KOÇ ÜNİVERSİTESİ
SEMAHAT ARSEL NURSING EDUCATION, PRACTICE AND RESEARCH CENTER

EISSN: 2757-9204
jer-nursing.org

JERN

Journal of Education and Research in Nursing

Volume 22 · Issue 4 · 2025

KARE MEDIA

JERN Journal of Education and Research in Nursing

KARE MEDIA

Kare Publishing is
a subsidiary of
Kare Media.

Publication Coordinator
Zeynep Sena Pekşen

Graphic Design
Duygu Şimşek

General Manager
Ali Cangül

Contact
KARE Publishing
Address: Göztepe Mah., Fahrettin Kerim Gökay Cad., No: 200, D: 2,
Göztepe, Kadıköy, İstanbul, Türkiye
Phone: +90 216 550 61 11
Web: www.karepb.com
E-mail: kare@karepb.com

AIM AND SCOPE

Journal of Education and Research in Nursing (J Educ Res Nurs) is an international, scientific, open access, online-only periodical published in accordance with independent, unbiased, and double-blinded peer-review principles. The journal is the official publication of Koç University Semahat Arsel Nursing Education, Practice and Research Center (SANERC), published quarterly in March, June, September, and December. The publication language of the journal is English and the journal accepts English manuscripts only.

All expenses of the journal are covered by SANERC. Processing and publication are free of charge with the journal. No fees are requested from the authors at any point throughout the evaluation and publication process. All manuscripts must be submitted via the online submission system, which is available at http://jer-nursing.org/. The journal guidelines, technical information, and the required forms are available on the journal's web page.

Journal of Education and Research in Nursing aims to share the experience and the knowledge from Türkiye and different cultures through original studies in nursing and healthcare as well as protect and improve the public health and strengthen the nursing profession by providing the opportunity to transfer current knowledge into practice. The journal contributes to the literature by publishing manuscripts at the highest scientific and clinical value in nursing research, practice, and education. The journal publishes original articles, reviews, case reports, and letters to the editors that are prepared in accordance with ethical guidelines. The journal also welcomes contributions from other healthcare professionals on issues that have a direct impact on nursing practice.

The target audience of the journal is primarily researchers, practitioners, educators and executive nurses as well as other healthcare professionals, policy makers and students of nursing and health.

Journal of Education and Research in Nursing currently indexed in GALE (2010), Tubitak Ulakbim Medicine (2012), EBSCO (2017), CINAHL (2017), DOAJ (2021), Research4Life (2021), Hinari (2021), SCILIT (2021), OUCI (2021), CNKI (2022), MIAR (2024), SUDOC (2024), Zeitschriften Datenbank (2024), Electronic Journal Library (2024), and EmCare (2025).

The editorial and publication processes of the journal are shaped in accordance with the guidelines of the International Committee of Medical Journal Editors (ICMJE), World Association of Medical Editors (WAME), Council of Science Editors (CSE), Committee on Publication Ethics (COPE), European Association of Science Editors (EASE), and National Information Standards Organization (NISO). The journal is in conformity with the Principles of Transparency and Best Practice in Scholarly Publishing (doaj.org/bestpractice).

Advertisement Policy

Journal of Education and Research in Nursing can publish advertisement images in the journal's website upon the approval of the Editor in Chief. Potential advertisers should contact the Editorial Office. Advertisers have no effect on the editorial decisions or advertising policies.

Disclaimer

Statements or opinions expressed in the manuscripts published in the journal reflect the views of the author(s) and not the opinions of the editors, editorial board, and/or publisher; the editors, editorial board, and publisher disclaim any responsibility or liability for such materials.

Open Access Statement

Editor in Chief: Sevilay Şenol Çelik

Address: Koç University Faculty of Nursing, Sağlık Bilimleri Kampüsü, Davutpaşa Caddesi 34010 Topkapı, İstanbul, Türkiye

E-mail: sevilaycelik@ku.edu.tr

Publisher: Kare Media

Address: Göztepe Mah., Fahrettin Kerim Gökay Cad., No: 200 D: 2, Göztepe, Kadıköy, İstanbul, Türkiye

Phone: +90 216 550 61 11

E-mail: kare@karepb.com

Webpage: www.karepb.com

INSTRUCTIONS TO AUTHORS

Journal of Education and Research in Nursing (J Educ Res Nurs) is an international, scientific, open access, online-only periodical published in accordance with independent, unbiased, and double-blinded peer-review principles. The journal is the official publication of Koç University Semahat Arsel Nursing Education, Practice and Research Center (SANERC), published quarterly in March, June, September, and December. The publication language of the journal is English and the journal accepts English manuscripts only. The authors of the previously accepted Turkish articles are required to send English version of their articles when the publication process starts.

All expenses of the journal are covered by SANERC. Processing and publication are free of charge with the journal. No fees are requested from the authors at any point throughout the evaluation and publication process. All manuscripts must be submitted via the online submission system, which is available at http://jer-nursing.org. The journal guidelines, technical information, and the required forms are available on the journal's web page.

Journal of Education and Research in Nursing aims to share the experience and the knowledge from Türkiye and different cultures through original studies in nursing and health-care as well as protect and improve the public health and strengthen the nursing profession by providing the opportunity to transfer current knowledge into practice. The journal contributes to the literature by publishing manuscripts at the highest scientific and clinical value in nursing research, practice, and education. The journal publishes original articles, reviews, case reports, and letters to the editors that are prepared in accordance with ethical guidelines. The journal also welcomes contributions from other healthcare professionals on issues that have a direct impact on nursing practice.

The target audience of the journal is primarily researchers, practitioners, educators and executive nurses as well as other healthcare professionals, policy makers and students of nursing and health.

EDITORIAL AND PUBLICATION PROCESS

The editorial and publication processes of the journal are shaped in accordance with the guidelines of the International Council of Medical Journal Editors (ICMJE), the World Association of Medical Editors (WAME), the Council of Science Editors (CSE), the Committee on Publication Ethics (COPE), the European Association of Science Editors (EASE), and National Information Standards Organization (NISO). The journal conforms to the Principles of Transparency and Best Practice in Scholarly Publishing (doaj.org/bestpractice).

Originality, high scientific quality, and citation potential are the most important criteria for a manuscript to be accepted for publication. Manuscripts submitted for evaluation should not have been previously presented or already published in an electronic or printed medium. The journal should be informed of manuscripts that have been submitted to another journal for evaluation and rejected for publication. The submission of previous reviewer reports will expedite the evaluation process. Manuscripts that have been presented in a meeting should be submitted with detailed information on the organization, including the name, date, and location of the organization.

PEER REVIEW PROCESS

Manuscripts submitted to Journal of Education and Research in Nursing will go through a double-blind peer-review process. Each submission will be reviewed by at least two external, independent peer reviewers who are experts in their fields in order to ensure an unbiased evaluation process. The editorial board will invite an external and independent editor to manage the evaluation processes of manuscripts submitted by editors or by the editorial board members of the journal. The Editor in Chief is the final authority in the decision-making process for all submissions. Reviewers who seek assistance from a trainee or colleague in the performance of a review should acknowledge these individuals' contributions in the written comments submitted to the editor. Reviewers must maintain the confidentiality of the manuscript, which may prohibit the uploading of the manuscript to software or other AI technologies where confidentiality cannot be assured. Reviewers must request permission from the journal prior to using AI technology to facilitate their review.

ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

At submission, the journal should require authors to disclose whether they used artificial intelligence (AI)– assisted technologies (such as Large Language Models [LLMs], chatbots, or image creators) in the production of submitted work. Authors who use such technology should describe, in both the cover letter and the submitted work, how they used it. Use of AI for writing assistance should be reported in the acknowledgment section. Authors who used AI technology to conduct the study should describe its use in the methods section in sufficient detail to enable replication to the approach, including the tool used, version, and prompts where applicable. Chatbots (such as ChatGPT) should not be listed as authors because they cannot be responsible for the accuracy, integrity, and originality of the work, and these responsibilities are required for authorship. Therefore, humans are responsible for any submitted material that included the use of AI-assisted technologies. Authors should carefully review and edit the result because AI can generate authoritative-sounding output that can be incorrect, incomplete, or biased. Authors should not list AI and Alassisted technologies as an author or co-author, nor cite AI as an author. Authors should be able to assert that there is no plagiarism in their paper, including in text and images produced by the AI. Humans must ensure there is appropriate attribution of all quoted material, including full citations.

ETHICAL GUIDELINES

An approval of research protocols by the Ethics Committee in accordance with international agreements (World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects," amended in October 2013, www.wma.net) is required for experimental, clinical, and drug studies and for some case reports. If required, ethics committee reports, or an equivalent official document will be requested from the authors. Submissions which do not have ethical approval will be reviewed according to COPE's Research, Audit and Service Evaluations guideline.

Such manuscripts can be rejected after editorial review due to the lack of ethics committee approval.

For manuscripts concerning experimental research on humans, a statement should be included that written informed consent of patients and volunteers was obtained following a detailed explanation of the procedures that they may undergo.

It is the authors' responsibility to protect the patients' anonymity carefully. For photographs that may reveal the identity of the patients, signed releases of the patient or their legal representative should be enclosed, and the publication approval must be provided in the Methods section.

For studies carried out on animals, an approval research protocols by the Ethics Committee in accordance with international agreements (Guide for the care and use of laboratory animals, 8th edition, 2011" and/or "Interna-

tional Guiding Principles for Biomedical Research Involving Animals, 2012") is required. Also, the measures taken to prevent pain and suffering of the animals should be stated clearly in such studies.

Information on patient consent, the name of the ethics committee, and the ethics committee approval number and date should also be stated in the Methods section of the manuscript.

PLAGIARISM AND ETHICAL MISCONDUCT

Journal of Education and Research in Nursing is extremely sensitive about plagiarism. All submissions are screened by a similarity detection software (iThenticate by Cross-Check) at any point during the peer-review and/or production process.

When you are discussing others' (or your own) previous work, please make sure that you cite the material correctly in every instance.

Authors are strongly recommended to avoid any form plagiarism and ethical misconduct that are exemplified below.

Self-plagiarism (text-recycling): Overlapping sections or sentences with the author's previous publications without citing them. Even if you are the author of the phrases or sentences, the text should not have unacceptable similarity with the previously published data.

Salami slicing: Using the same data of a research into several different articles. Reporting the same hypotheses, population, and methods of a study is into different papers is not acceptable.

Data Fabrication: It is the addition of data that never occurred during the gathering of data or the experiments. Results and their interpretation must be based on the complete data sets and reported accordingly.

Data Manipulation/Falsification: It means manipulating research data with the intention of giving a false impression. This includes manipulating images (e.g. micrographs, gels, radiological images), removing outliers or 'inconvenient' results, changing data points, etc.

In the event of alleged or suspected research misconduct, e.g., plagiarism, citation manipulation, and data falsification/fabrication, the Editorial Board will follow and act according to COPE flowcharts.

PREPRINT

Journal of Education and Research in Nursing does not consider preprint publications as prior publication. In other words, authors are allowed to present and discuss their findings on a non-commercial preprint server before submission to a journal.

Authors must provide the journal with the pre-print server deposition of their article accompanying its DOI during initial submission.

If the article is published in the Journal of Education and Research in Nursing, it is the responsibility of the authors to update the archived preprint and link it to the published version of the article.

AUTHORSHIP

Each person listed as an author should fulfill the authorship criteria recommended by the International Committee of Medical Journal Editors (ICMJE - www.icmje.org). The ICMJE recommends that authorship is based on the following four criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
2. Drafting the work or revising it critically for important intellectual content; AND
3. Final approval of the version to be published; AND
4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

In addition to being accountable for the parts of the work he/she has done, an author should be able to identify which co-authors are responsible for specific other parts of the work. Also, authors should have confidence in the integrity of the contributions of their co-authors.

All those designated as authors should meet all four criteria for authorship, and all who meet the four criteria should be identified as authors. Those who do not meet all four criteria should be acknowledged in the title page of the manuscript.

Journal of Education and Research in Nursing requires corresponding authors to submit a signed and scanned version of the Copyright Agreement and Acknowledgement of Authorship form (available for download at http://jer-nursing.org) during the initial submission process to act appropriately on authorship rights and to prevent ghost or honorary authorship. If the editorial board suspects a case of "gift authorship," the submission will be rejected without further review. As part of the submission of the manuscript, the corresponding author should also send a short statement declaring that he/she accepts to undertake all the responsibility for authorship during the submission and review stages of the manuscript.

CHANGE OF AUTHORSHIP

Journal of Education and Research in Nursing reviews the authorship according to the author's declaration in the Title Page, thus it is the authors responsibility to send the final order of the complete author names. Requests in the change of authorship (e.g. removal/addition of the authors, change in the order etc) after submission are subject to editorial approval. Editorial Board will investigate this kind of cases and act following COPE flowcharts.

Change of authorship requests should be submitted to the Editorial Office with an official letter stating the reasons of the change. The letter must be signed by all authors and include their approval on the change in authorship. If the request is approved by the Editorial Board, authors need to submit a new Copyright Agreement Form according to the final order list.

DECLARATION OF INTEREST

Journal of Education and Research in Nursing requires and encourages the authors and the individuals involved in the evaluation process of submitted manuscripts to disclose any existing or potential conflicts of interests, including financial, consultant, and institutional, that might lead to potential bias or a conflict of interest. Any financial grants or other support received for a submitted study from individuals or institutions should be disclosed to the Editorial Board. To disclose a potential conflict of interest, the ICMJE Potential Conflict of Interest Disclosure Form should be filled in and submitted by all contributing authors. The journal's Editorial Board resolves cases of a potential conflict of interest of the editors, authors, or reviewers within the scope of COPE and ICMJE guidelines.

APPEALS AND COMPLAINT

The Editorial Board of the journal handles all appeal and complaint cases within the scope of COPE guidelines. In such cases, authors should get in direct contact with the editorial office regarding their appeals and com-

plaints. When needed, an ombudsperson may be assigned to resolve claims that cannot be resolved internally. The Editor in Chief is the final authority in the decision-making process for all appeals and complaints.

COPYRIGHT AND LICENSE

Journal of Education and Research in Nursing requires each submission to be accompanied by a Copyright Agreement and Acknowledgement of Authorship form (available for download at http://jer-nursing.org). By signing this form, authors retain the copyright of their work and agree that the article, if accepted for publication by the Journal of Education and Research in Nursing will be licensed under a Creative Commons Attribution-NonCommercial (CC BY-NC) 4.0 International License which permits third parties to share and adapt the content for non-commercial purposes by giving the appropriate credit to the original work.

When using previously published content, including figures, tables, or any other material in both print and electronic formats, authors must obtain permission from the copyright holder. Legal, financial and criminal liabilities in this regard belong to the author(s).

DISCLAIMER

Statements or opinions expressed in the manuscripts published in Journal of Education and Research in Nursing reflect the views of the author(s) and not the opinions of the editors, the editorial board, or the publisher; the editors, the editorial board, and the publisher disclaim any responsibility or liability for such materials. The final responsibility regarding the published content rests with the authors.

Article Withdrawal Process

In accordance with the publication policies of the Journal of Education and Research in Nursing, the duties and responsibilities of the author(s) and the editorial board during the withdrawal of an article are given below.

Responsibilities of the Authors

The author(s) has an obligation to cooperate with the journal editor in the withdrawal process if he/she notices an error or mistake in the pre-checking stage of the manuscript or in a published work. Withdrawal requests will not be considered for a manuscript in the review process or in the publication phase. Author(s) who wish to withdraw their study outside of the review process or the publication phase are obliged to fill out and send the Withdrawal Form via e-mail at kare@karepb.com. The Editorial Board will review the withdrawal notification and respond within 15 days at the latest. Authors cannot submit their manuscripts to another journal for evaluation unless the editorial board approves the withdrawal request for manuscripts whose copyrights have been transferred to the Journal of Education and Research in Nursing at the submission stage.

Responsibilities of the Editorial Board

The editorial board of the Journal of Education and Research in Nursing has the obligation to initiate an investigation into any suspected copyright infringement, ethical statement violation, or plagiarism regarding studies that are published ahead of print, or under review. If the editorial board determines that there is a violation of copyright, ethical statement, or plagiarism in the work under evaluation, it withdraws the work from the evaluation and returns it to the authors by citing the detected situations in detail. In the event that copyright infringement or plagiarism is determined to have occurred in a published work or a work in early view, the Editorial Board may recommend to the publishers or editorial boards, of which study was previously published, to ensure the validity and reliability of the published studies or to withdraw them.

MANUSCRIPT PREPARATION

The manuscripts should be prepared in accordance with ICM-JE-Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (updated in December 2018 - http://www.icmje.org/icmje-recommen-dations.pdf). Authors are required to prepare manuscripts in accordance with the CONSORT guidelines for randomized research studies, STROBE guidelines for observational original research studies, STARD guidelines for studies on diagnostic accuracy, PRISMA guidelines for systematic reviews and meta-analysis, ARRIVE guidelines for experimental animal studies, and TREND guidelines for non-randomized public behavior. To find the right guideline for your research, please complete the questionnaire by Equator Network here.

The style of the manuscripts should be prepared according to AMA Manual of Style 11th Edition.

Manuscripts can only be submitted through the journal's online manuscript submission and evaluation system, available at jern.manuscriptmanager.net. Manuscripts submitted via any other medium and submissions by anyone other than one of the authors will not be evaluated.

Manuscripts submitted to the journal will first go through a technical evaluation process where the editorial office staff will ensure that the manuscript has been prepared and submitted in accordance with the journal's guidelines. Submissions that do not conform to the journal's guidelines will be returned to the submitting author with technical correction requests.

Authors are required to submit the following:

- Copyright Agreement and Acknowledgement of Authorship Form, and
- ICMJE Potential Conflict of Interest Disclosure Form (should be filled in by all contributing authors) during the initial submission. These forms are available for download at http://jer-nursing.org.

Preparation of the Manuscript

Title page: A separate title page should be submitted with all submissions and this page should include:

- The full title of the manuscript as well as a short title (running head) of no more than 50 characters,
- Name(s), affiliations, highest academic degree(s), and ORCID IDs of the author(s),
- Grant information and detailed information on the other sources of support,
- Name, address, telephone (including the mobile phone number), and email address of the corresponding author,
- Acknowledgment of the individuals who contributed to the preparation of the manuscript but who do not fulfill the authorship criteria.

Abstract: An abstract should be submitted with all submissions except for Letters to the Editor. The abstract of Research Articles should be structured with subheadings (Background, Methods, Results, and Conclusion). Please check Table 1 below for word count specifications.

Keywords: Each submission must be accompanied by a minimum of three to a maximum of five keywords for subject indexing at the end of the abstract. The keywords should be listed in full without abbreviations. The keywords should be selected from the National Library of Medicine, Medical Subject Headings database (https://www.nlm.nih.gov/mesh/MBrowser.html).

Manuscript Types

Research Articles: This is the most important type of article since it provides new information based on original research.

Acceptance of original papers will be based upon the originality and importance of the investigation. The main text of original articles should be structured with Introduction, Material and Methods, Results, and Discussion subheadings. Please check Table 1 for the limitations for Original Articles.

Clinical Trials

Journal of Education and Research in Nursing adopts the ICMJE's clinical trial registration policy, which requires that clinical trials must be registered in a publicly accessible registry that is a primary register of the WHO International Trials Registry Platform (ICTRP) or in ClinicalTrials.gov.

Instructions for the clinical trials are listed below.

- Clinical trial registry is only required for the prospective research projects that study the relationship between a health-related intervention and an outcome by assigning people.
- To have their manuscript evaluated in the journal, author should register their research to a public registry at or before the time of first patient enrollment.
- Based on most up to date ICMJE recommendations, Journal of Education and Research in Nursing accepts public registries that include minimum acceptable 24-item trial registration dataset.
- Authors are required to state a data sharing plan for the clinical trial registration. Please see details under "Data Sharing" section.
- For further details, please check ICMJE Clinical Trial Policy at http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/clinical-trial-registration.html

Data Sharing

As of 1 January 2019, a data sharing statement is required for the registration of clinical trials. Authors are required to provide a data sharing statement for the articles that reports the results of a clinical trial. The data sharing statement should indicate the items below according to the ICMJE data sharing policy:

- Whether individual deidentified participant data will be shared,
- What data in particular will be shared,
- Whether additional, related documents will be available,
- When the data will be available and for how long,
- By what access criteria will be shared.

Authors are recommended to check the ICMJE data sharing examples at

http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/clinical-trial-registration.html

While submitting a clinical trial to Journal of Education and Research in Nursing,

- Authors are required to make registration to a publicly accessible registry according to ICMJE recommendations and the instructions above.
- The name of the registry and the registration number should be provided in the Title Page during the initial submission.
- Data sharing statement should also be stated in the Title Page even the authors do not plan to share it.

Clinical trial and data sharing policy of the journal will be valid for the articles submitted from 1 March 2021.

Reporting Statistical Analysis

Statistical analysis to support conclusions is usually necessary. Statistical analyses must be conducted in accordance with international statistical reporting standards (Altman DG, Gore SM, Gardner MJ, Pocock SJ. Statistical guidelines for contributors to medical journals. Br Med J 1983: 7; 1489-93). Information on statistical analyses should be provided with a separate subheading under the Materials and Methods section and the statistical software that was used during the process must be specified.

Values for reporting statistical data, such as p values and CIs should be presented and rounded appropriately. P values should be expressed to 2 digits to the right of the decimal point unless the first 2 digits are zeros, in which case 3 digits to the right of the decimal place should be provided (eg, instead of $p<0.01$, report as $p=0.002$). However, values close to 0.05 may be reported to 3 decimal places because the 0.05 is an arbitrary cut point for statistical significance (eg, $p=0.053$). P values less than 0.001 should be designated as $p<0.001$ rather than exact values (eg, $p=0.000006$).

Units should be prepared in accordance with the International System of Units (SI).

Editorial Comments: Invited brief editorial comments on selected articles are published in the Journal of Education and Research in Nursing. Editorials should not be longer than 1000 words excluding references. Editorial comments aim to provide a brief critical commentary by reviewers with expertise or with high reputation in the topic of the research article published in the journal. Authors are selected and invited by the journal to provide such comments. Abstract, Keywords, and Tables, Figures, Images, and other media are not included.

Review Articles: Reviews prepared by authors who have extensive knowledge on a particular field and whose scientific background has been translated into a high volume of publications with a high citation potential are welcomed. These authors may even be invited by the journal. Reviews should describe, discuss, and evaluate the current level of knowledge of a topic in clinical practice and should guide future studies. The subheadings of the review articles should be planned by the authors. However, each review article should include an "Introduction" and a "Conclusion" section. Please check Table 1 for the limitations for Review Articles.

Case Reports: There is limited space for case reports in the journal and reports on rare cases or conditions that constitute challenges in diagnosis and treatment, those offering new therapies or revealing knowledge not included in the literature, and interesting and educative case reports are accepted for publication. The text should include Introduction, Case Presentation, and Discussion with an unstructured abstract. Please check Table 1 for the limitations for Case Reports.

Letters to the Editor: This type of manuscript discusses important parts, overlooked aspects, or lacking parts of a previously published article. Articles on subjects within the scope of the journal that might attract the readers' attention, particularly educative cases, may also be submitted in the form of a "Letter to the Editor." Readers can also present their comments on the published manuscripts in the form of a "Letter to the Editor." Abstract, Keywords, and Tables, Figures, Images, and other media should not be included. The text should be unstructured. The manuscript that is being commented on must be properly cited within this manuscript.

Table 1. Limitations for each manuscript type

Type of manuscript	Word limit*	Abstract word limit	Reference limit	Table limit	Figure limit
Research Article	4000	250 (Structured)	35	5	10
Review Article	5000	250	50	5	10
Case Report	1200	200	15	No tables	5
Letter to the Editor	400	No abstract	5	No tables	No media

*: Word limit should not include the abstract, references, tables, and figure legends.

Tables

Tables should be included in the main document, presented after the reference list, and they should be numbered consecutively in the order they are referred to within the main text. A descriptive title must be placed above the tables. Abbreviations used in the tables should be defined below the tables by footnotes (even if they are defined within the main text). Tables should be created using the "insert table" command of the word processing software and they should be arranged clearly to provide easy reading. Data presented in the tables should not be a repetition of the data presented within the main text but should be supporting the main text.

Figures and Figure Legends

Figures, graphics, and photographs should be submitted as separate files (in TIFF or JPEG format) through the submission system. The files should not be embedded in a Word document or the main document. When there are figure subunits, the subunits should not be merged to form a single image. Each subunit should be submitted separately through the submission system. Images should not be labeled (a, b, c, etc.) to indicate figure subunits. Thick and thin arrows, arrowheads, stars, asterisks, and similar marks can be used on the images to support figure legends. Like the rest of the submission, the figures too should be blind. Any information within the images that may indicate an individual or institution should be blinded. The minimum resolution of each submitted figure should be 300 DPI. To prevent delays in the evaluation process, all submitted figures should be clear in resolution and large in size (minimum dimensions: 100 × 100 mm). Figure legends should be listed at the end of the main document.

All acronyms and abbreviations used in the manuscript should be defined at first use, both in the abstract and in the main text. The abbreviation should be provided in parentheses following the definition.

When a drug, product, hardware, or software program is mentioned within the main text, product information, including the name of the product, the producer of the product, and city and the country of the company (including the state if in USA), should be provided in parentheses in the following format: "Discovery St PET/CT scanner (General Electric, Milwaukee, WI, USA)"

All references, tables, and figures should be referred to within the main text, and they should be numbered consecutively in the order they are referred to within the main text.

Limitations, drawbacks, and the shortcomings of original articles should be mentioned in the Discussion section before the conclusion paragraph.

References

Both in-text citations and the references must be prepared according to the AMA Manual of Style 11th Edition.

While citing publications, preference should be given to the latest, most up-to-date publications. Authors are responsible for the accuracy of references If an ahead-of-print publication is cited, the DOI number should be provided. Journal titles should be abbreviated in accordance with the journal abbreviations in Index Medicus/MEDLINE/PubMed. When there are six or fewer authors, all authors should be listed. If there are seven or more authors, the first three authors should be listed followed by "et al." In the main text of the manuscript, references should be cited in superscript after punctuation. The reference styles for different types of publications are presented in the following examples.

Journal Article: Campbell MR, Fisher J, Anderson L, Kreppel E. Implementation of early exercise and progressive mobility: Step to success. Crit Care Nurse. 2015;35(1):82-88.

Book Section: Fikremariam D, Serafini M. Multidisciplinary approach to pain management. In: Vadivelu N, Urman RD, Hines RL, eds. Essentials of Pain Management. New York, NY: Springer New York; 2011:17-28.

Books with a Single Author: Patterson JW. Weedon's Skin Pathology. 4th ed. Churchill Livingstone; 2016.

Editor(s) as Author: Etzel RA, Balk SJ, eds. Pediatric Environmental Health. American Academy of Pediatrics; 2011.

Conference Proceedings: Morales M, Zhou X. Health practices of immigrant women: indigenous knowledge in an urban environment. Paper presented at: 78th Association for Information Science and Technology Annual Meeting; November 6-10; 2015; St Louis, MO. Accessed March 15, 2016. https://www.asist.org/files/meetings/am15/proceedings/openpage15.html

Thesis: Maiti N. Association Between Behaviours, Health Characteristics and Injuries Among Adolescents in the United States. Dissertation. Palo Alto University; 2010.

Online Journal Articles: Tamburini S, Shen N, Chih Wu H, Clemente KC. The microbiome in early life: implications for health outcomes. Nat Med. Published online July 7, 2016. doi:10.1038/nm4142

Websites: International Society for Infectious Diseases. ProMed-mail. Accessed February 10, 2016. http://www. promedmail.org

Epub Ahead of Print Articles: Cai L, Yeh BM, Westphalen AC, Roberts JP, Wang ZJ. Adult living donor liver imaging. Diagn Interv Radiol. 2016 Feb 24. doi: 10.5152/dir.2016.15323. [Epub ahead of print].

REVISIONS

When submitting a revised version of a paper, the author must submit a detailed "Response to the reviewers" that states point by point how each issue raised by the reviewers has been covered and where it can be found (each reviewer's comment, followed by the author's reply and line numbers where the changes have been made) as well as an annotated copy of the main document. Revised manuscripts must be submitted within 30 days from the date of the decision letter. If the revised version of the manuscript is not submitted within the allocated time, the revision option may be canceled. If the submitting author(s) believe that additional time is required, they should request this extension before the initial 30-day period is over.

Accepted manuscripts are copy-edited for grammar, punctuation, and format. Once the publication process of a manuscript is completed, it is published online on the journal's webpage as an ahead-of-print publication before it is included in its scheduled issue. A PDF proof of the accepted manuscript is sent to the corresponding author and their publication approval is requested within 2 days of their receipt of the proof.

JERN Journal of Education and Research in Nursing

Volume 22 · Issue 4 · 2025

CONTENTS

JERN Journal of Education and Research in Nursing

EDITORIAL

Dear Readers,

We are pleased to share with you the 2025 Issue 4 (Volume 22, Issue 4, December 2025) of the *Journal of Education and Research in Nursing*.

The inclusion of two articles in the December issue that focus on the process of delivering bad news underscores the critical importance of effectively communicating such information to individuals receiving healthcare services. Delivering bad news requires not only selecting an approach that reduces the patient's emotional burden but also using communication that is clear, sensitive, and ethically grounded. In this process, nurses play a pivotal role by ensuring that information is conveyed at the appropriate time, in a suitable environment, and with an empathetic tone, while supporting patients and their families as they navigate shock, anxiety, and uncertainty. However, nurses often face significant challenges in fulfilling this responsibility, including emotional distress, professional pressure, difficulties in decision-making, and the risk of burnout. Consequently, research on the delivery of bad news is highly valuable, as it provides evidence-based guidance for clinical practice and increases awareness of the challenges experienced by nurses. Moreover, studies that aim to identify and address existing gaps in this field are essential for strengthening communication competencies, developing standardized approaches, and improving access to professional support mechanisms. Such efforts contribute not only to enhancing the proficiency of healthcare professionals but also to ensuring that patients receive more compassionate, comprehensible, and supportive care during critical moments of their healthcare journey.

I am pleased to announce that our journal is indexed in the databases of GALE (2010), Tubitak Ulakbim Medicine (2012), EBSCO (2017), CINAHL (2017), DOAJ (2021), Research4Life (2021), Hinari (2021), SCILIT (2021), OUCI (2021), CNKI (2022), MIAR (2024), SUDOC (2024), Zeitschriften Datenbank (2024), Electronic Journal Library (2024), EmCare (2025) and that we continue to work toward publishing our journal in line with international academic publishing standards. The high-quality, evidence-based studies you have contributed have been instrumental in reaching these goals, and we recognize the importance of the valuable contributions from all stakeholders of our journal—our readers, editors, managing director, and advisory board members.

In our December 2025 issue, a total of eight original studies, one systematic review, and one invited review are presented. The titles of the articles are as follows:

The original articles are titled "Difficulties Experienced by Peritoneal Dialysis Patients in the Home Environment: A Phenomenological Study," "Impact of Preoperative Surgical Fear and Anxiety on Sleep Quality and Recovery Outcomes After Arthroplasty," "The Relationship Between Nursing Students' Attitudes Toward E-Learning and Phubbing Behavior: A Descriptive and Correlational Study," "The Effect of Sociodemographic Characteristics on Disease Acceptance in Individuals With Type 2 Diabetes," "Mental Recovery and Healthy Lifestyle Behaviors in Individuals With Kidney Disease: A Cross-Sectional Study," "Thirst Distress and Associated Factors in Hospitalized Internal Medicine Patients: A Descriptive Study," "Experiences of Nurse Managers in a Pandemic Disaster: A Qualitative Study on COVID-19," and "Views of Nurses Working in Surgical Intensive Care Units on Pressure Injury Prevention and Care: A Phenomenological Study." The systematic review is titled "Preparing Nurses to Deliver Bad News: A Scoping Review of Simulation-Based Methods." The invited review is titled "A Phenomenon That Challenges Physicians and Nurses: Breaking Bad News in Oncology."

I would like to express my sincere gratitude to our authors, who have contributed by presenting updated information from their studies to support the delivery of high-quality and safe nursing care to society; to the members of the editorial board, who have contributed to the publication of our journal; and to the members of the advisory board, who have carefully evaluated each article.

"All truths are easy to understand once they are discovered; the point is to discover them."
Galileo Galilei

Kind regards,
Prof. Sevilay Şenol Çelik, PhD, RN

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.59837
J Educ Res Nurs. 2025;22(4):227-232

Difficulties Experienced by Peritoneal Dialysis Patients in the Home Environment: A Phenomenological Study

Abstract

Background: Treatment process experiences of peritoneal dialysis patients in the home environment may affect their daily living activities, social lives, and quality of life.

Aim: This study aimed to reveal the difficulties experienced by peritoneal dialysis patients in their home environment based on their own experiences.

Methods: The universe of this qualitative study consisted of peritoneal dialysis patients receiving services from a research hospital in a province in the Marmara Region. The sample included all patients over the age of 18 who were receiving peritoneal dialysis services between August 27 and October 27, 2023, who agreed to participate in the study. The study was completed with 15 participants. Data were collected using a "Descriptive Characteristics Form" and an "Assessment Form for Difficult Experiences of Peritoneal Dialysis Patients in the Home Environment." Thematic analysis was used to analyze the data.

Results: The majority of participants were women, married, and housewives (66.7%). In the study, the following themes and sub-themes were identified: "daily living activities (freedom of movement, sleep patterns and nighttime routines, time management and daily planning)"; "exhaustion/dependency (physical fatigue, device and program dependency)"; "social life and social activities (vacation and travel barriers, feelings of social isolation, family relationships)"; "peritoneal dialysis complications (physical complications, adaptation issues and transition to the machine, hygiene concerns and risk of infection)"; and "access to treatment and the treatment process (material procurement and economic difficulties, spatial inadequacies, expectations for institutional support and assistance)."

Conclusion: The study demonstrates that the experiences of peritoneal dialysis patients indicate that healthcare should not be limited to the clinical dimension alone; supportive practices targeting the family, social environment, and work life are an integral part of patient care. It may be advisable to reassess and improve existing practices developed to prevent difficulties experienced by peritoneal dialysis patients in their home environment and to enhance protective measures.

Keywords: Difficulties, peritoneal dialysis, qualitative research

Firdevs Kuzu,[1] Serap Alsancak,[2] Serdar Kahvecioğlu[2]

[1]Department of Nursing, Sivas Cumhuriyet University Faculty of Health Sciences, Sivas, Türkiye

[2]Department of Nephrology, University of Health Sciences, Bursa Yüksek İhtisas Training and Research Hospital, Bursa, Türkiye

Introduction

Chronic kidney disease (CKD) is recognized as a significant and growing health problem worldwide,[1] and peritoneal dialysis is one of the renal replacement therapies used to treat the disease. In Türkiye, peritoneal dialysis accounts for 10% of the distribution of renal replacement therapy (RRT) types administered to patients (including pediatric patients) who started RRT in 2023.[2] Peritoneal dialysis (PD) treatment is performed at the patient's home by the patient and/or a caregiver who has received adequate training in the treatment protocol, through continuous manual or automated fluid exchange.[3]

The advantages of peritoneal dialysis include its ability to be performed at home, thereby increasing individuals' comfort and well-being and improving their quality of life. It is also noted that fewer complications are seen compared to hemodialysis treatment.[4,5] Despite these positive aspects, individuals undergoing peritoneal dialysis may also experience certain problems. Physiological problems include peritonitis, sleep problems, fatigue, constipation, pain, and cardiovascular and lipid disorders,[6–10] while psychological issues include anxiety and depression.[11] However, the literature indicates that all these problems, along with the environmental requirements of peritoneal dialysis, can also cause social and economic difficulties for individuals.[12,13] A review of the literature reveals that studies conducted in Türkiye mostly focus on the medical aspects of PD and the problems experienced by dialysis patients, while qualitative studies that examine patients' experiences and difficulties in depth are limited.[14] However, understanding individuals' subjective experiences of the treatment process is important for developing patient-centered care. In particular, the difficulties encountered by patients undergoing treatment at home, their expectations from the healthcare system, and their coping strategies may be decisive in restructuring nursing care. In this context, it is important to reveal the experiences and difficulties of individuals undergoing peritoneal dialysis. This study is expected to contribute to individual-centered care processes and the planning of home health services by examining the difficulties experienced by patients undergoing peritoneal dialysis in their home environment using a phenomenological approach. Furthermore, by identifying the difficulties experienced by peritoneal dialysis patients in their home environment

This study was presented as a poster at the 41st National Nephrology Congress and the 34th National Nephrology Nursing Congress, held in Antalya from December 4 to 8, 2024.

Cite this article as: Kuzu F, Alsancak S, Kahvecioğlu S. Difficulties Experienced by Peritoneal Dialysis Patients in the Home Environment: A Phenomenological Study. J Educ Res Nurs. 2025;22(4):227-232.

Corresponding author: Firdevs Kuzu
E-mail: firdevskuzu@yahoo.com

Received: September 12, 2025
Accepted: October 12, 2025
Publication Date: December 01, 2025

from their own perspectives, the study is expected to contribute to the re-evaluation and improvement of existing practices developed to prevent these difficulties, as well as to the enhancement of protective measures. It is also assumed that the applications developed based on the results obtained will contribute to improving the quality of life of both peritoneal dialysis patients and their relatives. The study aimed to explore the difficulties experienced by peritoneal dialysis patients in their home environment through their own experiences.

Study Questionnaire

In this regard, the study sought answers to the following research questions:

1. What difficulties do peritoneal dialysis patients encounter in their home environment during the treatment process?
2. How do the difficulties experienced by patients affect their daily life activities and routines?
3. How does performing peritoneal dialysis at home affect patients' social lives and relationships?
4. How do patients perceive and manage their experiences during the peritoneal dialysis process at home?

Materials and Methods

Type of Research

This research was conducted using a qualitative design. The study was written in accordance with the *Standards for Reporting Qualitative Research* (SRQR) checklist for qualitative research reporting.

Research Population and Sample

The study population consists of patients receiving peritoneal dialysis services in a research hospital located in a province in the Marmara Region. Using the purposive sampling method, the study participants consisted of individuals aged 18 and over who were receiving peritoneal dialysis services in a research hospital located in a province in the Marmara Region, were able to communicate, agreed to participate in the study, and gave informed consent. In qualitative research, the sample size is not numerically determined in advance; participant recruitment is terminated when data saturation is reached. Therefore, interviews in this study were continued until data recurrence was observed, and the study was completed with a total of 15 participants. The study was conducted between August 27 and October 27, 2023.

Research Team and Reflexivity

The research team consists of three health professionals. The first researcher (F.K.) holds a doctorate in public health nursing and is experienced and trained in qualitative research methods. The other researchers are a nurse (S.A.) and a professor (S.K.) working in the dialysis unit. Interviews with participants were conducted by the researcher with extensive qualitative research experience. There was no direct clinical care relationship between the researcher conducting the interviews and the participants, which allowed participants to share their experiences more openly and in greater detail. The principle of reflexivity was taken into account during the research process; in particular, the possible effects of the clinical experience of researchers working in the dialysis unit on data collection and analysis were considered. Regular discussions were held among the research team during the creation of themes. This process contributed to reducing possible subjectivity and approaching the data from a multifaceted perspective.

Trustworthiness

To ensure the reliability of the study, the criteria of credibility, dependability, confirmability, and transferability were taken into account. Individual interviews were conducted with each participant, data were documented via audio recording, and critical statements were read back to participants for verification (member checking). During the coding and theme development stages, the research team worked collaboratively, taking care to reduce subjectivity through regular discussions. Participants' sociodemographic information was clearly presented, and findings were supported by direct quotations; this approach strengthened the reliability and transferability of the data.[15–17]

Data Collection Tools

The data collection tools used in the study were the *Demographic Characteristics Form* and the *Peritoneal Dialysis Patients' Home Environment Difficulties Assessment Form*, which consisted of open-ended questions to assess the difficulties experienced by peritoneal dialysis patients in their home environment.

Descriptive Characteristics Form

This form, created by the researchers based on relevant literature, contained eight questions. It included questions about the patients' age, gender, marital status, education, occupation, and identification. The questions took approximately five minutes to answer.

Peritoneal Dialysis Patients' Home Environment Difficulties Assessment Form

Developed by the researchers based on relevant literature, this form contained four semi-structured open-ended questions aimed at determining the experiences of peritoneal dialysis patients regarding difficulties in the home environment.

The open-ended questions were as follows:

- Do you experience any difficulties while performing peritoneal dialysis treatment at home? If so, what are they? Please explain.
- What do you think are the reasons for these difficulties?
- What do you do to prevent these difficulties?
- What do you think can be done to prevent these difficulties?

Follow-up questions included:

- At which stage of treatment do you experience these difficulties the most?
- Are the difficulties you experience primarily physical, emotional, or social?
- Who do you turn to for support when dealing with these difficulties? (e.g., family, healthcare team, friends)?
- How do these difficulties affect your daily life?
- Which of these challenges do you find most difficult?
- Have you experienced any problems with the treatment process or the materials used?
- How do you implement the precautions you need to take in your daily life?
- Do you encounter situations that make it difficult to implement these precautions?
- Do you have any expectations of healthcare professionals or institutions? If so, what are they?
- What changes could be made to facilitate the treatment process?

It took an average of 40 minutes to answer the open-ended questions.

Implementation of the Study

During the data collection process, individual interviews were conducted with each participant. The interviews took place in a suitable room (in terms of sound, temperature, lighting, and privacy) selected either at the participant's home (n=6) or in the dialysis unit (n=9). As part of the research, participants were first informed about the study, and informed consent was obtained. Participants were told that their participation in the research was entirely voluntary, that their names would not appear on the questionnaire form, and that the data would be used only for research purposes. Quantitative data were collected using the *Descriptive Characteristics Form*, while qualitative data were collected through face-to-face interviews using the semi-structured *Assessment Form for Difficulties Experienced by Peritoneal Dialysis Patients in the Home Environment*. All interviews were conducted by the same researcher, who holds a doctoral degree in public health nursing and is experienced in qualitative research methods.

Ethical Considerations

Prior to the commencement of the research, permission was obtained from the Clinical Research Ethics Committee of the hospital where the study was conducted (Date: 23/08/2023, Decision No: 2011-KAEK-25 2023/08-18). At the end of the interviews, participants were asked if they wished to add anything after listening to the audio recordings, and then the interviews were concluded. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Table 1. Descriptive characteristics (n=15)

	n
Age (year)	
Average age: 42.60±12.64 (Minimum: 21, Maximum: 70)	
Gender	
Female	10
Male	5
Marital status	
Single	5
Married	10
Educational status	
Not literate	2
Elementary school	6
Middle school	2
High school	2
University	3
Profession	
Housewife	10
Public sector	1
Private sector	4
Duration of peritoneal dialysis treatment	
≤3 years	9
4–6 years	4
>6 years	2
Accompanying medical condition*	
Yes	9
No	6
Information sources consulted regarding the disease	
Nurse	5
Doctor	3
Doctor, nurse	6
Doctor, nurse, social media	1

*: Diseases reported by participants marked as "present" include Familial Mediterranean Fever (FMF), amyloidosis, asthma, bronchitis, gastritis, hypertension, hyperthyroidism, hydrocephalus, and neurogenic bladder.

Data Evaluation

The quantitative data obtained from the research were evaluated using IBM SPSS Statistics 26.0 (IBM Corp., Armonk, NY, USA). Arithmetic mean, standard deviation, frequency, and percentage distribution were used in the evaluation of the quantitative data. The transcription of the qualitative data obtained from the research was performed by two researchers by listening to the audio recordings. Subsequently, the six-stage thematic analysis defined by Braun and Clarke[18] in 2006 was used for data analysis. The first five stages of thematic analysis consist of data analysis, while the sixth stage involves report writing. The analysis stages are as follows:

Stage 1. The transcribed interviews were read repeatedly by the researchers to become familiar with their content.

Stage 2. Interesting features in the data were systematically coded. These codes were then organized by relating them to the original data and the purpose of the study.

Stage 3. The created codes were grouped into potential themes, and subthemes related to each potential theme were identified.

Step 4. A thematic map was created using the themes and subthemes of the codes. The data were reread, and additions or deletions were made to the themes and subthemes as necessary.

Step 5. The thematic map was analyzed, and clear definitions and names were determined for each theme.

Step 6. The article was written based on the created themes and subthemes.

Results

The average age of participants was 42.60±12.64 years; 66.7% (n=10) were female, 66.7% (n=10) were married, 40% (n=6) were elementary school graduates, and 66.7% (n=10) were housewives. Regarding the duration of peritoneal dialysis among participants, 60% (n=9) had ≤3 years of treatment, 60% (n=9) had a comorbid condition, and 40% (n=6) stated that their main source of information about the disease was a "physician or nurse" (Table 1).

The difficulties experienced by peritoneal dialysis patients in their home environment were identified under the themes "daily life activities," "burnout/dependence," "social life and social activities," "peritoneal dialysis complications," and "access to treatment and the treatment process." A total of five themes and 14 subthemes were identified in the study (Table 2).

Theme 1. Daily Life Activities

Participants stated that peritoneal dialysis had various effects on their daily life activities. According to the data obtained from participants in the study, three subthemes were identified: freedom of movement, sleep patterns and nighttime routines, time management, and daily planning.

Subtheme 1.1. Freedom of Movement

Participants (n=15) indicated that individuals who switched to machine-assisted peritoneal dialysis felt freer to go out and live their daily lives more independently compared to the previous period.

Table 2. Themes and subthemes related to the difficulties experienced by peritoneal dialysis patients in the home environment

Theme	Subtheme
Daily life activities[15]	Freedom of movement
	Sleep patterns and nighttime routines
	Time management and daily planning
Exhaustion/dependency[15]	Physical fatigue
	Device and program dependency
Social life and social activities[15]	Vacation and travel barriers
	Feeling of social isolation
	Family relationships
Peritoneal dialysis complications[15]	Physical complications
	Adaptation problems and transition to the machine
	Hygiene concerns and risk of infection
Access to treatment and the treatment process[15]	Material procurement and economic difficulties
	Spatial inadequacies
	Expectations for institutional support and assistance

DOI: 10.14744/jern.2025.59837
J Educ Res Nurs. 2025;22(4):227-232

P7. *"I can move around more comfortably during the day because my stomach is empty... Since switching to the machine, I can now go out."*

P9. *"It was very difficult to leave the house during manual exchanges... I now have the freedom to go wherever I want during the day."*

Subtheme 1.2. Sleep Patterns and Nighttime Routines

Participants (n=15) stated that being connected to dialysis at night negatively affected their sleep continuity, leading to fatigue in the morning and lethargy during the day. Some participants emphasized that they felt the need to wake up during the night for treatment and that this had a negative effect on them.

P2. *"Connecting at night disrupts my sleep, so I wake up tired in the morning... I set the machine up for nighttime, but sometimes I wake up and check it."*

P11. *"Having to wake up at night is difficult for me... My sleep is disrupted, and I feel tired during the day."*

Subtheme 1.3. Time Management and Daily Planning

Participants (n=15) stated that they had to organize their daily routines according to their dialysis times.

P4. *"I plan my day around my machine connection time... I do all my work before connecting to the machine."*

P9. *"I schedule everything around my dialysis time... I'm free during the day, but I have to be home by nine in the evening."*

Theme 2. Exhaustion/Dependency

Participants (n=15) stated that the long-term physical burden of the peritoneal dialysis process and its structure, which limits their rhythm of life, creates feelings of exhaustion and dependency over time. According to the data obtained in this theme, two subthemes were identified: physical fatigue and dependence on the device and program.

Subtheme 2.1. Physical Fatigue

Participants (n=15) stated that symptoms such as shortness of breath, abdominal pain, and fatigue were experienced intensely, especially during the manual exchange period and the early stages of dialysis. This situation limited participants' involvement in daily life activities and negatively affected their motivation to continue treatment. Some participants emphasized that they struggled to adapt physically to the treatment and sometimes found themselves lacking the energy to continue dialysis.

P1. *"At first, I struggled a lot with shortness of breath and abdominal pain... I feel weak, especially on dialysis days."*

P3. *"...I was very tired when changing the machine four times manually."*

P7. *"Sometimes I find it difficult to connect to the machine due to fatigue. There are days when I don't have the strength to do it."*

Subtheme 2.2. Device and Program Dependency

Participants (n=15) stated that their lives were largely shaped around the hours they spent using the machine and that this situation undermined their sense of individual autonomy. It was understood that while a lifestyle based on long-term machine use was difficult to accept at first, over time it led to emotional fatigue, reluctance, and psychological strain. Such persistent limitations in treatment can negatively affect individuals' quality of life, not only physically but also psychosocially.

