cronbach's alpha of the scale was reported as 0.83 by Akın.[40] In our study, the Cronbach's alpha value was 0.91.

Validity and Reliability

The data collection tools used in this study are valid and reliable. Participants were randomly assigned to the groups. An independent statistician ensured that there was no statistically significant difference between the groups in terms of descriptive characteristics. In the database prepared for data analysis, the intervention group was coded as "Group I" and the control group as "Group II." To prevent data contamination, students in the intervention and control groups were interviewed on different days during the implementation process. The Consolidated Standards of Reporting Trials (CONSORT) guidelines were used in the planning, implementation, and reporting of the study.[41]

Data Analyses

The data collected in the study were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23. To determine whether the data demonstrated normal distribution, the Shapiro–Wilk and Kolmogorov–Smirnov tests were applied. The Pearson chi-square test was used to compare categorical variables between groups. For group-based comparisons of normally distributed scale scores, the independent samples t-test was used, whereas the Mann–Whitney U test was used for non-normally distributed scores.

For comparisons across three measurement time points within each group, repeated measures ANOVA was conducted for variables with normal distribution, followed by Bonferroni correction for post-hoc analyses. The Friedman test was used for non-normally distributed variables, and post-hoc comparisons were performed using the Dunn test. Relationships between normally distributed variables were evaluated using the Pearson correlation coefficient, whereas Spearman's rho correlation coefficient was used for non-normally distributed variables. The effect size for between-group differences was assessed using Cohen's d. Results were presented as frequencies and percentages for categorical variables and as mean±standard deviation or median (minimum–maximum) for continuous variables. A p-value of <0.05 was considered statistically significant.

Ethical Aspects

Written approvals were obtained from the Gazi University Ethics Commission (approval number: 2022-114) and from the faculty where the study was performed. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Written informed consent was obtained from the students. Students with severe and very severe anxiety were referred to the university's psychiatry unit.

Results

Sociodemographic Characteristics

The sociodemographic characteristics of the nursing students in the intervention and control groups and whether there were any differences between the groups in terms of these characteristics are presented in Table 2.

The Effect of The Intervention

In the present study, the pre-test, post-test, and follow-up test scores of the intervention and control groups were examined. There was no statistically significant difference between the intervention and control groups in terms of LSAS, assertiveness, and self-confidence pre-test scores before the initiation of the mindfulness-based cognitive counseling group intervention ($p>0.05$) (Table 3).

At follow-up, significant group differences were also found for LSAS, assertiveness, and self-confidence scores. The effect size for LSAS indicated a large and sustained clinical improvement ($p=0.001$; Cohen's $d=1.155$), while assertiveness showed a large effect ($p=0.003$; Cohen's $d=-0.945$) and self-confidence showed a moderate effect ($p=0.031$; Cohen's $d=-0.668$). Overall, these findings suggest that the intervention produced clinically meaningful and lasting improvements across key psychosocial outcomes (Table 3). When the changes in scale scores over time in the intervention group were evaluated, a statistically significant difference was found between the median LSAS measurements, with post-hoc comparisons indicating that the pre-test scores differed significantly from the subsequent measurements.

Table 2. Comparison of sociodemographic characteristics according to groups

	Groups		Test	p*
	Intervention group	Control group		
Gender				
Male	1 (4.8)	0 (0)	1.169	0.280
Female	20 (95.2)	24 (100)		
Marital status				
Single	21 (100)	24 (100)	–	–
Working status				
None	20 (95.2)	23 (95.8)	0.009	0.923
Part time	1 (4.8)	1 (4.2)		
Economic situation assessment status				
Good	1 (4.8)	2 (8.3)	1.969	0.374
Poor	1 (4.8)	4 (16.7)		
Moderate	19 (90.5)	18 (75)		
Presence of chronic disease				
Yes	3 (14.3)	2 (8.3)	0.402	0.526
No	18 (85.7)	22 (91.7)		
Type of chronic disease				
Asthma	1 (25)	1 (50)	3.75	0.441
Heart disease	1 (25)	0 (0)		
Bronchitis	1 (25)	0 (0)		
Hypothyroidism	0 (0)	1 (50)		
None	1 (25)	0 (0)		
Presence of physical disabilities				
None	21 (100)	24 (100)	–	–
Previous individual group counseling status				
Yes	5 (23.8)	4 (16.7)	0.357	0.550
No	16 (76.2)	20 (83.3)		
Characteristics of place of residence				
Home with the family	8 (38.1)	10 (41.7)	0.647	0.996
Home with the frends	1 (4.8)	2 (8.3)		
Dormitory	12 (57.1)	12 (50)		
	Groups		**Test**	**p****
	Intervention group	**Control group**		
Age	20.76±0.89	20.38±1.06	191.5	0.141
	21 (18–22)	20 (18–22)		

*: Pearson Chi-Square Test; frequency (percentage); ~Multiple responses, **: Mann Whitney U Test; Mean±standard deviation; median (minimum – maximum).

There was also a statistically significant difference between the mean assertiveness scores, with all measurements differing significantly from each other. Similarly, a statistically significant difference was observed between the mean self-confidence scores, and all measurements differed significantly over time (all $p<0.001$) (Table 3). In the control group, a statistically significant difference was found only in the mean self-confidence scores over time ($p=0.021$), with post-hoc analysis indicating that this difference was between the pre-test and follow-up measurements (Table 3).

Changes in scale scores over time were compared between the groups. From pre-test to post-test, significant group differences were observed for LSAS ($p=0.001$; Cohen's $d=1.069$) and assertiveness ($p<0.001$; Cohen's $d=-1.218$), both indicating large effect sizes and suggesting substantial and clinically meaningful improvements in social anxiety and assertiveness in the intervention group. No significant group differences were found for the other outcomes over this period ($p>0.05$; Cohen's $d=0.489$), indicating limited clinical impact. From pre-test to follow-up, LSAS ($p<0.001$; Cohen's $d=1.734$) and as-

Table 3. Intra-group and inter-group comparison of scale scores

	Groups				Test	p	Cohen's d
	Intervention group		Control group				
	M±SD	Median (min-max)	M±SD	Median (min-max)			
LSAS pre-test	80.76±22.47	73 (51–127)[b]	78.46±21.65	72.5 (50–120)	U=237.5	0.741	0.098
LSAS post-test	52.19±28.47	47 (15–117)[a]	71.92±24	68.5 (42–120)	U=149.0	**0.019**	0.746
LSAS follow-up test	43.33±26.16	34 (12–95)[a]	70.75±20.11	69 (39–115)	U=104.5	**0.001**	1.155
Test/w p	X^2=27.610/0.657 **<0.001**		X^2=5.511/0.115 0.064				
Assertiveness pre-test	94.81±22.68[c]	93 (55–139)	97.83±18.23	95 (63–129)	t= 0.496	0.623	0.148
Assertiveness post-test	111.95±26.97[a]	117 (60–153)	98.92±17.08	100 (64–137)	t=-1.962	0.056	-0.586
Assertiveness follow-up test	121.19±23.26[b]	125 (65–154)	102.46±16.25	103 (77–135)	t=-3.162	**0.003**	-0.945
Test/f p	F= 18.108/0.475 **<0.001**		F= 0.480/0.097 0.095				
Self-confidence pre-test	111.76±16.28[c]	111 (75–148)	107.38±15.85[b]	108.5 (77–144)	t=-0.915	0.365	-0.273
Self-confidence post-test	123.43±21.82[a]	123 (88–173)	111.46±19.18[ab]	115 (70–150)	t=-1.959	0.057	-0.585
Self-confidence follow-up test	129.76±21.38[b]	134 (76–155)	116.71±17.75[a]	119 (80–151)	t=-2.237	**0.031**	-0.668
Test/f p	F= 9.682/0.326 **<0.001**		F= 4.724/0.170 **0.021**				

U: Mann Whitney U Test, t: Independent Samples t Test, χ^2: Friedman Test, F: Repeated Measures Analysis of Variance, d: Cohens'd, w: Kendall's w, f: Partial eta squared, [a-c]: There is no difference between the scores measured at different times with the same letter in each group; mean±standard deviation; median (minimum – maximum) LSAS: Liebowitz social anxiety scale.

sertiveness (p<0.001; Cohen's d=-1.177) again showed significant group differences with large effect sizes, reflecting strong and sustained clinical improvements over time. In contrast, no significant difference was observed for self-confidence (p=0.108; Cohen's d=-0.491); although the effect size was in the moderate range, this change did not reach statistical significance. No significant group differences were found between post-test and follow-up changes (p>0.050), suggesting that the improvements achieved after the intervention were maintained over time (Table 4).

