

Non-Pharmacological Nursing Interventions for the Prevention and Management of Delirium in Hospitalized Older Adults: Implications for Clinical Practice

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Abstract

Delirium is a common and serious neurobehavioral condition among hospitalized older adults, often leading to poor long-term outcomes. Effective management requires a multifaceted approach, including both pharmacological and non-pharmacological interventions. This systematic review evaluates non-pharmacological nursing interventions aimed at preventing and treating delirium in hospitalized older adults. A thorough search was conducted using electronic databases such as PubMed, CINAHL, Embase, and the Cochrane Central Register of Randomized Controlled Trials. The review focused exclusively on randomized controlled trials (RCTs) to ensure high-quality evidence. The analysis included nine RCTs that examined various non-pharmacological interventions, ranging from multicomponent strategies to single interventions like music therapy and cognitive activities. The findings indicated that non-pharmacological interventions significantly reduce the incidence and severity of delirium in hospitalized patients. Specific strategies, such as family involvement and multimedia education, were particularly effective. However, there was variability in the timing and frequency of interventions, with most studies administering them repetitively over extended durations. Non-pharmacological nursing interventions are crucial for the prevention and management of delirium in older adults. This review provides a framework for nursing practice, highlighting effective strategies that nurses can implement in clinical settings. Future research should focus on standardizing intervention protocols and exploring the long-term impacts of these approaches on patient outcomes.

Keywords: *Delirium, Non-Pharmacological Interventions, Nursing Care, Older Adults, Systematic Review.*

Introduction

Delirium is a prevalent neurobehavioral consequence among hospitalized patients. Delirium manifests during the acute phase and may result in worse long-term results [1,2]. Numerous research studies have sought to prevent and manage delirium by both pharmaceutical and non-pharmacological approaches [3-5]. Proposed risk factors for delirium encompass advanced age; cognitive, functional, and sensory deficits; infections; severity of illness; renal and electrolyte imbalances; institutional residency; diabetes; cerebrovascular disorders; pulmonary conditions; opioid administration; duration of surgery; blood loss; transfusions; levels of albumin, hematocrit, and hemoglobin; Mini-Mental State Examination scores; ambulation incapacity; depression; polypharmacy; and treatment with multiple pharmacological agents [6,7]. In light of these risk factors, non-pharmacological therapies are used to mitigate one or more risk variables to prevent or address delirium [3].

Non-pharmacological therapies aimed at mitigating these risk variables have been examined as either singular or multi-faceted interventions [8-14]. Moreover, the intervention providers have included a variety of professionals, including primary care nurses, geriatric internists, psychiatrists, cardiologists, caretakers, and family members [1,13,15]. Nevertheless, several studies within this body of research did not include nurses as intervention providers in clinical settings [16,17]. Furthermore, research that performed a systematic analysis of nursing treatments was a narrative review including before-and-after cohort studies

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and non-randomized controlled trials (NRCT) done between 1999 and 2014 [18]. A narrative evaluation was conducted on nurse treatments to avoid delirium in critical care unit patients during the COVID-19 pandemic [19].

Nonetheless, nurses may encounter challenges in implementing treatments as outlined in the protocols of these trials. This is due to the challenges associated with implementing non-pharmacological therapies by physicians or other healthcare practitioners in nurse-led clinical practice. Furthermore, for research that are not randomized controlled trials (RCTs), there exists a limitation in translating study findings into practice when delivering evidence-based nursing care.

This research aims to conduct a comprehensive assessment of non-pharmacological nursing treatments for the prevention and treatment of delirium, facilitating nurses in the prompt selection and use of these interventions in clinical practice. Furthermore, it is anticipated that nurses would head a multidisciplinary team of diverse healthcare professionals and use non-pharmacological therapies. A thorough analysis of RCTs will delineate strategies for superior nursing care and provide avenues for further nursing research.

Methods

The review's search method was formulated and executed by a librarian proficient in systematic reviews, with contributions from the study's authors. The investigation used the following electronic databases: PubMed, Cumulative Index for Nursing and Allied Health Literature (CINAHL), Embase, and Cochrane Central Register of Randomized Controlled Trials.