P4. *"When you're hooked up to a machine for nine hours, you don't feel free... My life is completely tied to the machine's schedule."*

P10. *"After a year and a half to two years of going through the process of hooking up to the machine every day, I'm getting tired of it... It took time to accept living hooked up to a machine."*

Theme 3. Social Life and Social Activities

The participants' (n=15) statements show that peritoneal dialysis treatment significantly limits not only individuals' physiological functioning but also their interaction with social life. According to the data obtained in this theme, three subthemes were identified: vacation and travel barriers, feelings of social isolation, and family relationships.

Subtheme 3.1. Vacation and Travel Barriers

Participants (n=15) indicated that individuals had to abandon their travel plans due to reasons such as inadequate hygienic conditions, the need to transport medical supplies, and stress experienced during transportation. This situation also narrowed opportunities for social participation. The continuous nature of dialysis created significant pressure on mobility by restricting individuals' freedom to move when and where they wanted.

P5. *"It's hard to maintain hygiene in a hotel, so I don't go on vacation... I had to book two rooms for vacation."*

P8. *"Traveling is difficult when I have to carry supplies with me... Even if I go on vacation, I can't relax; if I don't have a place to stay, I have to come back for dialysis."*

Subtheme 3.2. Feeling of Social Isolation

Participants (n=15) noted that the treatment regimen limits individuals' participation in social activities. In particular, treatment-specific requirements such as physical activity restrictions and diet create feelings of exclusion or alienation from society among participants.

P1. *"I can't go in the sea, and that alienates me socially."*

P9. *"I feel distant from society. Dialysis is exhausting, so it's hard to focus on anything else. What you eat affects your UF levels."*

Subtheme 3.3. Family Relationships

Participants (n=15) reported that peritoneal dialysis creates both physical and emotional burdens on household dynamics. They stated that the noise generated by the devices used during treatment causes sleep disruption and discomfort, negatively affecting the daily rhythm of family members. Furthermore, it was stated that parenting roles and family interactions were affected by the care process. All these findings reveal that peritoneal dialysis creates multilayered effects not only at the individual level but also at the relational level.

P4. *"When I get up at night, I disturb my wife... I arranged the children's room for this procedure so as not to disturb my wife."*

P6. *"When I was using the machine, I couldn't spend time with my children. I switched to hand dialysis; I think hand dialysis is good..."*

P8. *"The alarm goes off, you can't sleep, your sleep is disrupted, you can't sleep again, you're irritable all day..."*

Theme 4. Peritoneal Dialysis Complications

Participants (n=15) stated that the various complications they encountered during the peritoneal dialysis process significantly affected both their physical health and their level of compliance with treatment. According to the data obtained in this theme, three subthemes were identified: physical complications, adaptation problems and transition to the machine, hygiene concerns, and risk of infection.

Subtheme 4.1. Physical Complications

Participants (n=15) commonly experienced symptoms such as abdominal pain, bloating, shortness of breath, fatigue, and limited mobility. Some participants reported that these symptoms severely limited their daily activities and reduced their physical endurance during treatment. In addition, some individuals reported experiencing technical problems with the catheter (e.g., punctures or the need for frequent replacement).

P1. *"I had pain in my stomach and couldn't move. I had trouble breathing, so I switched to the machine."*

P8. *"At first, I felt weak... My stomach was bloated... After the change, I felt nauseous."*

P15. *"I was experiencing abdominal pain, shortness of breath, weakness in my movements... There was a high possibility of catheter perforation; the catheter was changed five times because it perforated..."*

Subtheme 4.2. Adaptation Issues and Transition to the Machine

Participants (n=15) stated that the difficulties experienced with manual dialysis led some individuals to switch to automated peritoneal dialysis. Transitioning to the machine required an adaptation period at first, but over time, this method was found to be more comfortable and sustainable.

> **P3.** *"I struggled with manual changes, but felt relieved after switching to the machine."*

> **P7.** *"Adapting to the machine was difficult at first, but I got used to it."*

Subtheme 4.3. Hygiene Concerns and Infection Risk

Participants (n=15) noted that the feasibility of peritoneal dialysis is significantly dependent on environmental hygiene conditions. They emphasized that the risk of infection increases if the area where dialysis procedures are performed is not sufficiently sterile; therefore, they stated that they had to make extra efforts to ensure hygiene in the home environment. It was also noted that this situation requires more attention and isolation, especially in homes with children, and that individuals limit their social and physical spaces due to fear of infection.

> **P3.** *"You need to have a clean, suitable room to do dialysis. You need to have a suitable place to put the dialysis solutions."*

> **P7.** *"I clean everything out of fear of infection. No matter how meticulous you are, washing your hands one by one before dialysis is exhausting."*

> **P8.** *"I do it alone to ensure hygiene... I can't use the room the children enter... Everything must be very hygienic; otherwise, the risk is high."*

Theme 5. Access to Treatment and the Treatment Process

Participants' (n=15) statements indicate that the peritoneal dialysis process involves various difficulties not only in its medical aspects but also in logistical, economic, and structural contexts. According to the data obtained in this theme, three subthemes were identified: material procurement and economic difficulties, spatial inadequacies, and expectations of institutional support and assistance.

Subtheme 5.1. Material Procurement and Economic Difficulties

Participants' (n=15) statements highlighted the high cost of dressing materials, disinfectants, and consumables required for treatment. They stated that most of these materials create a regular economic burden because they require daily or frequent use. In addition, some individuals expressed that they struggled to ensure continuity of treatment and to bear the additional financial burden caused by machine malfunctions and portability issues.

> **P8.** *"Gauze, disinfectant, everything is very expensive... Waterproof tape costs 500 lira, and it's needed for every shower... Dressing materials are very costly, and dressings are needed almost every day, or at worst every other day."*

> **P7.** *"It's a hassle to bring the machine back and forth. Three of my machines broke down when I was going somewhere... It's a serious expense every month."*

Subtheme 5.2. Spatial Inadequacies

Among the participants (n=15), it was observed that creating a suitable space for dialysis in the home environment posed a serious problem for many individuals. The solution and equipment required for treatment take up a lot of space, causing accommodation problems, especially in small or crowded households. Some participants stated that they had to reorganize their living spaces or allocate their children's rooms for dialysis procedures. Insufficient physical space stands out as one of the main environmental factors limiting the feasibility of home treatment.

> **P1.** *"I can't find a place to put the materials... The solutions take up two square meters in the house. We have space issues because the house is small."*

> **P2.** *"If I didn't have a 3+1 house, I couldn't have made a separate room. I cleared out the children's room and made it suitable for the procedure."*

Subtheme 5.3. Expectations for Institutional Support and Assistance

Participants (n=15) stated that supply chain problems and quota restrictions, especially in obtaining solutions, sometimes caused individuals to go back and forth between health institutions, creating both a physical and psychological burden. They emphasized that covering medication costs alone is insufficient and that other treatment-related expenses should also be covered by social security. In addition, the need for public support mechanisms such as regular financial assistance or care coordination was frequently mentioned.

> **P4.** *"We spend two days going from pharmacy to pharmacy trying to access and obtain peritoneal dialysis solutions, but we are told that there is no quota available."*

> **P8.** *"We would be much better off if we received monthly support... Social security only covers medication, which is not enough."*

Recommendations

Participants (n=15) stated various suggestions for solutions to the difficulties they experienced during the peritoneal dialysis process. In particular, participants stated that the procurement of medication and medical supplies should be facilitated, access to hospital services should be made easier, and supportive regulations should be implemented for the storage of supplies at home. It was noted that the dialysis process is more difficult for individuals in hot weather; therefore, it would be beneficial to make adjustments in terms of duration and frequency. It was also emphasized that following nurses' guidance facilitates the process and that patient compliance is important.

> **P4.** *"Materials can be affected by heat and cold; homes may not be suitable for material storage, and they could be obtained more frequently in smaller quantities."*

> **P7.** *"...If we could find the medications where we go, we could get them from there."*

> **P10.** *"It's a bit of a hassle because it prevents me from going out; I can't go far. If it were easier to get it done at the hospital there..."*

> **P8.** *"Patients should listen to their nurses, they are working hard for us. If they listen, the process will be easier."*

> **P15.** *"...It would be good if the time were shortened a little (nine hours). It's hard in the heat, or if it were every other day."*

Discussion

This study examined the difficulties experienced by peritoneal dialysis patients in their home environment based on their own experiences, and these experiences were discussed in light of the themes and subthemes mentioned above. The qualitative data focusing on the experiences of individuals undergoing peritoneal dialysis revealed that the treatment process is not limited to its biomedical aspects; rather, it creates multilayered effects on individuals' physical, psychosocial, economic, and spatial areas of life. Planning daily life activities around dialysis, the impact on sleep patterns, and the restriction of freedom of movement show that factors affecting physical adaptation to treatment also influence all other aspects of daily living. In fact, one study found that difficulties identified as important by patients included drainage pain, difficulty eating and sleeping, and fear of peritonitis.[19]

A study examining the perspectives of adults living with peritoneal dialysis through a thematic synthesis of qualitative studies found that peritoneal dialysis can provide patients with a sense of control, independence, self-efficacy, and freedom; however, it also emphasized that holistic and multidisciplinary care is needed to reduce the risks of low self-confidence, physical impairment, decreased social functioning, and low self-esteem.[20] Another study showed that, despite the difficulties posed by the treatment, participants expressed gratitude for being able to care for themselves at home.[21] In this context, it can be argued that in chronic disease management, not only medical parameters but also social determinants that shape an individual's life should be taken into account. Indeed, all themes reveal that this treatment modality requires a dynamic adaptation process at the individual level.

The study demonstrates that the economic burden, spatial limitations, and expectations of institutional support experienced during the treatment access process mean that individuals are largely forced to bear the responsibility for treatment with their own resources. Patient, caregiver, and clinician perceptions, as well as priorities identified in the remote management study for peritoneal dialysis, include the impact of peritoneal dialysis on daily life and support for treatment management,[22] which is similar to the findings of this study. Time and space limitations are among the subthemes identified in a qualitative study on patient realities and expectations.[23] In this study, under the theme of exhaustion/dependence, it was observed that both the physical fatigue associated with the treatment burden and the dependence on the machine create emotional weariness in individuals. At the same time, the impact on social life and family relationships affects the individual's adaptation process to treatment. In a qualitative study examining social support in the peritoneal dialysis experience, the identified themes included meeting emotional needs and managing emotions (emotional support), as well as peritoneal dialysis tasks and life tasks (instrumental support).[24] Another study also showed that the themes identified as difficulties in home dialysis included the burden of home dialysis tasks, the lack of a suitable home environment, and loss of freedom. The same study also indicated that the themes identified as facilitating home dialysis included convenience and freedom.[25] In a qualitative study conducted on the choice of dialysis, the peritoneal dialysis treatment method was stated to have two main reasons that encourage patients to choose it: it can be carried out at home, and there is no need to be in the hospital three times a week.[26] In this regard, it can be said that the thematic findings indicate that peritoneal dialysis is a multidimensional intervention in an individual's life. Therefore, it can be suggested that healthcare services should be developed to be holistic, patient-centered, and supported by structural mechanisms. In this context, it is thought that considering the findings obtained together with similar or different results in the literature will contribute to a more holistic perspective in evaluating the treatment process.

Limitations

This study was conducted only with peritoneal dialysis patients receiving services from a research hospital in a province in the Marmara Region. Therefore, the findings may not be generalized to patients living in different regions or with different socioeconomic conditions. Additionally, the data are based solely on patient opinions; the perspectives of family members or caregivers were not included in the study.

Conclusion

The study found that peritoneal dialysis patients experience various difficulties in their daily lives, social lives, and psychosocial situations during the treatment process in the home environment. The findings show that patients' needs for not only medical but also psychosocial and social support are important. Therefore, it is recommended that healthcare professionals develop individualized care plans and place importance on practices that strengthen psychosocial support and family involvement. Future research is recommended to be conducted in different regions and supported by quantitative methods.

Ethics Committee Approval: The study was approved by the University of Health Sciences Bursa Yüksek İhtisas Training and Research Hospital Clinical Research Ethics Committee (Approval Number: 2011-KAEK-25 2023/08-18, Date: 23.08.2023).

Informed Consent: Informed consent was obtained from the participants.

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

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

Author Contributions: Concept – F.K.; Design – F.K., S.A.; Supervision – F.K., S.K.; Resource – F.K.; Materials – F.K.; Data Collection and/or Processing - F.K., S.A.; Analysis and/or Interpretation - F.K., S.A., S.K.; Literature Review – F.K.; Writing – F.K.; Critical Review – F.K., S.K.

Peer-review: Externally peer-reviewed.

References

1. Cockwell P, Fisher LA. The global burden of chronic kidney disease. Lancet. 2020;395(10225):662–664. [CrossRef]
2. Turkish Society of Nephrology. Registry of the Nephrology, Dialysis and Transplantation in Turkey. Accessed October 13, 2025. https://nefroloji.org.tr/uploads/pdf/REGISTRY2023_web.pdf
3. Gökalp C. Farklı diyaliz modalitelerinin hasta yakını yaşam kalitesi üzerindeki etkileri. Ege J Med. 2021;60(1):32–38. [CrossRef]
4. Kandakoglu A, Sauré A, Michalowski W, Aquino M, Graham J, McCormick B. A decision support system for home dialysis visits scheduling and nurse routing. Decis Support Syst. 2020;130:113224. [CrossRef]
5. Milan Manani S, Baretta M, Giuliani A, et al. Remote monitoring in peritoneal dialysis: benefits on clinical outcomes and on quality of life. J Nephrol. 2020;33(6):1301–1308. [CrossRef]
6. Kosmadakis G, Albaret J, Da Costa Correia E, Somda F, Aguilera D. Constipation in peritoneal dialysis patients. Perit Dial Int. 2019;39(5):399–404. [CrossRef]
7. Liu GL, Zhan QN, Zhao YL, et al. Risk factors for sleep disorders in patients undergoing peritoneal dialysis. Sleep Biol Rhythms. 2021;19(3):255–264. [CrossRef]
8. Salzer WL. Peritoneal dialysis-related peritonitis: challenges and solutions. Int J Nephrol Renovasc Dis. 2018;11:173–186. [CrossRef]
9. Tian C, Zhang B, Liang W, et al. Fatigue in Peritoneal Dialysis Patients and an Exploration of Contributing Factors: A Cross-Sectional Study. J Pain Symptom Manage. 2020;59(5):1074–1081.e2. [CrossRef]
10. Worsey L. Peritoneal Dialysis. In: Thomes N, ed. Renal Nursing: Care and Management of People with Kidney Disease. 5th ed. New Jersey: John Wiley & Sons; 2019:235–276. [CrossRef]
11. Nadort E, Schouten RW, Luijkx X, et al. Symptom dimensions of anxiety and depression in patients receiving peritoneal dialysis compared to haemodialysis. Perit Dial Int. 2022;42(3):259–269. [CrossRef]
12. Unsal Avdal E, Ayvaz İ, Özgursoy Uran BN, Yildirim JG, Sofulu F, Pamuk G. Opinions of hemodialysis and peritoneum patients regarding depression and psychological problems which they experience: A qualitative study. J Infect Public Health. 2020;13(12):1988–1992. [CrossRef]
13. Sitjar-Suñer M, Suñer-Soler R, Masià-Plana A, et al. Quality of life and social support of people on peritoneal dialysis: mixed methods research. Int J Environ Res Public Health. 2020;17(12):4240. [CrossRef]
14. Göktuna G, Arslan G, Nasuhbeyoğlu G. Experiences of patients living with peritoneal dialysis: a descriptive qualitative study. EHD. 2024;17(2):161–175. [CrossRef]
15. Creswell JW, Poth CN. Qualitative Inquiry and Research Design: Choosing Among Five Approaches. Sage Publications; 2016.
16. Guba EG, Lincoln YS. Naturalistic Inquiry. Newbury Park, CA; Sage Publication: 1985. [CrossRef]
17. Nowell LS, Norris JM, White DE, Moules NJ. Thematic Analysis: Striving to Meet the Trustworthiness Criteria. Int J Qual Methods. 2017;16(1):1–13. [CrossRef]
18. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77–101. [CrossRef]
19. Fissell RB, Wysocki M, Bonnet K, et al. Patient perspectives on peritoneal dialysis (PD) and the PD catheter: Strategies and Solutions. Perit Dial Int. 2023;43(3):231–240. [CrossRef]
20. Tong A, Lesmana B, Johnson DW, Wong G, Campbell D, Craig JC. The perspectives of adults living with peritoneal dialysis: thematic synthesis of qualitative studies. Am J Kidney Dis. 2013;61(6):873–888. [CrossRef]
21. Baillie J, Lankshear A. Patient and family perspectives on peritoneal dialysis at home: findings from an ethnographic study. J Clin Nurs. 2015;24(1–2):222–234. [CrossRef]
22. Subramanian L, Kirk R, Cuttitta T, et al. Remote Management for Peritoneal Dialysis: A Qualitative Study of Patient, Care Partner, and Clinician Perceptions and Priorities in the United States and the United Kingdom. Kidney Med. 2019;1(6):354–365. [CrossRef]
23. Ho YF, Hsu PT, Yang KL. Peritoneal dialysis after shared decision-making: the disparity between reality and patient expectations. BMC Nurs. 2022;21(1):268. [CrossRef]
24. Fox DE, Quinn RR, James MT, Venturato L, King-Shier KM. Social Support in the Peritoneal Dialysis Experience: A Qualitative Descriptive Study. Can J Kidney Health Dis. 2020;7:2054358120946572. [CrossRef]
25. Jones LA, Gordon EJ, Hogan TP, et al. Challenges, Facilitators, and Recommendations for Implementation of Home Dialysis in the Veterans Health Administration: Patient, Caregiver, and Clinician Perceptions. Kidney360. 2021;2(12):1928–1944. [CrossRef]
26. Ahmadi SM, Jalali A, Jalali R. Factors Associated with the Choice of Peritoneal Dialysis in Iran: Qualitative Study. Open Access Maced J Med Sci. 2018;6(7):1253–1259. [CrossRef]

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.88122
J Educ Res Nurs. 2025;22(4):233-238

Impact of Preoperative Surgical Fear and Anxiety on Sleep Quality and Recovery Outcomes After Arthroplasty

Hülya Saray Kılıç,[1] Özlem İbrahimoğlu,[2] Kemal Andıç[3]

[1]Department of Nursing, Bilecik Şeyh Edebali University Faculty of Health Sciences, Bilecik, Türkiye

[2]Department of Nursing, İstanbul Medeniyet University Faculty of Health Sciences, İstanbul, Türkiye

[3]Department of Orthopedics, Bilecik Training and Research Hospital, Bilecik, Türkiye

Abstract

Background: Surgical interventions affect patients not only physiologically but also psychologically. Perioperative anxiety and surgical fear are common and may impact postoperative recovery and sleep quality.

Aim: This study aimed to examine the relationship between preoperative surgical fear and anxiety levels and postoperative sleep quality and recovery one month after hip and knee arthroplasty.

Methods: This cross-sectional study was conducted between 2022 and 2023 with 83 patients who underwent hip or knee arthroplasty at a training and research hospital in Türkiye. Data were collected using the Surgical Fear Questionnaire, State-Trait Anxiety Inventory – State subscale, Postoperative Recovery Index, and Pittsburgh Sleep Quality Index. The Pearson correlation test, chi-squared test, Student's t-test, Mann-Whitney U test, and Kolmogorov-Smirnov test were used for data analysis.

Results: The mean age and Body Mass Index (BMI) of the patients were 65.66±7.74 and 31.42±4.99, respectively. Of the patients, 75.9% were female and 85.5% were married. The mean Surgical Fear Questionnaire score was 27.80±20.82, and the mean State Anxiety Inventory score was 40.78±10.00. The mean Postoperative Recovery Index score was 1.76±0.73. According to the Pittsburgh Sleep Quality Index, 66.1% of patients had poor sleep quality. A moderate positive correlation was found between surgical fear and anxiety levels, while a low positive correlation was observed between surgical fear and postoperative recovery ($p<0.05$).

Conclusion: Preoperative surgical fear and anxiety are associated with poorer postoperative recovery and sleep quality among hip and knee arthroplasty patients. These findings emphasize the importance of evaluating and addressing psychological factors before surgery to improve postoperative outcomes.

Keywords: Anxiety, arthroplasty, nursing, sleep, surgical fear

Introduction

Surgical interventions aim to enhance physical health, but they can also have significant psychological effects. Perioperative anxiety and surgical fear are common and multifaceted issues that are an inherent part of the surgical process.[1] A recent systematic review and meta-analysis reported that anxiety symptoms affect more than a quarter of hospitalized individuals.[2] This rate rises to 51.2% prior to scheduled surgeries.[3] Additionally, studies conducted in low- and middle-income countries reveal that almost half of surgical patients experience preoperative anxiety, highlighting its status as a global issue.[4]

Preoperative anxiety and surgical fear, often driven by concerns such as the risk of complications, expected postoperative pain, and fear of death, are considered important psychosocial and spiritual factors that can affect patient comfort and recovery quality in multiple ways during the perioperative period.[5] These concerns not only impact patients' psychological well-being but may also adversely influence postoperative recovery processes.

High levels of preoperative anxiety have been reported to cause more severe postoperative pain, disrupt sleep quality, and slow the recovery process in various studies.[6,7] Surgical fears and anxiety are particularly frequent among orthopedic and traumatology patients, leading to greater emotional stress that may increase anesthetic and postoperative analgesic requirements, elevate the risk of complications, and delay recovery with issues such as sleep disturbances.[8]

Maintaining sleep quality during the perioperative period is crucial for accelerating physical recovery and improving postoperative prognosis. It has been shown that sleep disturbances experienced by patients following total hip and knee arthroplasty surgeries significantly impact pain management, physical functionality, and psychological well-being.[9] Furthermore, a meta-analysis has shown that sleep disturbances increase the need for analgesics and delay recovery.[10] Additionally, factors such as the use of painkillers, smoking, and pre-existing sleep problems can contribute to sleep difficulties before and after surgery, and these issues may persist for an extended period following total knee replacement.[11]

While recent studies have separately examined the relationships between preoperative fear and anxiety and postoperative outcomes such as sleep quality and recovery, most of these studies have focused on specific surgical areas and primarily identified influencing factors rather than exploring comprehensive associations.[5,7,8,10]

Cite this article as: Saray Kılıç H, İbrahimoğlu Ö, Andıç K. Impact of Preoperative Surgical Fear and Anxiety on Sleep Quality and Recovery Outcomes After Arthroplasty. J Educ Res Nurs. 2025;22(4):233-238.

Corresponding author: Hülya Saray Kılıç
E-mail: h.saraykilic@gmail.com

Received: July 11, 2025
Accepted: October 13, 2025
Publication Date: December 01, 2025

In this context, effectively managing patients' preoperative surgical fear and anxiety is essential for improving the quality of surgical care and supporting postoperative recovery. Therefore, assessing preoperative levels of surgical fear and anxiety and evaluating their impact on postoperative sleep quality and recovery is a critical need for healthcare professionals. Accordingly, this study aims to investigate the relationship between preoperative surgical fear and anxiety and postoperative sleep quality and recovery during the first month following total hip and knee arthroplasty surgeries.

Study Question

1. Is there a relationship between preoperative surgical fear and anxiety levels and postoperative sleep quality and recovery outcomes among patients undergoing hip and knee arthroplasty?

Materials and Methods

Study Design and Participants

This cross-sectional study was conducted with 83 patients who were hospitalized for hip and knee surgeries at a training and research hospital. This manuscript was prepared in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for observational studies.

The study included patients admitted between 2022 and 2023. A post hoc power analysis was conducted using G*Power 3.1 to assess the adequacy of the sample size for the correlational analysis. Given a medium effect size (r=0.30), an alpha level of 0.05, and a total sample size of 83, the achieved power was calculated to be approximately 0.80. This indicates that the study had sufficient power to detect statistically significant correlations of medium magnitude. The inclusion criteria were as follows: (1) scheduled for hip or knee arthroplasty, (2) 18 years of age or older, (3) cognitively intact, and (4) willing to participate in the study.

Data Collection Tools

Data collection tools included a sociodemographic information form, the Surgical Fear Questionnaire (SFQ), the State-Trait Anxiety Inventory – State subscale (STAI-S), the Postoperative Recovery Index (PoRI), and the Pittsburgh Sleep Quality Index (PSQI).

Sociodemographic Information Form

This form was developed by the researchers based on a comprehensive literature review. It consists of nine items addressing variables such as age, Body Mass Index (BMI), gender, marital status, presence of chronic diseases, use of assistive walking devices, history of previous hospitalization and surgery, and type of planned surgery.

Surgical Fear Questionnaire

The SFQ is a tool developed to measure the level of fear in patients undergoing elective surgery and has been validated for use in Türkiye.[12,13] The questionnaire is an 11-point Likert-type scale consisting of eight items, where scores range from 0 (not afraid at all) to 10 (very afraid), yielding a total possible score between 0 and 80. It includes two subscales assessing short-term and long-term surgical fear outcomes. Higher scores indicate greater levels of fear. In the Turkish version of the SFQ, Cronbach's α coefficient was 0.93 for the total questionnaire. In this study, Cronbach's alpha coefficient for the SFQ was 0.90.

State-Trait Anxiety Inventory – State subscale

The STAI-S, developed by Spielberger et al. in 1970 and adapted into Turkish by Öner and Le Compte,[14] consists of 20 items. Each item is scored on a scale from 1 to 4, with higher scores indicating higher levels of anxiety and lower scores reflecting lower levels of anxiety. The Cronbach's alpha coefficient of the Turkish version of the STAI-S was 0.94 in the original adaptation study. In this study, Cronbach's alpha coefficient for the STAI-S was 0.91.

Postoperative Recovery Index

The PoRI is a scale developed to assess the quality of postoperative recovery and has been adapted and validated for use in Turkish patients.[15,16] The scale comprises 25 items distributed across five subdimensions: psychological symptoms, physical activities, general symptoms, bowel symptoms, and appetite symptoms. Subdimension scores are calculated as the arithmetic mean of the total scores of the items within each subdimension, while the total score is derived from the arithmetic mean of all items. Higher scores on the PoRI indicate greater difficulty in the postoperative recovery process, whereas lower scores suggest easier recovery. In this study, Cronbach's alpha coefficient for the PoRI was 0.943.

Pittsburgh Sleep Quality Index

The PSQI is a scale developed to evaluate sleep quality and has been adapted into Turkish with established validity and reliability.[17,18] The scale consists of 24 items, of which only 18 are included in the scoring. The PSQI assesses sleep duration, sleep latency, and the frequency and severity of sleep-related issues across seven component scores. The total score of the scale is calculated by summing the scores of these seven components. The total score ranges from 0 to 21, with a cutoff point of five used to evaluate sleep quality. Scores of five or higher indicate poor sleep quality, while scores below five reflect good sleep quality. Lower total scores signify better sleep quality. The Cronbach's alpha coefficient of the PSQI was 0.80 in the original validation study. In this study, Cronbach's alpha coefficient for the PSQI was 0.81.

Data Collection

Data collection for the study involved face-to-face interviews conducted preoperatively, during which patients completed a sociodemographic information form, the SFQ, and the STAI-S. Preoperative data were obtained approximately one day before surgery. Each interview lasted approximately 15–20 minutes and was conducted in a quiet and private room to ensure comfort and confidentiality. One month after surgery, postoperative data were collected via telephone interviews, during which the PoRI and PSQI forms were administered. The follow-up interviews lasted about 10–15 minutes. All data were collected directly from patients by the same researcher to ensure standardization and data quality.

Data Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) software, version 21 (IBM Corp., Armonk, NY, USA). Descriptive statistics for numerical data were presented as numbers and percentages, while continuous variables were expressed as means and standard deviations. The Pearson correlation test was employed to examine relationships between continuous variables. Categorical variables were compared using the chi-squared test. Group differences were analyzed using the Student's t-test for normally distributed values and the Mann-Whitney U test for non-normally distributed values. The Kolmogorov-Smirnov test was applied to assess the normality of data distribution. A p-value of less than 0.05 was considered statistically significant for all analyses.

Ethical Approval

Ethical approval for the study was obtained from Bilecik Seyh Edebali University Non-interventional Clinical Research Ethics Committee (Approval Number: 6/2, Date: 26/10/2021) and from the hospital where the research was conducted. Written informed consent was secured from all patients, who were also informed of their right to withdraw from the study at any time. The study adhered to the principles outlined in the Declaration of Helsinki.

Results

The findings derived from preoperative and first-month postoperative data of patients who underwent hip and knee arthroplasty are summarized below. The sociodemographic characteristics of the patients are shown in Table 1. The mean age and BMI of the patients were 65.66±7.74 and 31.42±4.99, respectively. Of the patients, 75.9% were female and 85.5% were married. Additionally, 51.8% had at least one chronic disease, and 34.9% used assistive devices such as canes, walkers, or crutches. A total of 78.3% had been hospitalized at least once previously, and 72.3% reported undergoing at least one prior surgery. Among the 83 participants, 83.1% (n=69) underwent knee arthroplasty, and 16.9% (n=14) underwent hip arthroplasty.

The preoperative SFQ scores and subdimensions, STAI-S scores, and postoperative first-month PoRI and PSQI results are presented in Table 2. The short-term, long-term, and total scores for the SFQ were 14.51±10.92, 13.28±11.81, and 27.80±20.82, respectively. The preoperative STAI-S mean score was 40.78±10.00. In the postoperative period, the patients' mean PoRI total score was 1.76±0.73. Among the PoRI subdimensions, the lowest mean score was 1.48±0.97 for bowel symptoms, while the highest was 2.04±1.10 for physical symptoms. According to the PSQI results, 66.1% of the patients had poor sleep quality.

Table 1. Sociodemographic characteristics of patients (n=83)

	Mean±SD	Min-max
Age	65.66±7.74	34–83
BMI	31.42±4.99	19.84–46.88
	n	**%**
Gender		
Female	63	75.9
Male	20	24.1
Marital status		
Married	71	85.5
Single	12	14.5
Presence of chronic disease		
Yes	43	51.8
No	40	48.2
Assistive device use status*		
Yes	29	34.9
No	54	65.1
Previous hospitalization		
Yes	65	78.3
No	18	21.7
Previous surgery		
Yes	60	72.3
No	23	27.7
Type of Surgery		
Knee arthroplasty	69	16.9
Hip arthroplasty	14	83.1

*: Cane, walker, or crutch. SD: Standard deviation; BMI: Body mass index; Min: Minimum, Max: Maximum.

Table 2. Results of the surgical fear questionnaire (SFQ), state-trait anxiety inventory – state subscale (STAI-S), postoperative recovery index (PoRI), and pittsburgh sleep quality index (PSQI)

	Preoperative measures (n=83)		
	Cronbach's alpha	**Mean±SD**	**Min-max**
SFQ-total	0.904	27.80±20.82	0–80
SFQ-short term	0.826	14.51±10.92	0–40
SFQ-long term	0.901	13.28±11.81	0–40
STAI-S	0.911	40.78±10.00	20–60
	Postoperative measures (n=62)		
	Cronbach's alpha	**Mean±SD**	**Min-max**
PoRI-total	0.943	1.76±0.73	1–3.84
Psychological symptoms	0.765	1.68±0.77	1–3.50
Physical activities	0.968	2.04±1.10	1–5
General symptoms	0.943	1.83±1.13	1–5
Bowel symptoms	0.952	1.48±0.97	1–4.60
Appetite symptoms	0.982	1.59±0.94	1–5
		n	**%**
PSQI			
Good sleep	0.817	21	33.9
Poor sleep		41	66.1

The comparison results of SFQ, STAI-S, PoRI, and PSQI scores with independent variables are presented in Table 3. No statistically significant differences were found between SFQ, STAI-S, PoRI, and PSQI scores and variables such as age, BMI, marital status, use of assistive devices, prior hospitalization, prior surgery, or type of surgery ($p>0.05$). However, women had significantly higher STAI-S and PoRI scores compared to men ($p<0.05$). Additionally, patients without chronic illnesses had significantly higher STAI-S mean scores than those with at least one chronic illness ($p<0.05$).

Correlation data regarding patients' mean scores for SFQ, STAI-S, and PoRI are presented in Table 4. A moderate, positive, and statistically significant correlation was identified between preoperative SFQ-total and STAI-S scores ($p<0.05$). This finding indicates that as surgical fear increases preoperatively, anxiety levels also rise. Furthermore, a low-level, positive, and statistically significant correlation was observed between preoperative SFQ-total scores and the postoperative first-month PoRI-total mean score ($p<0.05$). This finding indicates that elevated levels of preoperative surgical anxiety are associated with more prolonged and challenging recovery processes following surgery. The comparison of postoperative first-month PSQI results with SFQ, STAI-S, and PoRI mean scores is shown in Table 5. It was found that patients with poor sleep quality had higher mean SFQ and PoRI scores.

Discussion

Experiencing fear and anxiety before surgery can trigger an early and heightened stress response by increasing the release of stress-related hormones, ultimately impairing postoperative recovery and sleep quality.[19] In the present study, patients scheduled for hip or knee arthroplasty reported mild levels of short-term, long-term, and overall surgical fear. These findings generally align with previous research, although some studies have noted higher average fear scores depending on the surgical population and context. For instance, Bez and Erturhan Türk[20] in 2024 found higher short-term (21.97±6.9), long-term (25.51±7.6), and total fear scores (47.48±13.3) in patients who underwent orthopedic surgery. The findings of this study are consistent with those reported by Çelik et al.[21] in 2024 and Dinç and Yılmaz Güven[22] in 2023, who observed similar short-term (11.69±7.55; 12.0±11.9), long-term (10.70±9.53; 9.2±12.8), and total fear scores (22.40±14.69; 21.2±23.3) in patients scheduled for total knee arthroplasty. Similarly, Teixeira et al.[23] in 2024 also found comparable scores for short-term (9.52±8.67), long-term (15.69±13.73), and total fear (25.22±19.85) in their study on patients undergoing planned surgeries. In the study by Kılınç and Karaman Özlü[19] in 2023, short-term, long-term, and total fear scores in patients scheduled for elective surgery were reported as 15.58±11.35, 15.20±11.71, and 30.78±21.82, respectively. In this study, short-term surgical fear scores were found to be higher than long-term scores, indicating that patients' concerns were more focused on the immediate perioperative period rather than on the long-term consequences of surgery. This may reflect specific anxieties such as unfamiliarity with the operating room environment, insufficient knowledge about surgical and anesthesia processes, or fears of waking up during recovery. These findings underscore the importance of both the content and delivery of preoperative patient education, as well as the need for structured orientation practices to help reduce short-term surgical fear.

Surgical procedures are commonly perceived as threatening experiences, often evoking psychological distress that extends into both the preoperative and postoperative periods.[22] Anxiety is considered both a general disposition and a temporary reaction to specific situations.[14] In the current study, patients' state anxiety levels were found to be moderate and somewhat lower than those reported in similar studies in the literature. In the study by Çalışkan and Aksoy[6] in 2025 on patients undergoing total hip and knee arthroplasty, the mean STAI-S score was reported as 53.95±10.51; in the study by Topal Hançer[24] in 2023 on patients undergoing surgical procedures, it was 48.16±16.31; and in the study by Oh et al.[25] in 2024, it was 43.3±10.8. This variation could be associated with demographic factors such as age or prior exposure to similar procedures. For example, older patients who view surgery as a solution to chronic mobility issues may perceive it with less anxiety.

The findings of this study point to the possibility that prior surgical or hospitalization experiences may have limited influence on preoperative anxiety. This contrasts with literature suggesting that anxiety often begins during hospitalization and is

DOI: 10.14744/jern.2025.88122
J Educ Res Nurs. 2025;22(4):233-238

Table 3. Comparison of sociodemographic characteristics with the surgical fear questionnaire (SFQ), state-trait anxiety inventory – state subscale (STAI-S), postoperative recovery index (PoRI), and pittsburgh sleep quality index (PSQI) scores

	SFQ-total Mean±SD	STAI-S Mean±SD	PoRI Mean±SD	PSQI			
				Good sleep		Poor sleep	
				n	%*	n	%*
Gender							
Female	30.50±21.79	40.79±9.66	1.88±0.76	13	27.1	35	72.9
Male	19.30±14.86	40.75±11.26	1.36±0.40	8	57.1	6	42.9
p	**0.012**	0.902	**0.016**		0.054		
Test value	**t=2.599**	Z=-0.124	**Z=-2.406**		X^2=0.037		
Marital status							
Married	26.84±20.73	40.77±9.89	1.79±0.72	19	35.8	34	47.9
Single	33.50±21.31	40.83±11.33	1.63±0.79	2	22.2	7	77.8
p	0.331	0.953	0.383		0.705		
Test value	t=-1.004	Z=-0.059	Z=-0.872		X^2=0.425		
Presence of chronic disease							
Yes	27.34±20.48	38.23±9.53	1.74±0.73	14	45.2	17	54.8
No	28.30±21.43	43.52±9.87	1.79±0.74	7	22.6	24	77.4
p	0.837	**0.008**	0.838		0.106		
Test value	t=-0.206	**Z=-2.652**	Z=-0.205		X^2=0.060		
Assistive device use status							
Yes	30.41±21.68	40.65±9.87	1.67±0.63	10	45.5	12	54.5
No	26.40±20.41	40.85±10.15	1.82±0.78	11	27.5	29	72.5
p	0.416	0.912	0.590		0.172		
Test value	t=-0.819	Z=-0.111	Z=-0.539		X^2=0.153		
Previous hospitalization							
Yes	28.50±20.56	40.93±10.24	1.71±0.67	18	36	32	64
No	25.27±22.14	40.22±9.30	1.98±0.95	3	25	9	75
p	0.583	0.522	0.592		0.735		
Test value	t=-0.556	Z=-0.641	Z=-0.536		X^2=0.470		
Previous surgery							
Yes	29.20±20.49	41.46±9.51	1.77±0.68	16	35.6	29	64.4
No	24.17±21.70	39.00±11.19	1.76±0.87	5	29.4	12	70.6
p	0.344	0.286	0.532		0.768		
Test value	t=-0.959	Z=-1.067	Z=-0.625		X^2=0.648		
Type of surgery							
Knee arthroplasty	28.55±20.73	40.88±9.62	1.77±0.71	15	28.8	37	71.2
Hip arthroplasty	24.14±21.64	40.28±12.09	1.76±0.85	6	60	4	40
p	0.474	0.830	0.946		0.075		
Test value	t=-0.720	Z=-0.215	Z=-0.067		X^2=0.057		
					Mean±SD		
Age				64.95±8.71		65.29±6.53	
p	0.785	0.058	0.689		0.412		
Test value	r=-0.030	r=0.209	r=0.052		Z=-0.820		
BMI				31.54±4.69		31.92±5.29	
p	0.699	0.316	0.242		0.783		
Test value	r=0.043	r=0.111	r=-0.151		t=-0.277		

*: Row percentage. SD: Standard deviation, t: Student's t-test, Z: Mann-Whitney U test, X^2: Chi-square test, r: Pearson correlation, BMI: Body mass index

influenced by prior surgical experiences.[4,7,24] A possible explanation is that many participants had uneventful past surgeries, which may have reduced anxiety in subsequent hospitalizations. Additionally, the high proportion of elderly patients, who may view surgery as a necessary step to improve mobility, could have mitigated anxiety.

In the postoperative period, the mean total PoRI score was 1.76±0.73, with the lowest mean score observed in bowel symptoms and the highest in physical symptoms. When compared to other studies in the literature, these results reveal certain differences. In the study by Kulakaç and Aydın Sayılan[26] in 2024,

Table 4. Correlation analysis of the mean scores of the surgical fear questionnaire (SFQ), the state-trait anxiety inventory (STAI-S), and the postoperative recovery index (PoRI)

	SFQ-total	STAI-S	PoRI
SFQ-total			
r	1		
p			
STAI-S			
r	**0.416**	1	
p	**<0.001**		
PoRI			
r	**0.295**	0.202	1
p	**0.020**	0.116	

r: Pearson correlation.

Table 5. Comparison of the pittsburgh sleep quality index (PSQI) with the surgical fear questionnaire (SFQ), the state-trait anxiety inventory – state subscale (STAI-S), and the postoperative recovery index (PoRI) scores

	SFQ Mean±SD	STAI-S Mean±SD	PoRI Mean±SD
PSQI			
Good sleep	19.90±25.27	36.80±12.13	1.32±0.31
Poor sleep	31.53±18.78	41.87±9.08	1.99±0.78
p	**0.007**	0.108	**<0.001**
Test value	**Z=-2.688**	Z=-1.609	**t=-4.809**

SD: Standard deviation, Z: Mann-Whitney U test, t: Student's t-test.

which included all types of surgical procedures, the mean total PoRI score was reported as 3.19±1.07. Similarly, in the study conducted by Dığın and Kızılcık Özkan[27] in 2021 on postoperative day 3 in general surgery and orthopedic-traumatology clinics, the mean total PoRI score was 2.7±0.9.27 Among the subdimensions, the lowest mean score was 2.1±0.9 for bowel symptoms, while the highest was 3.5±1.3 for physical symptoms. In the study by Çakır et al.[28] in 2024, conducted on the discharge day following coronary artery bypass graft surgery, the mean total PoRI score was 2.72±0.42, with the lowest subdimension score reported for bowel symptoms (1.78±0.79) and the highest for physical symptoms (4.33±0.42). The findings of this study indicate that the recovery levels of patients were more encouraging compared to those reported in certain other studies. When the results from this and other studies are examined, it becomes evident that physical symptoms constitute the biggest problem in the postoperative recovery process. It has been demonstrated that physical recovery is a critical factor in determining postoperative comfort and quality of life for patients, regardless of the surgical procedure performed.

The present study established that more than half of the patients exhibited poor sleep quality at the first-month postoperative assessment. This finding is consistent with the extant literature, which demonstrates significant variability in the reported rates of poor sleep quality among similar patient groups. Fatah and Abdulrahman[29] in 2020 reported that 63% of patients had poor sleep quality at the first month following knee arthroplasty. Similarly, Pitaro et al.[30] in 2023 found this rate to be 62.5% at six weeks postoperatively in patients undergoing total hip and knee arthroplasty. Hamai et al.[31] in 2023 reported a lower rate of 54% at 18 months postoperatively following knee arthroplasty. Conversely, Wang et al.[32] in 2024 found a significantly lower rate of 34.2% in their study on patients at the first month after total hip arthroplasty. Although the findings of this study are largely consistent with previous research, they also demonstrate that a considerable number of patients continue to experience poor sleep quality in the postoperative period. This finding aligns with current research showing that postoperative recovery challenges extend beyond physical healing to include psychological stressors—such as anxiety or depression—and environmental factors like sleep disturbances and hospital noise levels.[33–35] Therefore, incorporating targeted strategies to improve sleep quality should be considered an essential component of postoperative care.

This study revealed that female patients scored higher than male patients on both the SFQ-total and PoRI-total scales. This finding aligns with the existing literature on the subject. In the study by Kaya and Karaman Özlü[36] in 2019, preoperative surgical fear levels were reported to be higher in women. Similarly, the study by Bez and Erturhan Türk[20] in 2024 found that short-term surgical fear scores were higher in female patients compared to male patients. The study by Akutay and Ceyhan[37] in 2023 also revealed that female patients had significantly higher short-term, long-term, and total surgical fear scores than their male counterparts. Additionally, the study by Çakır et al.[28] in 2024 reported that women had higher mean PoRI-total scores compared to men. The higher prevalence of negative experiences related to anxiety, fear, and recovery processes in women may be attributed to biopsychosocial factors, hormonal differences, coping mechanisms, and the way health-related experiences are perceived.[4,33] Gender-sensitive approaches to perioperative care may therefore enhance the effectiveness of individualized interventions.

In the present study, previous surgical or hospitalization experiences appeared to have a limited influence on patients' preoperative anxiety levels. This finding indicates that as patients' levels of fear related to surgery increase, their anxiety levels also rise. Surgical procedures are known to cause significant physiological and psychological trauma, which often manifests as fear and anxiety during the preoperative period.[19] Preoperative fear and anxiety have been shown to increase the risk of various postoperative complications—such as higher morbidity and mortality rates, delayed wound healing, sleep disturbances, increased pain and medication use, and prolonged hospital stays—which can collectively have a negative impact on both the surgical process and recovery.[12,38] Despite the preparation process for elective surgeries, high levels of preoperative surgical fear can disrupt the sleep-wake cycle and negatively affect sleep quality.[19] The present study also identified a low-level, positive, and statistically significant correlation between patients' preoperative surgical fear levels and their recovery levels as assessed at the first postoperative month. This finding suggests that increased preoperative fear may negatively impact the postoperative recovery process. Furthermore, the poor sleep quality observed in these patients aligns with findings in the literature regarding the relationship between surgical fear and sleep disturbances.

Strengths and Limitations of the Study

This study employed a prospective design, enabling the evaluation of postoperative outcomes at a defined follow-up point (one month after surgery), which enhanced the temporal validity of the findings. The specific focus on patients undergoing hip and knee arthroplasty allowed for a detailed examination of psychological and recovery-related outcomes in this population. Despite these strengths, several limitations should be noted. Firstly, the research was conducted in a single center with the same surgical team and a limited number of patients, which restricts the generalizability of the findings to other centers or larger populations. Additionally, the data were collected based on patients' self-reports; consequently, the accuracy of the data may have been influenced by patients' perceptions and response tendencies. Future studies are recommended to adopt multicenter designs, increase sample sizes, and incorporate objective assessment methods supported by biophysiological measurements.

Conclusion

This study revealed that preoperative surgical fear and anxiety are common among patients undergoing hip or knee arthroplasty, and these emotional factors are negatively associated with postoperative sleep quality and recovery. As the intensity of preoperative fear and anxiety increases, patients experience greater sleep disturbances and more difficult recovery processes. These findings highlight the importance of evaluating and addressing psychological factors as part of pre-surgical preparation. Interventions such as structured patient education, psychological support, and relaxation strategies may help reduce emotional distress before surgery and improve postoperative outcomes, particularly sleep quality and recovery. Additionally, incorporating gender-sensitive strategies, such as tailoring education and support to address the specific needs of male and female patients, may further enhance outcomes.

Ethics Committee Approval: The study was approved by the Bilecik Seyh Edebali University Non-interventional Clinical Research Ethics Committee (Approval Number: 6/2, Date: 26.10.2021).

Informed Consent: Written informed consent was secured from all patients.

Conflict of Interest: The authors declare no conflicts of interest related to this work.

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

Use of AI for Writing Assistance: Artificial intelligence (AI)–assisted technologies, specifically a large language model (ChatGPT, OpenAI), were used to improve the English language and clarity of the manuscript during the translation and editing process. The final content was reviewed and approved by the authors.

Author Contributions: Concept – H.S.K., Ö.İ., K.A.; Design – H.S.K., Ö.İ., K.A.; Supervision – H.S.K., Ö.İ., K.A.; Resource – H.S.K., Ö.İ., K.A.; Materials – H.S.K., Ö.İ., K.A.; Data Collection and/or Processing - H.S.K., Ö.İ., K.A.; Analysis and/or Interpretation - H.S.K., Ö.İ., K.A.; Literature Review – H.S.K., Ö.İ., K.A.; Writing – H.S.K., Ö.İ., K.A.; Critical Review – H.S.K., Ö.İ., K.A.

Acknowledgments: We extend our gratitude to Ozan Bayrak, the medical secretary, for his invaluable efforts in organizing and coordinating patients during the data collection process for this study. We also sincerely thank the patients who participated in the study for their valuable contributions.

Peer-review: Externally peer-reviewed.