From pre-test to post-test, there was a strong negative correlation between changes in LSAS and assertiveness (r=-0.669; p=0.001) and a moderate negative correlation with self-confidence (r=-0.494; p=0.023). Additionally, a moderate positive correlation was found between assertiveness and self-confidence (r=0.503; p=0.020). From pre-test to follow-up, LSAS remained strongly and negatively correlated with both assertiveness (r=-0.632; p=0.002) and self-confidence (r=-0.664; p=0.001). Assertiveness and self-confidence also showed a moderate positive correlation (r=0.581; p=0.006). Between post-test and follow-up changes, LSAS demonstrated a strong negative correlation with assertiveness (r=-0.792; p<0.001) and a moderate negative correlation with self-confidence (r=-0.528; p=0.014). Furthermore, a strong positive correlation was found between assertiveness and self-confidence (r=0.740; p<0.001) (Table 5).

Discussion

The effect of the intervention on social anxiety, assertiveness, self-confidence, and changes in their relationships over time was investigated in the present study. Nursing students included in both the intervention and control groups had high social anxiety levels and improvable assertiveness and self-confidence levels at the beginning of the study.

The mindfulness-based cognitive counseling group intervention was found to reduce the severity of social anxiety and positively affect assertiveness and self-confidence after the program was implemented, and Hypothesis 1 was accepted. This result could be explained by the possibility that social anxiety levels can be reduced through the effect of mindfulness practices. Furthermore, participating in a mindfulness-based group program under the leadership of a psychiatric nurse may play a vital role in developing a supportive and encouraging environment for students in terms of improving their self-expression skills. This also supports the enhancement of nursing students' communication skills.

In the present study, the mindfulness-based cognitive counseling group intervention was found to be associated with a reduction in social anxiety levels. The evaluations of change over time suggest that the intervention effect may be sustained in the longer term. In the literature, a study indicated that a mindfulness-based meditation program can be used

Table 4. Comparison of changes in scale scores over time by groups

	Groups		Test	p	Cohen's d
	Intervention group	Control group			
Comparison of post-test – pre-test differences					
LSAS score difference	-28.57±18	-6.54±22.63	t= 3.578	0.001	1.069
	-27 (-66–9)	-5.5 (-51–42)			
Assertiveness score difference	17.14±15.76	1.08±10.45	t= -4.075	<0.001	-1.218
	20 (-14–49)	1.5 (-18–22)			
Self-confidence score difference	11.67±17.52	4.08±12.17	U= 182.000	0.111	0.489
	13 (-15–48)	4.5 (-33–26)			
Comparison of follow-up test – pre-test differences					
LSAS score difference	-37.43±19.73	-7.71±14.52	t=5.803	<0.001	1.734
	-37 (-85–8)	-9.5 (-41–24)			
Assertiveness score difference	26.38±22.75	4.63±11.85	t=-3.940	<0.001	-1.177
	27 (-8–75)	5.5 (-25–32)			
Self-confidence score difference	18±21.26	9.33±13.77	t=-1.643	0.108	-0.491
	19 (-34–61)	10 (-13–33)			
Comparison of post-test – follow-up test differences					
LSAS score difference	8.86±18.74	1.17±21.49	t= -1.270	0.211	-0.379
	9 (-29–44)	2 (-37–50)			
Assertiveness score difference	-9.24±21.93	-3.54±9.51	U= 229.500	0.609	0.153
	-5 (-72–19)	-2 (-21–13)			
Self-confidence score difference	-6.33±18.06	-5.25±18.15	U= 226.000	0.554	0.177
	-4 (-47–26)	0 (-50–17)			

U: Mann Whitney U Test, t: Independent Samples t Test, d: Cohens' d, mean±standard deviation, median (minimum – maximum), LSAS: Liebowitz social anxiety scale.

Table 5. Examining the relationship between the differences in scale scores over time in the intervention group

Scales		Relationship between post-test – pre-test differences		Relationship between follow-up test – pre-test differences		Relationship between post-test and follow-up test differences	
		LSAS score difference	Assertiveness score difference	LSAS score difference	Assertiveness score difference	LSAS score difference	Assertiveness score difference
Assertiveness score difference	r	-0.669	–	-0.632	–	-0.792*	–
	p	**0.001**		**0.002**		**<0.001**	
Self-confidence score difference	r	-0.494	0.503	-0.664	0.581	-0.528	0.740*
	p	**0.023**	**0.020**	**0.001**	**0.006**	**0.014**	**<0.00**

*: Spearman's rho Correlation Coefficient. r: Pearson correlation coefficient, LSAS: Liebowitz social anxiety scale.

in anxiety management among nursing students.[42] Another study conducted an MBSR program and stated that the depression and anxiety levels of nursing students decreased following the implementation.[22] In a study conducted with medical school students, mindfulness-based cognitive therapy was found to significantly reduce their anxiety levels.[19] In a study in which a stress reduction program was implemented using mindfulness-based practices, it was stated that the program could protect students with social anxiety from increased perceived anxiety in social situations.[43] In this context, mindfulness-based group practices may be considered a potentially beneficial psychosocial approach for reducing social anxiety among nursing students; however, these findings should be interpreted with caution due to the study design and sample size, and further research with larger samples is warranted.

Although the importance of communication skills is well known among nurses who need to interact with patients for

prolonged periods during the holistic care process, nurses may tend to be reluctant.[44] Individual factors affect nurses' interaction behaviors, including knowledge, self-confidence, motivation, and assertive behavior.[45] Working with patients, their relatives, and other healthcare professionals in clinical settings requires nurses to exhibit assertive behaviors and have higher self-confidence. This situation requires the development and implementation of supportive psychosocial approaches for nursing students to fulfill their professional roles and responsibilities related to care and treatment, adopt assertive behaviors, and increase self-confidence. Mindfulness interventions have been associated with modifications in gray matter density in neural areas related to cognitive functions such as learning and memory, emotional regulation, empathy, and internal self-reflection.[46] Improvements in emotional intelligence domains may enhance both the quality of clinical training and the long-term professional effectiveness of nursing students.[21] The present study indicated that the mindfulness-based cognitive counseling group intervention was associated with increases in nursing students' assertiveness and self-confidence levels. Furthermore, the intervention group demonstrated greater improvements in assertiveness and self-confidence compared with the control group during the follow-up period. Although the effect of the program on assertiveness and self-confidence appeared to be more limited in the short term, the relatively stronger effects observed at follow-up may be related to the gradual internalization of mindfulness practices and the integration of informal practices into daily life. Demonstrating assertive behaviors and self-confidence are crucial factors that need to be strengthened to use communication skills competently. Assertiveness has been identified as a factor that encourages students in healthcare professions to communicate with others.[47] In this context, the mindfulness-based counseling group intervention may contribute to the development of assertiveness and self-confidence among nursing students; however, these findings should be interpreted with caution due to the study design and sample size.

Interacting with patients, their relatives, and other health professionals as healthcare team members while performing professional nursing practices is inevitable. Demonstrating assertive behaviors and being self-confident while interacting are imperative for nursing students to effectively manage their social anxiety experiences.[20] In the present study, the effect of mindfulness-based group counseling was reflected in increased assertiveness and self-confidence, which were associated with lower social anxiety levels. Simultaneously, the increase in self-confidence levels positively affected the tendency to demonstrate assertive behaviors. This finding supported Hypothesis 2, indicating that the mindfulness-based cognitive counseling group intervention aimed at improving social anxiety was associated with higher assertiveness and self-confidence. A study that evaluated the relationship between assertiveness skills in reducing interpersonal stress, team cooperation, behavioral strengthening, and providing self-confidence[48] was similar to the findings of the present study. Practices including staying in the moment, awareness, acceptance, endurance, showing compassion, and going with the flow, which are based on non-judgment, patience, a beginner's mind, trust, acceptance, and tolerance, are necessary to develop mindfulness.[49] In line with these principles and practices, nursing students could control their attention, affecting their thoughts and emotions when they become aware of the present moment without judgment.[50] Moreover, these practices may decrease experiential avoidance by encouraging individuals to remain in contact with internal experiences, such as anxious thoughts and feelings, rather than attempting to suppress or avoid them.[27] In this way, students may develop greater tolerance for discomfort in social situations. At the same time, cultivating non-judgmental awareness may enable individuals to observe their thoughts and emotions without immediately evaluating them as threatening, which may reduce the intensity of anxiety responses.[26]

Hence, the ability to focus on present-moment experiences may contribute to reductions in social anxiety. Two additional factors that may support this process are the ability to act assertively and a sense of self-confidence, which may further facilitate more adaptive interpersonal functioning.

Limitations

Initially, although the program had positive effects, the social anxiety severity of the intervention group was at moderate and/or marked levels. Thus, the effectiveness of the program cannot be considered an exact finding for nursing students experiencing more severe social anxiety.