Analysis

In the analysis of participant age, three research [12-14] included older persons aged 65 and above, one study [9] had individuals over 55 years, and four studies [8,11,20,21] covered adults over 18 years; one study [10] did not disclose participant age. The investigation was done in the following clinical units: ward [8,12,13], intensive care unit (ICU) [14,23], and both ward and ICU [9,10,22]; one study did not specify a particular unit [11]. Furthermore, two investigations [12,13] were performed in a medical unit, six studies were executed in a surgical unit [8,9,10,11,14,22], and one research unit [23] included both medical and surgical units. Four research examined nurse-led interventions [10,11,12,23], whereas five studies used nurses as part of diverse healthcare provider teams delivering the intervention [8,9,13,14,22].

Four studies [8,12,13,14] focused on multi-component therapies, whereas five research examined single-component interventions [9,10,11,22,23]. Concerning the prevention and treatment of delirium, four studies [8,9,22,23] investigated delirium prevention, two studies [10,11] explored delirium therapy, and three research [12-14] assessed both prevention and treatment of delirium.

The Non-Pharmacological Nursing Interventions

The non-pharmacological nursing interventions executed by nurses encompassed multicomponent non-pharmacologic strategies, multidisciplinary care, multimedia education, music listening, mentoring of family caregivers regarding delirium management (MENTOR_D), bright light exposure, ear plugs, and simulated family presence interventions utilizing pre-recorded video messages [12-23].

The components of non-pharmacological nursing interventions encompassed family involvement, multimedia strategies, music therapy, earplugs, sleep management, orientation techniques, enhanced communication, and nutritional management [9-14, 23]. Seven studies [8-14] included cognitive activities, while two research [22,23] excluded them.

Concerning the timing of the initial non-pharmacological nursing intervention, four studies commenced from the point of hospitalization [9,12,13,23], two studies initiated prior to surgery [8,14], one study began post-surgery [22], and two studies [10,11] were conducted subsequent to the onset of delirium. Two research [8,11] administered therapies singularly, whereas seven studies [9,10,12-14,22,23] implement

interventions periodically and repetitively. The cumulative duration of intervention was 1 minute, 4–6 minutes, 150 minutes, 360 minutes, 480 minutes, 3 days, and 8 weeks [8-13]. One trial maintained the intervention from hospitalization until release [12]. The screening scales for delirium incidence included CAM, CAM-ICU, DSM-IV-TR, MMSE, and NEECHAM. The instruments used to assess the degree of delirium were the DRS, Delirium Index, CAM-ICU, and ABS [10-13]. The follow-up durations for each intervention were 30 minutes, 3 days, 4 days, 5 days, 16 days, and a maximum of 8 weeks [8-14,22].

The outcomes of non-pharmacological nursing interventions on delirium incidence revealed three studies [8,12,14] demonstrating a statistically significant difference, two studies [13,22] showing no statistically significant difference, one study [9] reporting no occurrence of delirium in either group, or one study [23] indicating no statistically significant difference. Following the implementation of non-pharmacological nursing treatments for delirium severity, two studies [11,12] demonstrated a statistically significant change, whereas two studies [10,13] did not exhibit a statistically significant difference.

Discussion

This research sought to analyze the current literature about non-pharmacological nursing interventions for the prevention and management of delirium in hospitalized adult patients. Additionally, it sought to discover evidence that nurses might use in their clinical practice and to promote nursing research via a systematic review. Most prior studies validating the efficacy of non-pharmacological therapies neglect to account for the providers of these interventions. Only a limited number of research successfully identified the treatments executed by nurses; prior evaluations of non-pharmacological nursing interventions for the prevention and management of delirium in hospitalized adult patients included one comprehensive study [24] and one narrative review [18].

This research included a comprehensive literature review only using randomized controlled trials (RCTs). A recent systematic literature review of randomized controlled trials encompassed a study aimed at identifying pharmacological and non-pharmacological interventions for the prevention and treatment of delirium post-cardiac surgery [25], a study examining the impact of family interventions on adults with delirium [15], a study validating a non-pharmacological multicomponent intervention for delirium prevention in inpatients [1], and a study affirming the efficacy of physical training in the prevention and treatment of delirium in inpatients [26]. The aforementioned studies aimed to validate the effects of pharmacological interventions, as well as to assess the impact of certain interventions, including family and multi-component interventions; however, there were no studies validating the effects of non-pharmacological nursing interventions.