References

1. Bello CM, Eisler P, Heidegger T. Perioperative Anxiety: Current Status and Future Perspectives. J Clin Med. 2025;14(5):1422. [CrossRef]
2. Walker J, van Niekerk M, Hobbs H, et al. The prevalence of anxiety in general hospital inpatients: A systematic review and meta-analysis. Gen Hosp Psychiatry. 2021;72:131–140. [CrossRef]
3. Kefelegn R, Tolera A, Ali T, Assebe T. Preoperative anxiety and associated factors among adult surgical patients in public hospitals, eastern Ethiopia. SAGE Open Med. 2023;11:20503121231211648. [CrossRef]
4. Bedaso A, Mekonnen N, Duko B. Prevalence and factors associated with preoperative anxiety among patients undergoing surgery in low-income and middle-income countries: a systematic review and meta-analysis. BMJ Open. 2022;12(3):e058187. [CrossRef]
5. Lami M, Negash A, Dereje J, et al. Prevalence of Preoperative Anxiety and Associated Factors Among Surgical Patients: Systematic Review and Meta-Analysis in Ethiopia. Health Serv Insights. 2025;18:11786329251316748. [CrossRef]
6. Çalışkan E, Aksoy N. The Relationship Between Preoperative Anxiety Level and Postoperative Pain Outcomes in Total Hip and Knee Replacement Surgery: A Cross-sectional Study. J Perianesth Nurs. 2025;40(1):76–82. [CrossRef]
7. Erdağı Oral S, Kıranşal N, Deniz M. The Effect of Pain and Anxiety on Sleep Quality in Hospitalized Patients in Surgical Clinics. J Turk Sleep Med. 2022;9(3):288–293. [CrossRef]
8. Çimen Ö, Sürme Y. Surgical fear and sleep quality effect the postoperative quality of recovery in patients undergoing brain tumor surgery: cross sectional study. Perioper Med (Lond). 2025;14(1):8. [CrossRef]
9. Pettit RJ, Gregory B, Stahl S, Buller LT, Deans C. Total Joint Arthroplasty and Sleep: The State of the Evidence. Arthroplast Today. 2024;27:101383. [CrossRef]
10. Shen SP, Wang YJ, Zhang Q, Qiang H, Weng XS. Improved Perioperative Sleep Quality or Quantity Reduces Pain after Total Hip or Knee Arthroplasty: A Systematic Review and Meta-Analysis. Orthop Surg. 2021;13(4):1389–1397. [CrossRef]
11. Driesman AS, Montgomery WC, Kleeman-Forsthuber LT, Johnson RM, Dennis DA, Jennings JM. Perioperative Sleep Quality Disturbances in Total Joint Arthroplasty is Multifactorial. J Arthroplasty. 2024;39(6):1474–1479. [CrossRef]
12. Theunissen M, Peters ML, Schouten EG, et al. Validation of the surgical fear questionnaire in adult patients waiting for elective surgery. PLoS One. 2014;9(6):e100225. Erratum in: PLoS One. 2016;11(9):e0162737. [CrossRef]
13. Bağdigen M, Karaman Özlü Z. Validation of the Turkish Version of the Surgical Fear Questionnaire. J Perianesth Nurs. 2018;33(5):708–714. [CrossRef]
14. Öner N, Le Compte A. Handbook of the State-Trait Anxiety Inventory. 2nd ed. Istanbul: Boğaziçi University Publications;1998.
15. Butler SF, Black RA, Techner L. Development and validation of the post-operative recovery index for measuring quality of recovery after surgery J Anesth Clin Res. 2012;3(12):1–8. [CrossRef]
16. Cengiz H, Aygin D. Validity and reliability study of the Turkish version of the Postoperative Recovery Index of patients undergoing surgical intervention. Turk J Med Sci. 2019;49(2):566–573. [CrossRef]
17. Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry Res. 1989;28(2):193–213. [CrossRef]
18. Ağargün MY, Kara H, Anlar O. The Validity and Reliability of the Pittsburgh Sleep Quality Index. Türk Psikiyatri Derg. 1996;7(2):107–115. Turkish.
19. Kılınç T, Karaman Özlü Z. Elektif cerrahi planlanan hastalarda cerrahi korku, uyku ve uykusuzluk durumu arasındaki ilişkinin belirlenmesi. UHSJN. 2023;5(3):205–212. [CrossRef]
20. Bez H, Erturhan Türk K. Determination of Preoperative Surgical Fear in Orthopedic Surgery Patients: A Descriptive Cross-Sectional Study. Cumhuriyet Nurs J. 2024;8(2):118–124.
21. Çelik S, Şenol T, AltıntaŞ S, Karahan E. The relationship between spiritual well-being and surgical fear in elderly patients with gonarthrosis. Psychogeriatrics. 2024;24(4):915–923. [CrossRef]
22. Dinç G, Yılmaz Güven D. Investigation of the Relationship Between Surgical Fear Levels with Postoperative Anxiety and Mobilization Levels in Patients Who Underwent Total Knee Arthroplasty: Descriptive and Relationship Seeking Study. Turkiye Klinikleri J Nurs Sci. 2023;15(2):299–307. [CrossRef]
23. Teixeira GL, Marques DG, Santos E, et al. Mediating effects of preoperative fear and anxiety on postoperative pain intensity. Acta Paul Enferm. 2024;37:eAPE02305. [CrossRef]
24. Topal Hançer A. Prevalence and factors associated with surgery anxiety in hospitalized patients: a point-prevalence study. Ir J Med Sci. 2023;192(5):2095–2103. [CrossRef]
25. Oh J, Lee W, Ki S, Suh J, Hwang S, Lee J. Assessment of preoperative anxiety and influencing factors in patients undergoing elective surgery: An observational cross-sectional study. Medicina. 2024;60(3):403. [CrossRef]
26. Kulakaç N, Aydın Sayılan A. The Effect of Perceived Preoperative Nursing Care and Surgical Anxiety on Postoperative Recovery. BAUN Health Sci J. 2024;13(3):572–579. [CrossRef]
27. Dığın F, Kızılcık Özkan Z. Determination of Postoperative Recovery Status of Elderly Patients. OTJHS. 2021;6(3):413–418. Turkish. [CrossRef]
28. Çakır F, Karacabay K, Karaveli Çakır S. Investigation of the Effects of Self-Efficacy Levels on Recovery Status of Patients Who Undergoing Coronary Artery Bypass Graft Surgery. Turk J Card Nurs. 2024;15(37):65–72. Turkish. [CrossRef]
29. Fatah RMN, Abdulrahman BB. A sleep disturbance after total knee arthroplasty. J Family Med Prim Care. 2020;9(1):119–124. [CrossRef]
30. Pitaro NL, Herrera MM, Alasadi H, et al. Sleep Disturbance Trends in the Short-Term Postoperative Period for Patients Undergoing Total Joint Arthroplasty. J Am Acad Orthop Surg. 2023;31(19):e859–e867. [CrossRef]
31. Hamai S, Harada S, Tsushima H, et al. Interaction between functional capability and sleep quality at midterm after total knee arthroplasty: a Japanese retrospective cohort study. Sci Rep. 2023;13(1):18373. [CrossRef]
32. Wang Y, Jiang Y, Chen T, et al. Prediction of risk factors of sleep disturbance in patients undergoing total hip arthroplasty. Sleep Biol Rhythms. 2024;22(1):85–91. [CrossRef]
33. Rampes S, Ma K, Divecha YA, Alam A, Ma D. Postoperative sleep disorders and their potential impacts on surgical outcomes. J Biomed Res. 2019;34(4):271–280. [CrossRef]
34. Lanini I, Amass T, Calabrisotto CS, et al. The influence of psychological interventions on surgical outcomes: a systematic review. J Anesth Analg Crit Care. 2022;2(1):31. [CrossRef]
35. Ayenew B, Ayalew A, Yimam W, Mohammed J. Postoperative sleep quality and associated factors among patients undertaking major surgical procedure at South Wollo Zone public general hospitals, Ethiopia. Sleep Sci Pract. 2025;9(1):11. [CrossRef]
36. Kaya M, Karaman Özlü Z. The Determination of The Relationship Between the Perception of Surgical Fear and Social Support in Patients Who Undergoing Elective Surgery. JANHS. 2019;22(4):284–293. Turkish.
37. Akutay S, Ceyhan Ö. The relationship between fear of surgery and affecting factors in surgical patients. Perioper Med (Lond). 2023;12(1):22. [CrossRef]
38. Taşdemir N, Tank DY, Çetinkaya BE. Relationship between patients' fear levels and learning needs at preoperative period. Health Academy Kastamonu. 2022;7(1):47–58. [CrossRef]

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.47124
J Educ Res Nurs. 2025;22(4):239-244

The Relationship Between Nursing Students' Attitudes Toward E-Learning and Phubbing Behavior: A Descriptive and Correlational Study

Nur Sema Kaynar Demirel,[1] İrem Nur Basan[2]

[1]Department of Public Health Nursing, Van Yüzüncü Yıl University Faculty of Health Sciences, Van, Türkiye

[2]Department of Nursing, Van Yüzüncü Yıl University Faculty of Health Sciences, Van, Türkiye

Abstract

Background: E-learning plays a critical role in modern nursing education by offering flexibility and access to diverse learning resources. However, excessive smartphone use and behaviors like phubbing—ignoring others to focus on one's phone—may negatively impact learning engagement and communication.

Aim: This study aimed to examine the relationship between nursing students' attitudes toward e-learning and their phubbing behavior, as well as the influence of demographic and behavioral factors.

Methods: A cross-sectional, descriptive, and correlational design was adopted. The sample consisted of 283 undergraduate nursing students from a public university in Türkiye. Data were collected using the *Attitudes Toward E-Learning Scale* (ATELS) and the *Generic Scale of Phubbing* (GSP). Descriptive statistics, independent t-tests, one-way Analysis of Variance (ANOVA) with post hoc tests, and Pearson correlation analyses were conducted to evaluate the data.

Results: Results showed that students held moderately positive attitudes toward e-learning (mean ATELS: 28.18±7.78) and moderate levels of phubbing (mean GSP: 48.71±15.69). No significant correlation was found between ATELS and GSP scores. Gender and school grade were significantly associated with ATELS scores, with male and second-year students reporting more positive attitudes. Stronger communication skills were also linked to higher ATELS scores ($p<0.05$). In contrast, higher daily smartphone use, lower communication skills, and low participation in social activities were significantly associated with increased phubbing.

Conclusion: These results suggest that although both behaviors are shaped by digital habits, they are not directly related. Improving students' communication skills and encouraging digital self-regulation may enhance the effectiveness of e-learning. Further research should explore these dynamics across different educational settings.

Keywords: Communication skills, e-learning, nursing students, phubbing, smartphone use

Introduction

Technological advancements have significantly transformed nursing education, particularly with the widespread adoption of e-learning, defined as the delivery of instruction through digital platforms.[1] It provides flexibility, accessibility, and learner autonomy.[1,2] The increased use of mobile technologies has also expanded opportunities for mobile learning, which allows students to personalize and extend their educational experiences beyond the classroom.[3]

However, the ubiquity of smartphones has introduced challenges to academic and social settings. One such challenge is phubbing, a behavioral pattern in which individuals ignore those physically present in order to engage with their smartphones.[4,5] Research indicates that phubbing may impair face-to-face communication, increase social anxiety, and contribute to problematic smartphone use, particularly among university students.[6–8]

E-learning and phubbing represent two keys, yet contrasting, dimensions of students' digital engagement. While e-learning emphasizes structured, purposeful, and academically oriented use of technology,[1,2] phubbing reflects a disruptive and socially detrimental pattern of smartphone use.[4,5] Previous studies on phubbing have primarily focused on its associations with technological addictions, fear of missing out, personality traits, loneliness, and relationship satisfaction among university students.[9–13] Similarly, research on e-learning has highlighted its flexibility and accessibility, while also noting challenges such as digital fatigue and unequal digital literacy among nursing students.[14–17] Yet, no empirical study has directly examined how these two digital-age phenomena interact. This constitutes a critical gap in the literature, given the increasing centrality of digital learning in nursing education.

From a theoretical perspective, sustained attention and cognitive engagement are essential for effective participation in e-learning environments. According to Attentional Control Theory, distractions compete for limited attentional resources, impairing task performance and cognitive engagement.[18] In this context, phubbing can be conceptualized as a modern digital distraction that reduces learners' attentional control. Empirical evidence supports this linkage; for instance, phubbing contributes to attentional conflict, wherein the smartphone competes with interpersonal interaction for cognitive resources.[19] Similarly, Cognitive Load Theory suggests that off-task smartphone use increases extraneous cognitive load, which may hinder students' ability to process

Cite this article as: Kaynar Demirel NS, Basan İN. The Relationship Between Nursing Students' Attitudes Toward E-Learning and Phubbing Behavior: A Descriptive and Correlational Study. J Educ Res Nurs. 2025;22(4):239-244.

Corresponding author: Nur Sema Kaynar Demirel
E-mail: nursemakaynar@yyu.edu.tr

Received: August 01, 2025
Accepted: October 13, 2025
Publication Date: December 01, 2025

educational content.[20,21] Moreover, Self-Regulated Learning Theory emphasizes that learners must control attention, motivation, and behavior to achieve effective learning outcomes.[22] Thus, it is plausible to assume that frequent phubbing behaviors, by reducing attentional control and increasing cognitive load, may limit students' ability to benefit fully from e-learning environments.

Building on these theoretical frameworks and addressing the identified gap, to our knowledge, this is the first study to specifically examine the relationship between nursing students' attitudes toward e-learning and their phubbing behavior. Therefore, this study aims to examine the relationship between nursing students' attitudes toward e-learning and their phubbing behavior, and to explore how demographic and behavioral factors influence these variables.

Study Questions

1. Is there a significant relationship between nursing students' attitudes toward e-learning and their phubbing behavior?
2. Do demographic characteristics lead to significant differences in e-learning attitudes and phubbing levels?
3. Do behavioral factors lead to significant differences in e-learning attitudes and phubbing levels?

Materials and Methods

Study Design

This cross-sectional, descriptive, and correlational study was conducted to examine the relationship between nursing students' attitudes toward e-learning and their phubbing behavior.

Sample and Setting

The population consisted of 518 undergraduate nursing students enrolled in a health sciences faculty in Türkiye. Using the known population formula with a 95% confidence level and a 5% margin of error, the minimum required sample size was calculated as 221. A convenience sampling method was employed to recruit participants. Ultimately, data were collected from 283 students who met the inclusion criteria and voluntarily agreed to participate. This larger sample size was intended to enhance the statistical power and reliability of the findings. Participants were included if they were 18 years or older, enrolled in the nursing program during the data collection period, voluntarily agreed to participate, and completed all study instruments in full. Students who did not meet these criteria—such as those under 18 years of age, not actively enrolled, lacking informed consent, or submitting incomplete data—were excluded.

Data Collection Instruments

Three instruments were used to collect data: a Sociodemographic Information Form, the Attitude Toward E-Learning Scale (ATELS), and the Generic Scale of Phubbing (GSP).

Sociodemographic Information Form

This 9-item form, developed by the researchers based on the literature,[23,24] included questions related to age, gender, academic status, phone use duration, and communication skills.

Attitude Toward E-Learning Scale (ATELS)

The ATELS was developed by Zabadi and Al-Alawi[25] in 2016 to assess university students' attitudes toward e-learning. It consists of 11 items on a one-dimensional, 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Guillasper et al.[16] in 2020 validated a 9-item version for nursing students, reporting it as valid and reliable. Item 9 is reverse scored, and the total score ranges from 9 to 45, with higher scores indicating more positive attitudes. In this study, the Turkish 9-item version validated by Aydın et al.[17] in 2022 was used. The Cronbach's alpha was 0.913 in their study and 0.884 in the present sample.

Generic Scale of Phubbing (GSP)

The GSP was developed by Chotpitayasunondh and Douglas[26] in 2018 to assess individuals' phubbing behaviors. The scale includes 15 items rated on a 7-point Likert scale (1=Never, 7=Always). Higher scores indicate a greater tendency toward problematic phubbing behaviors. The scale comprises four subscales: nomophobia, interpersonal conflict, self-isolation, and problem awareness. The Turkish version was validated by Orhan Göksün[27] in 2019, with a reported Cronbach's alpha of 0.86. In the present study, Cronbach's alpha was 0.89.

Data Collection

Data were collected face-to-face between March and May 2024 using printed, self-administered questionnaires. The questionnaires were distributed during scheduled class hours in a quiet undergraduate classroom at the Faculty of Health Sciences, at times approved by the instructors, typically at the start or end of the lesson, before students dispersed. Informed consent was obtained from all participants prior to data collection. On average, each participant completed the questionnaires in approximately 5–6 minutes.

Ethical Considerations

Ethical approval was obtained from the Van Yüzüncü Yıl University Non-interventional Clinical Research Ethics Committee (Approval Number: 2024/03-10, Date: 08.03.2024). Approval for data collection was obtained from the institution, and permission to use the relevant measurement scales was secured from the original authors via email communication. Written informed consent was obtained from all student participants after they were provided with detailed information about the purpose and voluntary nature of the study. The principles of the Declaration of Helsinki were taken into account in the conduct of the study.

Data Analysis

Quantitative data were analyzed using the Statistical Package for the Social Sciences version 25.0 (SPSS 25.0; IBM, New York, USA). Descriptive statistics, including arithmetic mean, standard deviation, percentages, and minimum–maximum values, were calculated. The normality of the data distribution was assessed by examining skewness and kurtosis values. For normally distributed data, independent samples t-tests and one-way Analysis of Variance (ANOVA) were used. In cases where ANOVA results were significant across three or more groups, post hoc tests such as Tukey, Tamhane, and Least Significant Difference (LSD) were applied to determine the source of differences. Pearson correlation analysis was conducted to examine the relationships between scale scores. All analyses were performed with a 95% confidence interval and a significance level of 0.05.

Results

Descriptive Statistics of ATELS, GSP, and GSP Subscales

An analysis of the scores obtained by the students from the ATELS, the GSP, and the GSP subscales revealed that the mean total score for the ATELS was 28.18±7.78, while the mean total score for the GSP was 48.71±15.69. Among the GSP subscales, the mean score for Nomophobia was 17.07±5.46, for Interpersonal Conflict 9.91±5.17, for Self-Isolation 11.37±5.60, and for Problem Awareness 10.38±4.07. The Cronbach's alpha coefficients for all scales ranged between 0.740 and 0.898, indicating a good level of internal consistency (Table 1).

Comparison of ATELS, GSP, and GSP Subscale Scores by Sociodemographic Characteristics

Table 2 summarizes the participants' sociodemographic characteristics (gender, academic year, communication skills, and participation in social activities) and

Table 1. Distribution of mean scores and score ranges for the attitudes toward e-learning scale (ATELS), the generic scale of phubbing (GSP), and GSP subscales (n=283)

Scales	Min-max	Mean±SD	Cronbach's α
ATELS total score	9–45	28.18±7.78	0.896
GSP total score	21–97	48.71±15.69	0.898
Nomophobia	5–28	17.07±5.46	0.819
Interpersonal conflict	4–28	9.91±5.17	0.868
Self-isolation	4–28	11.37±5.60	0.887
Problem awareness	3–21	10.38±4.07	0.740

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

Table 2. Comparison of total mean scores of the attitudes toward e-learning scale (ATELS), the generic scale of phubbing (GSP), and GSP subscales by sociodemographic characteristics (n=283)

	n	%	ATELS	GSP (total)	Nomophobia	Interpersonal conflict	Self-isolation	Problem awareness
Gender								
Female	196	69.3	27.10±7.38	48.55±16.35	17.21±5.51	9.69±5.18	11.26±5.86	10.38±4.26
Male	87	30.7	30.61±8.17	49.10±14.11	16.76±5.36	10.42±5.17	11.60±4.98	10.37±3.63
			t=-3.567	t=-0.265	t=0.647	t= 1.082	t=-0.475	t=0.021
			p=0.000	p=0.791	p=0.518	p=0.280	p=0.635	p=0.983
School grade								
1st year[a]	100	35.3	27.15±7.26	48.05±16.19	16.95±5.61	9.80±5.36	11.05±6.00	10.32±3.83
2nd year[b]	79	27.9	30.20±7.25	48.84±16.02	16.82±5.04	10.38±5.30	11.67±5.31	9.96±4.07
3rd year[c]	36	12.8	29.00±8.18	47.69±12.93	17.67±5.16	9.11±4.22	10.50±5.16	10.42±3.94
4th year[d]	68	24.0	26.91±8.52	50.06±16.13	17.24±5.94	9.97±5.27	11.93±5.57	10.93±4.49
			F=3.164	F=0.274	F=0.232	F=0.518	F=0.694	F=0.691
			p=0.025	p=0.844	p=0.874	p=0.670	p=0.556	p=0.558
			b>a					
			b>d					
Self-assessed communication skills								
Poor[a]	12	4.2	25.25±7.60	63.25±19.74	17.75±5.80	15.50±7.24	15.92±6.68	14.08±3.77
Moderate[b]	135	47.7	27.14±7.20	48.61±14.28	16.96±5.28	9.87±4.72	11.27±4.99	10.51±3.95
Good[c]	136	48.1	29.47±8.18	47.51±16.13	17.13±5.64	9.47±5.16	11.05±5.94	9.92±4.06
			F=4.001	**F=5.729**	F=0.130	**F=7.854**	**F=4.286**	**F=6.113**
			p=0.019	**p=0.004**	p=0.878	**p=0.000**	**p=0.015**	**p=0.003**
			c>b	**a>b**		**a>c**	**a>b**	**a>b**
				a>c			**a>c**	**a>c**
Difficulty communicating with friends								
Yes[a]	15	5.3	30.47±7.42	56.73±20.81	16.47±5.29	14.20±7.30	13.87±6.65	12.20±4.49
Sometimes[b]	147	51.9	27.45±7.41	49.78±14.48	17.03±5.26	10.18±4.79	11.78±5.10	10.71±3.84
No[c]	121	42.8	28.79±8.22	46.43±16.05	17.20±5.75	9.07±5.07	10.55±5.94	9.75±4.20
			F=1.667	**F=3.636**	**F=0.127**	**F=7.256**	**F=3.209**	**F=3.483**
			p=0.191	**p=0.028**	**p=0.881**	**p=0.001**	**p=0.042**	**p=0.032**
				a>c	**a>b**		**a>c**	**a>c**
					a>c			
Difficulty communicating with patients during nursing care								
Yes[a]	15	5.3	27.73±7.32	64.53±17.27	18.73±5.04	15.53±6.78	15.27±5.68	15.00±4.10
Sometimes[b]	145	51.2	28.79±7.19	49.63±13.48	16.82±5.01	10.53±4.61	11.74±4.84	10.56±3.64
No[c]	123	43.5	27.51±8.45	45.72±16.67	17.17±5.99	8.50±5.01	10.45±6.18	9.60±4.17
			F=0.925	**F=10.808**	F=0.866	**F=15.955**	**F=5.807**	**F=13.079**
			p=0.398	**p=0.000**	p=0.422	**p=0.000**	**p=0.003**	**p=0.000**
				a>b		**a>b**	**a>b**	**a>b**
				a>c		**a>c**	**a>c**	**a>c**
						b>c		
Frequency of participation in social activities								
Never[a]	30	10.6	28.10±8.33	55.31±20.31	18.23±6.27	12.27±7.08	13.83±6.92	10.69±4.92
Once a month[b]	67	23.7	27.48±8.29	47.12±15.30	17.18±5.70	9.09±4.69	10.99±5.92	9.87±4.08
Once a week[c]	102	36.0	28.04±7.41	47.96±14.61	17.22±5.36	9.44±4.83	10.65±4.94	10.59±4.17
Several times a week[d]	84	29.7	28.94±7.69	48.61±15.16	16.40±5.08	10.31±4.95	11.66±5.39	10.43±3.63
			F=0.458	F=2.040	F=0.900	**F=3.150**	**F=2.729**	F=0.502
			p=0.712	p=0.109	p=0.442	**p=0.025**	**p=0.044**	p=0.681
						a>b	**a>b**	
						a>c	**a>c**	

p<0.05 indicates statistical significance. F: One-way Analysis of Variance (ANOVA), t: Independent samples t-test, n (%) are presented for descriptive purposes. Different superscript letters (a, b, c, d) indicate statistically significant differences between groups based on post-hoc test results (p < 0.05).

presents group comparisons, including the analysis of ATELS, GSP, and GSP subscale score averages according to their demographic and interpersonal characteristics. Male students reported significantly higher ATELS scores than females (p<0.005), while no significant gender differences were found in GSP or its subscales. According to the academic year, second-year students scored higher on ATELS compared to first- and fourth-year students (p<0.05).

DOI: 10.14744/jern.2025.47124
J Educ Res Nurs. 2025;22(4):239-244

Table 3. Correlations between the attitudes toward e-learning scale (ATELS), the generic scale of phubbing (GSP), and GSP subscale scores (n=283)

	Min–max	Mean±SD		ATELS	GSP (total)	Nomophobia	Interpersonal conflict	Self-isolation	Problem awareness
Age	18–35	21.39±1.88	r	**0.130***	-0.053	-0.058	-0.026	-0.036	-0.039
			p	**0.029**	0.378	0.329	0.668	0.552	0.511
Daily smartphone use (hours)	1–24	4.89±3.23	r	0.030	**0.267****	**0.129***	**0.260****	**0.219****	**0.168****
			p	0.613	**0.000**	**0.030**	**0.000**	**0.000**	**0.005**
Time spent without smartphone use (hours)	0–24	7.66±6.58	r	**0.149***	**-0.180****	**-0.133***	**-0.161****	**-0.131***	-0.099
			p	**0.012**	**0.003**	**0.026**	**0.007**	**0.028**	0.097
ATELS			r	1	-0.012	-0.096	0.030	0.023	0.008
			p	–	0.840	0.108	0.613	0.702	0.888

*: Correlation is significant at the 0.05 level (two-tailed), **: Correlation is significant at the 0.01 level (two-tailed). Min-Max and Mean±standard deviation (SD) are provided for descriptive purposes. Min: Minimum, Max: Maximum, SD: Standard deviation, r: Pearson correlation coefficient.

Communication skills were also associated with outcomes. Students who rated their skills as good scored higher on ATELS than those with moderate skills, while those with poor skills had significantly higher GSP, Self-Isolation, Problem Awareness, and Interpersonal Conflict scores ($p<0.05$). Similarly, students reporting difficulty communicating with friends or with patients during nursing care had significantly higher GSP total and subscale scores, except for the Nomophobia subscale ($p<0.05$).

Participation in social activities was linked to lower interpersonal conflict and self-isolation. Students who never engaged in social activities scored significantly higher on these subscales compared with those participating monthly or weekly ($p<0.05$).

Correlation Between ATELS, GSP, and GSP Subscale Scores

The descriptive characteristics of continuous variables (age, daily smartphone use, and time spent without smartphone use) are presented together with the correlation analysis in Table 3. A statistically significant but weak positive correlation was found between age and ATELS scores ($r=0.130$, $p=0.029$). Daily smartphone use showed a moderate positive correlation with GSP total scores ($r=0.267$, $p<0.01$) and with all GSP subscales. Time spent without smartphone use had significant negative correlations with the GSP total and its subscales, except for the Problem Awareness subscale. No significant correlation was found between ATELS and GSP scores.

Discussion

This study investigated the relationship between nursing students' attitudes toward e-learning and their phubbing behavior, as well as the influence of demographic and behavioral factors. Students reported moderately positive attitudes toward e-learning and moderate levels of phubbing, consistent with previous studies indicating that digital tools represent both opportunities and challenges in higher education.[4,14,17,23,28,29]

Importantly, no significant correlation was found between attitudes toward e-learning and phubbing. This indicates that, although both variables may be influenced by similar behavioral dynamics, they may be governed by distinct psychosocial, individual, and environmental processes. While e-learning environments are largely shaped by factors such as pedagogical design, student motivation, and technological infrastructure,[20,22] phubbing behavior is more closely related to digital addiction tendencies and social interaction patterns.[23,30] This discrepancy is consistent with research showing that smartphone overuse is associated with distraction, social withdrawal, and reduced attention control.[18,31–33]

According to the correlation findings, a statistically significant but weak positive relationship was found between age and attitudes toward e-learning ($r=0.130$). However, the strength of this association is limited, and its practical significance should be interpreted with caution.[34] While statistical significance indicates the existence of a relationship, the weak effect size suggests that age alone does not meaningfully influence students' attitudes toward e-learning. This finding supports the view that weak correlations have minimal practical utility in educational research and should not be overemphasized. A significant positive correlation was observed between time spent on mobile phones and phubbing levels, indicating that greater daily smartphone use is associated with higher phubbing scores. This finding aligns with previous studies linking phubbing behavior to social isolation and problematic digital engagement.[23,30] Conversely, time spent away from phones showed negative correlations with phubbing scores, suggesting that longer periods without phone use are related to reduced phubbing tendencies. Additionally, a weak positive correlation between e-learning attitudes and time spent without phone use was identified; however, given the small effect size, this result should be interpreted cautiously and may only reflect a limited influence of screen time on students' focus and adaptability in digital learning.

In this study, associations were observed between students' communication skills and both ATELS and GSP scores. Students with stronger communication skills demonstrated more positive attitudes toward e-learning and lower phubbing levels. These results align with previous research showing that excessive use of digital platforms may reduce face-to-face interaction and contribute to social withdrawal.[31,35] Specifically, Ayar and Gürkan[35] in 2022 found a weak negative correlation between phubbing and communication skills among nursing students, while Han et al.[31] in 2022 reported a similar association with interpersonal relationships. Phubbing, characterized by prioritizing digital engagement over in-person interaction, may interfere with communication competencies. This is reflected in students reporting communication difficulties or lower social participation, who exhibited higher phubbing scores. Overall, these findings highlight a relationship between communication skills and phubbing, suggesting that enhancing communication competencies may support social and professional development in nursing education.

Regarding gender, male students demonstrated more positive attitudes toward e-learning than females, which is consistent with some studies in the literature.[14,36] For instance, Diab and Elgahsh[14] in 2020 found that male nursing students had more favorable attitudes toward e-learning than their female counterparts. However, contrary to these findings, Köse et al.[15] in 2022 reported that female nursing students had higher e-learning attitude scores during the Coronavirus Disease 2019 (COVID-19) pandemic. These conflicting findings may reflect deep-rooted societal gender norms and a persistent digital gender divide in Türkiye. Research has shown that women's access to and use of the internet remains significantly lower compared to men, suggesting continued disparities in digital access and confidence.[37] Furthermore, a study on digital literacy in Türkiye revealed that males scored higher in technical and functional skills, whereas females outperformed in daily-use and ethical responsibility dimensions—highlighting gendered differences in how technology is navigated and valued.[38]

Similarly, variations in academic year may influence attitudes toward e-learning. While some studies suggest that students adapt better to e-learning as their education level increases,[39] others report a decline in digital interest over time and a shift toward different learning modes in clinically focused academic years.[40,41] This study found significant differences in e-learning attitudes by year of study, with second-year students scoring higher than first- and fourth-year students. In Türkiye, nursing education typically allocates at least one-third of the total educational period to theoretical instruction, with the remainder devoted to clinical practice.[42] This structure may help explain the results of this study: second-

year students–immersed in heavy theoretical coursework with emerging clinical exposure–may find e-learning particularly beneficial for assimilating theoretical knowledge. In contrast, fourth-year students, deeply immersed in clinical practice, may prioritize hands-on experiences over digital learning and experience digital fatigue, with cultural expectations around clinical competency further pushing them toward in-person training.

Taken together, these findings indicate that e-learning attitudes and phubbing behaviors, although both shaped by digital habits, require distinct but complementary strategies in nursing education. Rather than assuming that reducing phubbing will directly enhance e-learning engagement, programs could benefit from integrated approaches that strengthen communication skills, promote digital self-regulation, and foster social participation. Embedding structured communication training within the nursing curriculum, organizing workshops on healthy smartphone use, and creating opportunities for students to engage in collaborative activities may indirectly mitigate phubbing behaviors while simultaneously improving the quality of e-learning experiences.[32,43,44] Such initiatives not only support academic success but also contribute to the development of professional competencies essential for effective nursing practice.

Limitations

This study has certain limitations that should be considered when interpreting the findings. First, the data were collected through self-reported measures, which may be subject to response bias and social desirability effects. In particular, communication skills were assessed using self-report items, which may lead to subjective evaluation errors and inconsistencies between perceived and actual performance. Second, the study was conducted in a single health science faculty in Türkiye, which may limit the generalizability of the results to all nursing students. Moreover, the sample was selected through convenience sampling, further restricting the generalizability of the findings. Future studies involving more diverse samples from different institutions and using mixed or objective methods are recommended to enhance the robustness and transferability of the findings.

Conclusion

Although e-learning attitudes and phubbing behavior are both influenced by digital habits, this study found no direct association between them among nursing students. Positive attitudes toward e-learning were significantly associated with being male, being in the second year of study, and having stronger communication skills. In contrast, higher levels of phubbing were associated with poorer communication skills, greater daily smartphone use, and lower social participation.

Findings from this study highlight the importance of addressing phubbing as a separate behavioral concern that may indirectly affect the quality of digital learning and professional communication. Interventions aimed at enhancing students' interpersonal skills and digital self-regulation may contribute to more effective and mindful use of technology in academic and clinical contexts.

As e-learning continues to expand in nursing education, future research should continue to explore longitudinal trends and examine the effectiveness of targeted behavioral interventions designed to reduce phubbing and promote healthy digital engagement.

Ethics Committee Approval: The study was approved by the Van Yüzüncü Yıl University Non-interventional Clinical Research Ethics Committee (Approval Number: 2024/03-10, Date: 08.03.2024).

Informed Consent: Written informed consent was obtained from all students who participated in the study.

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

Funding: This study was supported by TUBİTAK (The Scientific and Technological Research Council of Turkey) under the 2209-A University Students Research Projects Support Program (2023 Second Term Application) (Project number: 1919B012319975).

Author Contributions: Concept – N.S.K.D., İ.N.B.; Design – N.S.K.D.; Supervision – N.S.K.D.; Resource – N.S.K.D.; Materials – N.S.K.D., İ.N.B.; Data Collection and/or Processing - İ.N.B.; Analysis and/or Interpretation - N.S.K.D.; Literature Review – N.S.K.D., İ.N.B.; Writing – N.S.K.D., İ.N.B.; Critical Review – N.S.K.D.

Acknowledgments: We would like to thank all the nursing students who voluntarily participated in the study.

Peer-review: Externally peer-reviewed.

References

1. McDonald EW, Boulton JL, Davis JL. E-learning and nursing assessment skills and knowledge - An integrative review. Nurse Educ Today. 2018 Jul;66:166–174. [CrossRef]
2. Voutilainen A, Saaranen T, Sormunen M. Conventional vs. e-learning in nursing education: A systematic review and meta-analysis. Nurse Educ Today. 2017;50:97–103. [CrossRef]
3. Yalcinkaya T, Cinar Yucel S. Mobile learning in nursing education: A bibliometric analysis and visualization. Nurse Educ Pract. 2023;71:103714. [CrossRef]
4. Chotpitayasunondh V, Douglas KM. How "phubbing" becomes the norm: The antecedents and consequences of snubbing via smartphone. Comput Human Behav. 2016;63:9–18. [CrossRef]
5. Garrido EC, Issa T, Esteban PG, Delgado SC. A descriptive literature review of phubbing behaviors. Heliyon. 2021;7(5):e06939. [CrossRef]
6. Chatterjee S. Antecedents of phubbing: From technological and psychological perspectives. J Syst Inf Technol. 2020;22(2):161–178. [CrossRef]
7. Öztekin GG, Yıldırım M. The relationship between phubbing and social relationships among Turkish college students: Mediating roles of self-control and empathy. Aust Psychol. 2025;1–13. [CrossRef]
8. Al-Saggaf Y, O'Donnell SB. Phubbing: Perceptions, reasons behind, predictors, and impacts. Hum Behav Emerg Technol. 2019;1(2):132–140. [CrossRef]
9. Talan T, Doğan Y, Kalinkara Y. Effects of smartphone addiction, social media addiction and fear of missing out on university students' phubbing: A structural equation model. Deviant Behav. 2024;45(1):1–14. [CrossRef]
10. Yam FC, Kumcağız H. Adaptation of general phubbing scale to Turkish culture and investigation of phubbing levels of university students in terms of various variables. Addicta: Turk J Addict. 2020;7(1):48–60. [CrossRef]
11. Sert H, Üngören Y, Pelin M, Horzum MB. Relationship between chronotypes, personality traits, and phubbing levels in university students. Biol Rhythm Res. 2023;54(3):322–333. [CrossRef]
12. Büyükşakar S, Çelik E. Attachment styles and loneliness as predictors of phubbing amongst university students. Sakarya Univ J Educ. 2024;14(1):18–32. [CrossRef]
13. Karaman HB, Arslan C. The mediating role of social media addiction and phubbing in basic psychological needs in relationships and relationship satisfaction. Front Psychol. 2024;15:1291638. [CrossRef]
14. Diab GMAEH, Elgahsh NF. E-learning during COVID-19 pandemic: Obstacles faced nursing students and its effect on their attitudes while applying it. Am J Nurs. 2020;9(4):300–314. [CrossRef]
15. Köse S, Karakurt P, Fırat M. Relationship of nursing students' anxiety level in the COVID-19 pandemic with e-learning. Turk J Sci Health. 2022;3(3):168–175. [CrossRef]
16. Guillasper JN, Soriano GP, Oducado RMF. Psychometric properties of 'attitude towards e-learning scale' among nursing students. Int J Educ Sci. 2020;30(1–3):1–5. [CrossRef]
17. Aydin M, Uzun Şahın C, Kulakaç N. Hemşirelik öğrencilerinin e-öğrenmeye yönelik tutum ölçeği: Metodolojik bir çalışma. Turkiye Klin J Nurs Sci. 2022;14(2):464–471. Turkish. [CrossRef]
18. Eysenck MW, Derakshan N, Santos R, Calvo MG. Anxiety and cognitive performance: attentional control theory. Emotion. 2007;7(2):336–353. [CrossRef]
19. Vanden Abeele M. The social consequences of phubbing. In: Ling R, Fortunati L, Goggin G, Lim SS, Li Y, eds. The Oxford Handbook of Mobile Communication and Society. Oxford: Oxford University Press; 2020:157–174. [CrossRef]
20. Sweller J. Cognitive load during problem solving: Effects on learning. Cogn Sci. 1988;12(2):257–285. [CrossRef]
21. Krumsvik RJ. Smartphones, media multitasking and cognitive overload. Nord J Digit Lit. 2025;20(1):5–15. [CrossRef]
22. Zimmerman BJ. Becoming a self-regulated learner: An overview. Theory Pract. 2002;41(2):64–70. [CrossRef]
23. Alver B. The Relationship Between Phubbing and Communication Skills in Nursing Students. Master's Thesis. Ordu Universiy Health Sciences Institute; 2023.
24. Uyar P, Ayar D. Hemşirelik öğrencilerinin sosyal medya kullanımı ve aile iletişiminin sosyotelist olma ve sosyotelizme maruz kalma durumlarına etkisi. Sağlık Bil Değer. 2024;14(1):83–89. [CrossRef]
25. Zabadi AM, Al-Alawi AH. University students' attitudes towards e-learning: University of Business & Technology (UBT)-Saudi Arabia-Jeddah: A case study. Int J Bus Manag. 2016;11(6):286–295. [CrossRef]
26. Chotpitayasunondh V, Douglas KM. The effects of "phubbing" on social interaction. J Appl Soc Psychol. 2018;48(6):304–316. [CrossRef]
27. Orhan Göksün D. Sosyotelist olma ve sosyotelizme maruz kalma ölçeklerinin Türkçeye uyarlanması. Afyon Kocatepe Univ J Soc Sci. 2019;21(3):657–671. [CrossRef]
28. Uysal N, Aydın B, Ekici E. Nursing Students' Attitudes Towards Distance Education in the Covid-19 Pandemic Process. J Higher Educ Sci. 2022;12(1):228–233.
29. Thapa P, Bhandari SL, Pathak S. Nursing students' attitude on the practice of e-learning: A cross-sectional survey amid COVID-19 in Nepal. PLoS One. 2021;16(6):e0253651. [CrossRef]

30. Aykaç S, Yıldırım Ş. Nomophobia and Phubbing the Effects of Them in the Developing World. BAIBUEFD. 2021;21(1):243–256. Turkish. [CrossRef]
31. Han JH, Park SJ, Kim Y. Phubbing as a Millennials' New Addiction and Relating Factors Among Nursing Students. Psychiatry Investig. 2022;19(2):135–145. [CrossRef]
32. Karadağ E, Tosuntaş ŞB, Erzen E, et al. Determinants of phubbing, which is the sum of many virtual addictions: a structural equation model. J Behav Addict. 2015;4(2):60–74. [CrossRef]
33. Krasnova H, Abramova O, Notter I, Baumann A. Why phubbing is toxic for your relationship: Understanding the role of smartphone jealousy, Internet addiction, and attachment anxiety in smartphone use and relational outcomes. Paper presented at: the 24th European Conference on Information Systems (ECIS); June 12-15; 2016; Istanbul, Türkiye. Accessed October 14, 2025. https://aisel.aisnet.org/ecis2016_rp/109/
34. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. New York: Routledge; 2013. [CrossRef]
35. Ayar D, Gürkan KP. The Effect of Nursing Students' Smartphone Addiction and Phubbing Behaviors on Communication Skill. Comput Inform Nurs. 2021;40(4):230–235. [CrossRef]
36. Rafiq F, Hussain S, Abbas Q. Analyzing students' attitude towards e-learning: A case study in higher education in Pakistan. Pak Soc Sci Rev. 2020;4(1):367–380. [CrossRef]
37. Acilar A. Exploring the gender digital divide in e-government use in a developing country. Int J Public Adm Digit Age. 2020;7(4):1–15. [CrossRef]
38. Harputlu L, Güryay B. Gender differences in digital literacy: An analysis. Batı Anadolu Eğit Bil Derg. 2024;15(3):3286–3300. [CrossRef]
39. Garrison DR, Vaughan ND. Blended Learning in Higher Education: Framework, Principles, and Guidelines. San Francisco, CA: John Wiley&Sons; 2008. [CrossRef]
40. Hung ML, Chou C, Chen CH, Own ZY. Learner readiness for online learning: Scale development and student perceptions. Comput Educ. 2010;55(3):1080–1090. [CrossRef]
41. Pei L, Wu H. Does online learning work better than offline learning in undergraduate medical education? A systematic review and meta-analysis. Med Educ Online. 2019;24(1):1666538. [CrossRef]
42. Muslu L, Sarvan S, Günbayı İ. Students' opinions on the theoretical aspects of nursing education in Turkey. Cyprus J Med Sci. 2022;6(1):48–57. [CrossRef]
43. Başgöl Ş, Rüzgar Ş. The effect of midwifery students' phubbing behaviors on communication skills in Türkiye. Nurse Educ Pract. 2025;85:104382. [CrossRef]
44. Twenge JM, Joiner TE, Rogers ML, Martin GN. Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents after 2010 and links to increased new media screen time. Clin Psychol Sci. 2017;6(1):3–17. [CrossRef]

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.10476
J Educ Res Nurs. 2025;22(4):245-248

The Effect of Sociodemographic Characteristics on Disease Acceptance in Individuals with Type 2 Diabetes

Nurten Terkeş, Derya Öngün

Department of Internal Medicine Nursing, Mehmet Akif Ersoy University, Bucak Health School, Burdur, Türkiye

Abstract

Background: Type 2 diabetes is a chronic metabolic disorder that requires long-term lifestyle changes and continuous self-management. The degree to which individuals accept their illness plays a pivotal role in psychological adaptation, treatment compliance, and disease outcomes.

Aim: This study aimed to investigate the effect of sociodemographic characteristics on the level of disease acceptance in individuals diagnosed with type 2 diabetes.

Methods: This descriptive study was conducted with 282 patients with type 2 diabetes receiving treatment in the internal medicine department of a district state hospital between January 5, 2024 and February 15, 2024. Personal information forms and the Illness Acceptance Scale were used by the researchers for data collection. Data were analyzed using the independent samples t-test, one-way analysis of variance (ANOVA), and the Mann-Whitney U and Kruskal-Wallis tests.

Results: The distribution of personal characteristics among type 2 diabetes patients who participated in the study showed a mean age of 58.93±12.40; 62.4% were female, 87.9% were married, 52.4% were primary school graduates, 68.7% were not working, 46% were housewives, and 36.1% had a diagnosis duration ranging from 5 to 10 years. The relationship between the level of disease acceptance and age (p=0.000), gender (p=0.036), educational status (p=0.032), marital status (p=0.003), employment status (p=0.000), occupation (p=0.000), duration of diagnosis (p=0.000), and having another disease (p=0.000) was found to be statistically significant.

Conclusion: It was found that the perceived level of disease acceptance among individuals is influenced by variables such as age, gender, marital status, educational status, employment status, occupation, and duration of diagnosis. These factors should be considered when designing individualized care plans and psychosocial support interventions.

Keywords: Disease acceptance, nursing, type 2 diabetes

Introduction

Diabetes is a lifelong, progressive, and chronic metabolic disease that can lead to the development of many complications in later stages.[1] According to data from the International Diabetes Federation (IDF), in 2019 the global prevalence of diabetes in the adult population reached 9.3%, with approximately 463 million individuals living with diabetes and about 4.2 million deaths attributed to diabetes and its complications.[2] According to recent IDF data on the prevalence of diabetes, there are approximately 7 million people aged 20–79 years with diabetes in Türkiye, corresponding to about 15% of the total adult population.[3] According to the Turkish Diabetes Epidemiology Study (TURDEP-II), the prevalence of diabetes is 13.7%, while this rate is approximately 27% among individuals with impaired glucose tolerance (IGT) or prediabetes.[4] The rapid increase in type 2 diabetes in Türkiye and worldwide clearly demonstrates the necessity of effective diabetes management.[5] Therefore, diabetes should be brought under control in the early years. When individuals with diabetes can manage their condition at an early stage, they can live for many years without developing complications. However, in individuals with uncontrolled diabetes, the treatment plan becomes difficult once complications develop, creating a significant burden on both the individual and the national economy.[6,7]

It is necessary to organize training programs on diabetes self-management, particularly to identify individuals in the risk group and provide them with the necessary information. It is important to include these individuals in communication groups with health professionals on certain social media platforms, to plan supportive training sessions, to carry out social activities, and thus to increase awareness among individuals. However, it has been reported that no matter how well the training is provided, it cannot be effective unless patients have a good level of disease acceptance.[8–10]

Disease acceptance reflects how well individuals integrate a chronic condition into their self-concept and daily routines, reducing psychological conflict and enabling adaptive self-management. Lower acceptance is typically linked to avoidance, diabetes distress, and weaker engagement with care plans, whereas higher acceptance is associated with better self-care, medication adherence, and quality of life. In type 2 diabetes, acceptance can shape how individuals appraise the day-to-day demands of diet, physical activity, and glucose monitoring, thereby influencing long-term outcomes. Although illness perceptions, coping resources, social support, and health literacy are important, sociodemographic factors—such as age, sex, marital status, education, employment, occupation, and duration of diagnosis—also matter through their effects on access to resources, caregiving

Presented as an abstract in 7th International Health Sciences and Life Congress between March 7–9, 2024.

Cite this article as: Terkeş N, Öngün D. The Effect of Sociodemographic Characteristics on Disease Acceptance in Individuals with Type 2 Diabetes. J Educ Res Nurs. 2025;22(4):245-248.

Corresponding author: Nurten Terkeş
E-mail: nurtenterkes@gmail.com

Received: August 11, 2025
Accepted: October 15, 2025
Publication Date: December 01, 2025

DOI: 10.14744/jern.2025.10476
J Educ Res Nurs. 2025;22(4):245-248

roles, and competing demands. Profiling acceptance across these attributes within the same population can help identify subgroups who would benefit from targeted, nurse-led education and counseling, thereby strengthening the practical impact of diabetes self-management efforts.[2,8–10] This study aimed to investigate the effect of sociodemographic characteristics on the level of disease acceptance in individuals diagnosed with type 2 diabetes.

Research Question

How does disease acceptance differ across key sociodemographic characteristics (age, sex, marital status, education, employment, occupation, and duration of diagnosis) among adults with type 2 diabetes?

Materials and Methods

Participants and Study Design

This study was conducted as a descriptive, cross-sectional research in the internal medicine clinic of a district state hospital between January 5 and February 15, 2024. The minimum sample size was calculated using G*Power 3.1 software with an effect size of f=0.25 (medium), α=0.05, and power=0.90, indicating a required minimum of 242 participants for between-group comparisons. Ultimately, 282 individuals meeting the inclusion criteria were enrolled, which enhanced the statistical power of the study. Participants aged 18 years and older, with a confirmed diagnosis of type 2 diabetes for at least six months, who had no communication barriers or psychiatric disorders, and who voluntarily provided consent were included in the sample. This study adhered to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for observational research reporting.

