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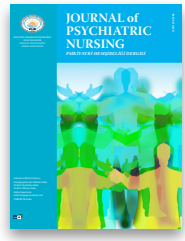

Systematic Review

A review of nursing research on delirium: The sample of Türkiye; systematic review

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Abstract

Objectives: This study aims to explore research conducted by nurses in Türkiye on delirium, as documented in national and international nursing literature, and to present the findings.

Methods: A systematic search was conducted for articles published between 2012 and 2023 that focused on delirium and were authored by nurses in Türkiye. Searches were conducted in both Turkish and English using relevant keywords, and the PRISMA 2020 Checklist criteria were applied to evaluate reporting quality.

Results: Twenty-three articles meeting the inclusion criteria were identified, categorized into two main themes: studies involving nurses and those involving patients. Of these, 16 were published in international journals and 7 in Turkish nursing journals. The studies covered various aspects, including the level of nurses' knowledge about delirium and its management, as well as patient-focused research conducted in intensive care settings.

Conclusion: This review provides a comprehensive overview of nursing research on delirium in Türkiye, serving as a valuable resource for future investigations in this field. It is anticipated that these findings will contribute to the development of a robust database to inform and guide further research endeavors.

Keywords: Delirium; intensive care; nurse knowledge; nursing; nursing research; Türkiye

Delirium is a clinical syndrome characterised by a sudden onset and fluctuating course of consciousness, attention, and perception. The prevalence of this condition is highest in patients who are critically ill.[1–3] Delirium is categorised into three primary clinical subtypes: hypoactive, hyperactive, and mixed. Patients with hypoactive delirium typically present with lethargy, apathy, and decreased psychomotor activity,[3,4] while patients with hyperactive delirium exhibit agitation, restlessness, and increased psychomotor activity.[3,4]

Despite its multifactorial aetiology, delirium is often caused by modifiable factors, including dehydration, hypoxia, serious illness, comorbidities, infections, surgical procedures, medications, and metabolic disorders.[5–8] Elderly individuals who are hospitalised are at an elevated risk of developing delirium, a condition that arises from heightened vulnerability.[9] In adult medical inpatients, worldwide, the prevalence of delirium ranges from 9% to 34%,[10,11] and in intensive care units (ICUs), it has been reported to be as high as 88%.[12,13] Delirium has been shown to contribute to the persistence of cognitive impairment in one-third of patients, prolonging hospital stay by 8–10 days and mechanical ventilator dependence by 2–5 days. It has also been demonstrated to increase healthcare expenditures and to triple six-month mortality rates.[14–19]

The American Psychiatric Nursing Association (APNA) and the International Society of Psychiatric-Mental Health Nurses (ISPMHN), under the auspices of the American Nursing Association (ANA), define psychiatric-mental health nursing as a specialized nursing practice committed to "promoting health through

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the assessment, diagnosis, and treatment of human responses to psychiatric disorders."[20] (ANA, 2014). Delirium management is a key part of the work of psychiatric nurses, who play a key role in both preventive and therapeutic approaches.[21]

The role of nurses in the management of delirium is of crucial importance.[22,23] Nurses' experiences include assessing patients' risk of delirium, implementing preventive measures, detecting delirium, and providing care for patients during the recovery process.[24] It is imperative to recognise the pivotal role that nurses play in the management of delirium, given their involvement in various stages of this process. Furthermore, nurses are directly exposed to the symptoms of delirium when providing bedside care. Consequently, the care of patients with acute delirium represents a significant risk and stressful situation for nurses due to the unpredictable behaviours and movements of the patients.[2,25–30] An investigation of the experiences and knowledge levels of nurses may offer insights into the provision of enhanced quality care to individuals with delirium.

The objective of this article is to provide a comprehensive examination of the knowledge levels, experiences, challenges, support needs, and educational requirements of nurses in the care of patients with delirium. A systematic review was conducted to identify knowledge gaps, contribute to further research efforts, and provide nurses with valuable information on the nuances of delirium nursing care. The present article will facilitate the consolidation and dissemination of findings from delirium-specific nursing research in the Turkish context.

What is presently known on this subject?

- Nurses play an important role in the management of delirium. Nurses' experience includes assessing patients' risk of delirium, implementing preventive measures, detecting delirium, and caring for patients to support recovery.

What does this article add to the existing knowledge?

- Given that nurses are involved in various stages of delirium management, it is valuable to conduct an in-depth study on nurses' management of delirium, as this can improve patient outcomes.

What are the implications for practice?

- This study provides a comprehensive overview of nurses' knowledge, experiences, challenges, support needs, and educational needs in the care of patients with delirium. In addition, this systematic review attempts to identify gaps in the literature, contribute to further research efforts, and provide nurses with valuable information on the nuances of delirium nursing care.

Materials and Method

This systematic review was conducted in accordance with the PRISMA 2020 Checklist;[31] PubMed, EBSCO Host, Science Direct, Ulakbim TR Index, and Turkish Medline databases were searched. The research encompassed studies conducted by nurses (clinicians/academicians) in Türkiye and published in national/international literature. The Medical Subject Headings (MeSH) index was employed for the English keywords, while the Turkish Science Terms were utilised for the Turkish keywords. The searches were conducted between March and April 2024. National searches were conducted using the keywords "delirium, nursing," while international searches were performed with the keywords "delirium, nursing, and Türkiye," individually and in combination (Table 1).

Inclusion Criteria

In Türkiye, studies published between 2012 and 2023 by nurses (academicians/clinicians) related to delirium and for which full text was available were included in the review. Inclusion criteria were determined according to PICOS (P (Patient/Population/Problem), I (Intervention/Indicator), C (Comparison of Intervention), O (Outcome of Interest), S (Study Design)) (Table 2).

Exclusion Criteria

Articles, reviews, scale validity and reliability studies, and unpublished theses whose full text could not be accessed from databases at the time of the search, whose researchers were not nurses, or whose language was not Turkish or English, were not included in the study.