This study has several limitations that should be considered when interpreting the findings. First, the relatively small sample size may limit the generalizability of the results. Second, reliance on self-report measures introduces the possibility of response bias. Finally, the study was conducted within a single institution, which may restrict the applicability of the findings to other settings or populations. Future studies with larger, more diverse samples and multicenter designs are recommended to enhance the robustness and generalizability of the results.

Conclusion

The implemented program was associated with reductions in social anxiety in both the short and longer term. Addition-

ally, greater improvements in assertiveness and self-confidence were observed in the intervention group compared with the control group over time. Considering the current research results and the literature reviewed within the scope of the study, mindfulness practices could be integrated into the nursing curriculum in terms of characteristics such as self-awareness, communication, critical thinking, empathic approach, and recognizing emotions to ensure easy accessibility during the nursing undergraduate education process and may be implemented by nurse educators who are experts in the field of psychiatric nursing.

Implications and Recommendations

Mindfulness provides developmental opportunities for nursing students by increasing their attention to other people and events in the present moment. Increased mindfulness improves the capacity of future nurses to make decisions and act in the present moment while fulfilling their professional roles and responsibilities. Considering the stressful events encountered in professional life, mindfulness-based practices will contribute to the psychosocial strengthening of nurses, who have a vital role in the healthcare team. The present study reported the benefits and evidence of mindfulness programs in terms of creating strong communication skills both during the nursing education period and in the nursing profession from a broader perspective.

Maintaining effective communication with healthy individuals/patients or the healthcare team is essential regarding professional competencies in nursing practice. Hence, this study can be used as a promising approach for reducing anxiety levels, supporting assertive behaviors, and increasing self-confidence in nursing students with social anxiety. For nurses, the results of the present study could contribute to the formation of a therapeutic communication environment in clinical practice by integrating it into in-service training programs. Incorporating such interventions either as elective modules or as part of the Mental Health and Psychiatric Nursing course content has the potential to produce sustained positive outcomes.

Ethics Committee Approval: The study was approved by the Gazi University Ethics Committee (no: 2022-114, date: 27/01/2022).

Informed Consent: Written informed consent was obtained from the students. Students with severe and very severe anxiety were directed to the university's psychiatry unit.

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References

1. Losa-Iglesias ME, López López D, Rodriguez Vazquez R, Becerro de Bengoa-Vallejo R. Relationships between social skills and self-esteem in nurses: a questionnaire study. Contemp Nurse 2017;53:681–90.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5. 5th ed. Washington (DC): American Psychiatric Association; 2013.
3. Honnekeri BS, Goel A, Umate M, Shah N, De Sousa A. Social anxiety and Internet socialization in Indian undergraduate students: An exploratory study. Asian J Psychiatr 2017;27:115–20.
4. Jaiswal A, Manchanda S, Gautam V, Goel AD, Aneja J, Raghav PR. Burden of internet addiction, social anxiety and social phobia among University students, India. J Family Med Prim Care 2020;9:3607–12.
5. Russell G, Shaw S. A Study to investigate the prevalence of social anxiety in a sample of higher education students in the United Kingdom. J Ment Health 2009;18:198-206.
6. Reta Y, Ayalew M, Yeneabat T, Bedaso A. Social anxiety disorder among undergraduate students of hawassa university, college of medicine and health sciences, Ethiopia. Neuropsychiatr Dis Treat 2020;16:571–7.
7. Reghuram R, Mathias J. A study on occurrence of social anxiety among nursing students and its correlation with professional adjustment in selected nursing institutions at Mangalore. J Heal Allied Sci Nu 2014;04:064–9.
8. Fink M, Akimova E, Spindelegger C, Hahn A, Lanzenberger R, Kasper S. Social anxiety disorder: epidemiology, biology and treatment. Psychiatr Danub 2009;21:533–42.
9. Lai F, Wang L, Zhang J, Shan S, et al. Relationship between social media use and social anxiety in college students: mediation effect of communication capacity. Int J Environ Res Public Health 2023;20:3657.
10. Stein MB, Stein DJ. Social Anxiety Disorder. Lancet 2008;371(9618):1115–25.
11. Liu X, Yi P, Ma L, Liu W, Deng W, Yang X, et al. Mindfulness-based interventions for social anxiety disorder: A systematic review and meta-analysis. Psychiatry Res 2021;300:113935.
12. Efek E. Investigation of assertiveness levels of university students receiving sports education. Yalova University Journal of Sports Sciences 2022;1:75-86.
13. Doğan E. Investigation of self-confidence in university students taking sports education. J Turk Stud 2022;17:905–14. [Article in Turkish]
14. Upadhyay D, Talwar S, Tiwari S, Gujral H. Self-Confidence a demeanor to emotional intelligence. Proteus J 2020;11:120–34.

15. Tillfors M, Andersson G, Ekselius L, Furmark T, Lewenhaupt S, Karlsson A, et al .A Randomized trial of ınternet-delivered treatment for social anxiety disorder in high school students. Cogn Behav Ther 2011;40:147–57.
16. MacLeod R, Elliott R, Rodgers B. Process-experiential/emotion-focused therapy for social anxiety: a Hermeneutic Single-Case Efficacy Design study. Psychother Res 2012;22:67–81.
17. Cederlund R, Ost LG. Perception of threat in children with social phobia: comparison to nonsocially anxious children before and after treatment. J Clin Child Adolesc Psychol 2011;40:855–63.
18. Mörtberg E, Clark DM, Bejerot S. Intensive group cognitive therapy and individual cognitive therapy for social phobia: sustained improvement at 5-year follow-up. J Anxiety Disord 2011;25:994–1000.
19. Googhari ZS, Hafezi F, Asgari P, Heidari A. Effect of mindfulness-based cognitive therapy on subjective well-being and psychological distress of Kerman university of medical sciences students. J Med Edu 2022;21:e120008.
20. McConville J, McAleer, R, Hahne A. The effect of mindfulness training on psychological well-being, learning and clinical performance of health profession students: A systematic review of randomised and non-randomised controlled trials. Explore 2017;13:26–45.
21. Öztürk Ş. The effect of a distance-delivered mindfulness-based psychoeducation program on the psychological well-being, emotional intelligence and stress levels of nursing students in Turkey: a randomized controlled study. Health Educ Res 2023;38:575–86.
22. Song Y, Lindquist R. Effects of mindfulness-based stress reduction on depression, anxiety, stress and mindfulness in Korean nursing students. Nurse Educ Today 2015;35:86–90.
23. Kabat-Zinn J, Hanh TN. Full catastrophe living: using the wisdom of your body and mind to face stress, pain, and illness. Rev. ed. New York: Delta Trade Paperbacks; 2009.
24. Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. J Pers Soc Psychol 2003;84:822–48.
25. Bishop SR, Lau M, Shapiro S, Carlson L, Anderson ND, Carmody J, et al. Mindfulness: A proposed operational definition. Clinical Psychology: Science and Practice 2004;11: 230–41.
26. Shapiro SL, Carlson LE, Astin JA, Freedman B. Mechanisms of mindfulness. J Clin Psychol 2006;62:373–86.
27. Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. Acceptance and commitment therapy: Model, processes and outcomes. Behav Res Ther 2006;44:1–25.
28. van der Riet P, Levett-Jones T, Aquino-Russell C. The effectiveness of mindfulness meditation for nurses and nursing students: An integrated literature review. Nurse Educ Today 2018;65:201–11.
29. Alagöz E, Kutlu FY. The effect of mindfulness-based stress reduction program on nursing students' stress level and emotion regulation: A randomized controlled trial. J Psychiatric Nurs 2025;16:262–71.
30. Foureur M, Besley K, Burton G, Yu N, Crisp J. Enhancing the resilience of nurses and midwives: pilot of a mindfulness-based program for increased health, sense of coherence and decreased depression, anxiety and stress. Contemp Nurse 2013;45:114–25.
31. Nieuwenhuys A, Oudejans RR. Anxiety and perceptual-motor performance: toward an integrated model of concepts, mechanisms, and processes. Psychol Res 2012;76:747–59.
32. Faul F, Erdfelder E, Buchner A, Lang AG. Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. Behav Res Methods 2009;41:1149–60.
33. Goldin PR, Morrison A, Jazaieri H, Brozovich F, et al. Group CBT versus MBSR for social anxiety disorder: A randomized controlled trial. J Consult Clin Psychol 2016;84:427–37.
34. Ştefan CA, Căpraru C, Szilágyi M. Investigating effects and mechanisms of a mindfulness-based stress reduction ıntervention in a sample of college students at risk for social anxiety. Mindfulness 2018;9:1509–21.
35. Atalay Z. Mindfulness: şimdi ve burada bilinçli farkındalık. İstanbul: Psikonet Yayınları; 2018. [Book in Turkish]
36. Williams M, Penman D. Farkındalık: çılgın bir dünyada huzur bulmak için pratik bir rehber. İstanbul: Pegasus; 2015. [Book in Turkish]
37. Liebowitz MR. Liebowitz social anxiety scale. J Anxiety Disord 1987.
38. Soykan C, Ozgüven HD, Gençöz T. Liebowitz social anxiety scale: the Turkish version. Psychol Rep. 2003;93(3 Pt 2):1059–69.
39. Voltan Acar N, Öğretmen T. Developing processes of Voltan Acar assertiveness scale. Turk Psychol Couns Guid J 2007;3:67–78.
40. Akın A. The development and psychometric characteristics of the self-confidence scale. Bolu Abant Izzet Baysal Univ J Fac Educ 2007;7:167–76. [Article in Turkish]
41. Schulz KF, Altman DG, Moher D, CONSORT Group. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. J Clin Epidemiol 2010;63:834–40.
42. Ratanasiripong P, Park JF, Ratanasiripong N, Kathalae D. Stress and Anxiety Management in Nursing Students: Biofeedback and Mindfulness Meditation. J Nurs Educ 2015;54:520–4.
43. Ye H. Impact of mindfulness-based stress reduction (mbsr) on students' social anxiety: A randomized controlled trial. NeuroQuantology 2017;15:101–7.
44. Etchegaray JM, Ottosen MJ, Dancsak T, Thomas EJ. Barriers to speaking-up about patient safety concerns. J Patient Saf 2020;16:e230–e4.
45. Lee SE, Choi J, Lee H, Sang S, Lee H, Hong HC. Factors influencing nurses' willingness to speak up regarding patient safety in East Asia: a systematic review. Risk Manag Healthc Policy 2021;14:1053–63
46. Hölzel BK, Carmody J, Vangel M, Congleton C, Yerramsetti SM, Gard T, Lazar SW. Mindfulness practice leads to increases in regional brain gray matter density. Psychiatry Res 2011;191:36–43.