Data Collection Tools

Two instruments were used for data collection: a Personal Information Form and the Disease Acceptance Scale (DAS), both prepared by the researchers after a thorough literature review.[11,12]

Personal Information Form

The form included one open-ended and eight closed-ended questions designed to gather descriptive data such as age, gender, marital status, educational background, employment status, occupation, and duration of diabetes diagnosis.

Disease Acceptance Scale

The DAS, originally developed by Felton et al.[11] in 1984 and adapted into Turkish by Büyükkaya Besen and Esen[12] in 2011, is a five-point Likert-type instrument with eight items. Responses are rated from 1 ("strongly agree") to 5 ("strongly disagree"), with the sixth item reverse-coded. Total scores range from 8 to 40, with higher scores indicating greater disease acceptance. The Cronbach's alpha of the Turkish version was reported as 0.79 in prior validation studies, while in the current study, internal consistency was found to be excellent (Cronbach's α=0.92).

Data Collection

Data collection was carried out in both the outpatient and inpatient units of the hospital. All questionnaires were administered by the principal investigator through face-to-face interviews. Participants were approached during their routine follow-up appointments or hospital stays and were informed about the purpose and voluntary nature of the study. After obtaining informed consent, data were collected in a quiet setting without external interruptions. Each session lasted approximately 10–15 minutes, during which the researcher ensured that participants completed all items. The responses were reviewed on-site for completeness before the participants departed. No participant withdrew or refused participation during data collection.

Data Analysis

The data obtained from the study were transferred to a computer and analyzed using the SPSS 22.0 statistical package program. Data distribution was assessed using the Shapiro-Wilk test, and variance homogeneity was tested using the Levene test. When the appropriate assumptions were met, the independent samples t-test and one-way analysis of variance (ANOVA) (post-hoc Tukey/Games-Howell) were applied; when assumptions were not met, the Mann-Whitney U and Kruskal-Wallis tests (post-hoc Dunn-Bonferroni) were used. A two-tailed p<0.05 significance level was applied for all comparisons.

Ethical Responsibilities

Ethics committee approval was obtained from the Non-interventional Clinical Research Ethics Committee of Burdur Mehmet Akif Ersoy University (Approval Number: GO/2024/45, Date: 03.01.2024) prior to the study to ensure its ethical appropriateness. Both written and verbal consent were obtained from type 2 diabetes patients who agreed to participate in the study. Research and publication ethics were followed in accordance with the Declaration of Helsinki.

Results

When the demographic and socioeconomic characteristics of the individuals with type 2 diabetes who participated in the study were analyzed, the mean age of the participants was 58.93±12.40 years. Of the participants, 62.4% were female, 87.9% were married, 52.4% were primary school graduates, and 68.7% were unemployed. Regarding occupational distribution, 46% of the participants were housewives. All participants used oral antidiabetic agents, and 36.1% had a diagnosis duration of 5 to 10 years (Table 1).

The mean scores, standard deviation, and Cronbach's alpha values of the Disease Acceptance Scale used in the study are presented in Table 2. The mean total scale score was calculated as 25.36±6.72, and Cronbach's alpha value of the scale was found to be 0.99, indicating that the scale has high internal consistency.

In the analyses performed to evaluate the relationship between the demographic characteristics of the participants and their scores on the Disease Acceptance Scale, statistically significant relationships were found between age, gender, marital status, educational status, employment status, occupation, and duration of diagnosis and the level of disease acceptance (p<0.005) (Table 3).

Table 1. Distribution of individuals with type 2 diabetes according to descriptive characteristics (N=282)

Descriptive characteristics	N	%
Gender		
Female	176	62.4
Male	106	37.6
Marital status		
Married	248	87.9
Single	34	12.1
Education		
Primary school	148	52.4
Middle school	58	20.5
High school	46	16.3
University and above	30	10.8
Employment status		
Working	88	31.3
Not working	194	68.7
Profession		
Housewife	130	46.0
Servant	72	26.1
Worker	62	21.9
Retired	18	6.0
Type of diabetes treatment		
Oral antidiabetic agents	282	100
Duration of diagnosis (years)		
1–5	88	31.2
6-10	102	36.1
>10	92	32.7
Variable	**Mean±SD**	**Min-max**
Age	58.93±12.40	32–76

SD: Standard deviation.

Table 2. Mean scores, standard deviation, and Cronbach's alpha value of the disease acceptance scale

Scale	Score range	Mean	SD	Cronbach's alpha
Total	8–40	25.36	6.72	0.92

SD: Standard deviation.

Discussion

Diabetes is a chronic disease that continuously affects the lives of individuals; therefore, developing a positive attitude toward the disease plays a critical role in the success of disease management. It is frequently emphasized in the literature that individuals with low disease acceptance or negative attitudes should be identified, and nursing interventions should be planned to help modify their perceptions.[13] In this context, this study aimed to determine the level of disease acceptance among individuals with type 2 diabetes and the sociodemographic factors affecting this level. The findings obtained from this study reveal that these factors significantly influence the level of disease acceptance.

A high level of disease acceptance in chronic diseases such as diabetes is an important factor in disease management, treatment success, prevention of complications, and improvement of quality of life.[14,15] In this study, the participants demonstrated a good level of disease acceptance. In a study conducted to determine the relationship between disease acceptance and glycemic control in individuals with type 2 diabetes, the mean Disease Acceptance Scale score was 25.01±6.20.[16] In another study, the mean score was 27.82±5.70.[17] In other studies in the literature, the mean scores obtained from this scale ranged between 22.79±6.72 and 30.39±8.13.[13,18–20] These results indicate that individuals with type 2 diabetes generally have a moderate to good level of disease acceptance. Furthermore, due to the item coverage of the scale used and the characteristics of the sample, high internal consistency was observed; however, this may also indicate the possibility of item similarity. Future research should expand validity evidence using item response theory.

In this study, a significant difference was found between the age variable and the level of disease acceptance. It was observed that individuals in the 40–65 age group had higher levels of disease acceptance compared to other age groups. This finding is in line with the study by Yılmaz et al.,[16] which also found that individuals aged 36–64 years had higher levels of disease acceptance than other age groups. Similarly, Aktürk and Aydınalp[18] reported that individuals with diabetes aged 36–50 years had higher levels of disease acceptance than those in other age groups.[18] In addition, Bąk and Kunc-Małyjurek[19] found that disease acceptance and life satisfaction were higher in patients aged 45–55 years than in those aged 55–60 years. This suggests that individuals in middle age may have a greater ability to accept the disease.

In this study, it was determined that men had higher levels of disease acceptance compared to women. The study by Yılmaz et al.[16] also showed that men had higher levels of disease acceptance than women. Similarly, in the study by Can Çiçek and Gökdoğan,[14] the disease acceptance level of men was found to be statistically significantly higher than that of women. However, Rogon et al.[20] found no significant difference between gender and the level of disease acceptance. This discrepancy may have resulted from differences in the sample characteristics of the studies.

A significant relationship was found between the educational level of the participants and their level of disease acceptance, with higher mean scores observed among individuals with university-level or higher education. In the literature, Yılmaz et al.[16] reported that the level of disease acceptance was higher among individuals with primary and secondary education. However, in the study by Aktürk and Aydınalp,[18] it was shown that individuals with university education had higher disease acceptance levels than those in other educational groups.[18] The study by Döner et al.[13] also supports the findings of this study, showing that individuals with type 2 diabetes and higher educational levels had higher disease acceptance scores. It can be said that as the level of education increases, individuals' ability to cope with and accept the disease increases, allowing them to accept the disease more easily. Conversely, individuals who lack sufficient information about the disease may have difficulty accepting it, which may negatively affect their acceptance scores.

In the present study, it was found that the mean disease acceptance scores of individuals who were employed were higher than those who were not employed.

Table 3. Mean scores of participants according to their descriptive characteristics (n=282)

Descriptive characteristics	Disease acceptance scale	
Age (years)		
<40	25.37±5.77	KW: 27.005
40–65	26.89±5.24	p=0.000
>65	23.12±5.64	
Gender		
Female	24.90±6.04	Z: -2.100
Male	26.54±4.85	p=0.036
Marital status		
Married	25.89±5.53	Z: -2.971
Single	22.82±6.04	p=0.003
Education		
Primary school	25.36±5.80	KW: 10.582
Middle school	26.00±4.03	p=0.032
High school	26.56±5.45	
University and above	27.00±5.48	
Employment status		
Working	27.88±4.57	Z: -4.508
Not working	24.45±5.81	p=0.000
Profession		
Housewife	24.46±5.95	KW: 23.052
Retired	26.88±5.25	p=0.000
Worker	28.52±3.82	
Servant	24.69±5.79	
Duration of diagnosis (years)		
1–5	26.77±5.26	KW: 16.448
6-10	26.15±5.76	p=0.000
>10	23.63±5.53	

This finding is consistent with the study by İlaslan et al.,[21] in which the disease acceptance levels of actively working individuals with type 2 diabetes were found to be higher than those of individuals who were not working. Similar results were obtained in the study by Şireci and Yılmaz Karabulutlu,[17] where it was determined that the disease acceptance levels of working individuals were higher than those of non-working individuals. This finding indicates that the level of disease acceptance is also influenced by social and economic factors such as employment status.

When the relationship between the duration of diagnosis and the level of disease acceptance was examined, it was found that individuals diagnosed within the past 1–5 years had higher disease acceptance scores. Similarly, in the study by Aktürk and Aydınalp,[18] individuals with a diagnosis duration of 0–4 years were found to have higher levels of disease acceptance. In the study conducted by İlaslan et al.,[21] disease acceptance levels were found to decrease as the duration of diagnosis increased among individuals with type 2 diabetes. This suggests that individuals may experience greater difficulty accepting the disease as the duration of diagnosis increases, which may negatively affect their acceptance levels.

Finally, it was found that the mean disease acceptance scores of individuals with another chronic disease were statistically significant. This finding is consistent with the study by Yılmaz et al.,[16] which showed that individuals with type 2 diabetes and no other chronic disease had higher levels of disease acceptance. However, in the study by Aktürk and Aydınalp,[18] it was found that individuals with diabetes and another chronic disease had higher levels of disease acceptance than those with diabetes alone. This difference indicates that individuals' coping capacity with chronic diseases and their disease acceptance processes are influenced by both individual and disease-specific factors.

Given these sociodemographic patterns in disease acceptance, we delineate pragmatic implications for individualized care in routine nursing practice. Our findings

suggest that disease acceptance varies across sociodemographic strata (e.g., longer diagnosis duration, employment status), indicating that individualized care plans can be operationalized through brief, routine screening and risk-stratified support. In practical terms, nurses can integrate a brief 1–2-minute Acceptance of Illness Scale (AIS) check during visits to identify patients with lower acceptance who are more likely to disengage from self-management. For these patients, care plans should emphasize motivational interviewing, teach-back for key skills (e.g., medication adherence, self-monitoring of blood glucose [SMBG]), and problem-solving training focused on day-to-day barriers to diet and physical activity—delivered through short, structured touchpoints that fit within the clinic workflow.

Limitations

This study has several limitations. First, it was conducted in a single public hospital, which limits external validity; findings may not generalize to other regions, care settings, or patients managed with insulin. Second, the cross-sectional design precludes causal inference. Third, outcomes and predictors were obtained via self-report instruments (including the Acceptance of Illness Scale), which are vulnerable to recall and social desirability biases as well as common-method variance; objective clinical or behavioral corroboration was not available. Fourth, diet adherence and physical activity were not assessed. Finally, treatment modality was uniform in our sample (all participants used oral antidiabetic agents), potentially restricting variability and limiting generalizability to insulin-treated populations. Future studies should use multi-center, multi-region samples with larger size, incorporate objective behavioral and clinical measures (e.g., activity tracking, dietary records), and employ prospective or longitudinal designs to better address these sources of bias and strengthen inference.

Conclusion

This study explored that the level of disease acceptance among individuals with diabetes was generally high, and various sociodemographic factors such as age, gender, marital status, educational status, employment status, occupation, and duration of diagnosis significantly affected the level of disease acceptance. In line with the findings obtained, it is strongly recommended that the disease acceptance levels of individuals with diabetes be evaluated periodically and that appropriate interventions be planned to increase disease acceptance based on these evaluations.

Health professionals should adopt an individualized care approach in diabetes management and provide the necessary support by considering the sociodemographic characteristics of individuals. In particular, identifying individuals with low levels of disease acceptance and developing strategies to increase their acceptance levels can enhance success in disease management. In this context, interventions such as educational programs, psychosocial support services, and regular follow-up systems may facilitate acceptance of the disease among individuals with diabetes.

In addition, further research involving larger and more diverse sample groups is needed to better understand the effects of sociodemographic factors on diabetes management. Such studies will contribute to the development of more effective strategies for diabetes management.

Ethics Committee Approval: The study was approved by the Burdur Mehmet Akif Ersoy University Non-interventional Clinical Research Ethics Committee (Approval Number: 2024/45, Date: 03.01.2024).

Informed Consent: Both written and oral informed consent was obtained from the participants.

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

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

Use of AI for Writing Assistance: Artificial intelligence–assisted technologies (such as large language models, including ChatGPT) were used to support language refinement and paraphrasing during the preparation of this manuscript. However, all content was critically reviewed and finalized by the authors, who take full responsibility for the accuracy and integrity of the work.

Author Contributions: Concept – N.T., D.Ö.; Design – N.T., D.Ö.; Supervision – N.T., D.Ö.; Resource – N.T.; Materials – N.T., D.Ö.; Data Collection and/or Processing - D.Ö.; Analysis and/or Interpretation - N.T.; Literature Review – N.T., D.Ö.; Writing – N.T., D.Ö.; Critical Review – N.T., D.Ö.

Acknowledgments: We would like to thank all the participants, who made this study possible.

Peer-review: Externally peer-reviewed.

References

1. Bayraktar AK, Tekir Ö, Yıldız H. The impact of distance learning via videos through mobile phones on diabetes- related knowledge and habits in individuals with type 2 diabetes. TFMPC. 2021;15(1):110–120. Turkish. [CrossRef]
2. International Diabetes Federation. IDF Diabetes Atlas 2025. Accessed October 20, 2025. https://diabetesatlas.org/resources/idf-diabetes-atlas-2025/
3. Republic of Turkiye Ministry of Health. World Diabetes Day. Turkish. Accessed October 20, 2025. https://sggm.saglik.gov.tr/TR-76887/dunya-diyabet-gunu-2020.html
4. Satman I, Omer B, Tutuncu Y, et al.; TURDEP-II Study Group. Twelve-year trends in the prevalence and risk factors of diabetes and prediabetes in Turkish adults. Eur J Epidemiol. 2013;28(2):169–180. [CrossRef]
5. Özkarabulut AH, Rashidi M, Yıldırım G. Measuring nutritional knowledge levels of diabetes patients type 2. IGUSABDER. 2021;(14):241–257. Turkish. [CrossRef]
6. Yönem A. Diyabet Mellitus: fizyoloji, tanım, sınıflandırma, etiyopatogenez, klinik özellikler. In: Özata M, ed. Endokrinoloji Metabolizma ve Diyabet. 2nd ed. Istanbul: Istanbul Tıp Kitabevi;2011:543–564. Turkish.
7. Weinstock RS, Teresi JA, Goland R, et al.; IDEATel Consortium. Glycemic control and health disparities in older ethnically diverse underserved adults with diabetes: five-year results from the Informatics for Diabetes Education and Telemedicine (IDEATel) study. Diabetes Care. 2011;34(2):274–279. [CrossRef]
8. Rashidi M, Genç A. Evaluation of diabetes attitudes in patients with tip 1 and tip 2 diabetes. IGUSABDER. 2020;(10):34–49. [CrossRef]
9. Üstündağ Ş, Dayapoğlu N. Evaluation of the obstacles encountered by the patients with type 2 diabetes in disease management. AMUSBFD. 2021;5(3):514–533. [CrossRef]
10. Karakuş ÜN, Kasar KS. The relationship of the problems experienced by type 2 diabetes on the levels of self-care: a descriptive study. GÜSBD. 2023;12(2):476–487. Turkish. [CrossRef]
11. Felton BJ, Revenson TA. Coping with chronic illness: a study of illness controllability and the influence of coping strategies on psychological adjustment. J Consult Clin Psychol. 1984;52(3):343–353. [CrossRef]
12. Büyükkaya Besen D, Esen A. Adaptation of the illness acceptance scale to diabetic individuals in Turkish society. TAF Prev Med Bull. 2011;10(2):155–164. Turkish. [CrossRef]
13. Döner E, Çırpan R, Çürük GN. Determining the relationship between the attitudes of patients with diabetic foot toward their disease and health and their acceptance of the disease. EGEHFD. 2023;39(1):81–91. Turkish. [CrossRef]
14. Can Çiçek S, Gokdogan F. Effect of education and nonitoring on developing foot care of elderly with diabetes mellitus. Clin Exp Health Sci. 2021;11(3):471–480. [CrossRef]
15. Şahin S, Cingil D. Evaluation of the relationship among foot wound risk, foot self-care behaviors, and illness acceptance in patients with type 2 diabetes mellitus. Prim Care Diabetes. 2020;14(5):469–475. [CrossRef]
16. Yılmaz FT, Şahin AD, Türesin AK. The relationship between disease acceptance levels and glycemic control in individuals with type 2 diabetes. Cukurova Med J. 2019;44(4):1284–1291. Turkish. [CrossRef]
17. Şireci E, Yılmaz Karabulutlu E. Diabetes mellitus type II patients' acceptance of illness and determination of self efficacy levels for their care. AHSBD. 2017;20(1):48–55. Turkish.
18. Aktürk U, Aydinalp E. Examining the correlation between the acceptance of the disease and the diabetes self-efficacy of the diabetic patients in a family health center. Ann Med Res. 2018;25(3):359–364. [CrossRef]
19. Bąk E, Kunc-Małyjurek M. Assessment of the level of acceptance of the illness and of satisfaction with life in patients with type 2 Diabetes aged 45-60. J Educ Health Sport. 2018;8(8):34–50.
20. Rogon I, Kasprzak Z, Szcześniak Ł. Perceived quality of life and acceptance of illness in people with type 2 diabetes mellitus. Prz Menopauzalny. 2017;16(3):79–85. [CrossRef]
21. İlaslan E, Dalkiran Ş, Özer ZC, Balci MK. Level of acceptance of illness by persons with type 2 diabetes and burden on caregivers. STED. 2021;30(2):84–95. Turkish.

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.60569
J Educ Res Nurs. 2025;22(4):249-253

Mental Recovery and Healthy Lifestyle Behaviors in Individuals with Kidney Disease: A Cross-sectional Study

Reyhan Doğan,[1] Neşe Mercan,[2] Çiğdem Yüksel[3]

[1]Department of Psychiatric Nursing, Yüksek İhtisas University Faculty of Health Sciences, Ankara, Türkiye

[2]Department of Psychiatric Nursing, Bilecik Şeyh Edebali University Faculty of Health Sciences, Bilecik, Türkiye

[3]Department of Psychiatric Nursing, University of Health Sciences, Gülhane Faculty of Nursing, Ankara, Türkiye

Abstract

Background: Nurses provide psychosocial care through individualized and recovery-oriented approaches and play a critical role in supporting patients' mental recovery and promoting adherence to healthy lifestyle behaviors among individuals with kidney disease. Kidney disease affects psychological well-being, yet the concept of mental recovery and its relationship with healthy lifestyle behaviors remains understudied.

Aim: This study aimed to investigate mental recovery and healthy lifestyle behaviors in patients with kidney disease.

Methods: This descriptive and correlational study was conducted between January and September 2023. A total of 138 patients completed a demographic information form, the Mental Recovery Scale (MRS), and the Health Promoting Lifestyle Profile II (HPLP II). Data were collected through face-to-face surveys. Descriptive statistics, Pearson correlation, and simple and multivariate regression analyses were used to analyze the data.

Results: The mean age of participants was 49.59±12.54 years, 52.9% were male, and the mean duration of diagnosis was 42.74±52.23 months. The mean scores were 85.04±8.14 for the MRS and 135.70±18.43 for the HPLP II. The results indicated a positive and significant relationship between the total MRS score and the HPLP II subscales—Health Responsibility, Nutrition, Spiritual Growth, Interpersonal Relationships, and Stress Management. Mental recovery was significantly predicted by health responsibility, nutrition, spiritual growth, interpersonal relationships, stress management, and overall health-promoting lifestyle behaviors.

Conclusion: Mental recovery was found to be moderately high and closely linked to health-promoting lifestyle behaviors. These findings suggest that promoting healthy lifestyle behaviors may enhance mental recovery in individuals with kidney disease and support more holistic psychosocial care.

Keywords: Healthy lifestyle, kidney, mental recovery, nurse

Introduction

Globally, chronic kidney disease (CKD) affects over 800 million people—more than 10% of the world's population.[1] Despite clinical guidelines recommending that patients adhere to a healthy diet, engage in at least 150 minutes of physical activity per week, maintain a healthy body weight, avoid tobacco use, and limit alcohol consumption, international studies report that most individuals with CKD do not meet these lifestyle targets.[2,3] Importantly, this suboptimal adoption of health-promoting behaviors has been shown to hinder the recovery process and may exacerbate both clinical and psychological outcomes in this population.[4] While clinical recovery in chronic kidney disease has been extensively examined using physiological indicators such as laboratory findings and dialysis outcomes, the mental dimension of recovery remains underexplored.[2,3] Previous studies have primarily focused on mental disorders such as depression and anxiety in patients with kidney disease.[5,6] Erbay et al.[7] reported that individuals on the kidney transplant waiting list exhibited high levels of depression, which were significantly associated with maladaptive coping strategies. However, the holistic concept of mental recovery has often been overlooked.[8,9]

Mental recovery refers to a subjective and dynamic process that encompasses essential components for adapting to chronic illness, such as personal empowerment, hope, finding meaning, and social support.[10] Patients actively participate in the mental recovery process by recognizing and mobilizing their strengths.[8] This process involves making autonomous decisions about how to live with and adapt to the illness.[7] Finding meaning plays a central role in the process of mental recovery, as individuals reinterpret their experiences by re-evaluating their lives, setting goals, adopting coping strategies, and developing a spiritual perspective.[9,10] Hope also represents another important component of this process, characterized by belief in the possibility of recovery and an optimistic outlook toward future outcomes.[7,11] Developing emotionally supportive relationships with family members, peers, and healthcare providers further promotes mental recovery.[1,7] The mental recovery process of individuals with kidney disease aligns with health promotion and recovery-oriented models.[12–15] In this context, one of the important factors that may support mental recovery is the adoption of health-promoting lifestyle behaviors.[16]

This finding indicates that health can be enhanced by integrating mental recovery with lifestyle behaviors. Within this context, theoretical frameworks such as Pender's Health Promotion Model provide a robust foundation for interpretation and application.[14,15] The Health Promotion Model aims to support individuals in achieving optimal

Cite this article as: Doğan R, Mercan N, Yüksel Ç. Mental Recovery and Healthy Lifestyle Behaviors in Individuals with Kidney Disease: A Cross-sectional Study. J Educ Res Nurs. 2025;22(4):249-253.

Corresponding author: Reyhan Doğan
E-mail: reyhan.dogan@email.com

Received: July 03, 2025
Accepted: October 19, 2025
Publication Date: December 01, 2025

DOI: 10.14744/jern.2025.60569
J Educ Res Nurs. 2025;22(4):249-253

levels of health. According to this model, health-promoting lifestyle behaviors can lead to significant improvements in both physical and mental health.[17] Health responsibility, nutrition, and interpersonal relationships are particularly important for individuals with chronic diseases.[16] While some studies suggest that health-promoting lifestyle behaviors improve both physical and mental outcomes in kidney patients,[3,14] Choi et al.[2] provided supporting evidence for this association. They demonstrated that higher levels of health-promoting behaviors were significantly associated with improved physical functioning and reduced psychological distress among hemodialysis patients. However, the specific relationship between these behaviors and mental recovery remains unclear.[2,3]

Nurses must possess adequate knowledge to provide professional and effective biopsychosocial care. To achieve this, nursing practices should be restructured and sustained through individualized and recovery-oriented approaches.[18] Given the emphasis on holistic, biopsychosocial care in nursing, understanding how mental recovery is shaped and how it relates to lifestyle factors in individuals with chronic kidney disease is essential.[19] Therefore, further research on this relationship is anticipated to provide valuable guidance for psychosocial care within nursing practice. This study aimed to determine the levels of mental recovery and health-promoting lifestyle behaviors among individuals with kidney disease and to examine the relationship between them.

Research Questions

1. Is there a relationship between healthy lifestyle behaviors and mental recovery among individuals with kidney disease?
2. Do healthy lifestyle behaviors significantly predict mental recovery in individuals with kidney disease?

Materials and Methods

Study Design and Sample

This study employed a descriptive and correlational design. It was conducted in the nephrology clinic and hemodialysis unit of a training and research hospital in the capital of Türkiye between January and September 2023. The study population consisted of patients receiving treatment in the clinic and the unit. Based on a 95% confidence level and an estimated population of 200 patients treated in the previous year, the required sample size was calculated as 132 using Raosoft's online calculator.[20] To account for potential non-responses and incomplete data, 138 patients were recruited. Inclusion criteria were: being between 18–65 years of age, having a diagnosis of kidney disease, being able to communicate in Turkish, and agreeing to participate in the study. Exclusion criteria included the presence of physical conditions that could interfere with data collection, such as severe fatigue or intense pain. In addition, individuals with psychiatric disorders not in remission were excluded, as active psychiatric symptoms could impair the reliability of self-reported responses.

Data Collection Tools

Three data collection tools were used in the study: the *Introductory Information Form,* the *Mental Recovery Scale* (MRS), and the *Health Promoting Lifestyle Profile II* (HPLP II).

Introductory Information Form

This form was prepared by the researchers based on a review of the literature.[4,21] It consisted of eight items, including questions on age, gender, and similar characteristics, as well as the duration of illness and the presence of comorbid physical and mental disorders.

Mental Recovery Scale (MRS)

The scale, developed by Doğan[10] in 2021, is used to assess mental recovery in individuals who experience physical illness. It is a single-factor, 24-item, five-point Likert type scale developed in the Turkish language. Items 4, 8, and 9 of the scale are reverse-scored. A high total score on the scale indicates a high level of mental recovery. The Cronbach's alpha coefficient of the scale is 0.95. In this study, the Cronbach's alpha value of the scale was 0.70.

Health Promoting Lifestyle Profile II (HPLP II)

This scale was developed by Walker et al.[22] in 1996 to assess individuals' health-promoting behaviors. It is a 52-item, four-point Likert-type scale with a six-factor structure. An increase in the total score of the scale indicates a higher level of engagement in healthy lifestyle behaviors adopted by the individual. The Turkish validity and reliability study was conducted by Bahar et al.,[17] who reported Cronbach's alpha values ranging from 0.64 to 0.80 for the six factors and 0.92 for the overall scale. In this study, the Cronbach's alpha value of the scale was found to be 0.92.

Data Collection

Data collection was carried out between January and September 2023. All patients who were hospitalized in the clinic where the study was conducted or who received outpatient treatment in the hemodialysis unit of the same clinic were approached for participation. Patients who met the predefined inclusion criteria were referred to the researcher by nurses not involved in the research process in order to reduce selection bias. After informing the patients about the purpose and procedures of the study, data were collected through face-to-face interviews conducted by the researcher. A total of 142 patients were approached, and 138 agreed to participate, resulting in a response rate of 97.2%. Each interview lasted approximately 20–25 minutes and was conducted in a private setting within the clinic or dialysis unit.

Data Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences version 26.0 (IBM, New York, USA). The dataset was checked for missing data, and none were found. Numbers, percentages, means, standard deviations, and minimum-maximum values were used for descriptive variables. The Kolmogorov-Smirnov test and skewness-kurtosis coefficients were analyzed to assess the normal distribution of the patients' scale scores. Skewness and kurtosis coefficients were within the range of ±1.5.[23] The correlations between the scale scores were analyzed using the Pearson test, a parametric test. The effects of predictor variables on the predicted variable were examined through simple and multivariate regression analyses. Data were analyzed at a 95% confidence interval, with statistical significance set at $p<0.05$.

Ethical Considerations

The compliance of the study with ethical principles was evaluated by the University of Health Sciences Gülhane Training and Research Hospital Clinical Research Ethics Committee (Approval Number: 2022/3, Date: 09.02.2022). Informed consent was read to the patients, and their verbal and written consent was obtained. The study was conducted in accordance with the principles outlined in the Declaration

Table 1. Sociodemographic and disease characteristics of the participants (n=138)

Sociodemographic and disease characteristics of the participants	n	%
Age (mean±SD)	49.59±12.54	
Gender		
Female	65	47.1
Male	73	52.9
Marital status		
Married	101	73.2
Single	37	26.8
Employment status		
Working	41	29.7
Not working	97	70.3
Education status		
Primary school graduate	60	43.5
High school graduate	45	32.6
Bachelor's/Master's/PhD graduate	33	23.9
Duration of diagnosis (months)	42.74±52.23	
Comorbid physical illness		
Yes	92	66.7
No	46	33.3
Comorbid mental illness		
Yes	16	11.6
No	122	88.4

SD: Standard deviation

Table 2. Descriptive findings and correlation matrix

Scales and subscales	1	2	3	4	5	6	7	8	Mean±SD	Min-max
1. Health responsibility										
r	–	0.37	0.57	0.55	0.74	0.52	0.84	0.39	24.50±4.27	11–33
p			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
2. Physical activity										
r		1	-0.02	0.6	0.46	0.34	0.61	0.07	12.52±4.03	8–25
p				0.76	<0.001	<0.001	<0.001	<0.001	0.37	
3. Nutrition										
r			1	0.19	0.52	0.41	0.60	0.44	26.03±4.35	15–32
p					0.02	<0.001	<0.001	<0.001	<0.001	
4. Spiritual growth										
r				1	0.77	0.54	0.81	0.43	26.13±4.13	18–35
p						<0.001	<0.001	<0.001	<0.001	
5. Interpersonal relationships										
r					1	0.65	0.92	0.57	26.19±4.51	13–34
p							<0.001	<0.001	<0.001	
6. Stress management										
r						1	0.73	0.40	20.33±2.94	10–28
p							<0.001	<0.001		
7. HPLP II total										
r							1	0.51	135.70±18.43	85–175
p								<0.001		
8. MRS total										
r								1	85.04±8.14	65–104
p										

SD: Standard deviation; HPLP II: Health promoting lifestyle profile II; MRS: Mental recovery scale.

of Helsinki. Permission to use the HPLP II was obtained from the original authors via e-mail correspondence prior to data collection. The MRS was developed by the first author in a previous doctoral dissertation study. Therefore, since the scale was created by the researcher, no additional permission was required for its use.

Results

The mean age of the patients was 49.59±12.54 years; 52.9% were male, and 73.2% were married. A total of 70.3% of the patients were not employed, and 43.5% were primary school graduates. The mean duration of diagnosis was 42.74±52.23 months. In addition, 66.7% of the patients had a physical illness accompanying kidney disease, and 11.6% had a mental illness (Table 1).

The mean total score of the MRS was 85.04 (min=65, max=104, standard deviation [SD]=8.14), and the mean total score of the HPLP II was 135.70 (min=85, max=175, SD=18.43). The total MRS score showed a significant positive correlation with all subdimension scores of the HPLP II, excluding physical activity. A significant positive correlation was also found between the total MRS score and the total HPLP II score (r=0.51; p<0.05) (Table 2).

In this study, the regression model examined the predictors of mental recovery among patients with kidney disease. Each subdimension of health-promoting behaviors that demonstrated significant correlations, as well as the total score, was analyzed separately by constructing individual models with mental recovery as the dependent variable. Subsequently, all significant subdimensions were entered into a multiple regression model. This approach aimed to evaluate changes in their individual effects when considered together with other subdimensions and to identify variables with truly independent and unique contributions. In addition, the overall explanatory power of these variables was determined when examined collectively. Table 3 shows that when the five healthy lifestyle behaviors (health responsibility, nutrition, spiritual growth, interpersonal relationships, and stress management) were simultaneously included in the regression model, they explained 35% of the variance in mental recovery. In addition to the subdimensions of health responsibility (β=0.39, R^2=0.14), nutrition (β=0.44, R^2=0.19), spiritual growth (β=0.43, R^2=0.18), interpersonal relations (β=0.57, R^2=0.32), and stress management (β=0.40, R^2=0.15), the total score of the Healthy Lifestyle Behaviors Scale (β=0.51, R^2=0.25) was also found to be a significant predictor of the total score of the Mental Recovery Scale (Table 3).

Discussion

Addressing mental recovery in individuals with kidney disease is critically important for improving psychosocial care. In this study, mental recovery was found to be at a moderate level among patients with kidney disease. This finding is consistent with existing literature, which highlights the presence of various psychological problems such as depression, anxiety, and psychological distress in this population.[2,24] However, this study conceptualizes mental recovery as a subjective and multidimensional process that differs from clinical recovery (e.g., reduction of symptoms or return to pre-illness functioning) or the mere absence of psychological problems.10 The finding of moderate mental recovery suggests that patients may find some meaning in their illness, maintain hope, and receive support from their environment, yet the recovery process may not be fully internalized or experienced. The lack of holistic and recovery-oriented care approaches in both clinical settings and the broader community where the study was conducted may also contribute to this outcome. Therefore, nurses should focus on psychosocial care that includes the assessment and enhancement of mental recovery in patients with kidney disease.

DOI: 10.14744/jern.2025.60569
J Educ Res Nurs. 2025;22(4):249-253

Table 3. The effect of healthy lifestyle behaviors on mental recovery: Regression analysis

Model	Predictors	Unstandardized		Standardized	t	F	Adjusted R^2
		B	SE	β	p		
Model 1	Health responsibility	0.74	0.15	0.39	4.937	24.37	0.14
					<0.001		
Model 2	Nutrition	0.83	0.14	0.44	5.789	33.51	0.19
					<0.001		
Model 3	Spiritual growth	0.84	0.15	0.43	5.574	31.07	0.18
					<0.001		
Model 4	Interpersonal relationships	1.03	0.12	0.57	8.174	66.82	0.32
					<0.001		
Model 5	Stress management	1.11	0.21	0.40	5.161	26.63	0.15
					<0.001		
Model 6	HPLP II total	0.22	0.03	0.51	6.988	48.82	0.25
					<0.001		
Model 7	Health responsibility	-0.36	0.20	-0.18	-1.733	15.81	0.351
					0.08		
	Nutrition	0.50	0.17	0.27	2.896		
					0.004		
	Spiritual growth	0.19	0.23	0.09	0.818		
					0.41		
	Interpersonal relationships	0.86	0.27	0.48	3.165		
					0.002		
	Stress management	0.06	0.25	0.02	0.251		
					0.80		

All regression models were statistically significant (F-test, p<0.001). B: Unstandardized regression coefficient; β: Standardized regression coefficient; SE: Standard error; F: F-statistic (ANOVA F-test value)

In this study, Model 1 indicated that health responsibility accounted for 14% of the variance in mental recovery. A higher sense of health responsibility among these patients may enhance their perceived control over their health status and enable them to participate more consciously and effectively in the recovery process.[3] Nielsen et al.[25] found that kidney patients in the transplant process began to accept their illness as they took responsibility for their treatment and care. In the study by Jenkins et al.,[26] one of the modules in a psychosocial program designed for individuals with chronic kidney disease was titled "I Can." This module aimed to help patients recognize their strengths, thereby facilitating their ability to cope with the disease. Acceptance of the illness and approaches that direct individuals toward their internal resources are considered fundamental elements of mental recovery.

In this study, Model 2 showed that nutrition explained 19% of the variance in mental recovery. Healthy lifestyle behaviors such as healthy nutrition contribute to positive health outcomes in patients with kidney disease.[2] Healthy nutrition enhances physical well-being, which may strengthen patients' positive expectations for the future.[27] Patients who adhere to disease-appropriate dietary plans are more likely to engage actively in the treatment process. These effects may facilitate patients' mental recovery and help explain the relationship observed in this study.

Although previous studies have demonstrated the positive effects of physical activity on both physical and mental health, its role in mental recovery was not found to be statistically significant in this study's analyses, which is a noteworthy finding.[2,28] It is recommended that the relationship between physical activity and mental recovery be examined using different scales and in different populations.

According to the results, spiritual growth contributed to 18% of the variance in mental recovery in Model 3. Studies conducted with hemodialysis patients have shown that spirituality is associated with lower levels of depression and higher quality of life,[29] as well as reduced suicide risk and better mental health outcomes.[30] During the recovery process, patients may feel the need to surrender control to a higher power. In this context, finding meaning in the illness experience supports mental recovery.[10]

The analysis showed that in Model 4, interpersonal relations accounted for 32% of the variance in mental recovery. In fact, interpersonal relations were found to be the strongest lifestyle predictor of mental recovery in this study, highlighting the importance of building and maintaining supportive social connections for mental recovery. Patients are not alone in the recovery process; relationships and support systems play a critical role.24 Kapadi et al.[11] demonstrated the positive impact of practical and emotional support received from loved ones, healthcare professionals, and peers on the psychosocial adjustment of individuals undergoing hemodialysis.

This study also demonstrated that in Model 5, stress management explained 15% of the variance in mental recovery. Considering the relationship between stress management and mental recovery in this study, it can be suggested that effective stress management may contribute positively to the mental recovery process. Kidney-related diseases are significant stressors and require effective management. Wen et al.[4] reported that a healthy coping style was associated with better mental health among hemodialysis patients. Optimism, as a coping strategy, may reduce stress levels and facilitate mental recovery.[4,14]

In the present study, it was observed that in Model 7, healthy lifestyle behaviors—excluding physical activity—collectively explained 35% of the variance in mental recovery. This finding suggests that adopting healthy lifestyle behaviors is essential for promoting mental recovery among patients with kidney disease. Therefore, it is recommended that healthcare professionals consider these results when planning interventions aimed at improving patients' psychological well-being. While the importance of healthy lifestyle behaviors in the recovery process has been acknowledged in the literature, their specific effects on mental recovery have not been sufficiently clarified.3 As a novel contribution, this study highlights the significant impact of healthy lifestyle behaviors on mental recovery. These results underscore the critical importance of incorporating healthy lifestyle behaviors into care practices, particularly when focusing on the mental dimension of recovery.

Limitations and Strengths

This study has both strengths and limitations. One strength is that, to our knowledge, this was the first study to examine the concept of mental recovery rather

than mental ill health in kidney patients. One limitation of this study is its single-center design, which may constrain the generalizability of the findings. Secondly, the limited number of similar studies on this topic posed a challenge in evaluating and interpreting the findings in relation to the existing literature. Future research is recommended to investigate mental recovery and its influencing factors in this or similar populations.

Conclusion

This study highlights the importance of addressing mental recovery as an integral component of holistic psychosocial care in individuals with kidney disease. The findings revealed that patients exhibited a moderate level of mental recovery, which was significantly associated with health-promoting lifestyle behaviors. In particular, interpersonal relationships emerged as the strongest predictor of mental recovery, emphasizing the critical role of social connection and support in the recovery process. Health-promoting lifestyle behaviors may serve as supportive pathways for strengthening mental recovery. These findings demonstrate that mental recovery is a multidimensional construct influenced not only by clinical outcomes but also by lifestyle-related factors. The findings of this study highlight the potential to integrate a mental recovery perspective into nursing care plans, thereby enhancing the overall well-being of this population. Subdimensions of a healthy lifestyle should be incorporated into all interventions targeting mental recovery. Mental recovery can be facilitated by promoting health responsibility through providing education about the illness and treatment process, as well as by providing tailored nutritional counseling. Furthermore, nurses, as leaders in psychosocial care, should design key interventions for mental recovery by teaching stress management strategies and emphasizing spirituality as a source of empowerment. Finally, the results underscore the critical role of interpersonal relationships. Nurses can support mental recovery by implementing interventions that reduce feelings of isolation, such as support groups, communication skills training, and family involvement. Future research should employ longitudinal and interventional designs in diverse populations to better understand the underlying mechanisms of these relationships. Additional factors that may influence the variables affecting mental recovery identified in this study should be examined, and new models should be developed in future research. Finally, studies with larger samples and the use of advanced modeling techniques, such as structural equation modeling (SEM), are also recommended.

Ethics Committee Approval: The study was approved by the University of Health Sciences Gülhane Training and Research Hospital Clinical Research Ethics Committee (Approval Number: 2022/3, Date: 09.02.2022).

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

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

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

Author Contributions: Concept – R.D., N.M., Ç.Y.; Design – R.D., N.M., Ç.Y.; Supervision –N.M., Ç.Y.; Resource – R.D.; Materials – R.D.; Data Collection and/or Processing - R.D.; Analysis and/or Interpretation - R.D., N.M.; Literature Review – R.D., N.M.; Writing – R.D., N.M., Ç.Y.; Critical Review –N.M., Ç.Y.

Acknowledgments: The authors thank all participants for their valuable contributions.

Peer-review: Externally peer-reviewed.

References

1. Kovesdy CP. Epidemiology of chronic kidney disease: an update 2022. Kidney Int Suppl (2011). 2022;12(1):7–11. [CrossRef]
2. Choi NG, Sullivan JE, DiNitto DM, Kunik ME. Associations between psychological distress and health-related behaviors among adults with chronic kidney disease. Prev Med. 2019;126:105749. [CrossRef]
3. Schrauben SJ, Apple BJ, Chang AR. Modifiable Lifestyle Behaviors and CKD Progression: A Narrative Review. Kidney360. 2022;3(4):752–778. [CrossRef]
4. Wen J, Fang Y, Su Z, Cai J, Chen Z. Mental health and its influencing factors of maintenance hemodialysis patients: a semi-structured interview study. BMC Psychol. 2023;11(1):84. [CrossRef]
5. Alshelleh S, Alhouri A, Taifour A, et al. Prevelance of depression and anxiety with their effect on quality of life in chronic kidney disease patients. Sci Rep. 2022;12(1):17627. [CrossRef]
6. Chilcot J, Pearce CJ, Hall N, et al. Depression and anxiety in people with kidney disease: understanding symptom variability, patient experience and preferences for mental health support. J Nephrol. 2025;38(2):675–686. [CrossRef]
7. Erbay E, Arslan K, Hatipoğlu E, Yildirim T. The Quality of Life, Depression Levels and Coping Styles of Patients on Kidney Transplant Waiting List. Soc Work Public Health. 2021;36(4):432–447. [CrossRef]
8. Cardol CK, van Middendorp H, Dusseldorp E, et al.; E-GOAL Study Group. eHealth to Improve Psychological Functioning and Self-Management of People with Chronic Kidney Disease: A Randomized Controlled Trial. Psychosom Med. 2023;85(2):203–215. [CrossRef]
9. Goh ZS, Griva K. Anxiety and depression in patients with end-stage renal disease: impact and management challenges - a narrative review. Int J Nephrol Renovasc Dis. 2018;11:93–102. [CrossRef]
10. Doğan R. Development of the mental recovery scale and testing the reliability and validity in the sample of the individual with the diagnosis of cancer. Dissertation. University of Health Sciences; 2021.
11. Kapadi R, Elander J, Burton AE, et al. An exploration of successful psychosocial adjustment to long-term in-centre haemodialysis. Psychol Health. 2025;40(3):394–409. [CrossRef]
12. Kalantar-Zadeh K, Kam-Tao Li P, Tantisattamo E, et al.; World Kidney Day Steering Committee. Living well with kidney disease by patient and care-partner empowerment: kidney health for everyone everywhere. Kidney Int. 2021;99(2):278–284. [CrossRef]
13. Bravin AM, Trettene ADS, Andrade LGM, Popim RC. Benefits of spirituality and/or religiosity in patients with Chronic Kidney Disease: an integrative review. Rev Bras Enferm. 2019;72(2):541–551. English, Portuguese. [CrossRef]
14. Cardol CK, Boslooper-Meulenbelt K, van Middendorp H, Meuleman Y, Evers AWM, van Dijk S. Psychosocial barriers and facilitators for adherence to a healthy lifestyle among patients with chronic kidney disease: a focus group study. BMC Nephrol. 2022;23(1):205. [CrossRef]
15. Masoudi R, Lotfizade M, Gheysarieha MR, Rabiei L. Evaluating the effect of Pender's health promotion model on self-efficacy and treatment adherence behaviors among patients undergoing hemodialysis. J Educ Health Promot. 2020;9(1):197. [CrossRef]
16. Aygar H, Zencirci SA, Emiral GO, et al. Assessment of health-promoting lifestyle behaviors of adults living in the semi-rural area. North Clin Istanb. 2019;6(1):13–20. [CrossRef]
17. Bahar Z, Beşer A, Gördes N, Ersin F, Kıssal A. Healthy lifestyle behavior scale II: a reliability and validity study. J Cumhur Univ Sch Nurs. 2008;12(1):1–13. Turkish.
18. Forster JA, Coventry AA, Daniel C. Optimizing the response to mental health deterioration: Nurses experiences of using a Mental Health Observation Response Chart. Int J Ment Health Nurs. 2023;32(1):95–105. [CrossRef]
19. Sharrock J, Happell B, Jeong SY. The impact of Mental Health Nurse Consultants on the care of general hospital patients experiencing concurrent mental health conditions: An integrative literature review. Int J Ment Health Nurs. 2022;31(4):772–795. [CrossRef]
20. Raosoft. Sample size calculator by Raosoft. Accessed June 30, 2025. http://www.raosoft.com/samplesize.html
21. Sarıaslan A, Kavurmacı M. Evaluation of healthy lifestyle behaviors and affecting factors of hemodialysis patients. J Prev Epidemiol. 2020;5(2):e19. [CrossRef]
22. Walker SN, Hill-Polerecky DM. Psychometric Evaluation of the Health-Promoting Lifestyle Profile II. Unpublished Manuscript. University of Nebraska Medical Centre; 1996.
23. George D, Mallery M. SPSS for Windows Step by Step: A Simple Guide and Reference. 15th ed. Routledge; 2019.
24. Látos M, Lázár G, Ondrik Z, et al. Positive psychology intervention to improve recovery after renal transplantation: a randomized controlled trial. J Contemp Psychother. 2022;52(1):35–44. [CrossRef]
25. Nielsen C, Clemensen J, Bistrup C, Agerskov H. Balancing everyday life-Patients' experiences before, during and four months after kidney transplantation. Nurs Open. 2018;6(2):443–452. [CrossRef]
26. Jenkins ZM, Tan EJ, O'Flaherty E, et al. A psychosocial intervention for individuals with advanced chronic kidney disease: A feasibility randomized controlled trial. Nephrology (Carlton). 2021;26(5):442–453. [CrossRef]
27. Kalantar-Zadeh K, Li PK, Tantisattamo E, et al.; World Kidney Day Steering Committee. Living well with kidney disease by patient and care-partner empowerment: Kidney health for everyone everywhere. Clin Nephrol. 2021;95(3):115–122. [CrossRef]
28. Akkoyun ME, Özer Z. Determination of exercise barriers in patients undergoing hemodialysis. J Nephrol Nurs. 2021;16(3):102–114. [CrossRef]
29. Santos PR, Capote Júnior JRFG, Cavalcante Filho JRM, Ferreira TP, Dos Santos Filho JNG, da Silva Oliveira S. Religious coping methods predict depression and quality of life among end-stage renal disease patients undergoing hemodialysis: a cross-sectional study. BMC Nephrol. 2017;18(1):197. [CrossRef]
30. Loureiro ACT, de Rezende Coelho MC, Coutinho FB, Borges LH, Lucchetti G. The influence of spirituality and religiousness on suicide risk and mental health of patients undergoing hemodialysis. Compr Psychiatry. 2018;80:39–45. [CrossRef]

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.62667
J Educ Res Nurs. 2025;22(4):254-259

Thirst Distress and Associated Factors in Hospitalized Internal Medicine Patients: A Descriptive Study

Şengül Üzen Cura, Selma Atay, Meltem Çimen

Department of Nursing, Çanakkale Onsekiz Mart University Faculty of Health Sciences, Çanakkale, Türkiye

Abstract

Background: Thirst is a distressing yet often overlooked symptom in hospitalized patients, particularly those under fluid or oral intake restrictions. Despite its relevance to patient comfort, its clinical determinants remain insufficiently studied in internal medicine settings. Nurses, as primary providers of symptom management, play a critical role in recognizing and addressing thirst.

Aim: This study aimed to evaluate the level of thirst distress among patients hospitalized in internal medicine units and to identify demographic and clinical factors associated with thirst.