Data Sources and Searching

Searches were conducted between March and April 2024 using computer-assisted search engines. International databases PubMed, Embase, Ovid, ProQuest, EBSCOhost, ScienceDirect, and Blackwell-Synergy were searched with the key-

Table 1. Key words used in the survey

Key words in English	Key words in Turkish
"Delirium"	"Deliryum"
"Nursing "	"Hemşirelik"
"Türkiye/ Turkish"	-

Table 2. PICOS search terms used in the research

PICOS	Search terminology
P (Patient/Population/Problem	Delirium
I (Intervention/Indicator)	Nursing care
C (Comparison of Intervention)	National and International Literature
O (Outcome of Interest)	Delirium prevention approaches
	Incidences of delirium
	Delirium treatment
	Delirium level
	Knowledge levels of nurses
S (Study Design)	Randomised controlled trials
	Pre-test-post-test studies
	Experiment-control studies
	Descriptive Studies
	Qualitative studies

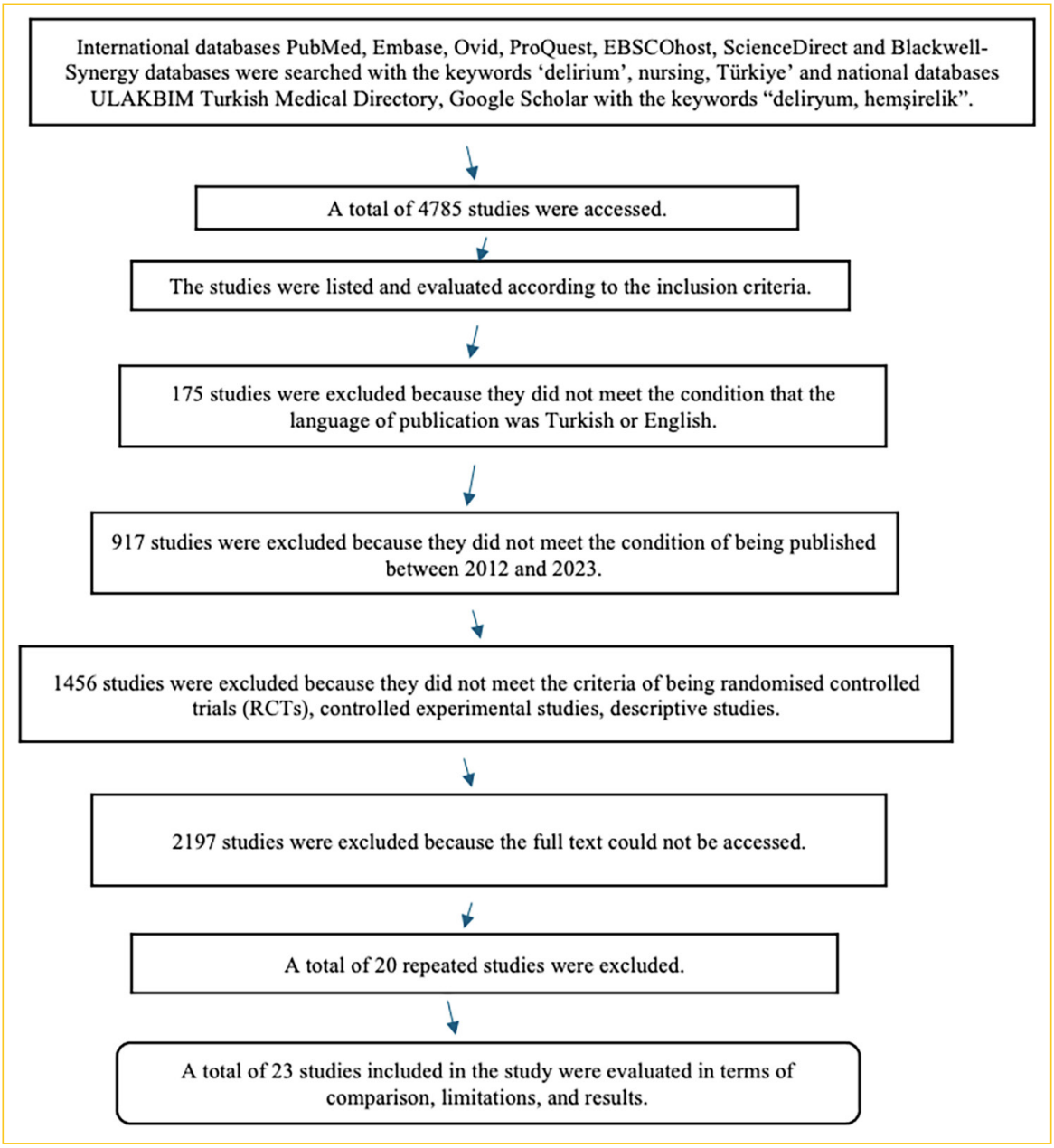

Figure 1. Preferred Reporting Items for Systematic Reviews And Meta-Analyses (PRISMA) research process flowchart.

words "delirium", "nursing", "Türkiye", and national databases ULAKBIM Turkish Medical Directory and Google Scholar were searched with the keywords "delirium, nursing". The research process (Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Chart) is shown in Figure 1.

Selection of Studies

In this evaluation, two researchers conducted the searches for and selection of the studies independently. Where there was a difference of opinion regarding any study, the two researchers discussed the matter and reached a consensus. Following selection based on title, abstract, and full text, it was decided that 23 articles met the research criteria (Fig. 1).

Results

A total of 4,785 studies were identified through keyword searches. Following the initial screening process, 175 studies were excluded as they were not published in either Turkish or English. A further 917 studies were excluded because the publication date did not fall within the specified range of 2012 to 2023. Furthermore, 1,456 studies were excluded because they did not meet the criteria for randomised controlled trials (RCTs), controlled experimental studies, or descriptive studies. Finally, 2,197 studies were excluded because the full text could not be accessed. A total of 20 studies were excluded because they were duplicates. The remaining 23 studies were

subjected to a comprehensive evaluation in terms of comparison, limitations, and results (Appendix 1).

In terms of research design, the studies can be categorised as follows: 12 were descriptive, 6 were randomised controlled trials, 2 were qualitative, 2 were quasi-experimental, and 1 was designed as an observational cohort study. Examination of the units in which the studies were conducted revealed that they included anaesthesia, internal medicine, coronary care, cardiovascular surgery intensive care units, as well as orthopaedics and neurosurgery services, and post-anaesthesia care units.

The studies included in the review were published in a total of 23 different journals, seven of which were Turkish Nursing and Health journals and 16 of which were foreign publications. The sample of the first 11 studies consisted of patients, while the remaining 11 studies comprised nurses. One study included both patients and nurses in its sample. The total number of participants in the articles included in the systematic review was 1,064 for studies with nurses as the sample and 1,106 for studies with patients as the sample.