47. Omura M, Maguire J, Levett-Jones T, Stone TE. Effectiveness of assertive communication training programs for health professionals and students: A systematic review protocol. JBI Database of System Rev Implementat Rep 2016;14:64–71.
48. Nishina Y, Tanigaki S. Trial and evaluation of assertion training involving nursing students. Yonago Acta Med 2013;56:63–68.
49. Atalay Z. Mindfulness: farkındalıkla anda kalabilme sanatı. 4th ed. İstanbul: İnkılap Yayınevi; 2020. [Book in Turkish]
50. Pligt J, Vliek M. The psychology of influence: theory, research and practice. Routledge; 2016.

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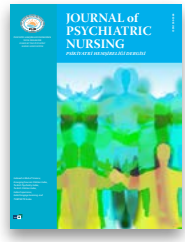

Review

Adverse childhood experiences and their association with internalizing and externalizing behaviors in adolescents: A scoping review

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Abstract

Adverse childhood experiences (ACE) influence adolescents' internalizing and externalizing behaviors. However, few reviews have examined these outcomes as distinct domains. This gap is important, as these two behavioral domains involve different developmental pathways and intervention needs. Therefore, this scoping review aimed to map the current empirical evidence linking ACE with internalizing and externalizing behaviors in adolescents, including ACE types, measurement tools, analytical approaches, and emerging findings. A scoping review was conducted to identify and analyze studies examining adverse childhood experiences (ACE) and adolescent behaviors. Literature searches were carried out in four databases: EBSCO, Scopus, PubMed, and ProQuest, for English-language articles published between 2020 and 2025. Search terms included combinations of keywords and Boolean operators: ("Adverse Childhood Experiences" OR "ACE") AND ("internalizing behaviors" OR "externalizing behaviors" OR "behavioral problems") AND ("adolescents"). Eligible studies were screened based on the inclusion criteria, and relevant data were extracted and synthesized. A total of eight studies examining ACE types were included, namely maltreatment, neglect, and household dysfunction. The ACE measurement tools used were the ACE Questionnaire, CTQ-SF, or ACE-IQ, while the behavioral measurement tools were SDQ, YSR, CBCL, or DSM-based tools. The reviewed studies used quantitative approaches, including multivariate regression, mediation and moderation analyses, and classification tree models. All studies reported significant associations between ACEs and both internalizing and externalizing behaviors. All studies highlighted emotional and behavioral problems and identified gender differences in response to ACEs: females tended to show internalizing symptoms, while males exhibited more externalizing behaviors. Overall, ACEs significantly impact adolescent behavioral health.

Keywords: Adolescent; adverse childhood experiences; externalizing behaviors; internalizing behaviors

Adverse childhood experiences (ACE) are potentially traumatic events occurring before the age of 18 years that are recalled by the person in adulthood.[1] These experiences may include various forms of child maltreatment, such as physical, emotional, or sexual abuse, as well as exposure to household dysfunction, including family or intimate partner violence, parental substance abuse, mental illness, or incarceration. A child may experience a single traumatic incident or repeated and chronic exposure to such adversities. Multiple ACE often co-occur, as adversities tend to cluster within the same family environment.[2] Among these factors, peer bullying has gained attention as an important developmental factor contributing to internalizing and externalizing behaviors. Peer bullying, along with other environmental stressors, can have long-term effects on mental health, leading to conditions such as depression, anxiety, and behavioral disorders.[3] Emerging evidence suggests that ACE are significantly associated with a wide range of adverse outcomes in adolescence, particularly internalizing behaviors (e.g., depression, anxiety) and externalizing behaviors (e.g., aggression, conduct problems).[4]

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Early exposure to ACE is recognized as a significant global public health concern.[5,6] Studies indicate that more than half of socioeconomically disadvantaged children in 20 major U.S. cities have experienced at least one ACE by the age of five. Common ACE reported in these children include emotional abuse (16%), neglect (13%), physical abuse (15%), and witnessing intimate partner violence (11%). These findings highlight the early onset and widespread nature of childhood adversity, particularly among vulnerable populations.[6]

ACE have also been strongly associated with a wide range of negative mental health outcomes. In childhood and adolescence, ACE exposure has been linked to an increased risk of internalizing problems, such as anxiety and depression, and externalizing problems, such as aggression and delinquency.[7] Regarding the effects of ACE observed later in life, cumulative exposure has been shown to increase the likelihood of psychiatric disorders, poorer functional outcomes (e.g., inability to maintain employment), depressed affect, and suicide attempts in adulthood.[8] Overall, ACE can have a detrimental impact across the lifespan, highlighting the urgent need to understand and address their developmental consequences, particularly during adolescence.

Although several scoping and systematic reviews have examined the broader impact of ACE on youth outcomes, most have adopted a generalist approach, covering mental health, behavior, and academic performance collectively. A recent systematic scoping review by Lam et al.[9] examined the association between adverse childhood experiences and adolescent mental health, behavioral functioning, and educational performance. Their review reported consistent evidence that ACE exposure is associated with an increased risk of psychological distress, behavioral problems, and poorer academic outcomes, with several studies demonstrating dose–response patterns. However, the review adopted a broad outcome framework and did not specifically differentiate internalizing and externalizing behavioral domains as primary analytic categories. Distinguishing these domains is important because they reflect different symptom pathways and intervention needs. Therefore, the present scoping review specifically maps empirical evidence linking ACE with internalizing and externalizing behaviors in adolescents as distinct outcome domains.

This scoping review aims to map the existing empirical evidence on the relationship between adverse childhood experiences (ACE) and internalizing and externalizing behaviors in adolescents. Specifically, it seeks to identify the types of ACE most commonly associated with internalizing and externalizing behaviors, describe the measurement tools used to assess ACE and behavioral outcomes, review the analytical approaches employed in relevant studies, and synthesize emerging patterns to support a clearer understanding of how ACE influence adolescent behavioral development.

What is presently known on this subject?

- Adverse childhood experiences (ACE) influence adolescents' internalizing and externalizing behaviors.

What does this article add to the existing knowledge?

- This scoping review aims to map the current empirical evidence linking ACE with internalizing and externalizing behaviors in adolescents.

What are the implications for practice?

- The strong and consistent link between ACE and internalizing/externalizing behaviors in adolescents underscores the essential role of nurses in early detection, intervention, and long-term support.

Beyond this mapping objective, the review further contributes by providing a structured comparison of internalizing and externalizing outcome domains and highlighting methodological patterns across recent ACE–behavior research. This focused evidence synthesis offers added conceptual and methodological clarity for future adolescent mental health studies. From a psychiatric nursing perspective, ACE-informed behavioral assessment and early risk identification are essential components of trauma-informed care, and nurses are encouraged to integrate ACE screening and childhood adversity assessment into mental health practice.[10]

Materials and Method

Study Design

This review adopts a scoping review methodology, aiming to map the existing literature, explore ongoing research activities related to the topic, and investigate gaps in the current research landscape. The scoping review involved identifying the research question, locating relevant studies through a systematic literature search based on the formulated research question, extracting data, tabulating findings, synthesizing, analyzing, explaining, and reporting the results. The primary research question guided this review: "What is the current empirical evidence on the association between adverse childhood experiences (ACE) and internalizing and externalizing behaviors in adolescents?"