Methods: A descriptive cross-sectional design was employed in the internal medicine units of a tertiary hospital between July and December 2024. Using the known population formula at a 95% confidence level, 271 patients meeting inclusion criteria were recruited. Data were collected through a Demographic Characteristics Questionnaire and the Thirst Discomfort Scale (TDS). Data were analyzed using independent t-tests, one-way analysis of variance (ANOVA), and multiple linear regression.

Results: According to the results of the study, among the patients, 52.4% were male, and the participants had a mean age of 65.92±14.63 years and a mean Body Mass Index (BMI) of 25.47±4.78 kg/m^2. Most patients had no dietary restrictions, with 91.5% reporting no oral restriction, 93.4% no fluid restriction, and 50.6% no salt restriction. The mean total TDS score was 26.36±11.04, reflecting a low-to-moderate level of thirst distress. Higher levels of thirst distress were observed among patients who were female, consumed alcohol, had oral or fluid restrictions, were diagnosed with hypertension, or used opioids ($p<0.05$). Multiple linear regression analysis identified female gender (B=4.75, p=0.004) and oral restriction (B=8.04, p=0.02) as independent predictors of thirst distress.

Conclusion: Although thirst distress was generally low to moderate, certain groups—specifically those with oral or fluid restrictions, alcohol use, hypertension, or opioid therapy—reported significantly higher discomfort. Integrating routine thirst assessment, oral care, and individualized fluid management into nursing protocols may improve patient outcomes and enhance comfort.

Keywords: Fluid restriction, hospitalized patients, internal medicine, thirst, thirst distress

Introduction

Thirst is a fundamental physiological sensation that plays a vital role in maintaining fluid balance and homeostasis. It is often described not only as a biological need but also as a subjective experience influenced by various factors, such as dry mouth, taste perception, psychological stress, and social habits.[1,2] In hospitalized patients, particularly those undergoing treatment regimens that restrict oral or fluid intake, thirst may become a source of significant distress, negatively impacting comfort, recovery, and emotional well-being.[3,4] Despite its frequent occurrence, thirst is commonly overlooked in clinical practice and underprioritized in nursing care plans.[5]

Thirst distress can be categorized into osmotic and hypovolemic types, each regulated by complex physiological mechanisms involving antidiuretic hormone release and the restoration of fluid volume.[6] Studies have shown that thirst intensity may increase in the presence of comorbidities such as heart failure, diabetes, or hypertension, and may be further exacerbated by the use of diuretics or opioids.[6–8] Moreover, psychological outcomes such as anxiety, helplessness, and fatigue have been associated with unrelieved thirst in hospitalized patients, especially those in critical or palliative care units.[9,10]

Although thirst has been widely investigated in intensive care, surgical, and palliative care settings.[11,12] there remains a notable gap in research focusing on general internal medicine units. A previous study indicated that thirst prevalence may reach 70% in intensive care patients,[13] while in surgical populations the prevalence of moderate to severe thirst has been reported between 53.2% and 69.8%, and among patients with heart failure, approximately 66.7% have reported experiencing moderate to severe thirst distress.[14,15] However, the literature lacks studies assessing thirst distress using validated measurement tools in patients hospitalized in standard internal medicine wards, particularly those with chronic diseases and complex medication regimens. In Türkiye, there are no comprehensive studies evaluating thirst distress among hospitalized patients in internal medicine units using structured assessment tools. Given the potential for thirst to disrupt patients' comfort and physiological stability, it is essential for nursing professionals to systematically evaluate and manage this symptom. Nurses play a central role in recognizing and alleviating thirst through routine symp-

Cite this article as: Üzen Cura Ş, Atay S, Çimen M. Thirst Distress and Associated Factors in Hospitalized Internal Medicine Patients: A Descriptive Study. J Educ Res Nurs. 2025;22(4):254-259.

Corresponding author: Şengül Üzen Cura
E-mail: snglzn@gmail.com

Received: June 27, 2025
Accepted: October 23, 2025
Publication Date: December 01, 2025

tom assessments, oral care practices, fluid management, and individualized comfort interventions. By integrating thirst assessment into nursing protocols, they can help reduce symptom burden, improve patient satisfaction, and support recovery. This study aims to address this gap by assessing thirst distress and identifying its associated factors among patients hospitalized in internal medicine units. The results are expected to inform clinical practice and provide evidence for future intervention strategies to enhance patient comfort and care outcomes.

Research Question

1. What is the level of thirst distress among patients hospitalized in internal medicine units?
2. Which sociodemographic and clinical factors are associated with the thirst experience of patients hospitalized in internal medicine units?

Materials and Methods

Study Design

The study was designed and conducted as a descriptive study.

Population and Sample

The study population consisted of patients hospitalized in the internal medicine subunits, including neurology, cardiology, chest diseases, infectious diseases, nephrology, endocrinology, oncology, and gastroenterology, of the hospital. These internal medicine units operate within the hospital's total bed capacity of 550. Data collection was conducted between July and December 2024. The required sample size was calculated using the known population formula ($n = N \cdot t^2 \cdot p \cdot q \,/\, [d^2 (N-1) + t^2 \cdot p \cdot q]$) at a 95% confidence level with a 0.05 margin of error, yielding a required sample of 235 patients. To account for potential dropouts, the sample size was increased by 15%, resulting in a final study group of 271 patients who met the inclusion criteria.

Inclusion Criteria

Patients who met the following criteria were included in the study:

- Aged 18 years or older,
- Hospitalized in internal medicine units,
- Conscious and able to communicate,
- Provided informed consent to participate.

Exclusion Criteria

Patients were excluded if they:

- Had altered consciousness (unable to cooperate),
- Had a psychiatric diagnosis.

Data Collection Instruments

Data were collected using the Demographic Characteristics Questionnaire and the Thirst Discomfort Scale (TDS).

Demographic Characteristics Questionnaire

This questionnaire, developed based on a review of the literature, includes items assessing participants' demographic characteristics such as age, gender, marital status, educational level, employment status, and daily fluid intake habits.[5,9,11,16–18]

Thirst Discomfort Scale (TDS)

The TDS was developed by Çiftçi et al.[19] in 2023. The scale consists of 12 items grouped into three subdimensions: intraoral movements (items 1–5), psychological movements (items 6–8), and extraoral movements (items 9–12). The scale is structured as a five-point Likert-type scale (1=Not at all disturbing, 2=Slightly disturbing, 3=Moderately disturbing, 4=Very disturbing, 5=Extremely disturbing). Higher scores indicate higher levels of thirst discomfort. The overall Cronbach's alpha reliability coefficient of the scale was reported as 0.88, while in this study, the reliability coefficient was calculated as 0.91.

Implementation of Data Collection Instruments

Data were collected through face-to-face interviews conducted by the researchers, following confirmation that each participant met the inclusion criteria. The data collection process took place on weekdays between 09:00 and 16:00 and lasted approximately 15–20 minutes per participant. Patients were approached in their rooms after obtaining verbal consent. To ensure consistency and reliability, data collectors received standardized training on how to conduct interviews in a neutral and non-leading manner. A pilot study was conducted with 10 patients to evaluate the clarity and feasibility of the data collection tools. Feedback from the pilot was used to make minor adjustments, and data from these participants were excluded from the final analysis.

Data Analysis

The collected data were analyzed using SPSS Statistics for Windows, Version 27.0 (IBM Corp., Armonk, NY, USA). Normality tests were performed using the Kolmogorov–Smirnov and Shapiro–Wilk tests. Descriptive statistics were presented as mean±standard deviation (SD) and minimum–maximum values for continuous variables, while categorical variables were presented as frequency and percentage. Independent t-tests were used to compare normally distributed continuous variables between two independent groups. One-way analysis of variance (ANOVA) was applied to compare normally distributed continuous variables across three or more independent groups. Multiple linear regression analysis was conducted to determine the independent effects of sociodemographic and clinical factors on patients' thirst distress levels. Variables found to be significant in the bivariate analyses were included in the regression model. A p-value of <0.05 was considered statistically significant.

Ethical Considerations

Prior to the study, ethical approval was obtained from Çanakkale Onsekiz Mart University Graduate Education Institute Scientific Research and Publication Ethics Committee (Approval Number: E-84026528-050.99-2400174506, Decision Number: 10/04, Date: 04.07.2024). Permission to use the Thirst Discomfort Scale was granted via email correspondence with the scale's developer. All participants were informed about the study's aim and methods, and written informed consent was obtained. The study adhered to the ethical principles outlined in the Declaration of Helsinki.

Results

Among the patients, 52.4% were male, and 52% had completed primary or secondary education. The participants had a mean age of 65.92±14.63 years and a mean Body Mass Index (BMI) of 25.47±4.78 kg/m^2. Nearly half (47.2%) had never smoked, and 62.7% reported no alcohol consumption. Most patients had no dietary restrictions, with 91.5% reporting no oral restriction, 93.4% no fluid restriction, and 50.6% no salt restriction. Regarding comorbidities, 36.9% were diagnosed with hypertension, and 26.8% were receiving diuretic therapy. The average length of hospital stay was 5.38±4.76 days (Table 1).

The mean total score on the TDS was 26.36±11.04. Subscale analyses revealed the following mean scores: *Intraoral Movements* – 11.05±5.20, *Psychological Movements* – 8.80±4.01, *Extraoral Movements* – 6.50±3.52 (Table 2).

A statistically significant difference was found in total TDS scores based on alcohol consumption, fluid restriction, presence of comorbidities, and medication use ($p<0.05$). In contrast, age, gender, educational level, BMI, smoking status, salt restriction, and length of hospital stay were not significantly associated with TDS scores ($p>0.05$). Patients who actively consumed alcohol had significantly higher TDS scores (28.17±11.27) compared to those who had never consumed alcohol (22.40±9.47) or had ceased consumption (23.58±10.14) ($p<0.05$). Patients with oral and fluid restrictions exhibited significantly higher TDS scores compared to those without such restrictions ($p<0.05$), whereas no significant difference was observed in relation to salt restriction ($p>0.05$). Among comorbid conditions, only patients with hypertension had significantly higher TDS scores ($p<0.05$); patients with diabetes mellitus or other diseases did not differ significantly in terms of thirst discomfort ($p>0.05$). Regarding medication use, opioid users reported significantly higher TDS scores compared to non-users ($p<0.05$). No significant differences were observed among patients using diuretics, antidepressants, inhalers, or antihypertensive medications ($p>0.05$) (Table 3).

Multiple linear regression analysis revealed that female gender and oral restriction were significant independent predictors of thirst distress among hospitalized patients. Female patients and those with oral intake restrictions had higher TDS scores, while other variables were not significant predictors (Table 4).

DOI: 10.14744/jern.2025.62667
J Educ Res Nurs. 2025;22(4):254-259

Table 1. Distribution of patients' descriptive characteristics (n=271)

Descriptive characteristics	Mean±SD	Min	Max
Age	65.92±14.63	24.00	91.00
Body mass index (BMI)	25.47±4.78	15.92	46.88
Length of hospital stay	5.38±4.76	1.00	24.00

	n	%
Gender		
Female	129	47.6
Male	142	52.4
Educational level		
Illiterate	24	8.9
Literate	38	14
Primary/Secondary School	141	52
High School	38	14.0
University	30	11.1
Smoking/alcohol consumption		
Never used	128–170	47.2–62.7
Quit	106–79	39.1–29.2
Active user	37–22	13.7–8.1
Oral restriction		
Yes	23	8.5
No	248	91.5
Fluid restriction		
Yes	18	6.6
No	253	93.4
Salt Restriction		
Yes	134	49.4
No	137	50.6
Comorbid conditions*		
Hypertension	100	36.9
Diabetes mellitus	75	27.7
Other**	96	35.4
Medications used*		
Diuretic	38	26.8
Antidepressant	32	22.5
Inhaler	28	19.7
Opioid	23	16.2
Antihypertensive	21	14.8

*: Participants selected more than one option, **: Other: chronic obstructive pulmonary disease, coronary artery disease, chronic kidney disease, cancer, liver disease, cerebrovascular disease, rheumatologic conditions, dementia. SD: Standard deviation, Min: Minumum, Max: Maximum.

Discussion

Thirst is a common yet often underrecognized symptom in hospitalized patients, and understanding its associated factors is essential for improving patient comfort and guiding nursing interventions. This study revealed that patients hospitalized in internal medicine units generally experienced low-to-moderate levels of thirst distress, and that this condition was particularly associated with alcohol use, oral or fluid restriction, hypertension, and opioid use. As a result of the study, the mean TDS score indicated that patients experienced a low-to-moderate level of thirst distress. Considering that the minimum score obtainable from the scale is 12 and the maximum is 60, it can be stated that the overall level of thirst experienced by the patients was low. Although this result may be perceived as positive, once symptoms of thirst emerge, a challenging condition arises for each patient. Regardless of its degree, thirst should be considered an important symptom that causes both physiological and psychological distress and is often associated with other symptoms.[7] In a study conducted by Waldréus et al.[10] with patients diagnosed with heart failure, it was reported that one in five patients experienced low-to-moderate levels of thirst. Nevertheless, other studies in the literature conducted with patients with heart failure and intensive care patients have reported considerably higher levels of thirst.[8,20] The relatively low mean TDS score in this study compared to previous research may be attributed to the inclusion of clinically stable patients in general internal medicine units, most of whom did not undergo invasive procedures or strict fluid restrictions, which likely reduced overall thirst distress.

It was found that the mean score of the intraoral movements subdimension of the TDS was higher than that of the other subdimensions. This finding is associated with a reduction in saliva and changes caused by friction in the oral mucosa, which are detected by specific receptors and subsequently activate the thirst center.[16] Although dry mouth resulting from reduced saliva may seem insignificant, it can progress to more serious conditions accompanied by oral irritation in later stages.[21] Another subdimension of the TDS is the psychological subdimension. According to the study results, this subdimension received the second highest score after the intraoral movements subdimension. In the literature, it has been suggested that thirst affects neurophysiological systems and leads to psychological fatigue in patients.[22,23] These findings suggest that the primary discomfort caused by thirst in hospitalized patients is driven by oral dryness and its psychological impact, highlighting the need for targeted oral care interventions to reduce thirst distress.

Table 2. Mean scores of the thirst distress scale total and subdimensions

Scale total and subdimensions	Mean±SD	Min	Max
Intraoral movements	11.05±5.20	5.00	25.00
Psychological movements	8.80±4.01	4.00	20.00
Extraoral movements	6.50±3.52	3.00	15.00
TDS total score	26.36±11.04	12.00	60.00

SD: Standard deviation, TDS: Thirst Discomfort Scale.

In the present study, women experienced higher levels of thirst distress than men. This finding is consistent with previous studies by Eng et al.[8] and Younes et al.,[24] which also reported higher thirst distress levels among female patients. These results suggest that gender-related physiological or hormonal factors, as well as differences in symptom perception and expression, may influence the thirst experience. In contrast, patients' age and BMI did not appear to influence thirst distress. Similarly, Sato et al.[3] and Zhao et al.[25] reported no association between age, BMI, and thirst among hospitalized patients, whereas Adams et al.[26] found that thirst distress increased with higher BMI values.[3,26,27] Such discrepancies in the literature may stem from differences in sample characteristics, patient populations, and the measurement tools used to assess thirst.

In this study, alcohol consumption appeared to be associated with higher levels of thirst distress, whereas smoking did not seem to influence it. Similarly, in the study conducted by Güngör et al.[11] with patients hospitalized in a surgical intensive care unit, a significant association was found between alcohol use and thirst, consistent with the findings of the present study. However, in the study by Zhao et al.,[25] no association was found between thirst and either smoking or alcohol consumption.[25] Alcohol consumption reduces the release of vasopressin from the nerve terminals of the posterior pituitary, leading to increased urine production.[28] Through diuresis, alcohol reduces the body's fluid volume, which in turn causes dry mouth and thirst.[29]

In this study, oral-fluid restrictions appeared to increase thirst distress, whereas salt restriction did not seem to have a noticeable effect. Similarly, in the study conducted by Lin et al.[4] across four different intensive care units, a significant differ-

Table 3. Comparison of Thirst Distress Scale scores according to descriptive characteristics

	Descriptive characteristics[1]	Thirst Distress Scale (mean±SD)	F/t	p
Age				
≥60	206	27.02±11.09	t=-1.746	0.082
<60	65	24.29±10.68		
Gender				
Male	142	23.52±9.68	t=4.606	0.001
Female	129	29.49±11.62		
Educational level				
Primary/Secondary School	141	26.67±10.97	F=0.348	0.846
Literate	38	26.10±10.78		
High School	38	25.63±12.14		
University	30	24.86±10.53		
Illiterate	24	28.04±11.27		
BMI				
18.5–24.9	131	26.60±10.61	F=0.925	0.450
25–29.9	87	26.34±11.08		
30–34.9	27	24.00±12.31		
≥35	14	30.57±12.40		
0–18.4	12	24.41±10.86		
Smoking				
Never used	128	28.38±11.61	F=5.069	**0.007**
Quit	106	23.83±9.93		**ph=1>2***
Active user	37	26.64±10.84		
Alcohol consumption				
Never used[1]	170	22.40±9.47	F=6.458	**0.002***
Quit[2]	79	23.58±10.14		**ph=1>2***
Alcohol consumption				
Active user[3]	22	28.17±11.27		
Oral restriction				
No	248	25.50±10.45	t=4.35	**<0.001***
Yes	23	35.65±13.06		
Fluid restriction				
No	253	25.71±10.67	t=3.716	**<0.001***
Yes	18	35.50±12.36		
Salt restriction				
No	137	25.88±10.69	t=0.732	
Yes	134	36.86±12.40		
0.465				
Length of hospital stay				
0–9 days	229	26.06±10.90	F=0.569	0.567
10–19 days	33	27.78±10.99		
≥20 days	9	28.77±15.08		
Comorbid conditions*				
Hypertension	100	28.10±11.65	t=1.984	**0.048***
Other**	96	26.29±10.81	t=-0.085	0.932
Diabetes mellitus	75	25.36±11.29	t=-0.930	0.353
Medications used*				
Diuretic	38	26.36±10.18	t=0.000	1.000
Antidepressant	32	21.39±8.25	t=0.651	0.515
Inhaler	28	25.67±10.38	t=-0.349	0.728
Opioid	23	27.46±12.04	t=-2.923	**0.024***
Antihypertensive	21	24.47±8.32	t=0.668	0.414

*: p<0.05, **. Other comorbidities include chronic obstructive pulmonary disease, coronary artery disease, chronic kidney disease, cancer, liver disease, cerebrovascular disease, rheumatologic conditions, and dementia. [1:] Never used, [2:] Quit, [3:] Active user. Chronic obstructive pulmonary disease, coronary artery disease, chronic kidney disease, cancer, liver disease, cerebrovascular disease, rheumatologic conditions, dementia. ph: Post-hoc test (Tukey). SD: Standard deviation, F: ANOVA value, t: Independent t-test value, BMI: Body mass index

Table 4. Multiple linear regression analysis of predictors of thirst distress

Predictor variables	Estimate (B)	SE	95% CI (lower–upper)	t	p
Intercept (constant)	23.29	6.56	10.37–36.21	3.55	<0.001
Age (>60 vs. <60 years)	1.97	1.67	-1.31–5.25	1.18	0.240
Gender (female vs. male)	4.75	1.61	1.58–7.93	2.95	**0.004***
Educational level	–	–	–	–	>0.050
BMI	–	–	–	–	>0.050
Smoking (quit/active vs. never)	–	–	–	–	>0.050
Alcohol (quit/active vs. never)	–	–	–	–	>0.050
Oral restriction (yes vs. no)	8.04	3.35	1.44–14.64	2.40	**0.020***
Fluid restriction (yes vs. no)	1.84	3.79	-5.62–9.30	0.49	0.630
Salt restriction (yes vs. no)	0.95	1.35	-1.70–3.61	0.71	0.480
Hypertension (yes vs. no)	–2.21	1.40	-4.97–0.56	-1.57	0.120
Diabetes mellitus (yes vs. no)	1.58	1.51	-1.39–4.56	1.05	0.300
Opioid use (yes vs. no)	2.37	2.52	-2.60–7.34	0.94	0.350

Model Summary: F=14.594, p<0.001; Durbin-Watson=2.11 (no autocorrelation detected). B: Unstandardized regression coefficient, SE: Standard error, CI: Confidence interval, t: t-statistic for regression analysis, BMI: Body mass index.

ence was found between patients subjected to oral-fluid restriction and their levels of thirst. In addition, Armstrong et al.[30] also concluded that oral-fluid restrictions were associated with increased thirst distress. The sensation of thirst resulting from oral-fluid restriction occurs via osmotic and hypovolemic mechanisms. The finding in this study that patients subjected to oral-fluid restriction had higher thirst scores is consistent with these physiological mechanisms described in the litera-

ture. Contrary to expectations, the absence of a relationship between salt restriction and thirst in this study may be attributed to individual differences in patients' salt consumption habits and a lack of strict adherence to salt restriction. In contrast to the present findings, Younes et al.[24] reported a significant relationship between salt restriction and thirst. Similarly, the study by van der van der Wal et al.[31] found that the consumption of salty foods increased thirst.

In this study, patients with hypertension tended to experience higher levels of thirst distress compared with those without this condition. Similarly, the study conducted by Flim et al.[20] also reported a relationship between thirst and hypertension. In contrast, the study by Gong et al.[32] found no association between thirst and hypertension. Hypertension may contribute to increased levels of thirst by causing hyposalivation,[33] which leads to dry mouth. For this reason, patients with hypertension should be supported in terms of fluid intake.

In this study, opioid use appeared to be associated with increased thirst distress, whereas diuretics, antidepressants, and antihypertensive medications did not seem to have a notable effect. Similarly, studies in the literature indicate that certain medications affect thirst.[7,27] In the study conducted by Lin et al.,[4] no association was found between diuretic use and thirst, while in the study by Negro et al.,[5] a relationship was reported between high-dose diuretic use and thirst. [4,5] The effect of diuretics on thirst is explained by dehydration resulting from fluid loss through the kidneys. There is a correlation between the degree of thirst and the dosage of diuretics used–the higher the dose, the greater the thirst distress experienced.[8] In this study, 28.8% of patients were using diuretics; however, since diuretic dosage was not assessed, this may have influenced the findings. Similar to the present study, Ho et al.[34] also found no association between antidepressant use and thirst. Nevertheless, in the study by Eng et al.,[16] a significant relationship between antidepressant use and thirst was reported. Although stress, anxiety, and depression are known to significantly reduce salivary flow and cause dry mouth,[33] in this study, variations in the type and dosage of antidepressants used by patients, as well as their daily fluid intake, may have led to differing levels of thirst. The finding of a significant relationship between opioid use and thirst in this study is consistent with the results reported by Ho et al.[34] There are two main mechanisms by which opioid use is thought to influence thirst: first, opioids act on the thirst center in the hypothalamus, activating inhibitory pathways that stimulate thirst; and second, they exert a diuretic effect, leading to dehydration, which in turn contributes to increased thirst.[35] This study further revealed, through multiple linear regression analysis, that female gender and oral-fluid restriction were independent predictors of thirst distress, whereas other factors such as age, BMI, alcohol consumption, hypertension, and medication use were not significant predictors when analyzed together.

Study Limitations

This study has several limitations. First, it was conducted in a single center, which may limit the generalizability of the results. Second, its descriptive nature does not allow for establishing causal relationships between variables. Lastly, the seasonal distribution of patient recruitment (July–December) was not analyzed, which may have influenced patients' thirst perception.

Conclusion

The results of this study revealed that patients hospitalized in internal medicine units experience low-to-moderate levels of thirst distress. However, it was determined that patients who consume alcohol daily, have a diagnosis of hypertension, are subject to oral or fluid restriction, and use opioid medications experience higher levels of thirst. These findings emphasize the importance of incorporating thirst assessment as a routine part of nursing care in internal medicine settings. Targeted interventions such as frequent oral care, customized fluid allowances, and reviewing medication plans can improve patient comfort and reduce symptom burden. This highlights the need for nurses to implement more systematic monitoring of fluid intake, oral care, and thirst assessment, especially for these patient groups. In line with the study's findings, it is recommended that future research evaluate the effectiveness of interventions aimed at improving fluid monitoring in patients with oral and fluid restrictions and examine the dose-dependent effects of opioids and other medications on thirst. Furthermore, it is important that these findings be supported by multicenter and longitudinal studies. Implementation of nursing protocols addressing thirst could ultimately lead to enhanced patient satisfaction and better health outcomes.

Ethics Committee Approval: The study was approved by the Çanakkale Onsekiz Mart University Graduate Education Institute Scientific Research and Publication Ethics Committee (Approval Number: E-84026528-050.99-2400174506, Decision Number: 10/04, Date: 04.07.2024).

Informed Consent: Written informed consent was obtained from the participants.

Conflict of Interest: The authors declare no conflict of interest.

Funding: This research did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors.

Author Contributions: Concept – Ş.Ü.C., S.A.; Design – Ş.Ü.C., S.A.; Supervision – Ş.Ü.C., S.A.; Resource – Ş.Ü.C., S.A., M.Ç.; Materials – Ş.Ü.C., M.Ç.; Data Collection and/or Processing – Ş.Ü.C., S.A.; Analysis and/or Interpretation – ŞÜ.C.; Literature Review – Ş.Ü.C., S. A., M.Ç.; Writing –Ş.Ü.C., M.Ç.; Critical Review Ş.Ü.C., S.A.

Peer-review: Externally peer-reviewed.

References

1. Arai S, Stotts N, Puntillo K. Thirst in critically ill patients: from physiology to sensation. Am J Crit Care. 2013;22(4):328–335. [CrossRef]
2. Wefer F, Koberich S. Xerostomia in patients with heart failure-prevalence, intensity and reported strategies of symptom reduction. Eur J Cardiovasc Nurs. 2024;23(Supplement_1):zvae098.025. [CrossRef]
3. Sato K, Okajima M, Taniguchi T. Association of Persistent Intense Thirst with Delirium Among Critically Ill Patients: A Cross-sectional Study. J Pain Symptom Manage. 2019;57(6):1114–1120. [CrossRef]
4. Lin R, Li H, Chen L, He J. Prevalence of and risk factors for thirst in the intensive care unit: An observational study. J Clin Nurs. 2023;32(3–4):465–476. [CrossRef]
5. Negro A, Villa G, Greco M, et al. Thirst in patients admitted to intensive care units: an observational study. Ir J Med Sci. 2022;191(5):2283–2289. [CrossRef]
6. Gan HY, Liu HC, Huang HP, He M. The Prevalence and Risk Factors for Postoperative Thirst: A Systematic Review and Meta-analysis. J Perianesth Nurs. 2024;39(6):1062–1068. [CrossRef]
7. Zhang W, Gu Q, Gu Y, Zhao Y, Zhu L. Symptom management to alleviate thirst and dry mouth in critically ill patients: A randomised controlled trial. Aust Crit Care. 2022;35(2):123–129. [CrossRef]
8. Eng SH, Jaarsma T, Lupón J, et al. Thirst and factors associated with frequent thirst in patients with heart failure in Spain. Heart Lung. 2021;50(1):86–91. [CrossRef]
9. Kjeldsen CL, Hansen MS, Jensen K, Holm A, Haahr A, Dreyer P. Patients' experience of thirst while being conscious and mechanically ventilated in the intensive care unit. Nurs Crit Care. 2018;23(2):75–81. [CrossRef]
10. Waldréus N, Jaarsma T, van der Wal MH, Kato NP. Development and psychometric evaluation of the Thirst Distress Scale for patients with heart failure. Eur J Cardiovasc Nurs. 2018;17(3):226–234. [CrossRef]
11. Güngör S, Tosun B, Candir G, Ozen N. Effects of cold spray on thirst, frequency of oral care, and pain of general surgery intensive care unit patients. Sci Rep. 2024;14(1):9997. [CrossRef]
12. VonStein M, Buchko BL, Millen C, Lampo D, Bell T, Woods AB. Effect of a Scheduled Nurse Intervention on Thirst and Dry Mouth in Intensive Care Patients. Am J Crit Care. 2019;28(1):41–46. [CrossRef]
13. Fukunaga T, Ouchi A, Aikawa G, Okamoto S, Uno S, Sakuramoto H. Prevalence, risk factors, and treatment methods of thirst in critically ill patients: A systematic review and meta-analysis. PLoS One. 2025;20(3):e0315500. [CrossRef]
14. Lee CW, Liu ST, Cheng YJ, Chiu CT, Hsu YF, Chao A. Prevalence, risk factors, and optimized management of moderate-to-severe thirst in the post-anesthesia care unit. Sci Rep. 2020;10(1):16183. [CrossRef]
15. Thapa K, Das S, Pathak P, Singh S. Assessment of thirst intensity and thirst distress and the practices for its management among heart failure patients admitted to the cardiology unit. J Pract Cardiovasc Sci. 2021;7(1):36–40. [CrossRef]
16. Eng SH, Waldréus N, González B, et al. Thirst distress in outpatients with heart failure in a Mediterranean zone of Spain. ESC Heart Fail. 2021;8(4):2492–2501. [CrossRef]
17. Lian R, Zhou S, Guo Y, et al. The effect of ice-cold water spray following the model for symptom management on postoperative thirst in patients admitted to intensive care unit: A randomized controlled study. Intensive Crit Care Nurs. 2024;81:103571. [CrossRef]
18. Doi S, Nakanishi N, Kawahara Y, Nakayama S. Impact of oral care on thirst perception and dry mouth assessments in intensive care patients: An observational study. Intensive Crit Care Nurs. 2021;66:103073. [CrossRef]
19. Çiftçi B, Yıldız GN, Avşar G, et al. Development of the Thirst Discomfort Scale: A Validity and Reliability Study. Am J Crit Care. 2023;32(3):176–183. [CrossRef]
20. Flim M, Hofhuis J, Spronk P, Jaarsma T. Measuring thirst distress of patients in the intensive care unit. Nurs Crit Care. 2022;27(4):576–582. [CrossRef]
21. Friedrichsen M, Lythell C, Jaarsma T, et al. Thirst or dry mouth in dying patients?-A qualitative study of palliative care physicians' experiences. PLoS One. 2023;18(8):e0290075. [CrossRef]

22. Benoit CE, Solopchuk O, Borragán G, Carbonnelle A, Van Durme S, Zénon A. Cognitive task avoidance correlates with fatigue-induced performance decrement but not with subjective fatigue. Neuropsychologia. 2019;123:30–40. [CrossRef]
23. Goodman SPJ, Marino FE. Thirst perception exacerbates objective mental fatigue. Neuropsychologia. 2021;150:107686. [CrossRef]
24. Younes K, Massouh A, Deek H, Nasreddine L, Waldréus N, Noureddine S. Prevalence and Predictors of Thirst in Patients with Heart Failure. J Cardiovasc Nurs. 2025;40(5):431–440. [CrossRef]
25. Zhao P, Luo Y, Xiang L, et al. Dynamic change and risk factors of intense thirst in patients admitted to neuro-intensive care unit: An observational study. Nurs Crit Care. 2025;30(3):e13184. [CrossRef]
26. Adams JD, Barlow AE, Farzam DZ, Butts CL, Ludwig A, Kavouras SA. Comparing thirst and spot urine concentrations in humans of differing body sizes: An observational study. Physiol Behav. 2022;245:113673. [CrossRef]
27. Waldréus N, Hahn RG, Lyngå P, van der Wal MH, Hägglund E, Jaarsma T. Changes in Thirst Intensity During Optimization of Heart Failure Medical Therapy by Nurses at the Outpatient Clinic. J Cardiovasc Nurs. 2016;31(5):E17–E24. [CrossRef]
28. Inenaga K, Ono K, Hitomi S, Kuroki A, Ujihara I. Thirst sensation and oral dryness following alcohol intake. Jpn Dent Sci Rev. 2017;53(3):78–85. [CrossRef]
29. Gizowski C, Bourque CW. The neural basis of homeostatic and anticipatory thirst. Nat Rev Nephrol. 2018;14(1):11–25. [CrossRef]
30. Armstrong LE, Giersch GEW, Dunn L, Fiol A, Muñoz CX, Lee EC. Inputs to Thirst and Drinking during Water Restriction and Rehydration. Nutrients. 2020;12(9):2554. [CrossRef]
31. van der Wal MHL, Jaarsma T, Jenneboer LC, Linssen GCM. Thirst in stable heart failure patients; time to reconsider fluid restriction and prescribed diuretics. ESC Heart Fail. 2022;9(4):2181–2188. [CrossRef]
32. Gong J, Waldréus N, Hu S, Luo Z, Xu M, Zhu L. Thirst and factors associated with thirst in hospitalized patients with heart failure in China. Heart Lung. 2022;53:83–88. [CrossRef]
33. Gholami N, Hosseini Sabzvari B, Razzaghi A, Salah S. Effect of stress, anxiety and depression on unstimulated salivary flow rate and xerostomia. J Dent Res Dent Clin Dent Prospects. 2017;11(4):247–252.
34. Ho V, Goh G, Tang XR, See KC. Underrecognition and undertreatment of thirst among hospitalized patients with restricted oral feeding and drinking. Sci Rep. 2021;11(1):13636. [CrossRef]
35. Stotts NA, Arai SR, Cooper BA, Nelson JE, Puntillo KA. Predictors of thirst in intensive care unit patients. J Pain Symptom Manage. 2015;49(3):530–538. [CrossRef]

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.33677
J Educ Res Nurs. 2025;22(4):260-265

Experiences of Nurse Managers in a Pandemic Disaster: A Qualitative Study on COVID-19

Azize Atlı Özbaş,[1] Sevilay Şenol Çelik,[2] Mustafa Sabri Kovancı,[1] Hafize Savaş,[3] Yusuf Çelik[4]

[1]Department of Psychiatric Nursing, Hacettepe University Faculty of Nursing, Ankara, Türkiye

[2]Koç University, School of Nursing, İstanbul, Türkiye

[3]Department of Nursing, Lokman Hekim University Faculty of Health Sciences, Ankara, Türkiye

[4]Department of Health Management, Acıbadem Mehmet Ali Aydınlar University, İstanbul, Türkiye

Abstract

Background: Workforce planning and the management of personal protective equipment are important issues in maintaining the quality of care and protecting the healthcare workforce during Coronavirus Disease 2019 (COVID-19).

Aim: This study aimed to explore the experiences of nurse managers regarding the management of nursing services during the COVID-19 pandemic, focusing on their roles in workforce planning, prevention of contamination, communication management, provision of psychosocial support, and leadership practices under crisis conditions.

Methods: A phenomenological research design with purposeful sampling was used among 14 chief nurse officers. Data were collected through in-depth semi-structured online interviews and analyzed using context analysis.

Results: According to the results of this study, the mean age of participants was 33.76±5.26 years, the mean professional experience was 11.46±5.90 years, and the mean working experience as a nurse manager was 7.23±3.90 years. The analysis revealed four main themes: workforce planning and management, prevention of contamination, communication and coordination processes, and psychosocial and leadership challenges. Nurse managers described developing strategies to ensure staff safety, maintain service continuity, and support nurses' well-being during the COVID-19 pandemic.

Conclusion: The study highlights that nurse managers played a crucial role in ensuring the continuity of nursing services during the COVID-19 pandemic through effective workforce management, contamination prevention, and staff support strategies. However, the lack of institutional, psychosocial, and educational support mechanisms for nurse managers created significant challenges in fulfilling their managerial and leadership responsibilities. Strengthening organizational preparedness and targeted support programs for nurse leaders is essential for future health crises.

Keywords: COVID-19, chief nurse officers, nursing leadership, nursing workforce planning, personal protective equipment, qualitative, SARS-CoV-2 infection

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic clearly showed that many healthcare systems were not ready to solve the problems arising from rapidly emerging public health issues involving large numbers of patients,[1] as they experienced difficulties in consistently applying effective management practices to handle the increased demand.[2] This crisis also demonstrated how nursing workforce and material requirement planning and management practices are important for maintaining healthcare facilities' readiness for new and rapidly emerging situations.[3] Nursing is one of the professions that plays a key role in providing flexibility within the healthcare system in both anticipated or unanticipated situations.[2,4–6] The COVID-19 pandemic has had many physical, social, and psychological impacts on nurses. Furthermore, this pandemic has been experienced as a challenging process for nurse managers, with many additional duties and responsibilities imposed on them.[2,6,7] Nurse managers must ensure comprehensive support for their staff by addressing their physical safety through adequate personal protective equipment (PPE) provision, along with attention to their psychological, social, and financial well-being.[2,8] A study by Bani Issa et al.[9] found that 36.2% of nurses had symptoms of post-traumatic stress disorder (PTSD). In addition, 90.8% of these nurses stated that manager awareness was a significant protective factor in preventing PTSD. This study provides important data in terms of revealing the dual role of nurse managers, since they were expected to serve as staff nurses fighting against the pandemic while also meeting the unique needs of their workforce in their managerial role during the COVID-19 crisis.[10]

The COVID-19 pandemic has brought additional challenges to nurse managers, along with significant responsibilities toward society, patients, nurses, and top management.[11] During the pandemic, however, nursing workforce planning and the delivery of nursing services based on a predetermined model were tremendously effective in the success of combating the pandemic.[2,4,6,12] Nurse managers had to coordinate healthcare services in a context of uncertainty, nursing shortages, and frequently changing guidelines.[7,13] Although several studies have examined the experiences of nurse managers during the COVID-19 pandemic, the number of studies focusing specifically on nurse managers' decision-making processes, institutional leadership roles, and strategic responsibilities remains limited. Moreover, there is a lack of research addressing these issues within the Turkish healthcare context.[2,6,7,12–14]

The COVID-19 pandemic in Türkiye, as well as worldwide, led to a crisis manifested by a shortage of nursing staff and PPE at the beginning. Nurse managers sought different solutions, reorganization efforts, and

This study was presented as an e-poster at International Council of Nurses (ICN) Congress, 5–9 June, 2021.

Cite this article as: Atlı Özbaş A, Şenol Çelik S, Kovancı MS, Savaş H, Çelik Y. Experiences of Nurse Managers in a Pandemic Disaster: A Qualitative Study on COVID-19. J Educ Res Nurs. 2025;22(4):260-265.

Corresponding author: Azize Atlı Özbaş
E-mail: azeozbas@gmail.com

Received: September 05, 2025
Accepted: October 24, 2025
Publication Date: December 01, 2025

management practices appropriate to Turkish society and the healthcare system to address problems that were quite different, unfamiliar, and challenging compared to previous healthcare issues.[3,15] Drawing lessons and developing sound strategies based on the views and experiences of chief nurse officers during the COVID-19 pandemic would be useful for responding quickly to future health crises. This study aimed to explore the experiences and views of nurse managers regarding the management of nursing services during the COVID-19 pandemic in Türkiye. The study focused on their roles and practices in workforce planning, management of PPE, prevention of contamination, communication and coordination processes, provision of psychosocial support, and leadership under crisis conditions.

Research Questions

1. What are the views and experiences of nurse managers regarding the management of PPE during the COVID-19 pandemic?
2. How did nurse managers carry out nursing workforce planning during the pandemic?
3. What challenges did nurse managers face during the pandemic, and what solutions did they develop?

Materials and Methods

Design

A phenomenological qualitative research design was used, and the findings were reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ).[16] Data were collected through in-depth, semi-structured online interviews.

Participants

The study sample consisted of nurse managers working in hospitals that actively provided services during the COVID-19 pandemic in different regions of Türkiye (Central Anatolia, Marmara, Aegean, and Mediterranean). Participants were selected using purposive sampling to ensure representation from various healthcare settings, including both public and private institutions, and from different geographical regions of the country.

The inclusion criteria required participants to:

(a) hold the position of chief nurse officer or an equivalent senior nursing management role in a hospital,

(b) have actively worked in this position during the COVID-19 pandemic,

(c) be willing to participate and share their experiences, and

(d) have access to an online communication platform (Zoom) for the interview process.

In total, 14 nurse managers participated in the study. The sociodemographic characteristics of the participants are presented in Table 1.

Data Tools

For data collection, the "Nurse Descriptive Information Form" and the "Semi-Structured Interview Form for Nurse Managers," developed to conduct in-depth interviews with managerial nurses, were used. The Nurse Descriptive Information Form included questions regarding the nurses' age, gender, educational level, total duration of professional experience in nursing, the hospital where they worked, their clinical/unit/department affiliation, job position, duration of employment in the current unit, work schedule, and other relevant characteristics. The Semi-Structured In-Depth Interview Form for Nurse Managers consisted of open-ended questions designed to elicit participants' views and experiences regarding the nursing workforce and the availability of materials and equipment used in the provision of healthcare services within their institutions during the COVID-19 pandemic. The seven open-ended questions aimed to encourage each participant to express their opinions, share their experiences, and provide illustrative examples.

Data Collection

The research team consisted of academics with practical experience and expertise in nursing and health management. Eligible participants were identified, and the researcher (AAO) contacted them to schedule an interview. Interviews were conducted by researchers (SSC, AAO). Prior to the interviews, participants were informed about the study via telephone and then took part in individual in-depth interviews conducted through Zoom in a quiet, private environment to ensure confidentiality. The researchers provided detailed information about the study procedures and obtained informed consent from each participant prior to the interviews. All researchers had training in qualitative research methods and experience in conducting such studies. Data were collected through in-depth interviews between 01/05/2021 and 01/08/2021 using a semi-structured questionnaire. To capture different concepts and categories from the interview data, the interviews were conducted until the point of theoretical saturation, where similar content appeared repeatedly and no new categories emerged.[17–19] It was determined that data saturation had been reached after interviewing 14 nurse managers, as no new relevant information could be identified, and the interviews were concluded. The interviews were audio-recorded and lasted an average of 45 minutes.

Data Analysis

The Zoom interviews were conducted by two researchers who were not involved in participants' managerial relationships and were independent of the participants' institutions. The recordings were transcribed verbatim by two members of the research team. The transcribed data were analyzed using the constant comparative method proposed by Corbin and Strauss, which involves analyzing, organizing, and comparing data to identify similar characteristics.[18] During open coding, main themes and subthemes were identified, and the relationships between them were determined through discussion and consensus-building among the researchers.

Rigor

The rigor of the study was ensured by applying the criteria of credibility, transferability, dependability, and confirmability suggested by Guba et al.[17] Nurse managers from 14 different hospitals were included in the study; thus, comprehensive information was gathered on experiences in nursing management during the COVID-19 pandemic.[20] Data were transcribed without commentary and used as direct quotations from the semi-structured interviews. The researchers identified main themes and subthemes, clustering similar ideas to ensure credibility and reliability. The inclusion and exclusion criteria, participant characteristics, context, data collection, and analysis procedures were detailed.[19] To minimize the risk of confirmation bias, the researchers shared transcripts among themselves and reached consensus on the final version of the themes. Guidelines by Brinkman and Kvale were followed to ensure reliability.[21] To ensure member checking, the interviewer verified understanding with participants during the interviews.[21] Then, the findings were summarized and discussed based on the transcripts to ensure that the meanings were captured correctly as expressed and intended by the participants. Finally, the researchers shared comments with each other and reached consensus on the final version of the themes to minimize the risk of confirmation bias.

Table 1. Sociodemographic variables of the participants

Participant	Age	Professional experience (years)	Management experience as a nurse manager (years)	Education
P1	45	26	16	MSc
P2	43	20	10	PhD
P3	53	35	20	MSc
P4	51	32	13	BSc
P5	42	20	15	BSc
P6	48	21	6	PhD
P7	52	34	4	MSc
P8	44	20	5	MSc
P9	50	31	10	MSc
P10	48	30	7	BSc
P11	40	21	13	MSc
P12	59	41	11	MSc
P13	41	17	8	MSc
P14	49	30	4	PhD

Table 2. Themes and subthemes based on participants' experiences and views

Theme	Subtheme	Open code
Managing anxiety	Managing their own anxiety	Being infected with COVID-19 themselves
		Loved ones being infected with COVID-19
		Staff being infected with COVID-19
		Possibility of PPE shortage
		Managing uncertainty
	Managing nurses' anxiety	Being infected with COVID-19
		Assignment to COVID-19 units
		Child/family member care issues
Prevention of contamination	Preventing the spread of infection among staff	Environmental regulation
		Working with the same team
		Social restraint
	Managing PPE	Procurement of PPE
		Distribution of PPE
		Increased need for PPE
Maintaining the quality of care	Reorganization of managerial activities	Frequent visits to units
		Daily meetings with other hospital managers
		Staying at the hospital outside working hours
		Being available 24 hours a day
	Managing the nursing shortage	Short-term assignment within the same hospital
		Short term assignment to different hospitals
		Off-duty assignments of other healthcare workers
		Recruiting nurses from low-activity clinics
		Nurse employment
	Opening and/or reorganization of units	Opening COVID-19 intensive care units
		Opening high-flow units
		Opening COVID-19 units
		Organizing resting areas
	Development of new working models	Accessing and providing scientific information
		Shift work
		Flexible working hours
		Planning maintenance schedules
		Coordination among nurse managers
		Online communication network among staff
	Pandemic-specific training of staff	Senior nurses
		New graduates
		Other healthcare workers
Lessons from the COVID-19 pandemic	Being prepared	Stocking equipment
		Acting promptly
		Training nurses
		Developing an emergency action plan
		Preparing for medical device and PPE needs
	Close and continuous communication	With staff
		With hospital managers
		With government bodies
	Regulation for basic nursing problems	Collaboration with academic nurses
		Assigning specialist nurses
		Solving personnel service and benefits issues
		Appointment of nurse managers based on merit

Ethical Considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval and written permission were obtained from the Ethics Committee of Koç University (Approval Number: 2020.307.IRB3.114, Date: 02.07.2020) and from the Turkish Ministry of Health. All written materials and audio recordings are stored in encrypted form.

Results

Among the participants, the mean age was 33.76±5.26 years, the mean professional experience was 11.46±5.90 years, and the mean working experience as a nurse manager was 7.23±3.90 years. Of the 14 participants, eight held undergraduate degrees and six held postgraduate degrees. The pandemic experiences and views of the nurse managers are presented under four main themes and 12 subthemes in Table 2.

Theme 1. Managing Anxiety

This theme included two subthemes: managing their own anxiety and managing nurses' anxiety. Most nurse managers reported that they were unable to manage their own anxiety during the pandemic.

> *"...We were worried and anxious just like everyone else. I did not think of myself; I mean, I did not wonder if COVID would be transmitted or if I would get the disease. I was scared like anyone else, but I focused on figuring out how to get through it..."* (P10, 48A, F)

Nurse managers also reported difficulty managing the anxiety of the staff for whom they were responsible. Those who had to manage the anxiety of nurses about infection and working in COVID-19 units, as well as the anxiety of nurses who had children or elderly loved ones in need of care, had to handle the process without showing their own anxiety while experiencing similar feelings themselves.

> *"...You stop thinking about yourself and focus on dealing with the issue. It was a tremendous responsibility on my shoulders that I will never forget... I acted like a detective to acquire information on the patient and protect the nurses, no matter what..."* (P12, 59A, F)

Theme 2. Prevention of Contamination

This theme consisted of two subthemes: preventing the spread of infection among staff and managing PPE. One of the most challenging issues for nurse managers during the pandemic was the prevention of infection. They tried to prevent the spread of infection among staff through the arrangements they made for work shifts and the physical structure of the clinic.

> *"....We created one clean and one dirty zone. The nurse puts on their clothes, gives care to patients, completes the necessary paperwork, takes off their clothes, and moves to the clean zone. Thus, we attempted to avoid virus exposure and transmission to their colleagues."* (P1, 45A, F)

In addition, arrangements for the supply, distribution, and effective use of PPE were also measures taken to prevent the spread of infection. Problems were experienced in the supply of PPE, particularly during the initial period of the pandemic. Nurse managers addressed the need for PPE through activities such as sewing masks, stocking a limited number of PPE items, and assigning nurse managers to oversee their distribution.

> *"The use of all materials increased during this process. I'd say they've all gone up one hundred percent. In particular, the use of masks increased even more... We had the biggest material problem with N95 masks. Since no one had relevant knowledge at first, it was unclear which mask should be used where and how. Therefore, not only clinics that saw patients with COVID, but also those that did not, sought N95 masks. We had a hard time supplying them."* (P5, 42A, F)

Theme 3. Maintaining the Quality of Care

This theme included five subthemes: reorganization of managerial activities, managing the nursing shortage, opening and/or reorganization of units, development of new working models, and pandemic-specific staff training. Nurse managers rearranged their managerial activities, which included actions such as frequent clinic visits that were not routinely scheduled, daily meetings with other hospital managers, being at the hospital outside working hours, and being available 24 hours a day.