Upon analysing the studies included in the review, those with nurses as the sample were grouped under the following titles: nurses' knowledge levels, delirium management, and nurses' experience. Conversely, studies utilising patients as the sample were categorised according to the following themes: risk factors, nursing interventions, and the prevention of delirium.

Studies with a Sample of Nurses

Several studies involving nurses have provided insights into various aspects of delirium care. Topuz (2012), Korkmaz (2015), and Temiz (2021) conducted studies to evaluate nurses' knowledge of delirium. Topuz's (2012) descriptive study found that 28 nurses defined delirium correctly, and 73.2% demonstrated an understanding of the differences between delirium, depression, and dementia.[32–34] Korkmaz (2015) found that nurses received an average score of 41.18±12.50 on delirium information forms, indicating a moderate level of knowledge. Those working in intensive care, head nurses, and those who had received in-service training achieved higher scores.[33] Temiz (2021) demonstrated that nurses who had received training in delirium had significantly higher mean scores on the Delirium Knowledge Test for Intensive Care Nurses.[34]

Karabulut (2016), Çevik (2016), and Eren (2023) conducted research into the delirium management strategies employed by nurses.[35–37] Karabulut (2016) observed that 83.9% of nurses applied non-pharmacological treatment alongside additional interventions, such as massage, rhythmic breathing exercises, and music therapy. Çevik (2016) reported that 84% of nurses had received training in delirium management, and 70% found it challenging to care for patients with delirium and sought physician support.[35] Eren (2023) found that nurses demonstrated a high level of knowledge about delirium, with an average score of 44.77±9.83. Furthermore, there was a correlation between knowledge scores, personality traits, and delirium symptom management.[37]

Qualitative studies conducted by Doğan (2023) and Yılmaz (2023) focused on the experiences of nurses in delirium care.[38,39] Doğan (2023) identified six intervention themes: providing and maintaining a safe environment, communication, nutrition, movement, sleep, and dependent interventions/other.[38] These included maintaining a safe environment and addressing patient-related difficulties. Yılmaz (2023) classified nurses' experiences as relating to the identification and management of delirium, care-related difficulties, and personal and skill-related barriers.[39]

Studies with a Patient Sample

Several studies have examined the risk factors and interventions associated with delirium in different patient groups. Yaşayacak (2012), Birge (2018), Köse (2021), and Erbay (2023) investigated various aspects of delirium in their respective studies.[40–43] In a study involving 55 patients in the intensive care unit, Yaşayacak (2012) found that delirium developed in 18.2% of patients. Furthermore, the study revealed a significant relationship between delirium and visual impairment.[40] In a study involving 133 patients in a cardiology intensive care unit, Birge (2018) found that the prevalence of delirium was higher in elderly patients who received more medical intervention.[41] Köse (2021) sampled 127 neurosurgery intensive care unit patients and identified independent risk factors for postoperative delirium, including the Glasgow Coma Scale score and surgical procedures.[42] Similarly, Erbay (2023) observed a 31.8% incidence of delirium among 129 intensive care unit patients and identified significant correlations between delirium and various clinical parameters.[43]

The efficacy of various interventions to prevent delirium was examined by Kasapoğlu E (2022), Ünal (2022), Akpınar (2022), Kılıç (2022), Şanlıtürk (2023), and Çavuşoğlu (2023).[44–49] In a randomised controlled trial involving 132 intensive care unit patients, Kasapoğlu (2022) demonstrated the efficacy of multicomponent, non-pharmacological nursing interventions in reducing delirium.[44] In a study by Ünal (2022), it was found that the quality of sleep improved, and the risk of delirium decreased in patients in the intervention group who received specialised nursing care.[45] Akpınar (2022) and Kılıç (2022) demonstrated that the use of earplugs and eye masks during the night improved sleep quality and reduced the severity of delirium.[46,47] In a randomised controlled trial involving 92 intensive care patients, Şanlıtürk (2023) applied sensory stimulation and sleep hygiene interventions and found that delirium rates were significantly lower among the interven-

tion group.[48] Furthermore, Çavuşoğlu (2023) demonstrated a significant reduction in the risk of delirium compared to the control group through the implementation of environmental modifications in a quasi-experimental study involving 60 intensive care patients.[49]

Discussion

In this systematic review, 23 articles were included to examine the research conducted by nurses in Türkiye on delirium. In this discussion, the sample was categorised into two groups: patients and nurses (Appendix 1).

Studies with Nurses as Sample

The inclusion of nurses as participants in studies yielded valuable insights into their knowledge levels, management practices, and experiences in the care of patients with delirium. Topuz (2012), Korkmaz (2015), and Temiz (2021) found that nurses who received delirium training demonstrated significantly higher levels of knowledge.[32–34] Furthermore, 73–85% of them were able to distinguish between delirium, dementia, and depression. Similarly, Trogrlić. (2017) and Rowley-Conwy. (2017) reported that the average knowledge scores among nurses ranged between 42–61%, with a significant proportion having received delirium training.[50,51]

In the context of delirium management, Karabulut (2016), Çevik (2016), and Eren (2023) observed nurses implementing non-pharmacological treatments, such as massage, breathing exercises, and music therapy, in the management of pain in delirium patients. Furthermore, emphasis was placed on the significance of non-pharmacological interventions, including open communication, noise reduction, and pain management, in order to prevent the onset of delirium.[35–37]

Doğan (2023) and Yılmaz (2023) conducted qualitative studies to investigate nurses' experiences of caring for patients with delirium. The studies emphasised the importance of effective communication, the use of non-pharmacological treatments, and the necessity of policy revisions in delirium management.[38,39] The findings of Zamoscik et al.[2] and Yue et al.[28] are consistent with those of Doğan (2023) and Yılmaz (2023), emphasising the importance of communication strategies, non-pharmacological interventions, and the psychological and physiological difficulties nurses face in decision-making processes.[38,39]

Studies with Patient Sample

The results of research conducted using patient samples have yielded invaluable insights into the risk factors and preventive measures associated with delirium. The prevalence rates reported by Yaşayacak (2012), Birge (2018), Köse (2021), and Erbay (2023) indicate that delirium is a significant burden for hospitalised patients, particularly those in intensive care settings, with rates ranging from 18.2% to 31.8%. The observation that a considerable proportion of delirium cases are characterised by hypoactive delirium underscores the significance of recognising and appropriately managing this frequently under-recognised subtype.[40–43]

Furthermore, the observed relationships between delirium and high Apache II, RASS, and TISS-28 scores emphasise the clinical severity and complexity of delirium cases. These scoring systems, which reflect the physiological state and severity of the disease in patients, serve as valuable tools in identifying individuals at high risk of delirium and guiding clinical decision-making.