Search Strategy

This review utilized four databases: EBSCO, Scopus, PubMed, and ProQuest. The search terms included combinations of keywords and Boolean operators: ("Adverse Childhood Experiences" OR "ACEs") AND ("internalizing behaviors" OR "externalizing behaviors" OR "behavioral problems") AND ("adolescents" OR "youth"). The search was limited to peer-reviewed articles published in English between 2020 and 2025. The final literature search was conducted in June 2025.

Inclusion and Exclusion Criteria

Articles were included if they (1) were empirical quantitative studies, (2) focused on adolescents aged 10–19 years, (3) examined the relationship between ACE and internalizing and/or externalizing behaviors, and (4) were published in peer-re-

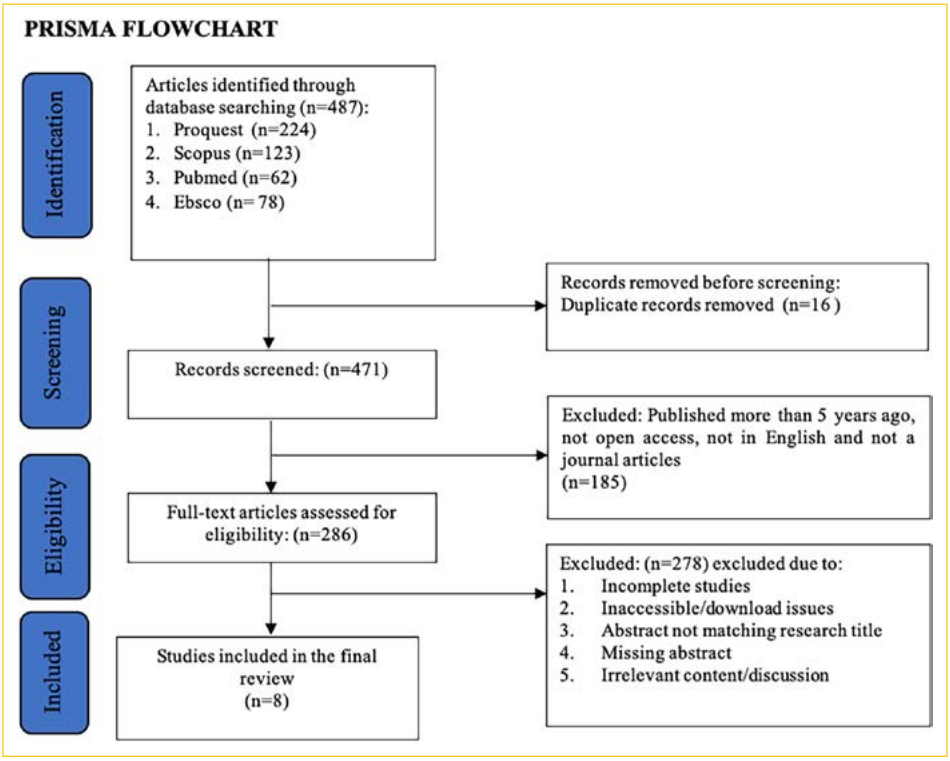

Figure 1. Flow diagram on database search.

viewed journals between 2020 and 2025. Articles were excluded if they were published before 2020, were not available in full text, lacked an abstract, were not written in English, did not involve adolescent participants, or did not assess either ACE or internalizing or externalizing outcomes. The publication year was limited to the most recent five years to ensure that this review captures the latest empirical evidence, measurement developments, and analytical approaches related to ACE and adolescent internalizing and externalizing behaviors, given the rapidly expanding literature in this field.

Although this review focused on adolescents aged 10–19 years, studies that included broader age ranges were retained if they provided age-relevant analyses or if the adolescent subgroup constituted a substantial portion of the sample. This approach was adopted to reflect the reality of developmental and population-based research designs, which often encompass overlapping age categories. Studies were excluded if the sample exclusively involved children under 10 years or adults over 19 years without specific analysis of adolescents.

Data Collection

Following the database search, all identified records were exported into Mendeley reference management software for record management and duplicate removal. Titles and abstracts were screened independently by two reviewers to assess eligibility. Full-text screening was also conducted independently by both reviewers to determine final inclusion. Any disagreements were resolved through discussion, and if consensus could not be reached, a third reviewer was consulted.

Data from eligible studies were extracted using a standardized form, including study characteristics, sample demographics, types of ACE assessed, behavioral outcomes, measurement tools, and key findings. The initial search yielded 487 records. After removing duplicates and irrelevant titles/abstracts, 286 articles were assessed for eligibility. Following full-text screening and application of the inclusion/exclusion criteria, eight studies were included in the final analysis. The screening process followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines.

Data Extraction and Charting Information

The guideline used for article selection was PRISMA-ScR, as illustrated in Figure 1. Inclusion and exclusion criteria were predefined and applied consistently throughout the screening process. The authors developed the database search strategy and completed the screening process. The authors also reviewed the search strategy and assessed the eligibility of articles at each stage of the screening process. After the final set of articles was identified, each article was summarized by mapping relevant information, including author name, publication date, study location, study design, identified methods, types of ACE examined, population and age, internalizing and externalizing behaviors, ACE measurement tool, behavior measurement tool, and key findings, as illustrated in Table 1.

Table 1. Summary of Included Studies

No	Authors, year and country	Study design, method and population & Age	Types of ACE examined	Internalizing/ externalizing behavior	ACE measurement tool	Behavior measurement tool
1	Marchica et al., 2022, Canada[11]	Cross-Sectional, Quantitative and Adolescents (12–18 years) Analytical methods: Moderation analysis using PROCESS macro (SPSS)	Abuse (physical, emotional, sexual), neglect, domestic violence, mental illness, incarceration, divorce, substance use	Internalizing & externalizing (as moderators of addiction)	ACE Questionnaire	Youth Self-Report (YSR)
2	Khanijahani & Sualp, 2022, USA[17]	Cross-Sectional, Quantitative and Children & adolescents (6–17) Analytical methods: Multivariate logistic regression, moderation analysis	9 ACEs from the NSCH survey	Internalizing: anxiety/depression; Externalizing: ADHD/behavior problems	NSCH Composite ACE Index	Parent-reported diagnosis
3	Thyberg & Lombardi, 2022, USA[18]	Cross-Sectional, Quantitative and Children & adolescents (3–17) Analytical methods: Logistic regression (dose–response), subgroup analysi	9 ACEs from the NSCH 2017	Internalizing: anxiety, depression; Externalizing: conduct problems	NSCH ACE Index	Parent-reported diagnosis
4	Smith et al., 2024, USA[12knowledge is scant regarding the frequencies, types, and consequences of adverse childhood experiences (ACEs]	Cross-Sectional, Quantitative and Adolescents aged 12–18 raised by grandparents Analytical methods: Classification and Regression Tree (CART) analysis	Bullying, neighborhood violence, parental mental illness, domestic violence, loss, substance use, separation	Internalizing: emotional issues, peer problems Externalizing: hyperactivity, conduct problems	14-item ACEs (BRFSS + WHO items include bullying, violence)	Strengths and Difficulties Questionnaire (SDQ)
5	Gautam et al., 2024, Australia[13]	Longitudinal, Quantitative and Children and adolescents aged 4–15; general population from the LSAC study Analytical methods: Generalized Estimating Equations (GEE)	Physical punishment, parental conflict, separation, hostile parenting, financial hardship, neglect, emotional maltreatment, exposure to substance use	Internalizing: sadness, anxiety Externalizing: aggression, hyperactivity Also included: prosocial behavior.	Parent-reported composite ACE index	Strengths and Difficulties Questionnaire (SDQ)
6	Villar et al., 2024, USA[14]	Longitudinal, Quantitative and Youth followed from age 3 to 17; predominantly White, high-risk families Analytical methods: Mediation analysis, Path analysis, Multilevel modeling, Bootstrap estimation	Family conflict, abuse (physical/emotional/sexual), neglect, parental substance use, incarceration, violence, mental illness, household dysfunction	Internalizing: depression, anxiety, somatic symptoms	21 ACE indicators derived from multiple validated sources	Child Behavior Checklist (CBCL), Youth Self Report (YSR)
7	Hicks et al., 2021, USA[15]	Longitudinal, Quantitative and Black children and youth aged 7–18 from six urban school districts Analytical methods: Mediation Analysis, Structural Equation Modeling (SEM), Bootstrap estimation	Emotional, physical, sexual abuse; neglect; parental substance use; domestic violence; incarceration; community violence	Internalizing: psychological distress Externalizing: substance use, delinquency	10-item ACEs scale (based on CTQ, CTS, and prior studies)	K6+ Psychological Distress Scale; National Youth Survey Delinquency Scale
8	Anderson et al., 2022, USA[16]	Cross-Sectional, Quantitative and Adolescents (ages 10–15) Analytical methods: Multivariate regression, moderation, 2-way and 3-way interaction models	Physical, emotional, sexual abuse; physical and emotional neglect	Internalizing: depression, anxiety, somatic; Externalizing: aggression, rule-breaking	Child Trauma Questionnaire – Short Form (CTQ-SF)	Youth Self Report (YSR)

Results

A total of eight studies met the inclusion criteria and were included in this scoping review (Table 1). These studies examined the relationship between ACE and internalizing and/or externalizing behaviors specifically in adolescents aged 10–19 years. The studies were published between 2020 and 2025 and conducted in various countries, including the United States (n=6), Canada, Germany, and Australia. The majority employed cross-sectional designs (n=6), while three employed longitudinal designs.