> *"We held meetings amongst ourselves as the managers of the hospital in the morning. Later, we made clinic visits with the chief physician or deputy chief physician... We had meetings with the heads of clinics every weekend. We listened to their complaints and tried to solve them."* (P8, 44A, F)

In addition to the existing nursing shortage, the number of nurses infected with COVID-19 and the fact that nurses with chronic diseases and who were pregnant could not work further worsened the nursing shortage, creating challenges for chief nurse officers. In addition to hiring new nurses, efforts were made to alleviate the nursing shortage through practices such as assigning nurses from other hospitals and clinics, recruiting nurses from clinics with low patient density and easier management to COVID-19 clinics, and assigning other healthcare professionals, such as anesthesia technicians, to technical tasks like monitoring fever in outpatient clinics.

> *"We have hired new nurses. You cannot assign the newcomers to every clinic because they do not have any real experience. At first, we usually assigned them to the regular inpatient clinics to learn the organization, and then we had to assign them to the intensive care units."* (P6, 48A, F)

The theme of maintaining the quality of care also included the need for physical arrangements, such as closing and combining clinics, opening new clinics, creating clean and dirty zones, and establishing resting and dining areas for nurses within the limits of available resources.

> *"We frequently opened clinics and intensive care units, especially during the peak times of the pandemic. We converted some clinics, such as surgery and physical therapy, into COVID clinics. We converted the rooms of the operating theaters into intensive care units... we had to convert some clinics into intensive care units, even though they were not properly ventilated..."* (P13, 41A, F)

Developing nursing care standards for COVID-19 infection during a pandemic full of uncertainties for both nurses and healthcare professionals was another subtheme. During this process, nurse managers conducted pandemic-specific training for nurses and other healthcare professionals, onboarded new nurses, and assumed responsibility for both accessing and providing scientific information to their staff. Nurse managers also worked to develop various effective working models specific to the pandemic by learning from experience. While a shift work model was implemented in some institutions, others adopted models such as working with fixed teams whose members were changed as little as possible. Although there was a standard ratio of patients per nurse in COVID-19 intensive care units, no standard practice existed in pandemic clinics.

> *"We did not change the way we work; we used to work usually 08–16 and 16–08 and kept doing so. However, we attempted to alter the content of the shift. We increased the number of nurses in intensive care units so that one nurse could stay inside for four hours and rest for four hours after leaving the clinic. In this way, we ensured that nurses were exposed to the virus for a shorter period."* (P7, 52A, F)

Theme 4. Lessons from the COVID-19 Pandemic

Within this theme, three subthemes were identified: being prepared, maintaining close and continuous communication, and regulating basic nursing issues. The lessons learned by nurses who worked as managers during this exceptional period from their unique experiences were included in the study as the fourth theme. Emergency preparedness was the first subtheme, encompassing the preparation of action plans, training, personnel, and equipment.

> *"...Selecting managers based on merit is crucial in institutions such as university hospitals; only someone with a master's or doctorate degree can represent them properly. When I requested something as a professor, it was not turned down..."* (P4, 51A, F)

The nurse managers recommended maintaining close and continuous communication among all levels, from staff nurses to government bodies, throughout the pandemic. They also emphasized the importance of communication and collaboration with nurse academics.

> *"Nurse managers must maintain their hands-on experience in the field, provide motivation, participate in training, be fair, be proactive about equipment, and communicate well with team members at all levels of management."* (P9, 50A, F)

In addition, the nurse managers noted that problems specific to the nursing profession worsened during the pandemic. They highlighted the importance of qualified nurse managers, the shortage of specialist nurses in the field, and the need to address issues related to nurses' personnel rights.

> *"The only division that will protect nursing in the hospital is the nursing services. I believe that nurse managers should receive excellent training..."* (P2, 43A, F)

Discussion

The literature on the COVID-19 pandemic includes a relatively limited number of studies addressing the experiences of chief nurse officers. This may be because most research has focused on frontline nurses rather than those in managerial positions, and because the nurse manager's role differs across countries and healthcare systems, making comparative research more complex.[2,7,12–14,22,23] To our knowledge, this study is the first to examine the experiences of nurse managers serving as nursing directors across multiple healthcare institutions within a national context.

The first theme identified in this study was "Managing Anxiety." There are numerous studies in the literature addressing the anxiety of nurses and the psychosocial and psychiatric issues related to anxiety during the COVID-19 pandemic.[24] A systematic review by Aruna et al.[24] in 2020 reported that 26.4% of nurses experienced depression, 40.8% experienced anxiety, 42.7% had somatic symptoms, 50.5% experienced stress, and 91.2% reported fear. Nurses were at risk of both psychological and physical problems due to COVID-19. Previous studies have emphasized the crucial position of nurse managers and highlighted their key role in managing the anxiety of staff nurses.[10,12,24] In particular, the systematic review by Aruna et al.[24] found that nurse leaders play a significant role in supporting nurses' mental well-being during crises. In the present study, nurse managers also stated that they felt this responsibility and faced challenges in managing the anxiety of their staff. However, it was observed that they shared similar concerns with their subordinates regarding their own emotional distress. Rodney et al.[12] screened symptoms of PTSD in nurses, including nurse managers, and reported that both staff nurses and nurse leaders exhibited high levels of stress and PTSD severity.

The second theme identified in this study was the prevention of contamination during the pandemic. Nurse managers were responsible for identifying the need for, supplying, and delivering PPE to staff. This process posed challenges, and they had to devise methods to prevent shortages and ensure the provision of PPE in the required quantity and quality when needed. According to participants in this study, PPE was supplied by the state to public hospitals based on institutional needs, whereas private hospitals relied on a stocking method. Nurse managers reported that PPE was commonly distributed daily from a single center, and this responsibility was assigned to nurse managers within the clinics. A study by Yau et al.[25] in 2021 also reported that the best practice was centralization. In addition to ensuring adequate PPE supply, nurse managers played a key role in organizing training sessions to enhance infection prevention and control practices among staff. However, it was observed that a practice such as Infection Prevention and Control (IPAC) teams, which was emphasized as best practice in the same study, was not implemented by participants in the present study, as institutions organized training within their own resources.

Despite the rising number of patient admissions to healthcare institutions, another theme identified in this study was Ensuring Continuity and Quality of Care, which reflects participants' views on maintaining access to healthcare for individuals in need and sustaining the quality of nursing services. During the pandemic, nurse managers had to reorganize the care they were accustomed to providing and adapt to a variety of situations, including the physical arrangement of clinics that were opened or closed almost every day, the reorganization of personnel, and urgent arrangements to replace nurses who were unable to work for various reasons. During this process, nurse managers developed care models by learning from their experiences and testing new approaches. Similarly, in the qualitative study conducted by Vázquez-Calatayud et al.[26] in 2022 with nurses working in different units of a hospital in Spain, maintaining continuity and quality of care also emerged as a major theme, supporting the findings of the present study.

In the present study, it was noted that the nurse managers did not mention any institutional or professional support mechanisms to manage their anxiety, nor the presence of any specific programs designed for them. They also reported that they could not participate in any training or orientation programs for the pandemic, which was a new and uncertain situation for them. During this period, nurse managers were expected to implement stress-reduction strategies for nurses, organize rotational allocations for patients with complex conditions, arrange support services, remain accessible to staff, and ensure both their own and their teams' physical and psychological well-being amid pandemic conditions.[26] In the study conducted by Jackson and Nowell[13] in 2021, it was emphasized that nurse managers did not receive psychosocial or training support despite their increased responsibilities and new duties during the pandemic. Similarly, White[23] in 2021 stated that nurse managers provided psychosocial support to frontline nurses while experiencing the same stress and exhaustion themselves, suggesting that greater attention to their psychosocial needs, interventions to reduce their exhaustion, and readily available support systems are warranted. Providing better training in areas such as disaster management, ethical decision-making, leadership during uncertainty, and maintaining well-being could help nurse managers lead their teams more effectively.[12]

The nurse managers emphasized the importance of being prepared for the unusual conditions of the pandemic, acting appropriately from the moment the pandemic was declared, and maintaining continuous and close communication with staff nurses, other managers, and government bodies. Furthermore, they highlighted the personal rights of nurses and the significance of working conditions during such a critical process as a pandemic. The initiatives of the Turkish Nurses Association (TNA) during the pandemic were also in line with the demands of the nurse managers. The TNA emphasized the importance of close and continuous communication between nurses and decision-makers, as well as issues concerning nurses' participation in decision-making mechanisms, improvement of working conditions for nurses, nurse employment, and the protection of nurses' personal rights.[3,15]

Limitations

This study follows a qualitative design, meaning that the findings are limited to the experiences and perceptions of the nurse managers who were interviewed. The data were collected through online interviews, and the heavy workload and psychological pressure caused by the pandemic may have influenced how participants conveyed some of their experiences during the interview process. Additionally, since the study includes only managers from specific hospitals who were selected based on specific criteria, the generalizability of the results is limited.

Conclusion

The COVID-19 pandemic posed unprecedented challenges for nurse managers, who carried major responsibilities toward patients, staff, and institutional leadership. Unlike previous crises, it required continuous adaptation and rapid decision-making. Nurse managers made significant efforts to reorganize services, develop context-appropriate strategies, and implement solutions consistent with the Turkish healthcare system and cultural context. Their experiences offer important lessons for improving preparedness for future public health emergencies.

During the early phase of the pandemic, nurse managers faced considerable uncertainty due to rapidly changing institutional policies, unclear clinical guidelines, and the unpredictable nature of the disease. They sought context-specific approaches to emerging problems yet initially expressed concern about the outcomes of their decisions. To prevent similar challenges in future crises, pandemic-related issues should be integrated into disaster preparedness plans that emphasize flexibility and continuity of care. Cross-disciplinary training programs that enhance professional adaptability are crucial.

The findings highlight the need for structured psychosocial and educational support to strengthen nurse managers' leadership and emotional resilience. Continuous psychological support mechanisms should also be embedded within institutions. Moreover, documenting the problems encountered, their effects on healthcare delivery, and the effectiveness of implemented solutions will guide evidence-based policy and preparedness planning. Recognizing and rewarding the contributions of nurse managers and other healthcare professionals may further enhance motivation and institutional resilience in future crises.

Ethics Committee Approval: The study was approved by the Koç University Ethics Committee (Approval Number: 2020.307.IRB3.114, Date: 02.07.2020).

Informed Consent: Written informed consent was obtained from the participants.

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

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

Use of AI for Writing Assistance: Artificial intelligence–assisted technologies (such as ChatGPT, a large language model developed by OpenAI) were used to support language editing and formatting of this manuscript. The authors reviewed and verified all content to ensure accuracy and integrity. No artificial intelligence (AI) tools were used for data collection, data analysis, or drawing scientific conclusions.

Author Contributions: Concept – A.A.Ö., S.Ş.Ç.; Design – A.A.Ö., S.Ş.Ç.; Supervision – A.A.Ö., S.Ş.Ç.; Data Collection and/or Processing - A.A.Ö., S.Ş.Ç., M.S.K., H.S., Y.Ç.; Analysis and/or Interpretation - A.A.Ö., S.Ş.Ç.; Literature Review – A.A.Ö., S.Ş.Ç., M.S.K., H.S., Y.Ç.; Writing – A.A.Ö., S.Ş.Ç., M.S.K., H.S., Y.Ç.; Critical Review – A.A.Ö., S.Ş.Ç., M.S.K., H.S., Y.Ç.

Peer-review: Externally peer-reviewed.

References

1. World Health Organization. COVID-19 continues to disrupt essential health services in 90% of countries. Accessed February 10, 2022. https://www.who.int/news/item/23-04-2021-covid-19-continues-to-disrupt-essential-health-services-in-90-of-countries
2. Hardt DiCuccio M, Reynolds C, Snyder A, Cianci N. COVID-19: The Nursing Administration Response. Crit Care Nurs Q. 2020;43(4):468–479. [CrossRef]
3. Şenol Çelik S, Atlı Özbaş A, Çelik B, et al. COVID 19 Pandemic Process: Turkish Nurses Association. J Educ Res Nurs. 2020;17(3):279–284. [CrossRef]
4. Liu Y, Wang H, Chen J, et al. Emergency management of nursing human resources and supplies to respond to coronavirus disease 2019 epidemic. Int J Nurs Sci. 2020;7(2):135–138. [CrossRef]
5. International Councils of Nurses. International Nurses Day. Accessed February 10, 2022. https://www.icn.ch/how-we-do-it/campaigns/international-nurses-day
6. Hardt DiCuccio M, Reynolds C, Snyder A, Cianci N. COVID-19: The Nursing Administration Response. Crit Care Nurs Q. 2020;43(4):468–479. [CrossRef]
7. Moyo I, Mgolozeli SE, Risenga PR, et al. Experiences of Nurse Managers during the COVID-19 Outbreak in a Selected District Hospital in Limpopo Province, South Africa. Healthcare (Basel). 2021;10(1):76. [CrossRef]
8. Eftekhar Ardebili M, Naserbakht M, Bernstein C, Alazmani-Noodeh F, Hakimi H, Ranjbar H. Healthcare providers experience of working during the COVID-19 pandemic: A qualitative study. Am J Infect Control. 2021;49(5):547–554. [CrossRef]
9. Bani Issa W, Al Nusair H, AlTamimi A, et al. Posttraumatic stress disorders and influencing factors during the COVID-19 pandemic: A cross-sectional study of frontline nurses. Int Nurs Rev. 2022;69(3):285–293. [CrossRef]
10. Shahrour G, Dardas LA. Acute stress disorder, coping self-efficacy and subsequent psychological distress among nurses amid COVID-19. J Nurs Manag. 2020;28(7):1686–1695. [CrossRef]
11. Gab Allah AR. Challenges facing nurse managers during and beyond COVID-19 pandemic in relation to perceived organizational support. Nurs Forum. 2021;56(3):539–549. [CrossRef]
12. Rodney T, Heidari O, Miller HN, Thornton CP, Jenkins E, Kang HK. Posttraumatic stress disorder in nurses in the United States: Prevalence and effect on role. J Nurs Manag. 2022;30(1):226–233. [CrossRef]
13. Jackson J, Nowell L. 'The office of disaster management' nurse managers' experiences during COVID-19: A qualitative interview study using thematic analysis. J Nurs Manag. 2021;29(8):2392–2400. [CrossRef]
14. Bookey-Bassett S, Purdy N, van Deursen A. Safeguarding and Inspiring: In-Patient Nurse Managers' Dual Roles during COVID-19. Nurs Leadersh (Tor Ont). 2020;33(4):20–28. [CrossRef]
15. Şenol Çelik S, Koç G, Atlı Özbaş A, et al. COVID-19 Pandemic in the International Year of the Nurses: Turkish Nursing Association Studies. İKÇÜSBFD. 2021;6(1):23–27.
16. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19(6):349–357. [CrossRef]
17. Guba E, Lincoln Y. Fourth generation evaluation. Newbury Park, California: Sage Publications; 1989.
18. Corbin J, Anselm S. Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory. 4th ed. Thousand Oaks, California: Sage Publications; 2014.
19. Streubert HJ, Carpenter DR. Qualitative Research in Nursing: Advancing the Humanistic Imperative. New York: Lippincott Williams & Wilkins; 2011.
20. Creswell JW, Hanson WE, Clark Plano VL, Morales A. Qualitative Research Designs: Selection and Implementation. . Couns Psychol. 2007;35(2):236–264. [CrossRef]
21. Brinkmann S, Kvale S. InterViews: Learning the Craft of Qualitative Research Interviewing. Sage Publications; 2014.
22. Shahzad N, Amjad MA, Naz T. Role of Head Nurses and Services of Nurses as Front Line against Covid-19 Epidemic. CIBG. 2021;27(6):848–856.
23. White JH. A Phenomenological Study of Nurse Managers' and Assistant Nurse Managers' Experiences during the COVID-19 Pandemic in the United States. J Nurs Manag. 2021;29(6):1525–1534. [CrossRef]
24. Aruna J, Sithara B, Amani Abdelgader Mohammed A, Hawa Ibrahim Abd A, Nagla Abdelmonim Abdelrahim A. Psychological impact of COVID-19 outbreak on nurses: A systematic review. Int J Pharm Sci. 2020;11(SPL1):1905–1913. [CrossRef]
25. Yau B, Vijh R, Prairie J, McKee G, Schwandt M. Lived experiences of frontline workers and leaders during COVID-19 outbreaks in long-term care: A qualitative study. Am J Infect Control. 2021;49(8):978–984. [CrossRef]
26. Vázquez-Calatayud M, Regaira-Martínez E, Rumeu-Casares C, Paloma-Mora B, Esain A, Oroviogoicoechea C. Experiences of frontline nurse managers during the COVID-19: A qualitative study. J Nurs Manag. 2022;30(1):79–89. [CrossRef]

JERN Journal of Education and Research in Nursing

Original Article

DOI: 10.14744/jern.2025.46144
J Educ Res Nurs. 2025;22(4):266-274

Views of Nurses Working in Surgical Intensive Care Units on Pressure Injury Prevention and Care: A Phenomenological Study

Sercan Yanık,[1] Durdane Yılmaz Güven[2]

[1]Karabük University The Institute of Graduate Programs, Karabük, Türkiye

[2]Department of Nursing, Karabük University Faculty of Health Sciences, Karabük, Türkiye

Abstract

Background: Intensive care units are settings where life-threatening illnesses are treated and cared for, and complex clinical processes are managed. In the surgical intensive care unit, immobility, hemodynamic changes, nutritional problems, and the use of invasive equipment during and after surgery increase the risk of pressure ulcers. Nurses' knowledge, clinical skills, and attitudes play a decisive role in preventing these injuries.

Aim: This study was conducted to determine the opinions of nurses working in a surgical intensive care unit regarding the prevention and care of pressure ulcers.

Methods: The research was conducted using the phenomenological approach, one of the qualitative research methods. The study included 30 nurses working in the surgical intensive care unit (ICU) of a training and research hospital. A focus group interview was conducted with the participants, who were divided into seven groups based on their interview dates. Data were collected using a "Personal Information Form" containing the sociodemographic characteristics of the nurses and a "Semi-Structured Focus Group Interview Form," then analyzed and coded with the MAXQDA program.

Results: It was determined that 20 of the participants were female, 14 were between the ages of 23 and 29, 20 were married, and 23 had a bachelor's degree. From the interviews with nurses working in the surgical intensive care unit, six code models were developed: "importance of pressure injury (PI)," "factors affecting care in PI," "patients at risk of developing PI," "suggestions to improve care in PI," "methods to be followed in preventing PI," and "feelings while providing care to patients with PI."

Conclusion: In conclusion, increasing the number of nurses in surgical intensive care units, ensuring the availability of up-to-date wound care products, promoting the effective use of devices and materials designed to prevent PI, and strengthening in-service training programs on this issue emerge as fundamental requirements for the prevention of PI. It is recommended that future studies be conducted using a mixed-method design with larger groups.

Keywords: Nursing care, pressure injury, pressure ulcer, qualitative research, surgical intensive care

Introduction

Intensive care units (ICU) are specialized units where patients who require advanced care and continuous observation due to critical health problems are treated.[1] In these units, many factors such as prolonged immobilization of patients, use of certain medications, connection to a respirator, vascular diseases, and surgical operations increase the risk of Pressure injury (PI).[2–5] PI is a complication that usually develops as a result of prolonged exposure of the skin over bony prominences or underlying soft tissue to prolonged pressure or mechanical factors such as friction, and it seriously affects the patient's quality of life.[6] PIs are also considered an important indicator of the quality of nursing care.[7,8] When the literature is examined, it is revealed that nurses have difficulty putting theoretical knowledge into practice in PI prevention, that they lack knowledge in this regard, and that information can be forgotten if training is not continuous.[9–11] In a multicenter project conducted to determine the prevalence of PIs in our country, it was found that the structured training provided to nurses significantly increased their knowledge levels and improved the frequency of skin and PI assessments. However, when the prevalence was re-evaluated approximately three months later, the training was not found to have a significant effect on the prevalence rate.[11] In the study examining PI knowledge among intensive care nurses, it was determined that there were knowledge gaps related to PI practices.[12]

Examining the attitudes and knowledge levels of nurses working in surgical ICUs toward PI is of great importance for developing effective strategies to prevent this health problem. Although there are many studies on PI in the literature, there are no qualitative studies examining the difficulties experienced by surgical intensive care nurses in the prevention and care of PI, or the emotions and experiences they have while providing care to these patients. In this context, the study was carried out using a phenomenological approach, one of the qualitative research methods, to determine the attitudes of nurses working in surgical ICUs regarding the prevention and care of PI. The phenomenological approach examines the perspectives, feelings, understandings, and shared experiences of selected groups on a given topic or concept and identifies emerging themes.[13] Considering the limited number of qualitative studies on PI at the international level, the findings of this study will help elucidate the challenges experienced by nurses and contribute to the development of more effective educational and support programs.

This research article was produced from the master's thesis.

Cite this article as: Yanık S, Yılmaz Güven D. Views of Nurses Working in Surgical Intensive Care Units on Pressure Injury Prevention and Care: A Phenomenological Study. J Educ Res Nurs. 2025;22(4):266-274.

Corresponding author: Durdane Yılmaz Güven
E-mail: durdaneguven@karabuk.edu.tr

Received: July 25, 2025
Accepted: October 24, 2025
Publication Date: December 01, 2025

Research Questions

- What are the experiences of nurses working in surgical intensive care units regarding PI prevention?
- What are nurses' recommendations for caring for patients with PI in surgical intensive care units?
- What are the feelings of nurses working in surgical intensive care units when caring for patients with PI?

Materials and Methods

Study Design and Setting

In this research, the phenomenological approach, one of the qualitative research methods, was adopted. The hospital has a bed capacity of 528 and is registered for 400 beds. The hospital where the study was conducted includes an intensive care unit with 54 beds and 91 nurses. The surgical intensive care unit has 27 beds and 45 nurses. This study setting was chosen because it provides tertiary-level surgical intensive care and performs more than thirty surgical procedures daily.

Study Participants

The criterion sampling method, a type of purposive sampling, was used to select the participants. In this qualitative study, the sample size was determined based on the principle of data saturation rather than a predetermined numerical target. Data collection continued until no new themes, codes, or insights emerged from the participants' responses and the data began to repeat. At the point of redundancy—when additional interviews no longer provided novel information—the recruitment process was concluded. This approach ensured that the data were sufficiently rich and comprehensive to address the research question while maintaining methodological rigor consistent with qualitative research standards. The study was conducted with 30 nurses. Nurses who worked in the surgical ICU, were involved in the wound care process, had at least one year of experience in caring for patients with PI, and agreed to participate voluntarily were included in the study. The demographic characteristics of the participants are presented in Table 1.

Data Collection Tool

The data were collected by the researcher between January and February 2024 in the Surgical Intensive Care Units of Karabük Training and Research Hospital. The research data were collected using the *Personal Information Form* and *Semi-Structured Focus Group Interview Form*, which included the sociodemographic characteristics of the participants. The *Semi-Structured Focus Group Interview Form* was prepared by obtaining expert opinions. The interview form consisted of eight open-ended questions developed in accordance with the literature. For the content validity of the questions, expert opinions were obtained from faculty members (two academicians specialized in nursing and one academician specialized in qualitative research methods) and wound care nurses, after which the questions were revised.

Data Collection

Participants were divided into seven groups of four to five nurses each. Focus group interviews were conducted with these groups, and each interview was audio recorded. The recordings were stored and protected in accordance with confidentiality principles. The interviews were conducted by the researcher working in the in-

Table 1. Demographic information of nurses working in surgical intensive care units

Code	Gender	Age	Educational status	Marital status	Weekly working time	Working time in the profession	Working time in surgical ICU
K1	Male	33	Postgraduate	Married	40 hours	8 years	5 years
K2	Male	31	High school	Married	40–64 hours	13 years	8 years
K3	Male	31	Bachelor	Married	40–64 hours	4 years	3 years
K4	Male	37	Bachelor	Married	40–64 hours	5 years	2 years
K5	Male	41	Bachelor	Married	40 hours	15 years	10 years
K6	Female	24	Bachelor	Single	40–64 hours	1 year	1 year
K7	Male	30	Bachelor	Married	40–64 hours	5 years	5 years
K8	Male	30	Bachelor	Single	40–64 hours	5 years	5 years
K9	Female	35	Postgraduate	Married	40 hours	12 years	8 years
K10	Female	40	Bachelor	Married	40 hours	18 years	15 years
K11	Female	46	Bachelor	Married	40 hours	29 years	15 years
K12	Female	27	Bachelor	Single	40–64 hours	4 years	1 year
K13	Female	28	Bachelor	Married	40–64 hours	4 years	2 years
K14	Female	30	Bachelor	Married	40–64 hours	5 years	2 years
K15	Female	23	Bachelor	Single	40–64 hours	1 year	1 year
K16	Female	28	Bachelor	Married	40–64 hours	4 years	3 years
K17	Female	24	Bachelor	Single	40–64 hours	1 year	1 year
K18	Female	25	Bachelor	Single	40–64 hours	1 year	1 year
K19	Female	25	Bachelor	Single	40–64 hours	1 year	1 year
K20	Female	30	Bachelor	Married	40–64 hours	4 years	4 years
K21	Male	30	Postgraduate	Married	40–64 hours	5 years	4 years
K22	Female	31	Postgraduate	Married	40–64 hours	8 years	6 years
K23	Female	26	Bachelor	Married	40–64 hours	4 years	2 years
K24	Female	28	Bachelor	Single	40–64 hours	4 years	3 years
K25	Female	31	Postgraduate	Married	40–64 hours	8 years	6 years
K26	Male	42	High school	Married	40–64 hours	24 years	15 years
K27	Female	27	Bachelor	Married	40–64 hours	4 years	2 years
K28	Male	28	Bachelor	Married	40–64 hours	5 years	4 years
K29	Female	29	Bachelor	Single	40–64 hours	5 years	4 years
K30	Female	25	Bachelor	Single	40–64 hours	2 years	1 year

ICU: Intensive care unit

DOI: 10.14744/jern.2025.46144
J Educ Res Nurs. 2025;22(4):266-274

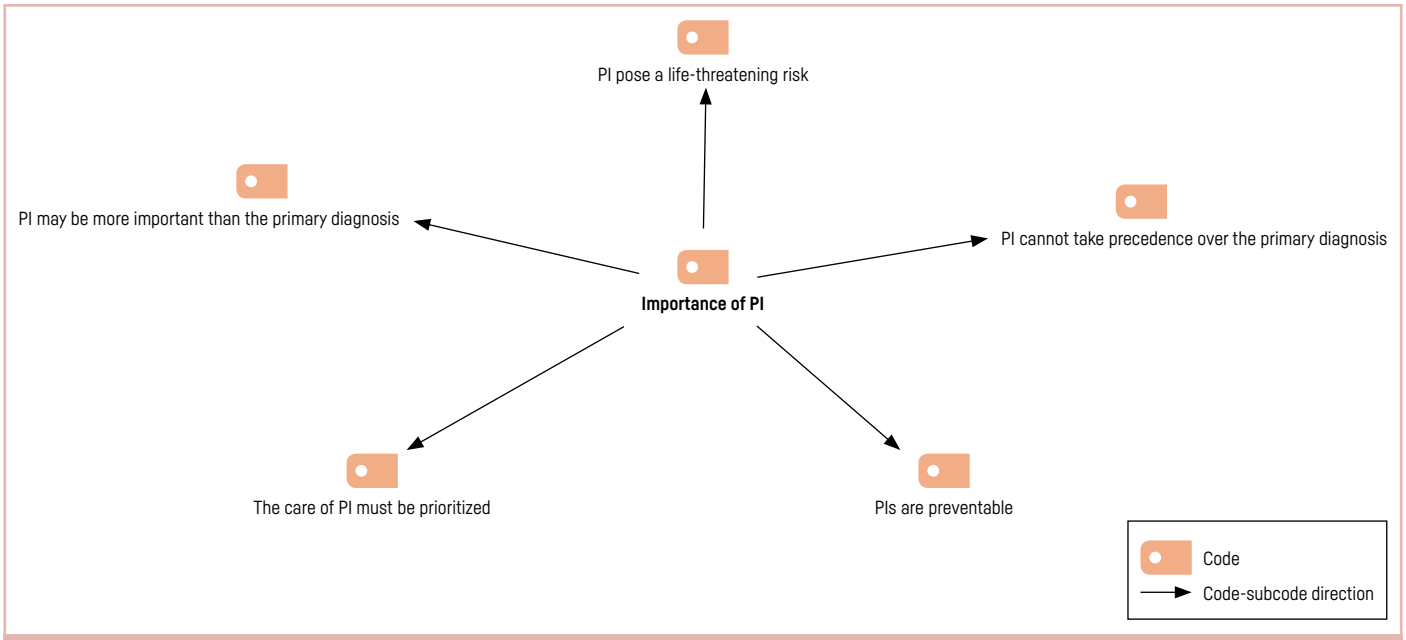

Figure 1. Code-subcode model showing the views of nurses working in surgical intensive care units on the importance of PI.

tensive care unit. Data collection took place in a room within the hospital suitable for interviews and audio recording. Interviews with surgical intensive care nurses continued until data saturation was reached. Depending on the number of participants in each group, the shortest interview lasted 30 minutes and the longest 52 minutes.

Ensuring Trust

In qualitative research, the researcher's design and paradigm are said to have a significant impact on the selection of validity and reliability criteria. Several qualitative research methods were utilized to establish the validity and reliability of the study. To ensure internal validity and reliability, the "triangulation" technique was used. To ensure external validity, the "rich and dense description" technique was applied.[14]

Data Analysis

The interviews were transcribed by researchers (SY, DYG) in a computer environment using Microsoft Word. The data obtained (n=30) were recorded using a voice recorder and transcribed into Microsoft Word documents, resulting in a total of 136 pages of data. The data were then coded using the MAXQDA program for qualitative data analysis. First, the audio files of the interviews were converted into Word text and transferred to the MAXQDA project file. The researcher then read the interview documents and coded the meanings obtained, with the support of a professional researcher. These codes were subsequently categorized through thematic analysis into coherent themes. The Code-Subcode model and Code Relationship Browser interfaces were used in data analysis. In the study, the obtained data were presented in a descriptive and systematic research report. The perspective and critical interpretation ability of the research were strengthened by obtaining expert opinions. The accuracy of the interviews was confirmed by both participants and experts, and the study was conducted in accordance with a defined conceptual framework using the Qualitative Method Writing Guide.

Ethical Considerations

Before starting the study, ethics committee permission was obtained from the Karabük University Non-interventional Clinical Research Ethics Committee (Approval Number: 2023/1556, Date: 06.12.2023), and institutional permission was obtained from the Scientific Research Ethics Committee of Kastamonu Training and Research Hospital (Approval Number: E-44008972-929, Date: 24.01.2024). The purpose and scope of the study were explained to the participants; it was stated that participation was voluntary, that they could withdraw from the study at any time, and that the information they provided would be kept confidential. The data obtained from the interviews were coded and analyzed anonymously, and processed without any connection to identity information. The study adhered to the ethical principles outlined in the Declaration of Helsinki.

Results

According to the results of the study, 66.6% of the participants were female. Fourteen of the participants were between the ages of 23–29, and 23 nurses were undergraduate graduates. Twenty-eight of the participants (93.33%) stated that they chose their profession willingly, and all of them (100%) stated that they preferred to work in surgical intensive care.

In this study, six main themes emerged from qualitative data analysis. These themes were: (1) Importance of PI, (2) Factors Affecting the Care of PI, (3) Risk of Developing PI, (4) Suggestions to Improve Care for PI, (5) Emotions Felt by the Personnel Caring for Patients with PI, and (6) Methods to Be Followed to Prevent PI. Collectively, these themes provide a comprehensive understanding of the multifactorial aspects of PI management from the perspectives of healthcare personnel.

Theme 1: Code-subcode Model Indicating the Thoughts of Nurses Working in Surgical Intensive Care Units About the Importance of PI

The opinions of the nurses about the importance of these injuries were grouped under five sub-codes: "poses a life risk," "can be prevented," "may be more important than the main diagnosis," "care should be prioritized," and "cannot get ahead of the main theme." Participants indicated that PI pose critical health risks and that care for these injuries often needs to be prioritized. There was also a widespread view that PI can be prevented if appropriate measures are taken. However, some nurses emphasized that, no matter what is done, PIs are sometimes inevitable (Fig. 1).

> "*Depending on the degree of PI, it may precede the main diagnosis. For example, in acute pancreatitis, you first treat and care for it. However, a decubitus that has reached stage 4, has descended to the bone, and is infected, in my opinion, overrides the main diagnosis.*" (P5/Male/41 years old/Undergraduate)

> "*...Because infection in the patient due to PI can lead to sepsis and then death...*" (P3/Male/31 years old/Undergraduate)

> "*PI is an easily preventable condition. It can be easily prevented with barrier cream, patient skin care, and position changes.*" (P14/Female/30 years old/Undergraduate)

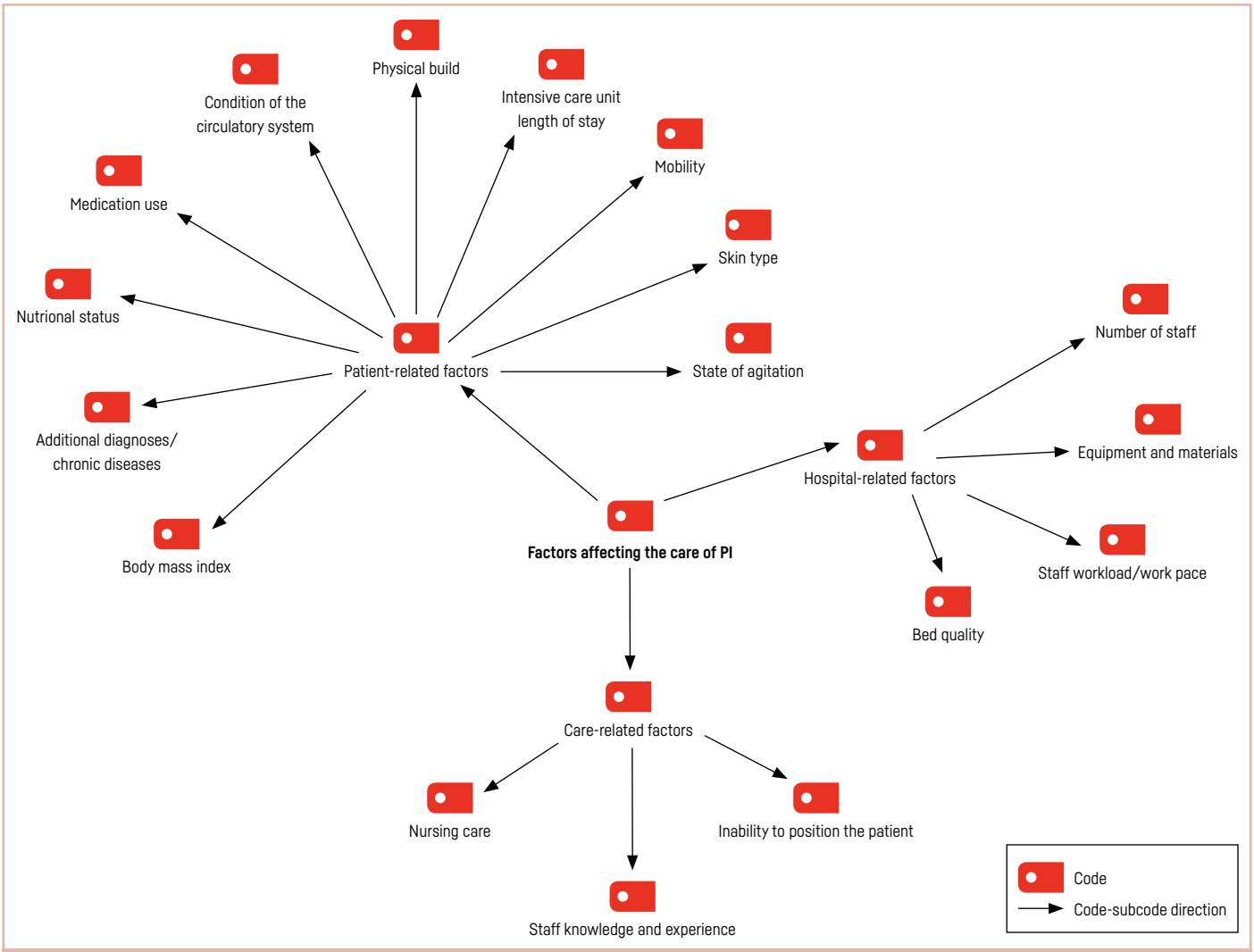

Figure 2. Code-subcode model of factors affecting the care of PI in surgical intensive care units.

Theme 2: Factors Affecting Care in PI in Surgical Intensive Care Units – Code-subcode Model

In this model, three main code-subcode categories were identified: "patient-related elements," "elements related to hospital conditions," and "elements related to care." In the code-subcode model of "patient-related factors," expressions such as "body mass index, additional diagnoses/chronic diseases, nutritional status, medication use, circulatory system status, constitution, duration of hospitalization, mobility, skin structure, and agitation status" were included. In the code-subcode model of "factors related to hospital conditions," the expressions "number of personnel, equipment and materials," and "personnel workload/work tempo" were specified. In the "elements related to care" code-subcode model, the expressions "positioning/non-positioning, staff knowledge and experience," and "nursing care" were included (Fig. 2).

> "*I don't think that pressure sores are always only related to nursing care. Pressure sores are also related to the weight of the patient, i.e., whether they are obese or cachectic.*" (P2/Male/31 years old/High school)

> "*...Our workload is too much. In other words, we do doctor's work, personnel work, and secretary work. Apart from my patient-oriented work, I also do extra work because I work in a paperwork-oriented way; I even have to go to the pharmacy to buy medicine.*" (P28/Male/28 years old/Undergraduate)

> "*I think it has a very, very important place for us because 'nurse means care' and 'care means reduction of pressure sores.'*" (P22/Female/31 years old/Graduate)

Theme 3: Identifying Patients at Risk of Pressure Wound Development in Surgical Intensive Care Units – Code-subcode Model

In the code-subcode model for patients at risk of PI, the following categories were identified: "obese or cachectic patients," "elderly patients," "diabetic patients," "patients with low level of consciousness," "cerebrovascular occlusion (SVO) patients," "cardiac patients," "patients with chronic obstructive pulmonary disease (COPD)," "patients with low albumin levels," "trauma patients," and "patients who cannot be positioned." These classifications emphasize the likelihood of developing PI based on patients' health status. Nurses stated that the risk of PI is higher, especially in patients who are difficult to position or have fragile skin structure (Fig. 3).

> "*I don't think that pressure sores are always only related to nursing care. Pressure sores are also related to the weight of the patient, i.e., whether they are obese or cachectic.*" (P2/Male/31 years old/High school)

> "*Apart from that, since there is delayed healing in diabetic patients, both PI occurs and progresses faster.*" (P8/Male/30 years old/Undergraduate)

DOI: 10.14744/jern.2025.46144
J Educ Res Nurs. 2025;22(4):266-274

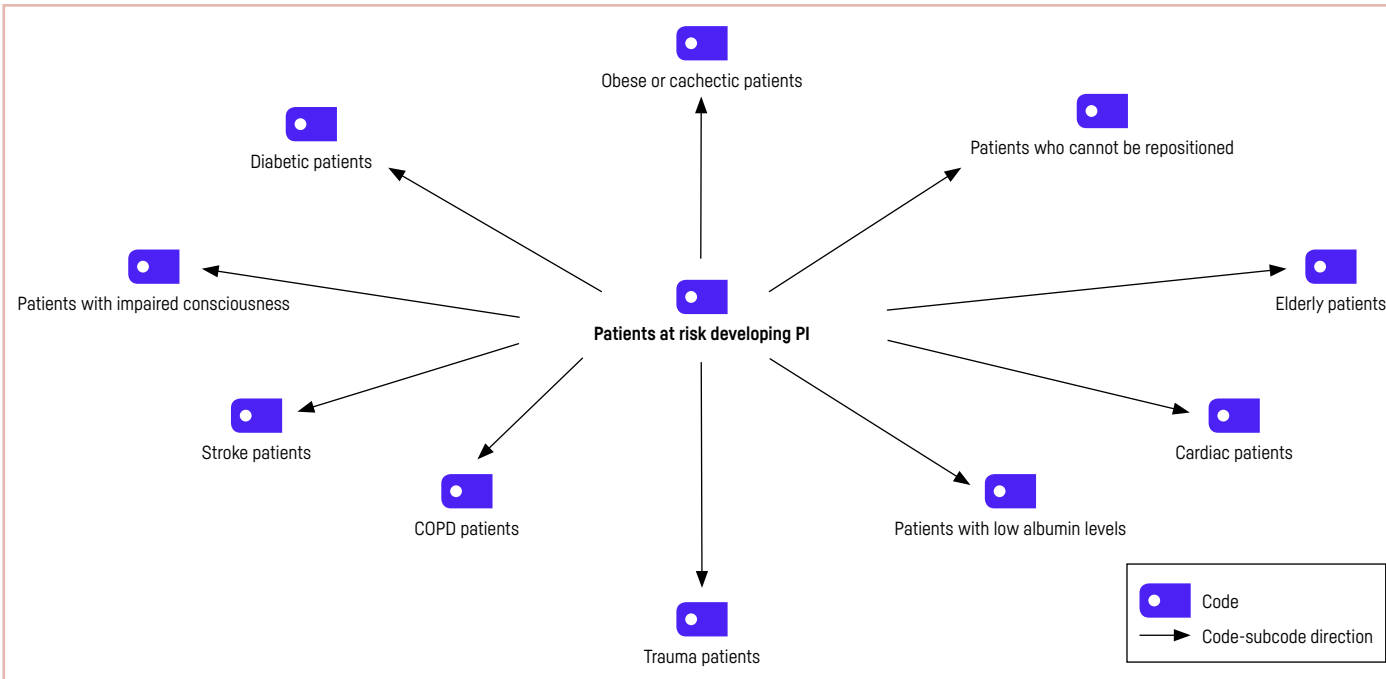

Figure 3. Code-subcode model introducing patients at risk of developing PI in surgical intensive care units.

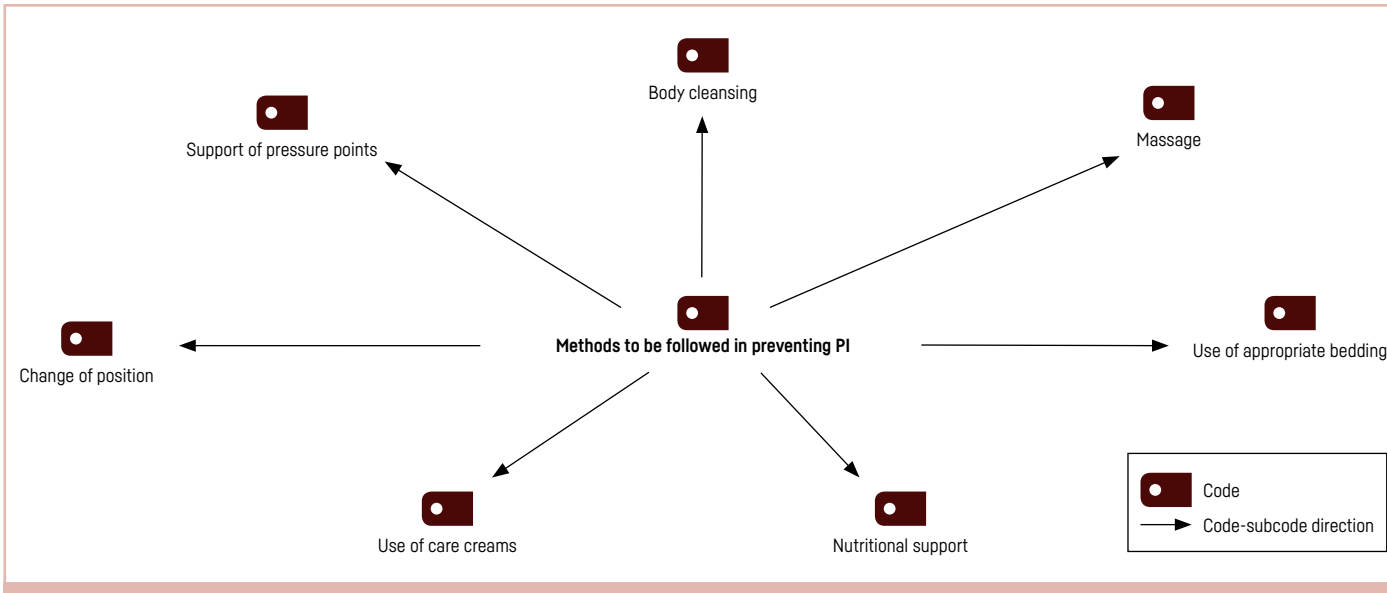

Figure 4. Code-subcode model for the methods to be followed to prevent PI in surgical intensive care units.

"*...Also, the patient's diseases and comorbidities are very important... Even if we put the patients in the best bed and provide the best nursing care, unfortunately, wounds can still develop.*" (P10/Female/40 years old/Undergraduate)

Theme 4: Code-Subcode Model for the Methods to Be Followed to Prevent PI in Surgical Intensive Care Units

Methods of preventing PI were specified with seven sub-codes: "body cleansing," "massage," "use of appropriate bedding," "nutritional support," "use of care creams," "change of position," and "support of pressure points." These methods are important for ensuring comfort and maintaining skin integrity. Participants stated that especially changing position and regularly using skin-protective creams were effective in preventing injuries (Fig. 4).

"*I think it is actually very easy to prevent pressure sores. If the patient does not have a circulatory disorder, if the patient is positioned every two hours at most, if the pressure points are supported and an air mattress is used, and if the necessary nutrition is provided, it is very difficult for a PI to develop.*" (P3/Male/31 years old/Undergraduate)

"*If you do not intervene with wound care products, the possibility of progression is very high. Therefore, it is necessary to use*

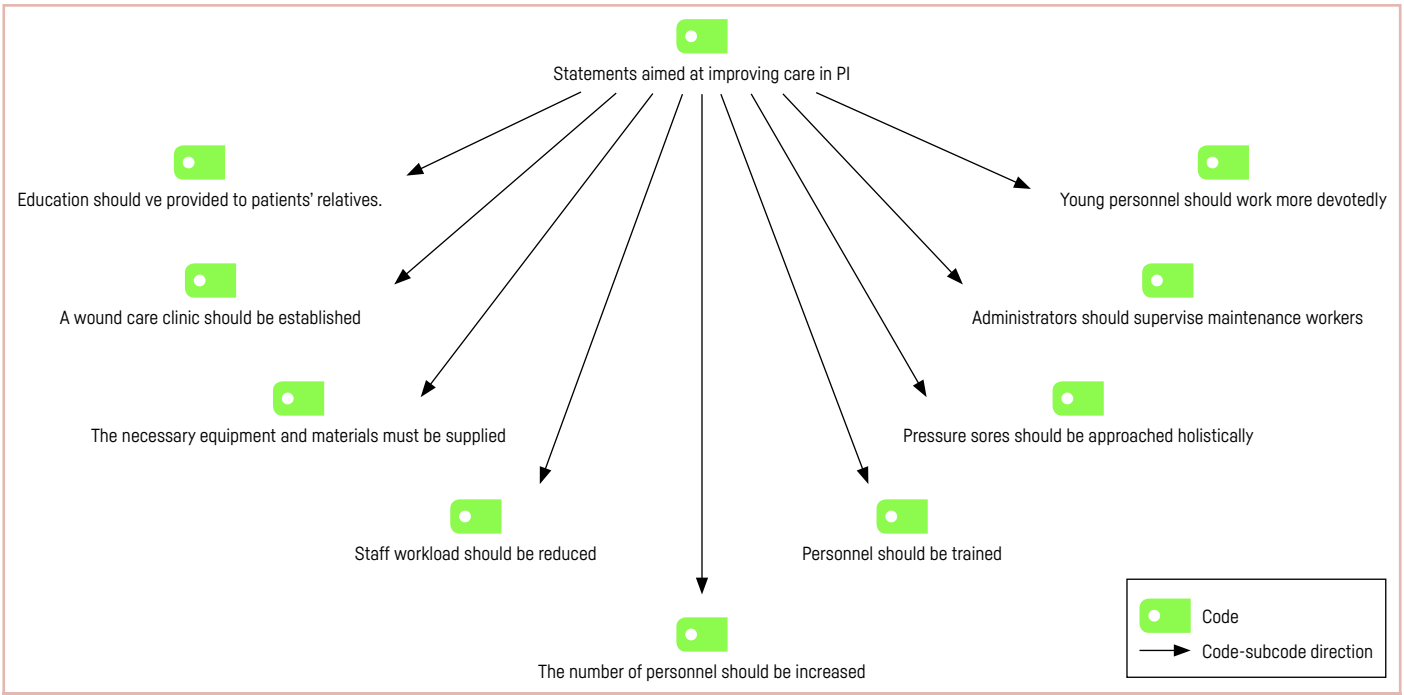

Figure 5. Code-subcode model for suggestions to improve care for PI in surgical intensive care units.