The increasing necessity for mechanical ventilation, sedation, and physical restraint in patients with delirium serves to highlight the clinical challenges associated with the management of this condition. These findings underscore the necessity for comprehensive and tailored approaches to delirium management that address both the underlying precipitating factors and associated complications.

Furthermore, the results of the systematic review by Zaal et al.[52] corroborate the findings of individual studies, offering valuable insights into delirium risk factors from a broader perspective. The consistent identification of factors such as the Apache II score and the use of mechanical ventilation across multiple studies serves to underline the robustness of these associations and emphasise their clinical validity.

In studies aimed at preventing the development of delirium, researchers have employed a variety of strategies, including the provision of orientation information, sleep hygiene practices (including the use of earplugs and eye patches), catheter removal, early mobilisation, noise reduction, and the use of time orientation aids. The findings of this study indicated that the interventions in question were associated with a reduced incidence of delirium and improved sleep quality, reduced agitation, and improved attention. These results are consistent with those of similar studies by Khalil et al.[53,54]

In the future, efforts to prevent the development of delirium should prioritise the implementation of evidence-based interventions aimed at addressing modifiable risk factors and optimising patient care practices. The favourable outcomes observed in studies investigating interventions such as providing directional information, sleep hygiene measures, and early mobilisation serve to illustrate the potential impact of proactive approaches in reducing the risk of delirium and improving patient outcomes.

Limitations

A limitation of this article is the potential lack of generalisability of the findings, as the review was based on studies conducted in specific clinical settings or populations and may not

be representative of broader healthcare contexts. In addition, variations in the quality of the included studies, potential publication bias favouring statistically significant results, and methodological heterogeneity between studies may affect the reliability and validity of synthesised findings. Despite efforts to search extensively for relevant studies, the possibility exists that some literature is missing, leading to incomplete coverage of the available evidence. Moreover, temporal limitations restrict the review to the literature available up to a given cut-off date, potentially excluding new developments in the field. Finally, differences in reporting quality between studies can affect the accuracy and completeness of data extraction and the risk of bias assessment.

Conclusion

In conclusion, a comprehensive review of studies focusing on delirium among both nurses and patients has illuminated various aspects of this complex clinical syndrome. A body of research conducted with nurses has highlighted the significance of three factors in optimising the care of patients with delirium. These factors are adequate information, effective management practices, and supportive interventions. Nurses play a crucial role in the detection, prevention, and management of delirium, and efforts to improve education and support systems can have a significant impact on patient outcomes.

Similarly, research on delirium risk factors and preventive interventions among patients has revealed important clinical insights. The high prevalence rates of delirium, particularly in intensive care settings, emphasise the urgent need for targeted interventions aimed at reducing risk factors and improving patient care practices. Strategies such as providing directional information, optimising sleep hygiene, and early mobilisation show promise in reducing the incidence of delirium and improving patient outcomes.

Suggestions for Future Research

Longitudinal Studies: It is recommended that future research endeavours concentrate on longitudinal studies, with the objective of enhancing comprehension of the trajectory of delirium development and its long-term effects on patients' health outcomes. Longitudinal data will provide valuable information about factors influencing the incidence, duration, and resolution of delirium over time.

Multifactorial Approaches: Given the multifactorial nature of delirium, future studies could adopt a multidisciplinary approach to investigate the interaction between various risk factors, including medical, environmental, and psychosocial factors. Understanding the complex interactions between these factors may inform the development of targeted interventions for the prevention and management of delirium.

Intervention Studies: Further research is needed to evaluate the effectiveness of new interventions in preventing and managing delirium among both nurses and patients. Randomised controlled trials that evaluate the impact of specific interventions, such as educational programmes for nurses or multicomponent interventions for patients, can provide valuable evidence to inform clinical practice.

Health System Factors: Investigating the impact of health system factors, such as staffing levels, workload, and organisational culture, on the prevention and management of delirium can shed light on system-level strategies to improve patient outcomes. Understanding how organisational factors influence delirium care delivery can inform policy and practice initiatives aimed at improving patient safety and quality of care.

In summary, ongoing research efforts aimed at improving our understanding of delirium among both nurses and patients are essential to improve clinical practice and optimise patient outcomes in a variety of healthcare settings. By prioritising research in this area, we can advance our knowledge, improve clinical approaches, and ultimately enhance the quality of care for individuals affected by delirium.

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References

1. Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJC, Pandharipande PP, et al. Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. Crit Care Med 2018;46:e825–73.
2. Zamoscik K, Godbold R, Freeman P. Intensive care nurses' experiences and perceptions of delirium and delirium care. Intensive Crit Care Nurs 2017;40:94–100.
3. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. 2013. Available at: https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596. Accessed Dec 23, 2025.