1. Type of ACEs

Some ACE fall under the category of abuse, which includes physical, emotional, and sexual abuse.[11–16] Research has also identified neglect as a type of ACE.[11,13–16] The articles also included types of household dysfunction, such as parental drug use, mental illness, incarceration, and domestic violence.[11–16] Expanded ACEs, such as bullying, neighborhood violence, and parental death, were also considered. In addition, in line with Khanijahani and Sualp and Thyberg and Lombardi, this review highlights the use of an expanded ACE framework derived from the National Survey of Children's Health (NSCH), which includes nine core ACE indicators: financial hardship (difficulty affording food or housing), parental separation or divorce, household substance use, household mental illness, incarceration of a parent or guardian, witnessing domestic violence, exposure to neighborhood violence, racial or ethnic discrimination, and death of a parent or guardian. These ACE reflect a broader sociocontextual understanding of adversity that goes beyond traditional abuse and neglect, capturing both family- and community-level stressors.[17,18] Emotional abuse, parental mental illness, and peer victimization were among the most consistent predictors of internalizing and externalizing behaviors.[12,15]

2. Measurement Tools

Most studies employed standardized tools to assess adversity and behavioral outcomes. Tools for measuring ACEs included the ACE Questionnaire, CTQ-SF, and composite indices derived from national or international surveys, such as the NSCH ACE Index, BRFSS, or multi-source ACE indicators.[11–16] Several studies also applied ACE scales adapted from validated sources, such as the WHO ACE-IQ or the Conflict Tactics Scale (CTS).[12,15] Behavioral outcomes were evaluated using a variety of validated instruments, including the SDQ (Strengths and Difficulties Questionnaire), YSR (Youth Self-Report), CBCL (Child Behavior Checklist), and parent- or self-reported diagnostic tools aligned with DSM criteria, such as checklists for intermittent explosive disorder (IED) and ADHD symptoms, the K6+ Psychological Distress Scale, and the National Youth Survey Delinquency Scale.[11–16] However, variation in informants (self-report vs. parent-report) and cutoff points limited comparability.[12,13,16]

3. Analytical Approaches

Quantitative approaches included multivariate regression, mediation and moderation analyses, and classification tree models. Moderators such as gender, SES, and parenting were analyzed in several studies, allowing for more nuanced interpretations.[11,14]

4. Emerging Patterns

ACE were consistently associated with an increased risk of both internalizing and externalizing behaviors across all included studies.[11,14,16] Specific ACE, such as bullying and emotional abuse, were more predictive than total ACE counts in some studies, suggesting that the type and context of adversity may be more important than sheer quantity.[12,15] Protective factors, such as warm parenting and neighborhood cohesion, were found to moderate adverse outcomes, highlighting the importance of contextual and relational buffers.[16,17] Gender and racial/ethnic differences also shaped behavioral responses to ACE. For instance, Thyberg and Lombardi and Hicks et al.[15] found that girls exhibited more internalizing symptoms, while boys displayed more externalizing behavior.[18]

Discussion

This scoping review identified consistent associations between adverse childhood experiences (ACEs) and both internalizing and externalizing behaviors among adolescents. Across the included studies, specific ACE types, particularly emotional abuse, parental mental illness, and peer victimization, emerged as stronger predictors of behavioral outcomes than cumulative ACE counts. The ACE categories examined included abuse (physical, emotional, and sexual), neglect, household dysfunction (e.g., substance use, mental illness, incarceration, and domestic violence), as well as expanded ACEs such as bullying, neighborhood violence, and parental death. Although cumulative ACE exposure was consistently associated with behavioral problems, the findings suggest that relationally salient and emotionally threatening adversities may exert a more pronounced impact on adolescent behavioral regulation than total exposure alone.

Bullying, which has a significant impact on adolescents' mental health, includes emotional bullying among peers, physical bullying among peers, and cyberbullying as adverse childhood experiences (ACE).[3] Symptoms among adolescents with internalizing and externalizing ACE-related outcomes may also arise from violence in the surrounding environment.[19] Adverse impacts on mental health also occur due to the loss of a parent or guardian, which is included in the expanded ACE as-

sessment.[20] Household dysfunction is a significant risk factor for a variety of negative impacts on children and adolescents. Forms of family instability and dysfunction include domestic violence, substance abuse, mental illness, parental divorce, and imprisonment of household members.[1] Parental divorce, domestic violence, substance abuse, mental health issues, and incarceration have a profound and ongoing impact on children's development and well-being.[21] Mental health problems associated with past adverse experiences involving household dysfunction include depression, anxiety, and suicidal behavior.[22] Neglect has been identified as one dimension of adverse childhood experiences and is associated with internalizing and externalizing symptoms in adolescents.[16] Emotional neglect is associated with a failure to provide the emotional support, love, and nurturing that are essential to the child. Food, shelter, clothing, and medical care constitute physical neglect, referring to the failure to meet basic physical needs.[5]

The ACE Questionnaire consists of 10 items with yes/no responses, yielding a score of 0–10, with a higher score indicating higher ACE exposure. This questionnaire has three items on sexual harassment and two items on neglect (emotional and physical).[21] The CTQ-SF questionnaire is a shortened version of the original CTQ, consisting of 28 items and subscales of emotional neglect, emotional abuse, physical neglect, psychological abuse, and sexual abuse. The questionnaire uses a 5-point Likert scale.[21] The ACE-IQ questionnaire has 43 items and was developed by the WHO. ACE-IQ includes maltreatment, family dysfunction, peer violence, community violence, and exposure to collective violence.[23] ACE-IQ addresses environmental violence and peer bullying, as well as parental death associated with ACE exposure, as the death of a parent is one of the events that shocks and stresses children.[21,24] Meanwhile, the behavioral questionnaires include the Strengths and Difficulties Questionnaire (SDQ), CBCL, and Youth Self-Report (YSR). The SDQ measures internalizing and externalizing difficulties and contains five domains: emotional symptoms, conduct problems, hyperactivity/inattention, peer problems, and prosocial behavior.[23] The CBCL (ages 6–18 years, parent-completed) and YSR (ages 11–18 years) are alternative assessment methods used more consistently with diagnostic symptoms such as depression and anxiety. YSR and CBCL items are rated on a scale from 0 to 2 (incorrect to correct).[25] Measures of depression, anxiety, and somatic symptoms consisted of 7, 12, and 6 items reported by parents and adolescents, respectively.[26]

The reviewed research uses several analytical approaches. Multivariate regression is used to understand the relationship between multiple independent variables and a dependent variable. This method helps identify the strength and types of relationships between variables. Differences in measurement tools, such as the ACE measurement scale used (e.g., CTQ or clinical interview), affect the accuracy of the results obtained in measuring traumatic experiences. Meanwhile, differences in analytical approaches, such as multivariate regression or mediation models, determine how findings can be analyzed and interpreted in the context of the relationships between variables. For example, differences in the measurement of environmental violence or family experiences can provide a more comprehensive picture of the external factors that contribute to ACE experiences.[27] Mediation analysis is an approach that identifies causal pathways by examining the relationship between treatment, outcomes, and intermediate variables (mediators). Moderation analysis discusses how the relationship between two variables changes depending on the level of a third variable (moderator). Meanwhile, the integrated mediation and moderation model combines mediation and moderation to provide a more comprehensive understanding of the relationships between variables.[27,28] Classification tree analysis (CTA) is a learning method that can reveal mediation effects without requiring assumptions about the distribution of variables or the functional form of the model.[29]