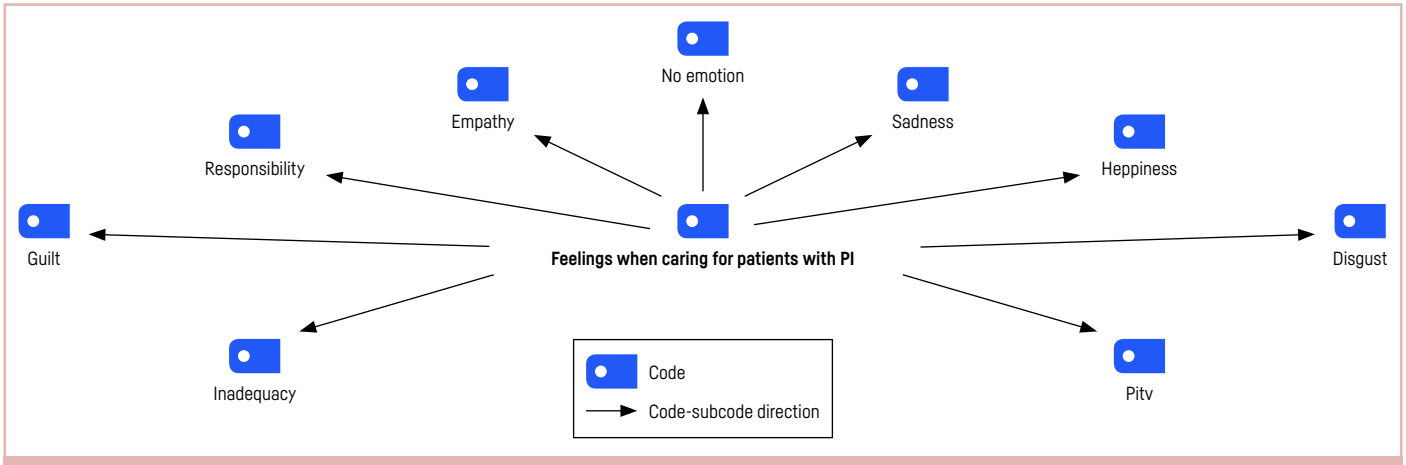

Figure 6. Code-subcode model for suggestions to improve care for PI in surgical intensive care units.

effective wound care products. Therefore, PI can be prevented with such products." [P5/Male/41 years old/Undergraduate]

"*Apart from that, we can make the patient's diet protein-intensive. Apart from that, we can monitor albumin levels frequently*." [P7/Male/30 years old/Undergraduate]

Theme 5: Code-subcode Model for Suggestions to Improve Care for PI in Surgical Intensive Care Units

In this model, nine suggestions for improving care were grouped under the following sub-codes: "training of relatives," "establishment of a wound care clinic," "procurement of equipment and supplies," "reducing the workload of staff," "increasing the number of staff," "training of staff," "holistic care approach," "supervision of caregivers by the administration," and "more dedication of young staff." Participants stated that appropriate training, as well as adequate staff and equipment support, would improve PI care. It was also emphasized that more training and supervision are needed, especially for young nurses, to enhance their professional knowledge and skills (Fig. 5).

"*I would definitely want to change the number of nurses working in our unit because we are currently in surgical intensive care and are working with an insufficient number of nurses*." [P3/Male/31 years old/Undergraduate]

"*I would like it to be easier to access more wound care products*." [P5/Male/41 years old/Undergraduate]

"*It is very important to approach the patient holistically. This is teamwork, and we are one part of this team. We're the prevention and treatment pillar. What we call a team is not only the nurse, doctor, and people working there, but also the dietician, physiotherapist...*" [P10/Female/40 years old/Undergraduate]

Theme 6: Code-sub-code Model Regarding the Emotions Felt by Personnel Caring for Patients with PI in Surgical Intensive Care Units

Nurses indicated that they experienced various emotions while caring for patients with PI. These emotions were expressed as "sadness," "happiness," "disgust," "pity," "inadequacy," "guilt," "responsibility," "empathy," and "no emotion." These statements reveal the emotional burden nurses experience in the management of PI. In particular, feelings of pity and empathy were reported as dominant, while in some cases, feelings of inadequacy and guilt were more prominent (Fig. 6).

> "*If the patient you are caring for develops a PI, then I feel sad because I feel guilty. I look for a fault in myself. I question myself. If, despite all this, I still don't find anything wrong with myself, then my conscience is clear. However, if a PI develops, I feel guilty*." (P3/Male/31 years old/Undergraduate)

> "*Due to the experience and habits we have gained over the years, this job is now becoming routine, it is your job, and it doesn't matter whether you have it or not. It is more important for you to do the work you need to do*." (P5/Male/41 years old/Undergraduate)

> "*I don't want to provide care when I see an advanced PI because the view disgusts me and lowers my enthusiasm for working*." (P14/Female/30 years old/Undergraduate)

Discussion

In this study, nurses working in the surgical ICU stated that PIs are preventable and that when effective nursing care is provided, patients can be discharged to the ward without any wounds, even if they stay in the ICU for a long time. In the literature, it has been reported that surgery-related PI's often develop within the first 48–72 hours and that such injuries can be prevented through appropriate care addressing risk factors caused by medical equipment in surgical intensive care.[15,16] In line with this result, it is evident that nurses working in the surgical ICU should be particularly aware of PI caused by medical equipment. The findings indicate that participants take necessary precautions to prevent PI in their nursing care and demonstrate a high level of awareness.

Surgical intensive care nurses in this study also stated that patients with multiple trauma, such as those resulting from traffic accidents, are more prone to PI's due to limited positioning and immobility caused by cervical fractures. In the study by Aydın Kahraman and İpek Çoban,[17] it was reported that immobile patients in specialized units such as surgical intensive care may develop PI's due to medical devices. It is thought that while the participants' awareness of the importance of mobility and position change in preventing PI is high, they may not be able to take sufficient precautions in practice. In this regard, nurses working in ICUs should receive updated training on the importance of using support surfaces that can redistribute pressure evenly to prevent PI in immobile patients.

During the intraoperative period, surgical patients are immobile, have no sensation of discomfort, and cannot change position during the surgical intervention because they are under anesthesia and sedation.[18] Accordingly, PI's are more common in patient groups who must receive sedation in ICUs.[19] Surgical intensive care nurses in the present study stated that they used sedation, with a doctor's order, to ensure immobilization of some patients who were highly agitated due to pain related to surgery in surgical ICUs. In the study by Nedergaard et al.,[20] which examined the effect of sedation on PI formation, it was reported that the number of PI was not significantly affected in patients who did not receive sedation. In this context, it is thought that surgical intensive care nurses should increase their awareness of PI prevention in sedated patients.

The nurses participating in the study emphasized that PI originating in the operating theater frequently occurred and that the severity of these wounds tended to increase in parallel with the duration of hospitalization and treatment in the surgical ICU. This finding is consistent with the literature; for example, Katran[8] in 2015 reported that the incidence of PI among patients hospitalized in surgical ICUs for more than 11 days reached 95.9%. Such data underline that prolonged exposure to immobility and intensive care interventions significantly exacerbate the risk of PI development. In addition, participants highlighted that surgical factors (particularly patient positioning and cautery use) constitute critical determinants of PI occurrence. From this perspective, it may be argued that reliance on standard operating tables and the lack of intraoperative risk assessment contribute substantially to the problem. Therefore, a comprehensive risk assessment that considers the patient's clinical status, body mass index, type and duration of surgery, and length of ICU stay is imperative for early prevention strategies. These findings point to the need for structured protocols and interprofessional collaboration among surgical, anesthesiology, and nursing teams to ensure that high-risk patients are systematically identified and protected during surgery. Furthermore, increasing the awareness and knowledge of operating theater staff regarding perioperative risk factors is essential, as insufficient recognition of such risks may result in preventable complications. In this context, future research should focus on developing evidence-based intraoperative PI risk assessment tools and systematically evaluating the effectiveness of preventive technologies, such as pressure-redistributing surfaces and patient-specific positioning devices, in reducing the incidence of operating theater–related PI.

All the surgical intensive care nurses in the study reported that a major factor contributing to their increased workload is the lack of sufficient personnel. They emphasized that caring for obese patients is particularly challenging, as inadequate staffing negatively affects the quality and continuity of care. The participants also noted that increasing the number of nurses would allow more time to be dedicated to patient care. Supporting these findings, Ören and Dağcı[21] in 2021 identified insufficient personnel (66.3%), heavy workload (65.9%), unclear job descriptions (56.1%), exposure to risky situations (54.7%), and stress related to high-risk patient care (53.9%) as the most common problems encountered by ICU nurses. These results indicate that increasing the number of nurses may reduce workload, improve the quality of care, and consequently lower the prevalence of PI. From this perspective, adequate nurse staffing is expected to alleviate workload, enhance individualized patient care, and ultimately strengthen both care quality and patient safety. Therefore, staffing policies in surgical intensive care units should not only focus on numerical sufficiency but also prioritize skill diversity, competency-based distribution, and flexible scheduling to meet patient-specific needs.

In this study, the nurses stated that overweight and cachectic patient groups had the highest risk of developing PI. The participants noted that cachectic patients have less adipose tissue, and consequently, bone protrusions make greater contact with the skin, whereas obese patients have more adipose tissue, which increases pressure within the tissue. In a study examining the relationship between risk factors and pressure ulcers in patients whose pressure ulcer risk was determined by the Braden Scale, it was found that the majority of patients were pre-obese (49.2%) and that body mass index was statistically significant in the development of pressure ulcers ($p<0.01$).[22] In a study conducted by Akın and Karahan[23] in 2020, it was found that the development of facial PI was significantly higher in obese patients with chronic diseases and receiving steroid treatment. These findings are consistent with the literature. In this regard, it is evident that nurses should use advanced-technology beds to facilitate the positioning of obese patients, thereby reducing the risk of PI development. Additionally, pressure areas in cachectic patients should be supported, and up-to-date wound care products should be utilized to help reduce the prevalence of PI in ICUs.

Although the prevention of pressure sore development in the perioperative period requires multidisciplinary management,[24] nurses play a crucial role in preventing PI in healthcare settings.[25] Nurses' knowledge and attitudes toward the prevention of PI play a key role in reducing their incidence. In the present study, nurses stated that in-house training should be provided not only to nurses but also to other staff working in ICUs. In addition, they noted deficiencies in PI training within clinics and indicated that existing training programs were not very effective. In the study conducted by Çelik et al.,[26] 75% of nurses participated in in-service training for the prevention and treatment of PI, but more than 30% had not received training for over two years. In another study, it was reported that less than half of the nurses had received training in wound care and that they needed more education in this area.[27] Similarly, a study conducted by Wu et al.[28] found that nurses' general knowledge of PI prevention was at a moderate level. These findings collectively suggest that current training programs are inadequate in terms of frequency, content, and sustainability, which may compromise both nurses' competence and patient outcomes. Therefore, it is essential that wound care in surgical ICUs be

delivered through a multidisciplinary team that includes a specialized wound care nurse, while also ensuring that ICU nurses receive regular, comprehensive, and evidence-based training on PI prevention. Strengthening educational strategies in this way would not only enhance nurses' skills but also contribute to reducing the incidence of PI in critical care environments.

Surgical intensive care nurses who participated in the study also stated that patients who had undergone surgical procedures and were hospitalized in intensive care should receive care in collaboration with dietitians, both to promote surgical wound healing and to prevent the development of PI. Saghaleini et al.[29] reported that zinc, protein, vitamins A, C, and E, and amino acids play an important role in the healing of PI. In a randomized controlled study by Cereda et al.,[30] it was found that wound healing accelerated in patients with PI who received nutritional support consisting of arginine, zinc, and antioxidants for eight weeks. In this regard, and in parallel with the literature, it is evident that the nutritional content determined by the nutrition nurse and dietitian, along with the patient's diet, is an important intervention in the prevention of PI.

In this study, surgical intensive care nurses reported experiencing emotions such as sadness, guilt, disgust, and pity when PI developed in patients under their care. Some participants stated that their sense of responsibility increased as the severity of the PI worsened, whereas more experienced nurses noted that, over time, they had become emotionally desensitized due to professional habituation. Participants also emphasized that a nurse "without conscience" could not work in the intensive care environment, underscoring the importance of empathy in nursing practice. While some nurses expressed satisfaction and fulfillment when providing attentive care for patients with PI, others acknowledged that the unpleasant appearance and odor of infected wounds negatively affected their ability to deliver care. These findings reveal the complex interplay between professional responsibility and emotional burden in PI management. From this perspective, it can be argued that emotional responses are inevitable in intensive care settings; however, the findings of this study suggest that despite nurses' high awareness of PI risks, preventive practices often remain insufficient. This gap indicates that emotional burden, manifesting as sadness, guilt, or disgust, may directly hinder the consistent delivery of high-quality care. Furthermore, the association repeatedly emphasized by participants between inadequate staffing and the occurrence of PI highlights that workforce shortages not only increase workload but also directly contribute to adverse patient outcomes. Therefore, interventions should not only aim to provide nurses with structured psychological support programs, peer discussion groups, and resilience training, but also address systemic issues such as staffing adequacy and workload management. Ultimately, minimizing the impact of emotional fatigue, ensuring sufficient nurse-to-patient ratios, and reinforcing evidence-based preventive measures are essential for maintaining professional objectivity, safeguarding care quality, and reducing the incidence of PI.

Limitations of the Study

The study's limitation to a single center, the relatively small number of participants, the focus solely on surgical intensive care nurses, and the reliance on self-reported data constitute important methodological limitations of the study.

Conclusion

The findings highlight three key areas for intervention in the prevention and care of PI in surgical ICUs: (1) strengthening workforce capacity by increasing the number of nurses and support staff, (2) enhancing the scope and continuity of in-service training programs, and (3) fostering multidisciplinary collaboration supported by adequate equipment, materials, and access to up-to-date wound care products. These results underscore the necessity for healthcare managers and policymakers to prioritize evidence-based workforce planning, allocate resources efficiently, and develop institutional policies aimed at sustaining high-quality care and preventing PI. The study highlights the pivotal role of structured educational strategies, adequate staffing, and interdisciplinary approaches, thereby establishing a conceptual link between the present findings and future directions for practice and policy. In this context, conducting mixed-method studies that include ICU nurses from both public and private healthcare institutions is essential to ensure methodological rigor and to enhance the validity and generalizability of the findings.

Ethics Committee Approval: The study was approved by the Karabük University Non-interventional Clinical Research Ethics Committee (Approval Number: 2023/1556, Date: 06.12.2023) and institutional permission was obtained from the Scientific Research Ethics Committee of Kastamonu Training and Research Hospital (Approval Number: E-44008972-929, Date: 24.01.2024).

Informed Consent: Verbal consent was obtained from all participating nurses prior to data collection.

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

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

Author Contributions: Concept – S.Y., D.Y.G.; Design – S.Y., D.Y.G.; Supervision – D.Y.G.; Resource – S.Y.; Materials – S.Y.; Data Collection and/or Processing - S.Y.; Analysis and/or Interpretation - S.Y., D.Y.G.; Literature Review – S.Y.; Writing – S.Y., D.Y.G.; Critical Review – D.Y.G.

Peer-review: Externally peer-reviewed.

References

1. VanGilder C, Lachenbruch C, Algrim-Boyle C, Meyer S. The International Pressure Ulcer Prevalence™ Survey: 2006-2015: A 10-Year Pressure Injury Prevalence and Demographic Trend Analysis by Care Setting. J Wound Ostomy Continence Nurs. 2017;44(1):20–28. [CrossRef]
2. Cremasco MF, Wenzel F, Zanei SS, Whitaker IY. Pressure ulcers in the intensive care unit: the relationship between nursing workload, illness severity and pressure ulcer risk. J Clin Nurs. 2013;22(15–16):2183–2191. [CrossRef]
3. Coyer F, Gardner A, Doubrovsky A, et al. Reducing pressure injuries in critically ill patients by using a patient skin integrity care bundle (InSPiRE). Am J Crit Care. 2015;24(3):199–209. [CrossRef]
4. Tan A, Özkan M. Risk of developing pressure sore in surgical intensive care patients. PPHC. 2024;3(2):78–89. [CrossRef]
5. Shakibamehr J, Rad M, Akrami R, Rad M. Effectiveness of Tragacanth Gel Cushions in Prevention of Pressure Ulcer in Traumatic Patients: A Randomized Controlled Trial. J Caring Sci. 2019;8(1):45–49. [CrossRef]
6. European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Basınç Ülserlerinin/Yaralarının Önlenmesi ve Tedavisi: Hızlı Başvuru Kılavuzu. Turkish. Accessed October 31, 2025. https://epuap.org/download/8573/
7. İnangil D, Ertürk N, Pakdil EL, Türkoğlu İ, Torun Ö, Kabuk A. In-Person and Video-Based Education: Do They Affect Pressure Injury Knowledge in Nursing? Adv Skin Wound Care. 2024;37(11&12):1–7. [CrossRef]
8. Katran HB. The research on the incidence of pressure sores in a surgical ıntensive care unit and the risk factors affecting the development of pressure sores. JAREN. 2015;1(1):8–14. [CrossRef]
9. Sengul T, Karadag A. Determination of nurses' level of knowledge on the prevention of pressure ulcers: The case of Turkey. J Tissue Viability. 2020;29(4):337–341. [CrossRef]
10 Alshahrani B, Sim J, Middleton R. Nursing interventions for pressure injury prevention among critically ill patients: A systematic review. J Clin Nurs. 2021;30(15–16):2151–2168. [CrossRef]
11. Gocmen Baykara Z, Karadag A, Senol Celik S, et al. Impact of tailored training about pressure injuries on nurses' knowledge levels and pressure injury point prevalence: The case of Turkey. J Tissue Viability. 2021;30(4):552–558. [CrossRef]
12. Miller DM, Neelon L, Kish-Smith K, Whitney L, Burant CJ. Pressure Injury Knowledge in Critical Care Nurses. J Wound Ostomy Continence Nurs. 2017;44(5):455–457. [CrossRef]
13. Creswell JW, Creswell JD. Research design: Qualitative, quantitative, and mixed methods approaches. 4th ed. Sage Publications; 2017.
14. Merriam SB. Nitel araştırma: Desen ve uygulama için bir rehber. Turan, S, translator. Ankara: Nobel Akademik Yayıncılık; 2018:199–228.
15. Kara H, Arıkan F. Prevention of medical device related pressure injury. J Intensive Care Nurs. 2020;24(1):15–21. Turkish.
16. Karaveli S. Attitude of Nursing Students Taking Wound Course on the Prevention of Pressure Ulcers. Sağlık Akademisi Kastamonu. 2022;7(2):236–245. Turkish. [CrossRef]
17. Aydın Kahraman H, İpek Çoban G. Risk of developing medical device–related pressure ınjuries and nursing approach. GUJHS. 2024;13(1):486–493. Turkish.
18. Weng PW, Lin YK, Seo JD, Chang WP. Relationship between predisposing and facilitating factors: Does it influence the risk of developing peri-operative pressure injuries? Int Wound J. 2022;19(8):2082–2091. [CrossRef]
19. Kıraner E, Terzi B, Uzun Ekinci A, Tunalı B. Characteristics of patients with pressure wound in the intensive care units. J Intensive Care Nurs. 2016;20(2):78–83. Turkish.
20. Nedergaard HK, Haberlandt T, Toft P, Jensen HI. Pressure ulcers in critically ill patients - Preventable by non-sedation? A substudy of the NONSEDA-trial. Intensive Crit Care Nurs. 2018;44:31–35. [CrossRef]
21. Ören B, Dağcı S. The problems faced by nurses working in intensive care units. J Intensive Care Nurs. 2021;24(3):170–183. Turkish.
22. Bakanoğlu Kalkavan E, Şendir M. Evaluation relationship between risk factors and pressure

ulcers of the patients whose risk to have pressure ulcer has been determined with the Braden scale for predicting pressure ulcer risk. JHSS. 2024;7(1):28–54. Turkish. [CrossRef]

23. Akın N, Karahan E. Investigation of factors affecting pressure ulcer development frequency and formation in the face region in patients with noninvasive mechanical respiratory support. KUSBED. 2020;6(1):45–52. Turkish. [CrossRef]
24. Huang L, Yan Y, Huang Y, et al. Summary of best evidence for prevention and control of pressure ulcer on support surfaces. Int Wound J. 2023;20(6):2276–2285. [CrossRef]
25. Tayyib N, Coyer F, Lewis P. Pressure Injury Prevention in a Saudi Arabian Intensive Care Unit: Registered Nurse Attitudes Toward Prevention Strategies and Perceived Facilitators and Barriers to Evidence Implementation. J Wound Ostomy Continence Nurs. 2016;43(4):369–374. [CrossRef]
26. Çelik S, Dirimeşe E, Taşdemir N, et al. Pressure sore prevention and treatment knowledge of nurses. Med J Bakirkoy. 2017;13(3):133–139. Turkish. [CrossRef]
27. Furtado K, Voorham J, Infante P, et al. The Relationship between Nursing Practice Environment and Pressure Ulcer Care Quality in Portugal's Long-Term Care Units. Healthcare (Basel). 2023;11(12):1751. [CrossRef]
28. Wu J, Wang B, Zhu L, Jia X. Nurses' knowledge on pressure ulcer prevention: An updated systematic review and meta-analysis based on the Pressure Ulcer Knowledge Assessment Tool. Front Public Health. 2022;10:964680. [CrossRef]
29. Saghaleini SH, Dehghan K, Shadvar K, Sanaie S, Mahmoodpoor A, Ostadi Z. Pressure Ulcer and Nutrition. Indian J Crit Care Med. 2018;22(4):283–289. [CrossRef]
30. Cereda E, Klersy C, Serioli M, Crespi A, D'Andrea F; OligoElement Sore Trial Study Group. A nutritional formula enriched with arginine, zinc, and antioxidants for the healing of pressure ulcers: a randomized trial. Ann Intern Med. 2015;162(3):167–174. Erratum in: Ann Intern Med. 2015;163(12):964. [CrossRef]

JERN Journal of Education and Research in Nursing

Systematic Review

DOI: 10.14744/jern.2025.77150
J Educ Res Nurs. 2025;22(4):275-278

Preparing Nurses to Deliver Bad News: A Scoping Review of Simulation-based Methods

Abstract

Delivering bad news is a critical communication skill for nursing students. It requires sensitivity, empathy, and clarity, yet opportunities to develop this skill in clinical settings may be limited. This review aims to explore how nursing students are trained to deliver bad news through simulation-based education. A scoping review was conducted in December 2024, searching PubMed, CINAHL, Embase, and Google Scholar. The review followed the Arksey and O'Malley framework in accordance with PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) guidelines. A thematic analysis was applied to identify key themes in the selected articles. Four major themes were identified across 10 studies: Benefits of Simulation-Based Learning, the Value of Interprofessional Learning, Innovative Technologies, and Emotional Challenges. Simulation methods were found to be effective in enhancing students' preparedness and communication skills, particularly when used in interprofessional settings. Simulation-based education is a valuable tool for training nursing students to deliver bad news. Incorporating interprofessional and technology-enhanced approaches can further enrich learning outcomes and better prepare students for challenging clinical communication scenarios.

Keywords: Breaking bad news, health communication, nursing education, simulation

Anna Christine Steinacker, Marion Diegelmann

Department of Health Sciences, Fulda University of Applied Sciences, Fulda, Germany

Introduction

Delivering bad news, often referred to as “Breaking Bad News” (BBN), is a significant challenge for healthcare professionals. This process goes beyond a simple communicative task; it profoundly impacts patients and their families on physical, mental, social, and spiritual levels. Receiving bad news can be a life-altering and existential experience. It often provokes emotional reactions and influences how individuals cope with the situation.[1] Giving bad news to patients is one of the most difficult tasks that members of the therapeutic team have to perform.[2,3]

The responsibility for delivering bad news typically falls to medical professionals, though this varies by country. For instance, in Germany, providing any kind of diagnosis is legally and traditionally the role of physicians.[4] A recent study by Mansoursamaei et al.[5] reported that 95.2% of junior doctors view physicians as the primary professionals responsible for this task. BBN is often a challenging and anxiety-inducing responsibility for medical staff, many of whom feel uncertain about how to navigate the emotional reactions of patients or family members in such situations.[6] However, Vandekift also notes that the act of delivering bad news can have a positive effect on healthcare providers, particularly when their efforts result in a constructive or compassionate outcome for the patient and their family.[6] Nursing staff also play a crucial role in the process, particularly after the initial delivery of the bad news. While physicians often communicate critical information, nurses are the primary caregivers families confide in. They frequently provide follow-up support, which includes offering additional details about the diagnosis, prognosis, and treatment, and helping patients and families process the news.[2,7,8] This emphasizes the importance of equipping nursing students with the skills and confidence needed to navigate these interactions effectively.[9]

Several communication strategies and models have been developed to guide healthcare professionals in breaking bad news. Among the most widely recognized is the SPIKES protocol (Setting, Perception, Invitation, Knowledge, Emotions, and Strategy), originally developed for use in oncology by a research team led by Walter Baile and published in 2000. The SPIKES protocol provides a systematic approach for conducting these conversations. The acronym "SPIKES" stands for Setting, Perception, Invitation, Knowledge, Emotions, and Strategy. It guides healthcare professionals through key steps, from gathering information about patients' understanding and preferences to engaging them in the treatment process to ensure effective care and collaboration.[10] The SPIKES protocol is the most commonly used model in training students to deliver bad news.[3]

Despite the recognized importance of communication skills in healthcare, studies suggest that many healthcare providers lack formal training in delivering bad news. For example, Alshami et al.[11] found that only one-third of healthcare professionals had received any form of training in delivering bad news (33.4%; 95% confidence interval [CI]: 32.5–34.3%).[11] Training rates were low across professions, including 37.4% of nurses and only 26.6% of medical students, despite evidence that those with formal training were significantly more likely to deliver bad news themselves. These findings reflect a critical gap in medical education, particularly in the

Cite this article as: Steinacker AC, Diegelmann M. Preparing Nurses to Deliver Bad News: A Scoping Review of Simulation-based Methods. J Educ Res Nurs. 2025;22(4):275-278.

Corresponding author: Anna Christine Steinacker
E-mail: anna.steinacker@gw.hs-fulda.de

Received: January 13, 2025
Accepted: September 24, 2025
Publication Date: December 01, 2025

DOI: 10.14744/jern.2025.77150
J Educ Res Nurs. 2025;22(4):275-278

context of patient-centered care, as poor delivery of bad news can have long-lasting consequences for patients and their families.[11] Medical education programs are therefore strongly encouraged to address this gap through structured training, including simulation-based approaches.[11] For nursing students, learning how to navigate these sensitive conversations is essential to their professional development. Effective communication not only supports the emotional well-being of patients and families but also helps build trust and reduce the risk of miscommunication during difficult times.[9] Simulation-based training, in particular, has emerged as an effective method for preparing students to deliver bad news.[3] By combining realistic scenarios, standardized patients, and structured feedback, simulation provides a safe environment for skill development and emotional preparation.[3] Moreover, prior research emphasizes the need to explore how BBN skills are sustained over time, the optimal timing of such training in curricula, and the comparative effectiveness of different SP models.[3] While previous studies have established the value of simulation in developing communication competencies, much of the literature remains fragmented in focus, methods, and evaluation strategies. Existing research often concentrates on specific scenarios or short-term outcomes, offering limited insight into broader patterns or educational best practices. This scoping review explores the use of simulation in preparing nursing students to deliver bad news, combining current evidence to understand training methods, student responses, and strategies for effective implementation. By mapping out the range of simulation approaches and evaluating their reported outcomes, this review seeks to clarify the current state of knowledge, identify best practices and gaps, and provide a foundation for enhancing communication education and ultimately improving patient care.

Study Questions

1. What simulation-based methods are used to train nursing students in breaking bad news?
2. How do students experience and respond to simulation-based training methods?
3. What role do technological innovations play in enhancing this training?

Materials and Methods

This scoping review aimed to explore how nursing students are trained to deliver bad news through simulation, how they respond to such training, and what constitutes effective implementation. Scoping reviews are designed to map the breadth of available evidence, clarify key concepts, and identify gaps in research without necessarily evaluating study quality in depth.[12]

The review followed the framework proposed by Arksey and O'Malley[12] and the PRISMA-ScR checklist [Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews].[13]

Search Strategy

A systematic literature search was conducted in December 2024 across three databases: PubMed, CINAHL, and Embase. An additional exploratory search was performed using Google Scholar to capture gray literature. The search strategy was structured around three main concepts:

- *Breaking bad news* (e.g., "delivering bad news," "BBN"),
- *Nursing students* (e.g., "nursing education," "student nurse"),
- *Simulation-based learning* (e.g., "simulation-based learning," "SBL," "standardized patient").

Search filters included English and German language publications. No restriction was set on publication year to ensure broad coverage. Duplicates were removed using Citavi software.

Eligibility Criteria

Inclusion Criteria

- Studies involving undergraduate or graduate nursing students,
- Simulation-based interventions focused on communication of bad news (including role play, standardized patients, virtual simulations),
- Empirical studies or project reports reporting on student outcomes or learning processes,
- Articles published in English or German.

Exclusion Criteria

- Studies not involving nursing students,
- Training formats that did not include experiential or simulation-based learning (e.g., lectures alone),
- Theoretical papers, editorials, or studies without discussion of educational outcomes.

Study Selection and Data Extraction

All titles and abstracts were screened independently by two reviewers. Full texts of potentially relevant studies were then reviewed for inclusion. A PRISMA flowchart detailing this process is presented in Figure 1.

Data extraction was conducted using a structured table capturing key information: study aim, population, design, intervention type, data collection methods, and main findings. This charting process was carried out independently by two reviewers and then compared for consistency. Disagreements were resolved through discussion.[14]

Data Analysis

A thematic analysis, based on the approach by Braun and Clarke,[15] was used to synthesize findings across studies. Both qualitative and quantitative data were considered. Data were coded inductively using MAXQDA software to identify patterns, recurring themes, and gaps in the literature.

While both qualitative and quantitative outcomes were extracted, the synthesis primarily focused on thematic interpretation due to heterogeneity in study designs and outcome measures. Studies were not formally appraised for quality, in line with standard scoping review methodology. Nonetheless, attention was paid to methodological clarity and relevance during the inclusion process.

Additional Considerations

Although the term "simulation" was central to the search strategy, some studies involving role play were included when they aligned with the experiential aims of

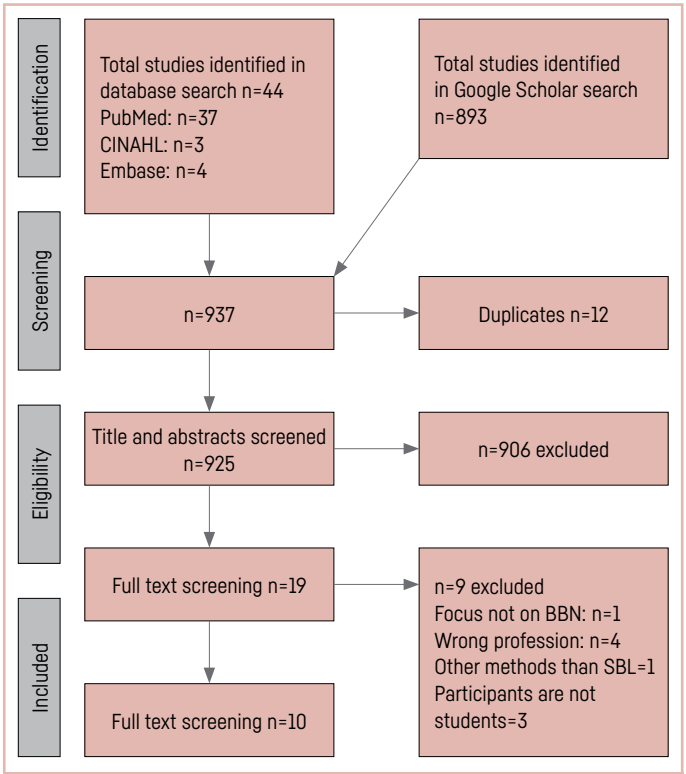

Figure 1. Study selection.

BBN: Breaking Bad News.

simulation-based education. These interventions provided practice opportunities for communication in emotionally charged scenarios and often mirrored simulation outcomes in terms of learning objectives.

Results

Selection of Studies

A total of 10 studies were identified as relevant to this review (Supplementary 1).[4,16–24] The studies included two quantitative, one qualitative, three mixed-methods designs, and four project reports without formal scientific evaluation. For one of the mixed-methods studies, only the qualitative data was analyzed due to small sample size. Four studies included interprofessional learning, with three involving medical students and one involving social work students. Participant groups primarily included undergraduate nursing students (n=8), with one study focusing on pediatric nurses and one on nurse practitioner students. Three studies integrated innovative technologies: telehealth (two studies) and 360-degree immersive video (one study). The studies were conducted in the USA (3), UK (2), Germany, Belgium, Pakistan, Ireland, and Portugal (one each). Nine studies used the SPIKES protocol as a framework for training or assessing the delivery of bad news. A short overview of the included studies is presented in Supplementary 1.

Themes

Through the process of thematic analysis, four main themes were identified: Benefits of Simulation-Based Learning, the Value of Interprofessional Learning, Innovative Technologies, Emotional Challenges.

Benefits of Simulation-Based Learning

All included studies reported that simulation-based learning and role play were effective methods for training nursing students in BBN.[4,16–24] These approaches helped students feel more prepared to deliver difficult information and provide support to families.[16] Several studies indicated that simulation and role play enabled students to develop practical strategies for delivering bad news and reinforced previously acquired communication skills.[18,19]

Pre-briefing and debriefing were frequently described as essential components of the simulation process. Pre-briefing served to clarify objectives and expectations, while debriefing provided space for reflection, feedback, and emotional processing.[20] In addition, studies noted improvements in students' communication abilities following structured training, including simulation-based activities.[20]

Some studies also reported that simulations positively influenced students' confidence, critical thinking, and problem-solving abilities by offering realistic and supportive learning environments.[18,19] Identified limitations included insufficient simulation hours in some curricula[16] and a lack of emphasis on psychosocial aspects in certain training formats.[19]

The Value of Interprofessional Learning

Nursing students perceived their role in BBN not as the primary deliverers but as an essential source of support for patients and their families.[18,21] Interprofessional learning was described as a core component in preparing students for these situations, with many studies involving joint simulations between nursing and medical students.[4] These simulations emphasized the importance of communication between different healthcare professionals when caring for patients with life-threatening conditions.[4] In the reviewed studies, students from both professional groups reported that working together improved their ability to communicate effectively and enhanced their understanding of collaborative care.[21] Wakefield et al.[21] found that shared training helped students recognize the distinctions and overlaps in their roles, which contributed to clearer expectations and improved cooperation. Other studies reported that observing how students from other disciplines approached communication challenges allowed participants to reflect on and adjust their own strategies.[19,21] Across studies, interprofessional simulation was associated with improvements in teamwork, role clarity, and preparedness for collaboration in clinical settings.[19]

Innovative Technologies

Most studies reviewed used traditional role play or SPs for simulation training in BBN (n=7). However, three studies explored the use of newer technologies, including 360° immersive video (360IV) and telesimulation (TS).[16,22,23] In one study, Goosse et al.[22] compared 360IV to SP-based simulations. Students used immersive headsets to view scenarios from the patient's perspective. Reported outcomes included improvements in communication skills, with particular emphasis on shared decision-making.

Other studies introduced telesimulation, using remote telecommunication tools to facilitate training. Kurji et al.[23] and Berta et al.[16] implemented TS for BBN training and reported that it was feasible, though some technical issues such as internet connectivity posed challenges.

Emotional Challenges in Breaking Bad News

Several studies reported that delivering bad news evoked strong emotional responses in nursing students. Students described feelings of nervousness, inadequacy, and emotional strain during simulation exercises.[17,24] Common concerns included not knowing how to respond to patients' questions and lacking the confidence to manage emotionally charged conversations, particularly as new graduates.[17,24]

Reported emotional reactions included anxiety, sadness, feelings of failure, and compassion.[16] Some students felt emotionally drained and inadequate after simulations, with several describing residual emotional effects afterward.[19]

Students with personal experiences related to terminal illness also noted heightened emotional difficulty during these scenarios. In some cases, students stepped away from the simulation environment to manage their emotions.[23]

Discussion

This scoping review identified four main themes through the process of thematic analysis: benefits of simulation-based learning, the value of interprofessional learning, innovative technologies, and emotional challenges. By synthesizing evidence across these areas, the review highlights current practices, emerging trends, and gaps in nursing education. These findings emphasize the complex nature of communication training and the importance of simulation in preparing nursing students both practically and emotionally.

The majority of studies suggest that simulation-based education using SPs or role play is an effective method for training nursing students in BBN. This aligns with existing literature indicating that simulation-enhanced education is a widely used strategy for developing collaborative communication skills.[3,25,26] Structured communication training through simulation helps bridge theoretical knowledge with practical application.[27] SPs, in particular, offer realistic, emotionally engaging learning experiences that improve student performance in delivering sensitive news.

However, the term "role play" was used inconsistently across studies. In some cases, it was unclear whether these activities met formal definitions of SBL, which usually include structured scenarios, feedback, and standardized environments.[28] Role play often lacks these components, particularly realism and formal assessment.[13] Yet, a key strength of role play is the opportunity it gives students to step into the role of the patient or family member. This perspective shift may foster empathy and a deeper understanding of the emotional impact of BBN.[24]

Interprofessional simulation also emerged as a key method. It helps students understand the complementary roles of nurses and physicians in delivering bad news. Nurses often act as emotional supporters, assisting patients and families after the physician delivers the diagnosis.[9] Interprofessional training fosters mutual respect, clarifies role boundaries, and improves collaborative care.[4,20,21] These approaches prepare nursing students to effectively participate in emotionally charged healthcare conversations as part of a team.

The emotional intensity of BBN was evident across multiple studies. Students reported feelings of nervousness, inadequacy, and emotional strain, both during training and clinical practice.[17,23] These emotional reactions, including anxiety and sadness, were often long-lasting. Some students felt overwhelmed or emotionally drained after simulations.[19] Debriefing sessions were identified as essential in helping students process these experiences, build resilience, and reflect on their communication strategies.[19] This highlights the need for structured emotional support within BBN training programs, including pre-briefing and debriefing, to support student well-being and skill integration.

Emerging innovations such as telesimulation and 360° immersive video offer logistical advantages and novel learning experiences.[16,22,23] For example, immersive video allows students to view scenarios from the patient's perspective, enhancing empathy and engagement.[22] However, most studies suggest these technologies should supplement, not replace, traditional simulations. Both telesimulation and 360IV face technical limitations and may reduce emotional interaction.[16,23] A rapid review of virtual patients supports this. While digital tools are effective compared to no training, they may lack the affective richness and interactive feedback critical for developing empathy and communication skills.[29] Therefore, digital innovations should be seen as valuable adjuncts rather than substitutes for SP-based training.

Future research should explore the sustainability of technological innovations beyond pandemic-driven use. Comparative studies between traditional and technology-based simulations could clarify their unique benefits and limitations. Moreover, expanding research to include midwives and allied health professionals will support the development of interdisciplinary BBN curricula. Finally, deeper investigation into emotional resilience-building strategies, such as pre-briefing and debriefing, will enhance the long-term effectiveness of simulation-based training.

Limitations

This scoping review has several limitations that should be considered when interpreting the findings. First, scoping reviews involve a degree of subjectivity, as they rely on the interpretation and synthesis of the available literature. The thematic analysis, although useful for identifying overarching patterns and themes, may also reflect researcher bias despite efforts to enhance reliability through independent coding and discussion. The included studies showed considerable methodological diversity, including differences in study design, sample size, data collection methods, and outcome measures, which makes it difficult to compare findings directly or draw firm conclusions. In addition, the scientific quality of the included studies was not formally appraised, consistent with scoping review methodology. However, this means that the findings may include evidence of varying quality and validity, which could impact the strength and reliability of the conclusions. Language restrictions also limited inclusion to studies published in English and German. This exclusion may have omitted relevant research published in other languages, potentially biasing the review's scope and generalizability. Finally, the relatively small number of studies focusing specifically on nursing students and BBN simulation training reflects the traditional perception of nurses primarily as supporters rather than primary communicators in BBN. This limited research base constrains the depth of the evidence and its applicability to wider educational contexts.

Conclusion

This review highlights that simulation-based learning is an effective and widely used method for preparing nursing students for breaking bad news. Role play, although less structured, offers value by allowing students to experience different perspectives, such as those of patients or family members. Interprofessional simulation, especially when conducted with medical students, enhances students' understanding of team dynamics, role boundaries, and collaborative communication, all essential in real-world BBN scenarios. Educators should prioritize these integrated approaches in nursing curricula to mirror clinical realities and promote mutual respect across disciplines.

Emerging technologies like telesimulation and 360° immersive video show promise in expanding access to training and fostering empathy through novel formats. However, these tools are best used as adjuncts rather than replacements. Telesimulation, for example, can be effective in remote or resource-limited settings but requires a good technical infrastructure and clear protocols to manage technical issues. 360IV may enhance emotional engagement, particularly for perspective-taking, but lacks the hands-on interactivity needed for full skills development. Therefore, educators should select technologies based on the learning objectives and context, combining digital tools with traditional SP-based scenarios where possible.

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

Funding: This study was conducted without any external funding or financial support.

Author Contributions: Concept – A.C.S.; Design – A.C.S., M.D.; Data collection and/or processing – A.C.S., M.D.; Data analysis and/or interpretation – A.C.S., M.D.; Literature search – A.C.S., M.D.; Writing – A.C.S., M.D.

Peer-review: Externally peer-reviewed.

References

1. Paul NW. Überbringen schlechter Nachrichten in der Pädiatrie: Das Gewicht der Worte. Monatsschr Kinderheilkd. 2016;164(7):583–590. German. [CrossRef]
2. Abbaszadeh A, Ehsani SR, Begjani J, et al. Nurses' perspectives on breaking bad news to patients and their families: a qualitative content analysis. J Med Ethics Hist Med. 2014;7:18.
3. Dale MacLaine T, Lowe N, Dale J. The use of simulation in medical student education on the topic of breaking bad news: A systematic review. Patient Educ Couns. 2021;104(11):2670–2681. [CrossRef]
4. Schildmann J, Härlein J, Burchardi N, Schlögl M, Vollmann J. Breaking bad news: evaluation study on self-perceived competences and views of medical and nursing students taking part in a collaborative workshop. Support Care Cancer. 2006;14(11):1157–1161. [CrossRef]
5. Mansoursamaei M, Ghanbari Jolfaei A, Zandi M, Mansoursamaei A, Salehian R. Self-assessment of residents in breaking bad news; skills and barriers. BMC Med Educ. 2023;23(1):740. [CrossRef]
6. VandeKieft GK. Breaking bad news. Am Fam Physician. 2001;64(12):1975–1978.
7. Warnock C, Tod A, Foster J, Soreny C. Breaking bad news in inpatient clinical settings: role of the nurse. J Adv Nurs. 2010;66(7):1543–1555. [CrossRef]
8. Warnock C. Breaking bad news: issues relating to nursing practice. Nurs Stand. 2014;28(45):51–58. [CrossRef]
9. Wahyuni S, Gautama MSN, Simamora TY. A Literature Review of Nurses Challenges and Barriers in Assisting Patients and Families Facing Breaking Bad News. Indian J Palliat Care. 2023;29(3):243–249. [CrossRef]
10. Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist. 2000;5(4):302–311. [CrossRef]
11. Alshami A, Douedi S, Avila-Ariyoshi A, et al. Breaking Bad News, a Pertinent Yet Still an Overlooked Skill: An International Survey Study. Healthcare (Basel). 2020;8(4):501. [CrossRef]
12. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res. 2005;8(1):19–32. [CrossRef]
13. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Accessed September 30, 2025. https://www.prisma-statement.org/
14. Lane C, Rollnick S. The use of simulated patients and role-play in communication skills training: a review of the literature to August 2005. Patient Educ Couns. 2007;67(1–2):13–20. [CrossRef]
15. Braun V, Clarke V, Newson L. Thematic Analysis: A Practical Guide. 1st edition. London, UK: SAGE Publications; 2022. [CrossRef]
16. Berta M, Burt L, Carlucci M, Corbridge S. Breaking Bad News via Telehealth: Simulation Training for Nurse Practitioner Students. J Nurs Educ. 2022;61(9):528–532. [CrossRef]
17. Laranjeira C, Afonso C, Querido AI. Communicating Bad News: Using Role-Play to Teach Nursing Students. SAGE Open Nurs. 2021;7:23779608211044589. [CrossRef]
18. Cust F, Rodgers E, Boden R. Using simulation to help paediatric nurses learn to break bad news. Nurs Times. 2022;118(3):1–3.
19. Sweeney C, O'Sullivan E, McCarthy M. Keeping it real: Exploring an interdisciplinary breaking bad news role-play as an integrative learning opportunity. JoSoTL. 2015;15(2)14–32. [CrossRef]
20. Pastor DK, Cunningham RP, White PH, Kolomer S. We Have to Talk: Results of an Interprofessional Clinical Simulation for Delivering Bad Health News in Palliative Care. Clin Simul Nurs. 2016;12(8):320–327. [CrossRef]
21. Wakefield A, Cocksedge S, Boggis C. Breaking bad news: qualitative evaluation of an interprofessional learning opportunity. Med Teach. 2006;28(1):53–58. [CrossRef]
22. Goosse M, Bragard I, Peeters L, Willems S. Comparison of Two Simulation Tools to Develop Empathic Communication Skills in Nursing Students Breaking Bad News: A Randomized Controlled Study. Clin Simul Nurs. 2024;87:101493. [CrossRef]
23. Kurji Z, Aijaz A, Aijaz A, Jetha Z, Cassum S. Telesimulation Innovation on the Teaching of SPIKES Model on Sharing Bad News. Asia Pac J Oncol Nurs. 2021;8(6):623–627. [CrossRef]
24. Wiles LL, Mahoney I, Hutton S. Whose Line Is It Anyway? Undergraduate Nursing Simulation for Breaking Bad News. Nurs Educ Perspect. 2025;46(3):197–199. [CrossRef]
25. Lackie K, Miller S, Brown M, et al. Interprofessional collaboration between health professional learners when breaking bad news: a scoping review of teaching approaches. JBI Evid Synth. 2024;22(6):1071–1102. [CrossRef]
26. Warrier V, Pradhan A. A Narrative Review of Interventions to Teach Medical Students How to Break Bad News. Med Sci Educ. 2020;30(3):1299–1312. [CrossRef]
27. Tien J, Wakefield A. The clinical effectiveness of breaking bad news educational programme for registered nurses: A review of the recommendations. Singapore Nurs J. 2018;45(2):23–33.
28. Watts PI, McDermott DS, Alinier G, et al.; INACSL Standards Committee. Healthcare Simulation Standards of Best PracticeTM Simulation Design. Clin Simul Nurs. 2021;58:14–21. [CrossRef]
29. Kang W. The use of virtual patients for breaking bad news: A rapid review. Clin Teach. 2024;21(2):e13681. [CrossRef]

Supplementary 1. Overview of included studies

Year	Title & authors		Description of educational intervention	Results
2006	**Breaking bad news: Evaluation study on self-perceived competences and views of medical and nursing students taking part in a collaborative workshop** by Schildmann et al.[4]	**Participants:** 47 students (nursing students n=24, medical students n=23). **Quantitative design** **Data collection:** Pre/post-test design questionnaire. **Data analysis:** Statistical analysis.	This study evaluated seven interprofessional courses on Breaking Bad News (BBN) for medical and nursing students. Courses included discussions with simulated patients, feedback, and conversations about interprofessional care for patients and family members. Participants completed questionnaires at the beginning and end of the course to assess outcomes.	After completing the course, 39 participants reported receiving valuable suggestions for improving their communication behavior with patients diagnosed with life-threatening illnesses. Additionally, all students emphasized the importance of effective communication between medical and nursing professionals in providing care for these patients.
2009	**Breaking bad news: Qualitative evaluation of an interprofessional learning opportunity** by Wakefield et al.[21]	**Participants:** 26 students (nursing students n=22, medical students n=12). **Mixed-methods design** **Data collection:** Questionnaires (one with Likert scale, one with open-ended questions). **Data analysis:** Open-ended questionnaire was coded (qualitatively), due to small sample size, the other questionnaire was not analyzed.	Students were divided into groups of 4–6, supported by two facilitators, and worked through case-based scenarios using SPIKES (Setting, Perception, Invitation, Knowledge, Emotions, and Strategy). Doctor–nurse pairs practiced delivering distressing news to simulated patients and their families. Following independent review of the scenarios, students engaged in unprompted discussions to plan their approach. Each session concluded with students sharing reflections on the outcomes of their interactions.	The study highlighted that collaboration between nursing and medical educators fosters trust, enabling effective learning even in brief interventions. Participants' comments demonstrated shared learning, emphasizing teamwork, collaboration, and gaining insight into other professionals' roles and philosophies of care, which helped reduce pre-existing prejudices.
2015	**Keeping it real: Exploring an interdisciplinary breaking bad news role-play as an integrative learning opportunity** by Sweeney et al.[19]	**Participants:** 31 students (nursing students n=11, medical students n=20). **Qualitative design** **Data collection:** Focus group interviews, observation, student feedback questionnaire. **Data analysis:** Thematic analysis.	This study explored an interdisciplinary BBN role-play for undergraduate medical and nursing students. Participants alternated roles in four staged scenes of the role-play, reflecting real-world BBN scenarios. Feedback from focus groups, facilitators, and recordings of the role-play was thematically analyzed.	Although students struggled with teamwork, they valued the authentic learning experience provided by this thoughtfully structured interdisciplinary BBN role-play grounded in real-life. Expanding the availability of such opportunities in undergraduate healthcare education should be considered.
2016	**We Have to Talk: Results of an Interprofessional Clinical Simulation for Delivering Bad Health News in Palliative Care** by Pastor et al.[20]	**Participants:** 10 students (nurse practitioner students n=5 and master of social work students n=5). **Mixed-methods design** **Data collection:** Pre/post-test with the Readiness for Interprofessional Learning Scale and Survey of Students' Perceptions of Their Ability to Deliver Difficult News, videotaped debriefing session. **Data analysis:** Survey analysis and thematic synthesis of student's comments.	This study paired five dyads of graduate family nurse practitioner (FNP) and master of social work (MSW) students in a simulated care setting to break bad news. The students worked together in a simulation learning center to deliver difficult news to a standardized patient (SP), focusing on evidence-based communication strategies.	The study demonstrated the feasibility of pairing graduate nursing and social work students to deliver bad health news in a simulated experience, addressing challenges such as scheduling and resource utilization. Although the pilot involved only ten students, plans to scale the simulation are in place. The measurement tools effectively assessed students' perceived competency in BBN and their readiness for interprofessional collaboration.
2020	**Telesimulation Innovation on the Teaching of SPIKES Model on Sharing Bad News** by Kurji et al.[23]	**Participants:** 141 nursing students. **Project report without formal scientific evaluation.**	Faculty at Aga Khan University piloted a telesimulation project to teach trainee nurse interns communication skills and breaking bad news using the SPIKES model. Following best practices for simulation-based learning, the intervention was standardized according to the International Nursing Association for Clinical Simulation and Learning guidelines and implemented with 141 students.	Telesimulation (TS) proved to be an effective tool for teaching communication skills in palliative care, as well as in other nursing domains such as adult health and mental health. While TS cannot fully replace onsite clinical experience, it enhances skills such as counseling, decision-making, and conflict resolution, and can complement psychomotor training with manikins. Adhering to best practices ensures high-quality TS activities, boosting students' confidence levels, especially during and after the Coronavirus Disease 2019 (COVID-19) pandemic.