4. Gnerre P, La Regina M, Bozzano C, Pomero F, Re R, Meschi M, et al. Delirium: the invisible syndrome. Italian J Med 2016;10:119–27.
5. Inouye SK, Westendorp RG, Saczynski JS. Delirium in elderly people. Lancet 2014;383:911–22.
6. Kotfis K, Marra A, Ely EW. ICU delirium - a diagnostic and therapeutic challenge in the intensive care unit. Anaesthesiol Intensive Ther 2018;50:160–7.
7. Park SY, Lee HB. Prevention and management of delirium in critically ill adult patients in the intensive care unit: a review based on the 2018 PADIS guidelines. Acute Crit Care 2019;34:117–25.
8. Wilson JE, Mart MF, Cunningham C, Shehabi Y, Girard TD, MacLullich AMJ, et al. Delirium. Nat Rev Dis Primers 2020;6:90. Erratum in: Nat Rev Dis Primers 2020;6:94.
9. Boettger S, Zipser CM, Bode L, Spiller T, Deuel J, Osterhoff G, et al. The prevalence rates and adversities of delirium: Too common and disadvantageous. Palliat Support Care 2021;19:161–9.
10. Koirala B, Hansen BR, Hosie A, Budhathoki C, Seal S, Beaman A, et al. Delirium point prevalence studies in inpatient settings: A systematic review and meta-analysis. J Clin Nurs 2020;29:2083–92.
11. Gibb K, Seeley A, Quinn T, Siddiqi N, Shenkin S, Rockwood K, et al. The consistent burden in published estimates of delirium occurrence in medical inpatients over four decades: a systematic review and meta-analysis study. Age Ageing 2020;49:352–60.
12. Bastos AS, Beccaria LM, Silva DCD, Barbosa TP. Identification of delirium and subsyndromal delirium in intensive care patients. Rev Bras Enferm 2019;72:463–7. [Article in English, Portuguese]
13. Bannon L, McGaughey J, Verghis R, Clarke M, McAuley DF, Blackwood B. The effectiveness of non-pharmacological interventions in reducing the incidence and duration of delirium in critically ill patients: a systematic review and meta-analysis. Intensive Care Med 2019;45:1–12.
14. Docherty E, Mounsey C. Delirium: Suspect it, spot it and stop it. Nurs N Z 2016;22:12–4.
15. Salluh JI, Wang H, Schneider EB, Nagaraja N, Yenokyan G, Damluji A, et al. Outcome of delirium in critically ill patients: systematic review and meta-analysis. BMJ 2015;350:h2538.
16. Society of Critical Care Medicine (SCCM). PADIS-Guidelines-Teaching- Slides-Delirium. 2018. Available at: https://www.sccm.org/ICULiberation/ABCDEF-Bundles. Accessed Dec 23, 2025.
17. Aung Thein MZ, Pereira JV, Nitchingham A, Caplan GA. A call to action for delirium research: Meta-analysis and regression of delirium associated mortality. BMC Geriatr 2020;20:325.
18. Goldberg TE, Chen C, Wang Y, Jung E, Swanson A, Ing C, et al. Association of delirium with long-term cognitive decline: a meta-analysis. JAMA Neurol 2020;77:1373–81.
19. Williams ST, Dhesi JK, Partridge JSL. Distress in delirium: causes, assessment and management. Eur Geriatr Med 2020;11:63–70.
20. Kane CF. The 2014 scope and standards of practice for psychiatric mental health nursing: key updates. Online J Issues Nurs 2015;20:1.
21. Marcantonio ER. Delirium in hospitalized older adults. N Engl J Med 2017;377:1456–66.
22. Morandi A, Pozzi C, Milisen K, Hobbelen H, Bottomley JM, Lanzoni A, et al. An interdisciplinary statement of scientific societies for the advancement of delirium care across Europe (EDA, EANS, EUGMS, COTEC, IPTOP/WCPT). BMC Geriatr 2019;19:253.
23. Ye F, Ho MH, Lee JJ. Prevalence of post-stroke delirium in acute settings: A systematic review and meta-analysis. Int J Nurs Stud 2024;154:104750.
24. Faught DD. Delirium: The nurse's role in prevention, diagnosis, and treatment. Medsurg Nurs 2014;23:301–5.
25. Bélanger L, Ducharme F. Narrative-based educational nursing intervention for managing hospitalized older adults at risk for delirium: field testing and qualitative evaluation. Geriatr Nurs 2015;36:40–6.
26. Martins S, Pinho E, Correia R, Moreira E, Lopes L, Paiva JA, et al. What effect does delirium have on family and nurses of older adult patients? Aging Ment Health 2018;22:903–11.
27. Hosie A, Lobb E, Agar M, Davidson PM, Phillips J. Identifying the barriers and enablers to palliative care nurses' recognition and assessment of delirium symptoms: a qualitative study. J Pain Symptom Manage 2014;48:815–30.
28. Yue P, Wang L, Liu C, Wu Y. A qualitative study on experience of nurses caring for patients with delirium in ICUs in China: Barriers, burdens and decision-making dilemmas. Int J Nurs Sci 2015;2:2–8.
29. Thomas N, Coleman M, Terry D. Nurses' experience of caring for patients with delirium: systematic review and qualitative evidence synthesis. Nurs Rep 2021;11:164–74.
30. Huang Z, Liu T, Chair SY. Effectiveness of nurse-led self-care interventions on self-care behaviors, self-efficacy, depression and illness perceptions in people with heart failure: A systematic review and meta-analysis. Int J Nurs Stud 2022;132:104255.
31. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Syst Rev 2021;10:89.
32. Topuz Ş, Doğan N. The level of knowledge of nurses working at the intensive care units of a university hospital about the subject of delirium. KÜ Tıp Fak Derg 2012;14:21–6. [Article in Turkish]
33. Demir Korkmaz F, Gok F, Yavuz Karamanoglu A. Cardiovascular surgery nurses' level of knowledge regarding delirium. Nurs Crit Care 2016;21:279–86.
34. Temiz Z, Aydın AS. Assesment of intensive care nurses' delirium knowledge levels: descriptive study. Turkiye Klinikleri J Nurs Sci 2021;13:751–8. [Article in Turkish]
35. Karabulut N, Yaman Aktaş Y. Nursing management of delirium in the postanesthesia care unit and intensive care unit. J Perianesth Nurs 2016;31:397–405.