A notable pattern across the reviewed studies was the differential association between specific ACE types and behavioral domains. Emotional abuse and household mental illness were more consistently associated with internalizing symptoms, including anxiety, depressive symptoms, and emotional dysregulation.[30] In contrast, exposure to peer victimization and community or neighborhood violence showed stronger associations with externalizing behaviors such as aggression, conduct problems, and delinquency. These findings suggest that relational and emotionally threatening adversities may internalize distress, whereas direct exposure to violence may normalize aggressive or oppositional responses.[31] The distinction between internalizing and externalizing pathways highlights the importance of examining ACE types individually rather than relying solely on cumulative ACE scores.[32]

Several studies also emphasized the moderating influence of contextual and protective factors in shaping adolescent behavioral outcomes. Warm parenting practices, positive peer relationships, and supportive neighborhood environments were identified as buffering mechanisms that reduced the strength of the association between ACE exposure and maladaptive behaviors.[33] This underscores the importance of strengthening relational and community-based supports in prevention and intervention strategies, consistent with socio-ecological resilience frameworks that emphasize multi-level protective influences on adolescent development.[34]

Consistent with prior literature, gender differences were observed in shaping internalizing and externalizing behaviors in children and adolescents. These gender differences are evident, with girls more likely to show internalizing symp-

toms and boys more susceptible to externalizing behaviors.[35] Based on these data, early detection and gender-specific interventions are very important to reduce the adverse impact of ACEs on behavioral outcomes.[13] Importantly, this review included only studies focusing on adolescents aged 10–19 years and excluded studies involving pre-adolescents to maintain conceptual clarity. However, several included studies featured broader age ranges (e.g., 6–17 or 14–20) and were retained when adolescent subgroups were well represented or analyzed separately. This reflects the practical realities of developmental research, where age boundaries are often fluid.[14,15]

Overall, the evidence base confirms that ACEs pose a significant risk to adolescent behavioral health, with both internalizing and externalizing symptoms manifesting as early indicators of long-term psychosocial vulnerability. Addressing these issues requires cross-sector collaboration, trauma-informed care, and context-specific prevention strategies. Moreover, future research should aim to standardize measurement approaches and explore the intersectional influences of race, gender, and socioeconomic status to inform more equitable and culturally responsive interventions. Overall, the evidence confirms that specific adversities—particularly emotional abuse, parental mental illness, and peer victimization—pose substantial risks to adolescent behavioral health.

This review also highlights several important gaps in the current literature. Most available studies rely on cross-sectional designs, with relatively few longitudinal investigations examining developmental pathways linking specific ACE types to later internalizing and externalizing behavioral patterns. Gender-specific or sex-stratified analyses are not consistently conducted or reported across the included studies, limiting more detailed interpretation of potential differences in behavioral expression.

Implications of Findings

The findings of this scoping review have important implications for psychiatric and adolescent mental health nursing practice. The consistent associations between ACE exposure and both internalizing and externalizing behavioral patterns support the need for routine ACE-informed psychosocial and behavioral assessment in adolescent care settings. Nurses across clinical, school, and community contexts are well positioned to identify early behavioral indicators related to childhood adversity and to integrate structured ACE screening into assessment processes. The domain-specific behavioral patterns identified in this review also support the use of trauma-informed and individualized care planning, in which internalizing and externalizing symptoms are interpreted within an adversity-informed framework to guide early intervention and referral. In addition, the identified role of contextual and protective factors highlights the importance of family engagement, supportive caregiving environments, and interprofessional collaboration in reducing behavioral risk and strengthening preventive mental health strategies.

Limitations

Another limitation is that the number of eligible studies published within the most recent five-year period remains relatively limited, which may restrict the breadth of observable patterns across ACE types and behavioral domains. In addition, many included studies did not consistently report gender-stratified analyses, making it difficult to fully interpret potential differences in internalizing and externalizing behavioral patterns between male and female adolescents.

Conclusion

This review confirms that ACE are a significant risk factor for internalizing and externalizing problems in adolescence. The nature, severity, and timing of these experiences, as well as individual and contextual moderators, shape how adversity is expressed behaviorally. Intervening early, targeting high-risk ACE types, and promoting resilience through supportive systems are key to disrupting the progression from adversity to dysfunction. Although the review focused on adolescents aged 10–19 years, several included studies involved wider age ranges, which may introduce variability in age-specific findings. Longitudinal research designs are needed to better understand the temporal and causal pathways linking ACE to internalizing and externalizing behaviors. Moreover, greater attention should be given to intersectional factors such as race, gender, socioeconomic status, and family context, which may moderate the effects of ACEs. Lastly, the inclusion of protective and resilience factors in future research is essential to inform more comprehensive prevention and intervention strategies. Future nursing research should prioritize longitudinal and participatory designs, with a focus on resilience, family support, and community-based interventions that can inform evidence-based nursing practice and improve outcomes.

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References

1. Zarei K, Xu G, Zimmerman B, Giannotti M, Strathearn L. Adverse childhood experiences predict common neurodevelopmental and behavioral health conditions among U.S. Children. Children (Basel) 2021;8:761.
2. Wood S, Janssen H, Hughes K, Passmore J, Bellis MA. A Practical Handbook on Adverse Childhood Experiences (ACEs) Delivering prevention, building resilience and developing trauma-informed systems. A resource for professionals and organizations A practical handbook on Adverse Childhood Experiences (ACEs) Deli. Public Health Wales NHS Trust; 2023.
3. Trompeter N, Testa A, Raney JH, Jackson DB, Al-Shoaibi AAA, Ganson KT, et al. The Association Between Adverse Childhood Experiences (ACEs), bullying victimization, and internalizing and externalizing problems among early adolescents: examining cumulative and interactive associations. J Youth Adolesc 2024;53:744–52.
4. Lau TWI, Lim CG, Acharryya S, Lim-Ashworth N, Tan YR, Fung SSD. Gender differences in externalizing and internalizing problems in Singaporean children and adolescents with attention-deficit/hyperactivity disorder. Child Adolesc Psychiatry Ment Health 2021;15:3.
5. Hunt TKA, Slack KS, Berger LM. Adverse childhood experiences and behavioral problems in middle childhood. Child Abuse Negl 2017;67:391–402.
6. Jimenez ME, Wade R Jr, Lin Y, Morrow LM, Reichman NE. Adverse experiences in early childhood and kindergarten outcomes. Pediatrics 2016;137:e20151839.
7. Yoon S, Steigerwald S, Holmes MR, Perzynski AT. Children's exposure to violence: the underlying effect of posttraumatic stress symptoms on behavior problems. J Trauma Stress 2016;29:72–9.
8. Copeland WE, Shanahan L, Hinesley J, Chan RF, Aberg KA, Fairbank JA, et al. Association of childhood trauma exposure with adult psychiatric disorders and functional outcomes. JAMA Netw Open 2018;1:e184493.
9. Lam N, Fairweather S, Lewer D, Prescott M, Undugoda P, Dickerson J, et al. The association between adverse childhood experiences and mental health, behaviour, and educational performance in adolescence: A systematic scoping review. PLOS Ment Health 2024;1:e0000165.
10. Kalmakis KA, Chandler GE. Health consequences of adverse childhood experiences: a systematic review. J Am Assoc Nurse Pract 2015;27:457–65.
11. Marchica LA, Richard J, Ivoska W, Derevensky JL. Adverse childhood experiences and addictive behaviors in adolescence: the moderating effect of internalizing and externalizing symptoms. Int J Ment Health Addict 2022;20:31–43.
12. Smith GC, Dolbin-MacNab M, Infurna FJ, Crowley DM, Castro S, Musil C, et al. Self-reported adverse childhood experiences and risk for internalizing and externalizing difficulties among adolescent custodial grandchildren. J Child Fam Stud 2024;33:982–97.
13. Gautam N, Rahman MM, Khanam R. Adverse childhood experiences and externalizing, internalizing, and prosocial behaviors in children and adolescents: A longitudinal study. J Affect Disord 2024;363:124–33.
14. Villar MG, Fava NM, Zucker RA, Trucco EM. Internalizing pathways to adolescent substance use from adverse childhood experiences. Int J Environ Res Public Health 2024;21:1408.
15. Hicks MR, Kernsmith P, Smith-Darden J. The effects of adverse childhood experiences on internalizing and externalizing behaviors among black children and youth. J Child Adolesc Trauma 2020;14:115–22.
16. Anderson AS, Siciliano RE, Henry LM, Watson KH, Gruhn MA, Kuhn TM, et al. Adverse childhood experiences, parenting, and socioeconomic status: Associations with internalizing and externalizing symptoms in adolescence. Child Abuse Negl 2022;125:105493.
17. Khanijahani A, Sualp K. Adverse childhood experiences, neighborhood support, and internalizing and externalizing mental disorders among 6-17 years old US children: evidence from a population-based study. Community Ment Health J 2022;58:166–78.
18. Thyberg CT, Lombardi BM. Examining racial differences in internalizing and externalizing diagnoses for children exposed to adverse childhood experiences. Clin Soc Work J 2022;50:286–96.
19. Wright AW, Austin M, Booth C, Kliewer W. Systematic review: exposure to community violence and physical health outcomes in youth. J Pediatr Psychol 2017;42:364–78.
20. Luecken LJ, Roubinov DS. Pathways to lifespan health following childhood parental death. Soc Personal Psychol Compass 2012;6:243–57.
21. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med 1998;14:245–58.
22. Szalas N, Bryńska A. Adverse childhood experiences – characteristics and links with mental disorders, suicidal behaviours and self-injury among children and adolescents. Psychiatr i Psychol Klin 2023;23:52–61.
23. Ports KA, Ford DC, Merrick MT, Guinn AS. ACEs: Definitions, measurement, and prevalence. In: Adverse Childhood Experiences. Elsevier; 2020. p.17–34.
24. Bethell CD, Carle A, Hudziak J, Gombojav N, Powers K, Wade R, et al. Methods to assess adverse childhood experiences of children and families: toward approaches to promote child well-being in policy and practice. Acad Pediatr 2017;17:S51–69.
25. Achenbach TM. Manual for the Youth Self-Report and 1991 profile. Burlington: University of Vermont Department of Psychiatry. 1991.
26. Lengua LJ, Sadowski CA, Friedrich WN, Fisher J. Rationally and empirically derived dimensions of children's symptomatology: expert ratings and confirmatory factor analyses of the CBCL. J Consult Clin Psychol 2001;69:683–98.
27. Sim M, Kim SY, Suh Y. Sample size requirements for simple and complex mediation models. Educ Psychol Meas 2022;82:76–106.
28. Jose PE. Mediation and Moderation. In: The Reviewer's Guide to Quantitative Methods in the Social Sciences. Second Edi-