DOI: 10.14744/jern.2025.77150
J Educ Res Nurs.

Supplementary 1. Cont.

Year	Title & authors		Description of educational intervention	Results
2021	**Communicating Bad News: Using Role-Play to Teach Nursing Students** by Laranjeira et al.[17]	**Participants:** 30 nursing students **Project report without formal scientific evaluation.**	This study involved 30 fourth-year students enrolled in a palliative care nursing course. The simulation, conducted during three theoretical-practical classes, aimed to develop key competencies, including effective communication in palliative care, implementation of the SPIKES model, empathetic responses to emotional distress, and collaborative decision-making using course concepts.	In this study, students reported positive experiences, noting that the simulation enhanced their cognitive (theoretical knowledge), interpersonal (therapeutic alliance), and affective (emotional exploration) skills. However, they felt more prepared to address patients' physical needs than their spiritual or psychosocial needs, highlighting the importance of a more integrated approach to care.
2022	**Breaking Bad News via Telehealth: Simulation Training for Nurse Practitioner Students** by Berta et al.[16]	**Participants:** 33 nurse practitioner students. **Mixed-methods design** **Data collection:** Pre/post-simulation surveys and written reflections via Qualtrics. **Data analysis:** Internal consistency, survey analysis, and thematic analysis.	This mixed-methods study examined nurse practitioner students across two universities. The simulation was conducted individually via Zoom, with students grouped by their specialty training track for a pre-briefing led by a faculty member before engaging in the simulation.	Engaging in the BBN simulation significantly increased students' self-reported readiness to deliver bad news via telehealth. Participants strongly agreed that the simulation effectively addressed essential topics, supported the development of necessary skills, and provided valuable resources.
2022	**Using simulation to help paediatric nurses learn to break bad news** by Cust et al.[18]	**Participants:** 20 pediatric nursing students **Project report without formal scientific evaluation.**	In this study, students created scenarios for clinical simulation laboratories in which they alternated roles as nurse, doctor, patient, or family member. The simulation focused on delivering and receiving bad news, as well as providing comfort. Through this experiential learning, students identified key areas for improving practice.	The simulation session improved students' confidence in working with children and families during difficult conversations. Students highlighted the importance of empathy, compassion, and providing reflective support when delivering distressing news. They valued the simulation as a vital opportunity to build knowledge, skills, and confidence, while recognizing the need for more exposure to consolidate learning for real-world scenarios.
2024	**Comparison of Two Simulation Tools to Develop Empathic Communication Skills in Nursing Students Breaking Bad News: A Randomized Controlled Study** by Goosse et al.[22]	**Participants:** 69 nursing students **Quantitative design** **Data collection:** Randomized controlled non-inferiority trial; pre/post, and one-month follow-up role-play assessments with patient-actors; questionnaires on empathy, stress, and self-efficacy; actor-rated empathy and confidence. **Data analysis:** External ratings of communication skills; statistical comparison of group outcomes.	This study evaluated the noninferiority of 360° immersive video (360IV) compared to standardized patients (SP) in simulation-based BBN training. In the 360IV condition, students passively observed prerecorded videos through headsets, adopting the perspective of a patient. In the SP condition, students actively played the role of a nurse delivering difficult news to an SP. Participants were randomly assigned to experimental groups (360IV or SP) or a control group, with assessments conducted at baseline (T0), immediately after training (T1), and one month later (T2).	Empathy perceived by patient-actors improved across all groups, but this improvement was sustained only in the 360IV condition. The SP condition, however, produced superior communication outcomes based on external evaluations. Both 360IV and SP training tools offered complementary benefits for BBN skill development in nursing students, highlighting new opportunities for enhancing BBN education.
2024	**Whose Line Is It Anyway? Undergraduate Nursing Simulation for Breaking Bad News** by Wiles et al.[24]	**Participants:** Nursing students (exact number not reported; only percentages provided in the article). **Project report without formal scientific evaluation.**	This study employed the SPIKES protocol to teach breaking bad news using standardized patient scenarios that demonstrated effective and ineffective techniques. Students participated in role-play exercises across 10 scenarios spanning the life span, with structured pre-briefing and debriefing sessions, as well as reflective evaluations through polling apps and surveys to reinforce best practices and document learning.	Feedback from students indicated that 37% strongly agreed and 53% agreed that their understanding of the nurse's role in BBN had evolved through the activity. Most students (84%) felt better prepared to support patients and families in receiving bad news, although 16% still did not feel ready for this responsibility. Students reported gaining practical insights into delivering bad news empathetically and building trust with patients, but they found pediatric and obstetric scenarios more challenging than those involving older adults.

JERN Journal of Education and Research in Nursing

Invited Review

DOI: 10.14744/jern.2025.25902
J Educ Res Nurs. 2025;22(4):279-284

A Phenomenon That Challenges Physicians and Nurses: Breaking Bad News in Oncology

Şenay Gül,[1] Serap Şahinoğlu[2]

[1]Department of Fundamentals of Nursing, Hacettepe University Faculty of Nursing, Ankara, Türkiye

[2]Department of Medical History and Ethics, Ankara University Faculty of Medicine, Ankara, Türkiye

Abstract

Breaking bad news is one of the most common and challenging communication processes healthcare professionals encounter in oncology practice. Conveying negative information to patients regarding diagnosis, prognosis, or treatment is not merely a medical briefing but a complex process involving ethical, legal, and psychosocial dimensions. This review discusses the meaning of breaking bad news, the factors affecting this process in oncology, the ethical and legal dimensions involved, and approaches to delivering such news. It concludes that the process of breaking bad news should be treated as a professional skill, that healthcare workers should be supported in this regard, and that they should be empowered through systematic training programs.

Keywords: Bad news, nurse, oncology, physician

Introduction

Cancer is recognized as one of the most serious health issues worldwide today, profoundly affecting individuals' lives not only biologically but also psychologically, socially, and economically.[1] A cancer diagnosis is a process that fundamentally changes not only the individual's life but also that of their family and close circle, carrying a heavy emotional burden. One of the most challenging tasks for physicians and healthcare teams during this process is breaking bad news to patients and their loved ones. Breaking bad news is not merely a matter of conveying medical information; it is a complex process involving communication, empathy, ethical responsibility, and legal obligations. In oncology practice especially, any negative news regarding diagnosis, treatment, or prognosis can have profound psychological effects on patients and their loved ones. For healthcare professionals, this situation creates significant emotional pressure and ethical dilemmas.

Breaking bad news to a patient is a critical stage that directly affects the individual's adaptation to the disease process, participation in treatment, and quality of life.[2] The literature indicates that breaking bad news appropriately ensures patients' right to access information, helps them assess the disease process more realistically, and increases satisfaction with healthcare services.[3] However, inappropriate delivery of bad news can lead to negative outcomes for patients, such as anxiety, depression, helplessness, and non-compliance with treatment.[4]

From the perspective of healthcare professionals, the process of breaking bad news is not only a patient-centered responsibility but also a professional and ethical obligation. However, many studies emphasize that healthcare workers often do not receive adequate training in this area, experience difficulties with communication skills, and struggle to manage the process effectively.[5] Particularly in oncology practice, the frequent need to convey negative information regarding diagnosis, treatment, and prognosis is a significant factor increasing burnout and emotional distress among healthcare professionals.[2]

This review provides a comprehensive perspective on the subject by addressing the meaning of breaking bad news, the challenges encountered in oncology practice, the factors influencing the process, the ethical and legal implications, and the approaches recommended in the literature.

The Meaning of Bad News

Although breaking bad news is conceptually one of the fundamental problems of medical practice, attention was only drawn to the issue and defined in the 20th century. According to Buckman (1992), the first researcher to explain the concept, bad news is a phenomenon that significantly and negatively affects a person's attitude toward the future.[6] Bad news has also been defined as information that dramatically alters a person's view of the future, causing cognitive, sensory, and behavioral disturbances after receiving it.[7]

Many situations can be considered bad news, such as a cancer diagnosis, chronic disease diagnosis, failure of treatment to result in healing, treatment failure, amputation, conditions causing loss of function, side effects of chemotherapy, a pregnant woman losing her baby, and news of death.[8,9] As can be understood from its definitions, breaking bad news is a process that evokes negativity in the relationship between the physician, nurse,

Cite this article as: Gül Ş, Şahinoğlu S. A Phenomenon That Challenges Physicians and Nurses: Breaking Bad News in Oncology. J Educ Res Nurs. 2025;22(4):279-284.

Corresponding author: Şenay Gül
E-mail: senay.gul@hacettepe.edu.tr

Received: July 14, 2025
Accepted: September 24, 2025
Publication Date: December 01, 2025

DOI: 10.14744/jern.2025.25902
J Educ Res Nurs. 2025;22(4):279-284

patient, and the patient's relatives, regardless of the circumstances or the disease. It is typically news that no one wants to receive or deliver.

The Factors Affecting the Process of Breaking Bad News in Oncology

Cancer is a disease that often evokes death and is perceived as equivalent to death by many people.[10] The diagnosis and treatment of cancer are emotionally, economically, and socially exhausting for patients and their relatives. Because the patient's body is affected by a disease whose treatment will be long and uncertain,[11] it is natural for physicians and nurses to accompany the patient at every stage of this lengthy treatment process. The most challenging issue for healthcare professionals in the diagnosis, treatment, and care of cancer patients is, of course, the process of breaking bad news.[8]

In oncology, patients and their relatives are frequently confronted with bad news. Breaking bad news in medical practice presents various challenges for both the recipient and the person delivering it. The anxiety and fear of not being able to cope with the intense emotions and behaviors that patients and their relatives experience after receiving bad news are among the most fundamental difficulties.[7] On the other hand, the person delivering bad news also confronts their own emotions and death anxiety in this process, which can be counted among the difficulties faced by professionals. In the process of accepting bad news, patients and their relatives interpret the situation according to their traditions, values, and sociocultural structures, and reflect their reactions accordingly.[6] Undoubtedly, physicians and nurses encounter other difficulties in breaking bad news.

The decision to deliver bad news and the manner in which it is communicated are influenced by many factors in oncology. Sociocultural structure plays a significant role in shaping the communication preferences of patients and their relatives regarding cancer. People living in traditional, more protective family structures tend to have different attitudes toward receiving bad news compared to those living in more individualistic societies.[7,8] While there are differences between countries in terms of telling patients the truth about their diagnosis, prognosis, treatment options, and side effects, there is no global consensus on this issue.[12] In North America and Europe, most physicians clearly state the diagnosis to patients. However, in Southern and Eastern Europe, Middle Eastern countries, Japan, and China, patients are more reluctant to receive information about their illnesses than their relatives due to patriarchal views and cultural norms, or the diagnosis is not disclosed to patients because of family intervention.[13] Although this situation has changed over the past 50 years, in our country relatives still have a say in matters concerning the patient. Unfortunately, the practice of telling patients the truth about their cancer diagnosis is not widespread, and this is largely attributed to the influence of cultural norms in Eastern societies.[14] This concealment effort puts relatives, patients, and healthcare professionals in a difficult situation and creates an obstacle to communication with the patient.[10]

There are factors other than culture that affect whether patients and their relatives want to receive bad news. These include past experiences, age, socioeconomic level, personality traits of the patient, the location, stage, and metastasis status of the cancer, the manner in which the bad news is delivered, the role of the physician, and the approach of healthcare professionals.[11] Physicians' insufficient training in breaking bad news, their tendency to overestimate patients' life expectancy, and their personal attitudes towards death directly shape the way they communicate unfavorable information to patients.[10] Sociocultural factors such as physicians' status in society, religious beliefs, philosophy of life, and attitudes toward death may also influence the way they deliver bad news.[15] Healthcare professionals, especially those who work with terminally ill patients at risk of dying, are faced with the reality that they are also mortal. This realization can deeply shake their beliefs, ideologies, and assumptions about the world, and as a result, negatively affect their communication with patients.[16]

In addition to the approaches of physicians and nurses in breaking bad news, the meaning that patients attribute to the disease is also essential. Some patient characteristics may influence their response to bad news: being busy, not making the disease the focus of life, having self-love and a love of life, being tolerant, being able to direct their own life, knowing how to laugh, accepting the past, and being observant, all of which affect the patient's reactions after receiving the diagnosis and their approach to the treatment process.[11]

One reason is that biomedical training is often emphasized during physician and nurse education, whereas training in ethical knowledge and effective communication methods usually falls short of expectations. In addition, not knowing how to address and manage the emotional reactions of patients and their relatives (depending on their cultural background) and believing that they cannot answer questions about the future can also be counted among the reasons. The fear of destroying the patient's hope, the fear of being blamed, and even the concern that patients may commit suicide cause healthcare professionals to experience difficulties. These factors make physicians feel extremely tense, especially when breaking bad news, and lead them to avoid this challenging task.[6] Table 1 illustrates the factors that influence the delivery of bad news in oncology.[17–20]

The Ethical and Legal Dimension of Breaking Bad News

Ethical Dimension

The fundamental philosophy of medicine is to prioritize the well-being of the patient. Nursing, as a care-oriented profession, likewise focuses on the well-being of the patient. Both professions strive to preserve life. Yet, while trying to save the patient from death, telling or making the patient feel that "you will die" through bad news contradicts the basic philosophy of medicine and nursing.

One of the most fundamental principles of medical ethics is autonomy, which encompasses a patient's ability to make decisions about their own body and act in accordance with their own will. To respect patient autonomy, physicians are responsible for clearly conveying all necessary information, including potential side effects, benefits, and risks, in a way patients can understand, thereby enabling informed decision-making about their diseases, diagnoses, and treatment options. This practice is called "informed consent." In addition, telling the truth to the patient and building trust afterward are critical ethical concepts.

Table 1. Factors affecting the delivery of bad news in oncology[17–20]

- Factors affecting the delivery of bad news in oncology
  - Patient-related factors
    - Age
    - Patient's health status (metastasis, terminal stage, prognosis, treatment)
    - Cultural background
    - Socioeconomic status
    - Level of knowledge
    - Desire to know/not know the truth
    - Process of accepting the illness
    - Marital status
    - Parental status
    - Life values (expectations, attitude, perception of death, denial)
    - Expected life span
  - Factors related to the patient's relatives
    - Sociocultural level
    - Level of knowledge
    - Intervention by the patient's relatives
  - Factors related to healthcare professionals
    - Cultural background
    - Fear of harming the patient
    - Training in delivering bad news
    - Attitude toward cancer
    - Professional experience
    - Trust relationship
  - Organization-related factors
    - Institutional resources (suitable environment, etc.)
    - Time constraints (physician/patient ratio)
    - Negative aspects of the healthcare system
    - Barriers to interdisciplinary practice

Respect for Patient Autonomy and Informed Consent

Autonomy, in the ethical sense, means making decisions about oneself based on one's values.[21] One of the aims of healthcare is to protect the autonomy of individuals by eliminating disease or reducing its impact. For this reason, respecting autonomy has become a central ideal in today's health services and is considered one of the key bioethical principles. Healthcare professionals regard respect for autonomy as a fundamental ethical responsibility and integrate it into their professional practice.[22]

Patients have a fundamental right to reliable and necessary information about their disease. However, this approach may differ across cultures. For example, while Western societies strongly advocate for patient autonomy and the right to be informed about their medical condition, regardless of the disease's severity or prognosis, Eastern societies emphasize the vital role of the family's perspective in patient management and decision-making, which creates a cultural and ethical dilemma.[23]

Another factor affecting patient autonomy is the physician's approach to the patient. Paternalism is the belief that a physician has the right and duty to decide on a patient's treatment. This approach has declined as human rights and patient rights have evolved, shifting the relationship toward mutual participation and two-way communication.[24] Today, patients often view the physician as a counsellor or guide and adopt the perspective that they have the right to choose and determine their own destiny.[25]

There are debates about patient autonomy and its feasibility in oncology. One issue is that patients lack the necessary level of medical knowledge and cannot be expected to fully comprehend the expertise required to make informed clinical decisions. Another concern is that patients may struggle to receive and retain information about their health status.[26] Autonomy may also conflict with the principle of beneficence and at times overshadow patient benefit. Therefore, the principles of autonomy and beneficence should be considered within their specific context.

Respecting the patient's autonomy in oncology is only possible by informing them about the relevant diagnosis, treatment, and care. In medical ethics, this process is referred to as informed consent. During informed consent, all information that a patient may want or need to know should be provided. The key aspect of informed consent is explaining the procedure in language the patient understands and ensuring they comprehend it.[27] It is only possible for the patient to make the most appropriate decision for their benefit if they know the nature of the cancer treatment, the causes of their disease, and the limits and scope of the treatment.[28] Autonomy may be temporarily limited by the disease itself, as well as by non-transient factors such as the societal context in which the person lives or their cognitive capacity. Cancer being a fatal disease, limits patient autonomy particularly in the context of whether the diagnosis is disclosed.

The patient's right to information is one of the most frequently emphasized ethical issues within the scope of patient rights. This right underscore personal freedom and dignity. According to the Patient Rights Regulation (2019) on informing patients, they have the right to determine their destiny, to make decisions freely, to request the protection of medical confidentiality, and to prevent their information from being shared without their consent. When patient information is evaluated in the context of breaking bad news, it may be considered permissible as "the patient may not be informed" if informing the patient would harm their health, according to the statement in the Patient Rights Regulation: "It is permissible to withhold the diagnosis in cases where there is a possibility that the disease may worsen by adversely affecting the patient's moral state, and where the course and outcome of the disease are considered grave."[29] However, withholding information from the patient is acceptable only in exceptional cases. Whether or not the patient is informed about their health status depends on the physician's discretion within the framework of the prevailing conditions. Otherwise, applying the same approach to every patient diagnosed with cancer is considered a violation of the patient's human rights. In some cases, ethical principles and legal practices worldwide can create dilemmas for healthcare professionals regarding disclosure. The appropriate approach in oncology is to communicate bad news in the best interests of the patient.

Truth-telling and Trust

Telling the truth or "not lying" is one of the principles that healthcare professionals must follow to establish and maintain a healthy relationship with patients.[30] In ethics, truth-telling refers to the process of providing accurate information to patients. Disclosing the truth about a patient's diagnosis is not only an ethical issue but also a moral responsibility for healthcare professionals.

Truth-telling in oncology can be evaluated from two perspectives. First, patients expect the physician to be truthful about their condition. Second, it is both the patient's legal right and the physician's duty. A better approach, however, is to inform the patient of the truth while managing the process by asking questions such as what, how much, how, and under what circumstances the patient wishes to know.

Informing patients is often not difficult, but situations may arise that legally and ethically challenge healthcare professionals. In oncology, information may be withheld if disclosure of the diagnosis is believed to cause harm or suffering. The Patient Rights Regulation (2019) states that information can be withheld in cases where healthcare professionals believe it will cause severe damage to the patient;[29] however, the limits of this provision are not clearly defined. What constitutes likely harm is ambiguous and may vary from person to person. Some studies have examined why physicians do not always tell the truth to patients; researchers have attributed this to altruism,[31] and it has also been noted that there is uncertainty about what exactly and how much should be disclosed,[32] and that it may even be considered morally acceptable to withhold the truth in order to benefit patients.[33]

The underlying rationale for not telling the truth to cancer patients is the belief that they may not be able to cope with the information, may develop psychological problems, and that the prognosis of the disease could worsen as a result. However, informing the patient at every stage of the disease is crucial for maintaining harmony between the patient and the physician or nurse. Once a physician is found to be lying, their ability to treat the patient effectively may be significantly reduced.

Practices regarding the disclosure of a cancer diagnosis to patients have varied throughout history. Research studies conducted in the 1950s and 1960s revealed that physicians were reluctant to tell patients the truth about their diagnosis and prognosis, and often withheld cancer diagnoses from patients.[34] At that time, one of the reasons for not disclosing a cancer diagnosis was the emotional reaction of patients and their relatives, as well as the widespread association of cancer with death.[35] However, over the last 40–50 years, researchers have emphasized the importance of breaking bad news to patients, regardless of the reason.[36] One supporting view is that effectively communicating information to patients can reduce, rather than increase, their anxiety and distress.[37] In other words, because lack of information and uncertainty are associated with higher levels of anxiety, it is emphasized that patients should be told the truth under all circumstances.[38]

Withholding the diagnosis from terminally ill patients has traditionally been considered a way to benefit the patient. In such cases, traditional medical practice and patients' relatives often disagree on this issue. Physicians may prefer to share a poor diagnosis with the patient's relatives rather than the patient. This practice, believed to protect the patient, stems from fears that the patient may deteriorate, become depressed, harm themself, or refuse treatment upon learning the diagnosis. However, these concerns belong to the physician and the patient's relatives, not the patient. Withholding the truth not only negatively affects treatment but also undermines respect for the patient's values. The medical information held by the physician is ultimately the patient's information. In particular, cancer patients have both the right to know their diagnosis and the right to prevent disclosure of their diagnosis to relatives.[9,10]

Developments in diagnostic and therapeutic methods, changes in social and cultural attitudes toward cancer, shifting perspectives on death, and, most importantly, the informed consent process within the framework of patient rights and respect for autonomy have all contributed to changes in how diagnoses are disclosed. Although informing the patient of a medical diagnosis may initially cause sadness and distress, the patient should be told and allowed to decide on their treatment. Undoubtedly, the patient's acceptance of and participation in treatment, following their understanding of their medical condition, will have a positive impact on the process. When a patient is unaware of the truth or misled, they may evaluate the situation differently, which can negatively impact their recovery. By contrast, after some time patients tend to focus on their treatment once they learn their diagnosis. For example, it becomes more challenging to explain surgery, chemotherapy, or radiotherapy to a patient whose cancer diagnosis has been concealed. Even when the diagnosis is initially withheld, patients may sometimes learn it from a clinic nurse or laboratory staff, in which case they may feel betrayed and develop mistrust.

Providing accurate information to the patient helps prevent anxiety, hopelessness, fear, depression, and insomnia, while also establishing a relationship of trust with healthcare professionals.[39] Telling the truth is also essential for patients to make informed plans.[22] When healthcare providers do not provide accurate information, it can lead to reluctance to participate in medical treatment in oncology.[40] A review of the legal situation shows that patients have the right to be informed about their medical diagnosis under various declarations.

In their ethical codes, the American Nurses Association[41] and the American Medical Association[42] emphasize that healthcare providers must tell the truth and avoid deceiving or misleading patients. At this point, it should not be forgotten that even if the news is bad, it is the patient's most fundamental right to receive information about their condition and future treatment options. The right to information is also defined in Article 7 of the World Medical Assembly Declaration of Patients' Rights.[43]

When examining national regulations, the patient's right to information is supported by law through biopolitical documents such as the *Medical Deontology Regulation* (1960)[44] and the *Code of Professional Ethics of the Turkish Medical Association*.[45] In addition, Article 15 of the Regulation on Patient Rights, which entered into force in 1998 and was amended in 2019, clearly defines the right to receive information about one's health status.[29] In this context, all the above-mentioned declarations and legal regulations emphasize the patient's right to know; thus, it is concluded that physicians should share the diagnosis. Furthermore, it has been reported that patients who are informed correctly, whose treatment options are clearly explained, whose choices are respected, who can easily access their physician, and who are cared for after the diagnosis adapt better to the process.[11]

Legal Responsibility

The legal aspect of breaking bad news is of particular concern to physicians and nurses in the context of professional responsibility. The most senior physician who knows the patient best, has a good working relationship with them, and has established a trust-based rapport should be the one to deliver bad news. It is also essential that physicians are equipped with the knowledge to answer questions from patients and their relatives.[2]

In addition to the physician, other healthcare professionals involved in the patient's care should also be informed about the patient's process. In particular, nurses need to provide consistent responses to questions asked by patients and their relatives, thereby maintaining trust and supporting a positive progression of the process. However, since the importance of teamwork is not fully internalized, this principle is often not adequately reflected in practice.

Although there is no statement in the *Nursing Law*[46] or *Nursing Regulation*[47] regarding nurses disclosing a diagnosis to patients, nurses, who are active members of the healthcare team, provide information to patients and their relatives about diseases and must communicate with patients who want to learn the facts about their condition. In Türkiye, nurses do not have a formal duty or responsibility to disclose diagnoses within the framework of their job descriptions, yet they frequently receive requests from patients and their relatives in this regard.

Studies in the literature indicate that, among healthcare disciplines, nurses carry the highest workload in providing direct care to patients and their families.[48] This means that regardless of the setting—whether in an inpatient unit, intensive care unit, outpatient clinic, or primary care unit—nurses are present for patients and their relatives as part of an interdisciplinary team during and after the delivery of bad news. Especially in Europe and America, nurses working as *specialized nurses* can undertake the task of breaking bad news to patients and their families. However, although the concept of *expert nurses* exists in Türkiye under the *Nursing Regulation*,[47] the type of information that they may provide to patients, particularly regarding authorization to disclose bad news, is not specified.

In Türkiye, the type of information provided to patients and their relatives about the patient's condition is generally not shared with other team members, except physicians. As a result, nurses in particular, may find themselves in difficult situations when faced with questions from patients or relatives. Since they are often unsure what the patient or their relatives know about the diagnosis and disease process, they may worry that discrepancies in their responses could mislead the patient. For this reason, nurses responsible for patient care must be aware of the information communicated to patients to prevent distress. This is because they may not be able to answer patients' questions or may risk inconsistencies with previously provided information.

Traditionally, breaking bad news has been the responsibility of physicians and is a stressful task. However, research has shown that it should be handled through interdisciplinary teamwork and that nurses are often involved in this process.[49] When they are not included and are unfamiliar with the patient's process, they face many difficulties. Even though nurses have no legal responsibility to break bad news in our country, it is necessary for them—given that they ensure continuity of care, are familiar with all aspects of the patient's condition, and are among the most trusted by patients and their families—to be present when bad news is delivered.

Approaches to Breaking Bad News

It is challenging to tell the truth without extinguishing the patient's hope. Several factors contribute to maintaining a patient's hope, including the stage and type of cancer, the patient's age, their perspective on the disease, and the availability of treatment options. Cultural factors are also decisive. In Africa, for example, cancer is associated with the black scourge, a hidden, damaging, and insidious disease. Italians perceive it as a condition that threatens both social and physical deterioration as well as death. In the United States, on the other hand, cancer is sometimes regarded as a personal failure or responsibility, rooted in deeply ingrained individuality and the value placed on self-determination.[50] How such a heavily loaded diagnosis should be communicated is an important issue that requires emphasis in both theory and practice.

The difficulties faced by healthcare professionals, especially physicians, in communicating with cancer patients and their relatives stem from the severe losses associated with cancer, the threat and fear of death, intense anxiety, and grief. Physicians and nurses who are in constant interaction with patients and their families encounter difficulties and obstacles in communication. For example, identifying with terminally ill patients, becoming overly attached, and having to deliver bad news can be devastating for healthcare professionals. Overly optimistic or unrealistic expectations of patients and their relatives also pose challenges.

Effective communication is essential in breaking bad news. Since healthcare professionals often lack the necessary skills to deliver bad news to patients and their families, it is frequently not communicated effectively in clinical settings.[51] Communication in breaking bad news is not only the transfer of information but also an interaction with social and psychological dimensions. Information should therefore be provided consciously within the physician-patient-family triangle.

Body language also plays a role in this process. The physician should provide a detailed description of the diagnosis, clearly explain the diagnostic process, and use realistic expressions about the future. It is also important not to speak negatively about the treatment and to provide accurate information. This helps prevent the patient from receiving misinformation from others and strengthens communication.[11]

It is inevitable that communication-based problems will arise when breaking bad news. One such problem in approaching cancer patients is the physician's anxiety about death. To prevent avoidance behavior, physicians who break bad news should prepare themselves in advance. If the physician is unwell, unable to deliver the news due to their working environment, anticipates difficulty, or feels surprised and upset by the news, they should postpone the conversation until they are ready to communicate effectively.

Physicians should not give bad news on the spot or in a rush. Healthcare providers should arrange a quiet, calm place and time where the conversation will not be interrupted. The environment should be silent, with minimal distractions such as ringing phones or people constantly coming and going.[1,7]

Patients often remain silent when they receive the news. At such times, the physician should allow the patient to express themselves instead of consoling them. An empathic and sensitive approach, characterized by active listening, is the most beneficial behavior for the patient. If the patient is crying and expressing their feelings, the physician should wait without interrupting. Physicians and nurses should reassure the patient that their feelings and the difficulties of the process are understood.

Table 2. Protocols for breaking bad news*

Protocol	Process
Six-step protocol (Buckman, 1984)[57]	1. Prepare for the news and initiate the conversation
	2. Find out what the patient knows about their illness
	3. Find out how much the patient wants to know
	4. Share the bad news with the patient
	5. Respond to the patient's emotions
	6. Discuss treatment options/make a follow-up plan
SPIKES protocol (Baile et al., 2000)[58]	**S**etting: Prepare the environment and listen
	Perception: Assess the patient's perception of their condition
	Invitation: Ask how much information the patient wishes to receive and begin providing it
	Knowledge: Provide medical information clearly
	Emotions and empathy: Recognize the patient's emotions and respond to their reactions with empathy
	Strategy and summary: Develop a treatment plan and summary
ABCDE protocol (Vandekieft, 2001)[59]	**A**dvance preparation
	Build a relationship
	Communicate well
	Deal with patient and family reactions
	Encourage and validate emotions
BREAKS protocol (Narayanan et al., 2010)[60]	**B**ackground: Gather detailed information about the patient and illness and prepare yourself
	Rapport: Establish a relationship through effective communication
	Explore: Identify what the patient knows, what they want to know about their illness, and who they want to have by their side
	Announce: Start speaking with a short, clear, and understandable introductory statement
	Kindling: Allow the patient to express their emotional reactions
	Summarize: Summarize, provide treatment information, share contact details, and recommend accurate and scientific sources of information

*Used with permission from Yamaç.

The patient should be allowed to ask questions. After the diagnosis, they should also be informed that they have the right to terminate treatment at any time, along with the benefits and side effects of the available treatment options. Both the patient and their relatives should be encouraged to ask questions, and healthcare professionals should answer honestly.[7]

Nurses play a crucial role in disclosing bad news and in the subsequent process, as they are more frequently in contact with patients and their families.[52] The physician must make the medical diagnosis, but nurses have great responsibility in maintaining a trusting relationship with the patient. They ensure continuity of care, follow all patient outcomes, remain in close contact after bad news is given, and communicate with the patient and their relatives about the realities of the disease. Therefore, most patients want their diagnosis to be confirmed by nurses and seek answers to many questions from them during the treatment process. The ethical responsibility of nurses in this regard is to act as patient advocates in the informed consent process.

Bad news must be delivered appropriately in oncology. Breaking bad news in oncology is a stressful task for physicians, but it is not a solitary responsibility; nurses are, and should be, frequently involved through interdisciplinary teamwork.[53] Patients and their families often prefer to meet with nurses for clarification, additional information, or confirmation of bad news. It is also important to note that oncology nurses can provide support for any emotional trauma that may arise in patients after receiving bad news.[54] Undoubtedly, effective communication is essential for maintaining a trusting relationship between the nurse and the patient.[55] The manner in which bad news is delivered can influence patient compliance with treatment, provide a clearer understanding of the recovery process and symptoms, reduce stress and anxiety, and ultimately increase overall patient satisfaction.[56]

Many factors related to physicians, nurses, patients, and their relatives can affect the process of breaking bad news and its aftermath. However, there are protocols to guide physicians and nurses in this process by providing a basic framework. The main protocols for breaking bad news are listed in the table below.[9] As shown in Table 2, all protocols follow a similar approach.[57–60] The common features of these approaches can be summarized as preparing an appropriate environment, gathering information, establishing empathetic communication, sharing the bad news, allowing the patient to express their feelings, and discussing the treatment process.

Conclusion

Breaking bad news is an inevitable aspect of oncology. To empower physicians and nurses in this regard, it is essential to incorporate a dedicated course on breaking bad news into the undergraduate curriculum and to strengthen these skills through various educational methods. In light of Hippocrates' principle, "*there is no disease, there is a patient*," a culturally specific, realistic, and truth-telling approach should be integrated into medical and nursing education. Culturally appropriate guidelines should be developed to better understand oncologists' perceptions of breaking bad news, reduce their stress and burnout, and enhance patient-physician and patient-nurse relationships during this process. Nurses, who often have to deliver bad news or respond to information requests from patients and their relatives, should be included in the process of reporting bad news, and their legal responsibilities should be reviewed, as they undertake invisible yet intense labor in this area. In addition, an interdisciplinary training model involving physicians, nurses, and psychologists/psychiatrists should be developed and adopted in practice.

Conflict of Interest: The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Author Contributions: Concept – Ş.G., S.Ş.; Design – Ş.G., S.Ş.; Supervision – S.Ş.; Data Collection and/or Processing - Ş.G.; Analysis and/or Interpretation - Ş.G.; Literature Review – Ş.G.; Writing – Ş.G.; Critical Review – S.Ş.

Peer-review: Externally peer-reviewed.

References

1. World Health Organization. Cancer Regional Profile 2020, Cancer Country Profile. Accessed August 20, 2024. https://www.who.int/teams/noncommunicable-diseases/surveillance/data/cancer-profiles
2. Ptacek JT, Eberhardt TL. Breaking bad news. A review of the literature. JAMA. 1996;276(6):496–502. [CrossRef]
3. Seifart C, Hofmann M, Bär T, Riera Knorrenschild J, Seifart U, Rief W. Breaking bad news-what patients want and what they get: evaluating the SPIKES protocol in Germany. Ann Oncol. 2014;25(3):707–711. [CrossRef]
4. Ptacek JT, Ptacek JJ. Patients' perceptions of receiving bad news about cancer. J Clin Oncol. 2001;19(21):4160–4164. [CrossRef]
5. Warnock C, Tod A, Foster J, Soreny C. Breaking bad news in inpatient clinical settings: role of the nurse. J Adv Nurs. 2010;66(7):1543–1555. [CrossRef]
6. Buckman R. How To Break Bad News: A Guide for Health Care Professionals. Maryland: The Johns Hopkins University Press;1992:123. [CrossRef]
7. Yamaç D, Bahadır D. Kötü Haber Verme. In: Yamaç D, Demirsoy N, Budakoğlu İ, Coşkun Ö, Gönüllü İ, eds. Tıpta İletişim Becerileri. Ankara: Hipokrat Kitabevi; 2020:153–166. Turkish.
8. Al-Bishi N. Truth-Telling: A Comparative Analysis of Cancer Diagnosis Disclosure Protocols in Western and Eastern Countries. Int J Novel Res Healthc Nurs. 2022;9(2):69–85.
9. Baliga MS, Prasad K, Rao S, et al. Breaking the Bad News in Cancer: An In-Depth Analysis of Varying Shades of Ethical Issues. Indian J Med Paediatr Oncol. 2022;43(03):226–232. [CrossRef]
10. Çay Şenler F. Ölüme Yakın Hasta ve Hasta Yakını ile İletişim. In: Yamaç D, Demirsoy N, Budakoğlu İ, Coşkun Ö, Gönüllü İ, eds. Tıpta İletişim Becerileri. Ankara: Hipokrat Kitabevi; 2020:167–174. Turkish.
11. Erözenci A. Bir Türk Filmi Olarak Kanser. 1st ed. Ayrıntı Yayınları; 2013.
12. Kazdaglis GA, Arnaoutoglou C, Karypidis D, Memekidou G, Spanos G, Papadopoulos O. Disclosing the truth to terminal cancer patients: a discussion of ethical and cultural issues. East Mediterr Health J. 2010;16(4):442–447. [CrossRef]
13. Aljubran AH. The attitude towards disclosure of bad news to cancer patients in Saudi Arabia. Ann Saudi Med. 2010;30(2):141–144. [CrossRef]
14. Guven T. Truth-telling in cancer: examining the cultural incompatibility argument in Turkey. Nurs Ethics. 2010;17(2):159–166. [CrossRef]
15. Fujimori M, Shirai Y, Asai M, Kubota K, Katsumata N, Uchitomi Y. Effect of communication skills training program for oncologists based on patient preferences for communication when receiving bad news: a randomized controlled trial. J Clin Oncol. 2014;32(20):2166–2172. [CrossRef]
16. Stiefel F, Krenz S. Psychological challenges for the oncology clinician who has to break bad news. In: Surbone A, ed. New Challenges in Communication with Cancer Patients. New York: Springer; 2013:51–62. [CrossRef]
17. Zekri J, Karim SM. Breaking Cancer Bad News to Patients with Cancer: A Comprehensive Perspective of Patients, Their Relatives, and the Public-Example from a Middle Eastern Country. J Glob Oncol. 2016;2(5):268–274. [CrossRef]
18. Massod J, Beenish Q, Zubia M, Shaukat AJ. Disclosure of cancer diagnosis: Pakistani patients' perspective. MEJC. 2010;1(2):89-94.
19. Tsoussis S, Papadogiorgaki M, Markodimitraki E, et al. Disclosure of cancer diagnosis: the Greek experience. J BUON. 2013;18(2):516–526.
20. Gül Ş. An Ethical Analysis of Physicians' and Nurses' Experiences of Breaking Bad News. Unpublished Master's Thesis. Ankara University Health Sciences Institute; 2023. Turkish.
21. Beauchamp T, Childress J. Principles of Biomedical Ethics. 8th ed. UK: Oxford University Press; 2009:208.
22. Baykara ZG, Şahinoğlu S. An evaluation of nurses' professional autonomy in Turkey. Nurs Ethics. 2014;21(4):447–460. [CrossRef]
23. Basheikh M. Preferences of the Saudi Population in Breaking Bad Medical News: A Regional Study. Cureus. 2021;13(11):e19525. [CrossRef]
24. Ehsani SR, Cheraghi MA, Nejati A, Salari A, Esmaeilpoor AH, Nejad EM. Medication errors of nurses in the emergency department. J Med Ethics Hist Med. 2013;6:11.
25. Dünya Tabipler Birliği. Tıp Etiği El Kitabı. 3rd ed. İstanbul: Türk Tabipler Birliği; 2015. Turkish.
26. Caplan AL. Why autonomy needs help. J Med Ethics. 2014;40(5):301–302. [CrossRef]
27. Tuckett AG. On paternalism, autonomy and best interests: telling the (competent) aged-care resident what they want to know. Int J Nurs Pract. 2006;12(3):166–173. [CrossRef]
28. Elçioğlu Ö, Demirhan Erdemir A. Klinik Uygulamalarda Her Durumda Ortaya Çıkan Etik Yükümlülükler. In: Klinik Etik. İstanbul: Nobel Tıp Kitabevleri; 2001:104–148. Turkish.
29. Hasta Hakları Yönetmeliği. 2019. Accessed October 1, 2025. https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=4847&MevzuatTur=7&MevzuatTertip=5
30. Oğuz NY, Tepe H, Örnek Büken N, Kırımsoy Kucur D. Biyoetik Terimleri Sözlüğü. Türkiye Felsefe Kurumu; 2005:196–197. Turkish.
31. Everett JP, Walters CA, Stottlemyer DL, Knight CA, Oppenberg AA, Orr RD. To lie or not to lie: resident physician attitudes about the use of deception in clinical practice. J Med Ethics. 2011;37(6):333–338. [CrossRef]
32. Heywood R, Macaskill A, Williams K. Informed consent in hospital practice: health professionals' perspectives and legal reflections. Med Law Rev. 2010 Spring;18(2):152–184. [CrossRef]
33. Elvish R, James I, Milne D. Lying in dementia care: an example of a culture that deceives in people's best interests. Aging Ment Health. 2010;14(3):255–262. [CrossRef]
34. Oken D. What to tell cancer patients. A study of medical attitudes. JAMA. 1961;175:1120–1128. [CrossRef]
35. Sokol DK. How the doctor's nose has shortened over time; a historical overview of the truth-telling debate in the doctor-patient relationship. J R Soc Med. 2006;99(12):632–636. [CrossRef]
36. Cox A, Jenkins V, Catt S, Langridge C, Fallowfield L. Information needs and experiences: an audit of UK cancer patients. Eur J Oncol Nurs. 2006;10(4):263–272. [CrossRef]
37. Fallowfield L, Ratcliffe D, Jenkins V, Saul J. Psychiatric morbidity and its recognition by doctors in patients with cancer. Br J Cancer. 2001;84(8):1011–1015. [CrossRef]
38. Higgs R. Truth-telling. In: Kuhse H, Singer P, eds. A Companion to Bioethics. London: Wiley-Blackwell; 2009:520–529. [CrossRef]
39. Managheb SE, Hosseinpour M, Mehrabi F. Patients' viewpoints about how to break bad news. Iranian J Med Ethics Hist Med. 2013;6(4):68–79.
40. Liu Y, Yang J, Huo D, Fan H, Gao Y. Disclosure of cancer diagnosis in China: the incidence, patients' situation, and different preferences between patients and their family members and related influence factors. Cancer Manag Res. 2018;10:2173–2181. [CrossRef]
41. American Nurses' Association. The Code of Ethics for Nurses. 2015. Accessed December 16, 2024. https://www.nursingworld.org/practice-policy/nursing-excellence/ethics/code-of-ethics-for-nurses/
42. American Medical Association. Code of Medical Ethics. Accessed December 18, 2024. https://code-medical-ethics.ama-assn.org/chapters/patient-physician-relationships
43. World Medical Assembly (WMA) Declaration of Lisbon on the Right of the Patient, 2005. Accessed October 1, 2025. https://www.wma.net/wp-content/uploads/2005/09/Declaration-of-Lisbon-2005.pdf
44. Tıbbi Deontoloji Nizamnamesi. 1960. Accessed August 10, 2023. https://www.mevzuat.gov.tr/MevzuatMetin/2.3.412578.pdf
45. Türk Tabipler Birliği. Hekimlik Meslek Etiği Kuralları. 2012. Accessed September 20, 2014. https://www.ttb.org.tr/kutuphane/h_etikkural.pdf
46. Hemşirelik Kanunu 2007. Accessed November 10, 2024. https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6283&MevzuatTur=1&MevzuatTertip=3
47. Hemşirelik Yönetmeliği. 2010. Accessed November 10, 2024. https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=13830&MevzuatTur=7&MevzuatTertip=5
48. Uveges MK, Milliken A, Alfred A. Role of the Critical Care Nurse in Disclosing Difficult News. AACN Adv Crit Care. 2019 Fall;30(3):287–293. [CrossRef]
49. Lackie K, Miller S, Brown M, et al. Interprofessional collaboration between health professional learners when breaking bad news: a scoping review of teaching approaches. JBI Evid Synth. 2024;22(6):1071–1102. [CrossRef]
50. Post SG. Encyclopedia of Bioethics. 4th ed. Gale Virtual Reference Library Macmillan Reference USA; 2014.
51. Hoffmann TC, Glasziou PP, Boutron I, et al. Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. BMJ. 2014;348:g1687. [CrossRef]
52. Matthews T, Baken D, Ross K. Single cases from multiple perspectives: a qualitative study comparing the experiences of patients, patients' caregivers, surgeons, and nurses when bad news is delivered about cancer. J Psychosoc Oncol Res Pract. 2020;2(3):e32. [CrossRef]
53. Bumb M, Keefe J, Miller L, Overcash J. Breaking Bad News: An Evidence-Based Review of Communication Models for Oncology Nurses. Clin J Oncol Nurs. 2017;21(5):573–580. [CrossRef]
54. Aungst H. Delivering bad news: Helping your patients retain dire details. Modern Medicine Network. 2009. Accessed October 1, 2025. https://www.contemporarypediatrics.com/view/delivering-bad-news-helping-your-patients-retain-dire-details
55. Mishelmovich N, Arber A, Odelius A. Breaking significant news: The experience of clinical nurse specialists in cancer and palliative care. Eur J Oncol Nurs. 2016;21:153–159. [CrossRef]
56. Parker PA, Baile WF, de Moor C, Lenzi R, Kudelka AP, Cohen L. Breaking bad news about cancer: patients' preferences for communication. J Clin Oncol. 2001;19(7):2049–2056. [CrossRef]
57. Buckman R. Breaking bad news: why is it still so difficult? Br Med J (Clin Res Ed). 1984;288(6430):1597–1599. [CrossRef]
58. Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist. 2000;5(4):302–311. [CrossRef]
59. VandeKieft GK. Breaking bad news. Am Fam Physician. 2001;64(12):1975–1978.
60. Narayanan V, Bista B, Koshy C. 'BREAKS' Protocol for Breaking Bad News. Indian J Palliat Care. 2010;16(2):61–65. [CrossRef]