36. Çevik B, Akyüz E, Uğurlu Z, Doğan N. Determination of the awareness about delirium management of nurses working in intensive care units. Başkent Üniv Sağlık Bil Fak Derg 2016;1:32–46. [Article in Turkish]
37. Eren N, Taşdemir Yiğitoğlu G. Delirium awareness and management of intensive care nurses in terms of their personality traits. Ordu Univ J Nurs Stud 2023;6:393–403.
38. Doğan SD, Tosunöz İK, Yurtseven Ş, Arslan S. Experiences of surgical intensive care nurses on delirium: a phenomenological study. Acıbadem Univ Sağlık Bilim Derg 2023;14:688–95.
39. Yılmaz EB, Çobanoğlu A, Apaydın E. Yoğun bakım hemşirelerinin deliryum hakkındaki bilgi ve yaklaşımlarının değerlendirilmesi: nitel bir çalışma. Turk J Intensive Care 2023;21:110–8. [Article in Turkish]
40. Yaşayacak A, Eker F. Kalp damar cerrahisi yoğun bakım ünitesinde yatan hastalarda deliryum ve risk faktörlerinin belirlenmesi. Türk Göğüs Kalp Damar Cerrahisi Derg 2012;20:265–74. [Article in Turkish]
41. Öztürk Birge A, Bedük T. The relationship of delirium and risk factors for cardiology intensive care unit patients with the nursing workload. J Clin Nurs 2018;27:2109–19.
42. Kose G, Şirin K, Inel MB, Mertoglu S, Aksakal R, Kurucu Ş. Prevalence and factors affecting postoperative delirium in a neurosurgical intensive care unit. J Neurosci Nurs 2021;53:177–82.
43. Erbay Dalli Ö, Kelebek Girgin N, Kahveci F. Incidence, characteristics and risk factors of delirium in the intensive care unit: An observational study. J Clin Nurs 2023;32:96–105.
44. Kasapoğlu ES, Enç N. Role of multicomponent non-pharmacological nursing interventions on delirium prevention: A randomized controlled study. Geriatr Nurs 2022;44:207–14.
45. Unal N, Guvenc G, Naharci M. Evaluation of the effectiveness of delirium prevention care protocol for the patients with hip fracture: A randomised controlled study. J Clin Nurs 2022;31:1082–94.
46. Akpinar RB, Aksoy M, Kant E. Effect of earplug/eye mask on sleep and delirium in intensive care patients. Nurs Crit Care 2022;27:537–45.
47. Kiliç G, Kav S. Effect of using eye masks and earplugs in preventing delirium in intensive care patients: A single-blinded, randomized, controlled trial. Nurs Crit Care 2023;28:698–708.
48. Şanlıtürk D, Kaplan V, Dörtkardeş N. Preventive effect of cognitive stimulation and sleep hygiene on delirium in COVID-19 intensive care patients. J Turk Sleep Med 2023;10:206–15.
49. Çavuşoğlu A, Yılmaz AA. The effect of environmental modifications on preventing delirium for the elderly patients in the intensive care unit: a non-randomized controlled trial. Eur J Geriatr Gerontol 2023;5:108–15.
50. Trogrlić Z, Ista E, Ponssen HH, Schoonderbeek JF, Schreiner F, Verbrugge SJ, et al. Attitudes, knowledge and practices concerning delirium: a survey among intensive care unit professionals. Nurs Crit Care 2017;22:133–40.
51. Rowley-Conwy G. Critical care nurses' knowledge and practice of delirium assessment. Br J Nurs 2017;26:412–7.
52. Zaal IJ, Devlin JW, Peelen LM, Slooter AJ. A systematic review of risk factors for delirium in the ICU. Crit Care Med 2015;43:40–7.
53. Khalil NS, El-Bouraei ZM, Moustafa MF, Shehab E-Deen AHA. Effects of earplugs and eye masks on the onset of delirium in a neuro-critical care unit, Egypt. Nurs Health Care Int J 2019;3:000196.
54. Shorofi SA, Dadashian P, Arbon P, Moosazadeh M. The efficacy of earplugs and eye masks for delirium severity and sleep quality in patients undergoing coronary artery bypass grafting in cardiac intensive care units: A single-blind, randomised controlled trial. Aust Crit Care 2024;37:74–83.
55. Bahar A, Güner M. Determination of the risk factors and delirium in the intensive care unit. Anatolian Curr Med J 2023;5:7–13.
56. Öztürk Birge A, Tel Aydin H. The effect of nonpharmacological training on delirium identification and intervention strategies of intensive care nurses. Intensive Crit Care Nurs 2017;41:33–42.
57. Yıldırım F, Türkleş S, Altundal Duru H. The effect of delirium information training given to intensive care nurses on patient care: quasi-experimental study. PeerJ 2022;10:e13143.
58. Özsaban A, Acaroglu R. Delirium assessment in intensive care units: practices and perceptions of Turkish nurses. Nurs Crit Care 2016;21:271–8.
59. Yaman Aktas Y, Nagórska M, Karabulut N. Problems in critical care nurse-patient communication: examples of Poland and Turkey. Acta Clin Croat 2017;56:437–45.

Appendix 1. Synthesis of included articles					
Title of the study	**Objective**	**Design**	**Sample size**	**Material and method**	**Conclusion**
Studies whose sample is nurses					
In Intensive Care Units of a University Hospital Knowledge Levels of Working Nurses about Delirium **(Topuz et al., 2012)** [32]	Determination of the knowledge levels of nurses working in intensive care about delirium	Descriptive	Eighty-five nurses working in intensive care units of a university hospital	The questionnaire form prepared by the authors by referring to the literature on the subject	Twenty-eight of the nurses participating in the study correctly defined delirium. 73.2% of the nurses stated that they knew the difference between depression, delirium, and dementia.
Knowledge Levels of Cardiovascular Surgery Nurses About Delirium **(Demir Korkmaz et al., 2015)** [33]	To identify the level of knowledge of cardiovascular surgery nurses about delirium	Descriptive	Ninety-seven nurses working in the cardiovascular surgery intensive care unit of a private hospital in two different cities	The data were collected by using a questionnaire form showing the demographic characteristics of the nurses and an information form including the level of knowledge of the nurse about delirium.	When the scores obtained from the information form about delirium were analysed, the lowest score was zero, the highest score was 60, and the mean score was 41·18±12·50 (moderate level of knowledge). It was found that nurses working in intensive care units, head nurses and those who received in-service training received higher scores than the others.
Delirium Assessment in Intensive Care Units: Practices and Perceptions of	To determine the current practices and perceptions of intensive care nurses regarding delirium	Descriptive, correlational	A total of 131 nurses were employed in five	Data collection form developed by the researchers	More than half of the nurses performed delirium assessments. However, the ratio of nurses using delirium assessment tools is quite low. All the nurses perceived

Nurses **(Özbasan et al., 2015)** [58]	assessment and to examine the factors affecting these practices and perceptions		public hospitals in the same city.		delirium as a problem and a fundamental problem for ICU patients.
Nursing Management of Delirium in Post-Anaesthesia Care Unit and Intensive Care Unit **(Karabulut et al., 2016)** [35]	To examine nurses' approaches to the care of patients with postoperative delirium in the post anaesthesia care unit and intensive care unit	Descriptive	Eighty-seven nurses working in a training and research hospital	Data collection form developed by the researchers	83.9% of nurses reported pharmacological treatment, 39.1% massage, 31.0% rhythmic breathing exercise and 26.4% music therapy in the treatment of pain in delirium patients. 90.8% of nurses stated that they reduced noise and lighting at night to ensure normal sleep patterns.
Nurses Working in Intensive Care Unit About Delirium Management Determination of Awareness **(Çevik et al., 2016)** [36]	Determination of awareness of nurses working in intensive care unit about delirium management	Descriptive	One hundred nurses working in the Internal and Surgical Intensive Care Units of a University Hospital	The data of the study were collected using the data collection form prepared by the researchers by analysing the relevant literature.	It was observed that nurses considered delirium seen in intensive care patients as an important and serious health problem, but they were inadequate in delirium management and necessary precautions to be taken.