tion. New York : Routledge, 2019. Revised edition of The reviewer's guide to quantitative methods in the social sciences, 2010.: Routledge; 2018. p.248–59.
29. Linden A, Yarnold PR. Identifying causal mechanisms in health care interventions using classification tree analysis. J Eval Clin Pract 2018;24:353–61.
30. Schulze A, Cloos L, Zdravkovic M, Lis S, Krause-Utz A. On the interplay of borderline personality features, childhood trauma severity, attachment types, and social support. Borderline Personal Disord Emot Dysregul 2022;9:35.
31. Lent MC, Buck C, Murray-Close D. The role of overprotective parenting in longitudinal associations between peer victimization and aggression and internalizing symptoms during preadolescence. J Child Fam Stud 2025;34:1338–50.
32. Clifford ET, Nguyen AJ, Bradshaw CP. Patterns of adverse childhood experiences associated with externalizing problems : a latent class analysis. Violence Gend 2023.
33. Hong JS, Ryou B, Allen-meares P, Espelage DL. Identifying protective factors that potentially buffer the association between peer victimization and behavior among US adolescents. Sch Psychol Int 2019.
34. Küçükardalı B, Natalia C, Angela S, Abby LL, Caldwell E. Exploring protective factors against adverse childhood experiences in primary care : a scoping review based on a socio - ecological resilience model. Advers Resil Sci 2025;6:499–523.
35. Leban L. The effects of adverse childhood experiences and gender on developmental trajectories of internalizing and externalizing outcomes. Crime Delinq 2021;67:631–61.

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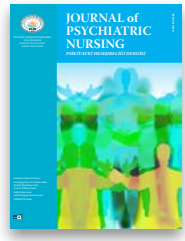

Letter to the Editor

"Rooted. Resilient. Ready." reflections from the Horatio 2026 Congress in Mechelen

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Dear Editor,

I attended the annual congress of Horatio – the European Psychiatric Nurses Association, held this year on May 28–29, 2026, at the Thomas More University campus in Mechelen, Belgium, as a delegate of the Psychiatric Nurses Association.[1] Mechelen itself offered a warm welcome to the congress. The Welcome Ceremony on the first day was held at the Town Hall. The mayor, Bart Somers, addressed the participants during the opening ceremony on the first day. In his remarks, he highlighted the importance of mental health and drew attention to the city's deep ties with psychiatric nursing. This participation and speech underscored not only the scientific dimension of the congress but also its social significance.

This year's congress theme, "Rooted. Resilient. Ready.", reflected both the past and future of psychiatric nursing and Horatio itself. Built on Horatio's 20-year history and accumulated experience, this theme offered a robust conceptual and practical framework by addressing our professional identity, our capacity to adapt to changing circumstances, and our resilience in the face of challenges in the field of mental health.

The keynote speakers at the congress provided comprehensive assessments of the present and future of mental health nursing on both days. The first keynote speaker on the opening day was Prof. Cheryl Forchuk (Arthur Labatt Family School of Nursing, Western University, Canada), a student of Hildegard Peplau, one of the leading theorists of psychiatric nursing. Specializing in Peplau's theory, Forchuk once again demonstrated deep respect for its theoretical roots while addressing empowerment and resilience in psychiatric nursing.

The second speaker was Dominique de Marné, founder and CEO of Mental Health Crowd GmbH. Having personally experienced psychiatric services, de Marné shared her personal story of humane and dignified encounters with nurses and powerfully articulated the need to make mental health a natural part of social life. One of the most important points in her impressive talk was the emphasis that our own mental health should be the top priority. While conveying the importance of self-care, she did so in an interactive way that also increased the participants' self-awareness.

The program also addressed the connection between art and mental health. Belgian singer Sanne Putseys, who developed a deep interest in this field through her 39-year-old brother, who is studying nursing, conveyed a powerful message about the place of mental health in human life through her songs. This performance added emotional depth to the scientific atmosphere of the congress.

The congress also celebrated the 20th anniversary of Horatio's founding. The sharing of archival photographs prepared by Secretary General Alexei Sammut and Treasurer Tomas Beth, along with conversations with former presidents and board members, drew great interest from participants. Having been part of the Horatio community since my doctoral studies, seeing these photographs evoked a deep sense of belonging—a reminder of how much this network has meant to so many of us over the years.

The congress also saw the presentation of the Horatio Fellowship Award, which has become a tradition. This distinguished award—previously given to Des Kavanagh (Ireland) in 2017,

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Michael Schulz (Germany) in 2018, Agnes Higgins (Ireland) in 2023, and Páll Biering (Iceland) in 2025—was presented this year to Prof. Dr. Nina Kilkku (VID Specialized University, Oslo, Norway), a former President of Horatio. The award is a meaningful tribute to those who have dedicated themselves to advancing psychiatric nursing, and Prof. Kilkku's contribution to the field makes her a most worthy recipient.

At the end of the first day, the location of the next congress was announced with great excitement, accompanied by a video presentation—another established tradition. The first day was followed by the Ordinary General Assembly. Elections were held for the board positions whose terms had expired, and Horatio's budget and activity report were presented. The first day concluded with a gala dinner that brought the participants together.

On the second day, Fellowship Award recipient Prof. Dr. Nina Kilkku (VID Specialized University, Oslo, Norway) addressed the current state of psychiatric nursing, while Horatio board member Assoc. Prof. Dr. Hanna Tuvesson (Linnaeus University, Sweden) shared her perspectives on the future of psychiatric nursing. The last keynote speaker was Prof. Dr. Dirk Richter (Bern University of Applied Sciences, Switzerland; Manchester Metropolitan University, United Kingdom), who presented a thought-provoking lecture titled "Are We Ready? Human Rights as Foundation and Challenge in Mental Health Nursing," critically examining how human rights in mental health nursing should be approached both as a foundation and as a challenge. The second day concluded with a closing session following the parallel sessions.

The scientific program of the congress was exceptionally rich. Across eight parallel sessions, 78 oral presentations, five symposia, 14 workshops, and 37 poster presentations were delivered. One noteworthy feature of this year's congress was the broad geographic diversity of contributions, with researchers from across Europe and beyond presenting their work.

Reflecting on the congress as a whole, what stood out most was the vitality of psychiatric nursing research and education across member countries. At the same time, the congress made clear that stronger representation of clinical practice and policy perspectives remains an important goal—one that the Horatio community is well positioned to pursue in the years ahead.

Horatio's two-decade journey bears witness to the development of psychiatric nursing in Europe and makes significant contributions to the field. The fact that next year's congress will take place in Bratislava under the theme "Care. Connect. Transform." is promising, as it reflects the dynamism and priorities of psychiatric nursing in Europe. I wished to share the association's scientific and professional insights with the readers of the Journal of Psychiatric Nursing.

Respectfully,

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References

1. Horatio Belgium. Rooted. Resilient. Ready. Fundamentals of Mental Health Nursing Driving the Future. 2026. Available from: https://www.horatiobelgium2026.com/. Accessed Jun 26, 2026.