Problems Encountered in Intensive Care Nurse-Patient Communication: Polish and Turkish Examples **(Yaman Aktaş et al., 2017)** [59]	To determine the problems related to nurse-patient communication in intensive care unit (ICU)	Descriptive	Fifty intensive care nurses in Poland and fifty-two intensive care nurses in Türkiye participated in the study.	A questionnaire form prepared by the researchers	In this study, 46% and 42.3% of nurses in Poland and Türkiye, respectively, reported communication problems with patients. In addition, it was found that nurses in Poland used therapeutic touch (80%) and nurses in Türkiye used facial expression (90.4%) for non-verbal communication.
Evaluation of Delirium Knowledge Levels of Intensive Care Nurses **(Temiz et al., 2021)** [34]	To determine the level of delirium knowledge of intensive care nurses	Descriptive	One hundred and seventy-four nurses working in intensive care units	Nurse diagnostic form and Delirium Knowledge Test for Intensive Care Nurses	The mean score of the Delirium Knowledge Test for Intensive Care Nurses (DKT-ICN) was 16 (0-21). The mean score of the knowledge test of the nurses who received training about delirium was found to be significantly higher.
The effect of delirium information training given to intensive care nurses on patient care: a quasi-experimental study **(Yıldırım et al., 2022)** [57]	To examine the effect of delirium information training given to intensive care nurses on patient care	Quasi-experimental	Thirty nurses working in four intensive care units of a university hospital	Personal Information Form, Patient Care in Delirium Checklist and Intensive Care Unit Confusion Assessment Scale were used to collect the data.	It was determined that providing delirium information training to intensive care nurses positively affected the care of patients with delirium. In addition, it was determined that nurses were able to provide the care they needed to patients at risk for delirium by defining delirium with the Intensive Care Unit Confusion Assessment Scale.

Experiences of Surgical Intensive Care Nurses Regarding Delirium: A Phenomenological Study **(Doğan et al., 2023)** [38]	To reveal the perceptions and care practices of nurses working in surgical intensive care units towards delirium by in-depth interviews	A Qualitative Research in Phenomenological Design	Twenty nurses working in surgical intensive care units and caring for patients previously diagnosed with delirium.	Semi-structured interview form	The interventions applied by nurses while caring for the patient with delirium were divided into six themes: providing and maintaining a safe environment, communication, nutrition, movement, sleep and dependent interventions/other. In addition, the difficulties experienced by nurses while caring for the patient with delirium were divided into three themes: patient-related, systemic, and individual difficulties.
Intensive Care Nurses' Knowledge about Delirium Evaluation of Knowledge and Approaches: Qualitative Study (**Yılmaz et al., 2023)** [39]	To evaluate the knowledge and approaches of intensive care nurses about delirium	Qualitative Study	Fifteen nurses working in internal medicine, surgery, neurology, and coronary intensive care units.	Semi-structured interview form	Defining delirium, managing delirium, problems in care, experiencing physical and mental problems, and lack of knowledge and skills (five themes)
Delirium Awareness and Management in terms of Personality Characteristics of Nurses Working in Intensive Care Units **(Eren et al., 2023)** [37]	To determine the awareness and management of delirium in terms of personality traits of nurses working in intensive care units	Descriptive	Eighty-four nurses in adult intensive care units	Data collection form, Nurses' Level of Knowledge about Delirium Form and Five Factor Personality Traits Questionnaire	A negative correlation was found between nurses' delirium definition knowledge scores and extraversion personality trait; a positive significant relationship was found between delirium symptom/symptom scores and conscientiousness, agreeableness and five factor personality total

					scores. In addition, a positive significant relationship was found between delirium management scores and conscientiousness, emotional inconsistency and five-factor personality total scores, and a positive significant relationship was found between delirium total knowledge scores and conscientiousness personality traits.
Studies with patient samples					
Determination of delirium and risk factors in patients hospitalised in cardiovascular surgery intensive care unit **(Yaşayacak et al., 2012)** [40]	Determination of delirium and risk factors in patients hospitalised in cardiovascular surgery intensive care unit (ICU)	Descriptive	Fifty-five patients hospitalised in the intensive care unit of a university hospital	Glasgow coma scale, Richmond agitation sedation scale (RASS), acute physiology and chronic health evaluation (APACHE2), simplified treatment approaches scoring system	It was determined that 18.2% (n=10) of the patients developed delirium, 80% of the patients who developed delirium were hypoactive type, and APACHE II, RASS, TISS-28 scores from intensive care scores increased in the group who developed delirium.
The relationship between delirium and risk factors and nursing workload in cardiology intensive	To evaluate the relationship between delirium and risk factors and nursing	Cross-sectional / Descriptive	One hundred and thirty-three patients in the cardiology	Patient Information Form, Delirium Risk Factors Form and Therapeutic Intervention Scoring	It was found that the presence of delirium and delirium risk

care unit patients **(Öztürk Birge et al., 2018)** [41]	workload in cardiology intensive care unit (ICU) patients.		intensive care unit of a university hospital	System-28 (TISS-28) scale to determine the workload of the nurse	factors increased the workload of the nurse.
Prevalence of Postoperative Delirium and Affecting Factors in Neurosurgical Intensive Care Unit **(Kose et al., 2021)** [42]	To determine the prevalence and factors affecting postoperative delirium (POD) in patients in neurosurgical intensive care unit	Cross-sectional / Descriptive	One hundred and twenty-seven neurosurgical intensive care unit patients.	Patients evaluated for the development of post-operative delirium using the Intensive Care Delirium Screening Checklist.	Among one hundred and twenty-seven intensive care unit patients, post operative delirium was found in 24 patients. It was statistically significant.
The Role of Multicomponent Non-Pharmacological Nursing Interventions in the Prevention of Delirium: A Randomised Controlled Study **(Kasapoğlu et al., 2022)** [44]	To compare the effects of multicomponent-non-pharmacological nursing interventions on delirium	Randomised controlled trials	132 patients in an intensive care unit	Patients in group 1 were made to listen to orientation messages recorded in the voice of a non-family member (10 minutes), read the newspaper, and wore an eye patch at night. Group 2 received the same interventions as group 1, except that the orientation messages were recorded in the voice of a family member. The control group received standard care.	A significant difference was found between the 3 groups. When group 1 and group 2 were compared with the control group, a significant difference was found between group 2 and the control group ($p<0.05$). Multicomponent non-pharmacological nursing interventions were found to reduce

					delirium in critically ill patients.
Evaluation of the effectiveness of a delirium prevention care protocol in patients with hip fracture: A randomised controlled trial (**Unal et al., 2022)** [45]	Investigation of the effectiveness of delirium prevention care protocol on pain, functional status, sleep quality and delirium prevention in patients with hip fracture	Randomised controlled trials	84 patients who were admitted to the orthopaedic ward	The intervention group (n=41) received nursing care according to the protocol and the control group (n=43) received standard nursing care. Study data were collected using demographic information form, Confusion Assessment Method-Intensive Care Unit (CAM-ICU), Barthel Index, Mini Nutritional Assessment-short form, and Richards-Campbell Sleep Questionnaire (RCSQ). Patients' pain was assessed using the Visual Analogue Scale (VAS).	The sleep quality of the patients in the intervention group was significantly better than that of the control group for all three-time measurements ($p < 0.05$ for each).
The Effect of Ear Plugs/Eye Mask on Sleep and Delirium in Intensive Care Patients **(Akpinar et al., 2022)** [46]	To investigate the effects of overnight use of ear plugs and eye masks on sleep quality and delirium in intensive care patients.	Randomised controlled trials	42 patients in the experimental group and 42 patients in the control group, a total of 84 intensive care patients.	Patients in the experimental group used earplugs and eye masks throughout the night, while those in the control group received only routine care. Data were collected using an information form, Richards-Campbell sleep questionnaire (RCSQ) and	Earplugs and eye masks used overnight by intensive care patients were associated with an increase in sleep quality and a decrease

				intensive care delirium screening checklist (ICDSC).	in the degree of delirium.
Incidence, characteristics, and risk factors of delirium in intensive care unit: An observational study **(Erbay et al., 2022)** [43]	To investigate the incidence, characteristics, and risk factors of delirium in ICU.	An observational cohort studies.	**129 intensive care patients**	Patients were assessed twice daily using the RASS and CAM-ICU scales.	The incidence of delirium was 31.8%, while the hypoactive type (41.5%). Patients with delirium had significantly higher APACHE-II, SOFA and CPOT scores, higher blood urea levels, higher requirements for mechanical ventilation, sedation and physical restraints, longer ICU stays and higher mortality than those without delirium.
Determination of delirium and risk factors in intensive care unit **(Bahar et al., 2023)** [55]	The aim of this study was to increase nurses' awareness of delirium risk factors, to gain competence in the use of the Nursing Delirium Screening Scale (Nu-DESC) and to improve quality of	Descriptive, correlational	55 patients in an intensive care unit	Personal Information Form, Richmond Agitation and Sedation Scale, Glasgow Coma Scale and Nu-DESC.	Most patients (89%) showed anxiety and agitation symptoms, age and day of delirium detection were significantly correlated with Nu-DESC, and the need for isolation,

	care through early detection of delirium in intensive care patients.				ventilator support and pain were identified as risk factors.
The effect of eye mask and earplugs in preventing delirium in intensive care unit patients: A single-blind, randomised, controlled study **(Kiliç et al., 2022)** [47]	To investigate the effect of eye mask and ear plugs in preventing delirium in intensive care units (ICU).	A randomised, controlled, single-blind intervention study	60 patients (30 in the intervention group and 30 in the control group)	Nursing Delirium Screening Scale, Richard-Campbell Sleep Scale, and daily follow-up form	Ear plugs and eye masks used by intensive care patients during the night were found to be effective in improving sleep quality and preventing delirium.
Delirium of Cognitive Stimulus and Sleep Hygiene in COVID-19 Intensive Care Patients Preventive Effect **(Şanlıtürk et al., 2023)** [48]	To evaluate the effect of a two-component intervention including sensory stimulation and sleep hygiene on reducing the development of delirium in intensive care unit (ICU) (COVID-19) patients	Randomised controlled trials	43 patients in the intervention group and 49 patients in the control group	Personal data collection form, CAM ICU, RASS, GKS were used. Sensory stimulation and sleep hygiene interventions were applied to the patients in the intervention group according to the Nursing Model Based on Life Activities.	There was no statistically significant difference between the experimental and control group patients in terms of demographic and treatment characteristics, vital and arterial blood gas values ($p>0.05$). After the intervention, 56% of the patients in the experimental group and 80% of the patients in the control group developed delirium and the

					difference was statistically significant.
The Effect of Environmental Changes in Preventing Delirium in Elderly Patients in the Intensive Care Unit: A Non-Randomised Controlled Study **(Çavuşoğlu et al., 2023)** [49]	To examine the effect of environmental changes on the prevention of delirium in elderly patients in the intensive care unit	A non-randomised independent two-group quasi-experimental study	The sample consisted of 60 patients who met the inclusion criteria.	Patient information form, GCS, RASS, CAM ICU were used. In the intervention group (30 patients), the sound level of the environment was improved, bright light, a written calendar and clock were used, and they were allowed to use their glasses or hearing aids if they had them.	The risk of developing delirium was 2.32 times higher in the control group compared to the intervention group and this was statistically significant.
Studies with Nurses and Patients as Sample					
The effect of nonpharmacological approach training on intensive care nurses' recognition and handling of delirium **(Öztürk Birge et al., 2017)** [56]	To investigate the effect of nonpharmacological intervention training on delirium recognition and intervention strategies of intensive care unit (ICU) nurses	Quasi-experimental	The sample consisted of 95 patients hospitalised in the chest diseases intensive care unit of Gazi University Hospital and 19 employees.	Patient-nurse introduction form, ICU-confusion assessment scale, delirium risk factors, and information assessment form about delirium were used.	Delirium was detected in 26.5% and 20.9% of patients before and after training, respectively. Patients with delirium had longer ICU stays, lower Glasgow Coma Scale mean scores, and more drugs were used in daily treatment ($p < 0.05$). The risk of delirium increased

					8.5-fold with physical restraint and 3.4-fold in the presence of hypo/hypernatremia. The rate of nurses recognising delirium increased from 7.7% to 33.3% in the post-training period.