Non-pharmacological nursing interventions for the prevention and treatment of delirium encompass multicomponent non-pharmacologic strategies, multidisciplinary care, multimedia education, music therapy, guidance for family caregivers on delirium management, bright light exposure, earplugs, and simulated family presence interventions utilizing pre-recorded video messages. Prior research substantiated the efficacy of non-pharmacological nursing approaches. Research validated the effectiveness of a non-pharmacological intervention for delirium prevention in a general ward [3], while a narrative review [18] corroborated the usefulness of multicomponent programs as a nursing intervention for preventing delirium in hospitalized patients. The guidelines on the prevention and treatment of postoperative delirium in older patients [27] affirmed the effectiveness of therapies using simulated family presence. Nonetheless, several treatments had outcomes divergent from those seen in this research, and the sorts of interventions examined in prior studies were inconsistent and diverse. This study established the theoretical foundation for the scientific use of non-pharmacological nursing treatments in clinical practice and proposes avenues for nursing research.

The fact that 66.7% (six) of studies were published in the past five years indicates a recent surge in nurses' interest in scientific approaches for the prevention and treatment of delirium. Prior research indicated that delirium occurred in 30–80% of hospitalized elderly patients, with no significant decline in incidence over an extended duration [28,29]. This seems to illustrate the endeavors of nurses to implement diverse

approaches to address the issue, since the prevalence of delirium persists despite ongoing studies by healthcare professionals.

Consequently, the quality evaluation of the chosen research indicated a low overall risk of bias in four studies (44.4%). This outcome was attributable to the significant risk of bias seen in one or two studies across each of the five areas. Specifically, two studies exhibited a significant risk of bias due to absent outcome data resulting from the substantial volume of missing data post-randomization. Older adult patients hospitalized to the critical care unit often withdrew from the trial due to changes in their health. Consequently, it is essential to design research that can accommodate absent data in the future. Nursing research aimed at the prevention and treatment of delirium is being undertaken globally, including Europe, America, and Asia. This seems to indicate a significant interest in determining appropriate nursing treatments for patients with delirium globally.

Research in nursing about delirium has been validated to have advanced the prevention and treatment of the condition. Multicomponent and interdisciplinary approaches have mostly been used for the prevention and management of delirium. The delivery of nursing care to the family has mostly focused on the management of delirium. It was established that multimedia instruction, music listening, bright light exposure, and earplugs were mostly used in the avoidance of delirium. A diverse array of healthcare professionals offers several approaches applicable to both the prevention and treatment of delirium. Furthermore, it seems that a solitary intervention was autonomously implemented by nurses to avert delirium.

The ratio of studies performed in the critical care unit and ward for the prevention and management of delirium was comparable. Delirium is precipitated by several circumstances; it has been claimed that 20% of elderly individuals hospitalized to a medical ward have delirium, and it is the primary reason for admission to the critical care unit. Delirium in hospitalized adult patients was identified as a nursing issue requiring resolution in both the ward and the critical care unit.

Research on delirium was mostly undertaken in surgical departments, including seven papers, or 77%, compared to medical departments. Research [30] identified an increased prevalence of delirium in patients after heart and hip surgeries; delirium is acknowledged as a significant postoperative nursing issue that is being proactively managed.

Furthermore, the initiation of non-pharmacological nursing interventions for the prevention and treatment of delirium began upon admission in four (44%) of the included trials. Given that delirium is induced by several variables [17], it seems that measures were proactively initiated to prevent delirium after admission [30].

A greater number of studies administered therapies many times (7 studies, 77%) compared to those that implemented interventions just once. Research [30] validated the occurrence of postoperative delirium by the implementation of a music intervention for patients after hip or knee surgery, revealing that some studies used music intervention consistently for a minimum of 3 hours daily over a span of 3 days or more until discharge. Consequently, it seems that the most efficacious therapies need repeated administration in future investigations.

Single-component nursing intervention studies (five studies, 55%) were undertaken somewhat more often than multicomponent intervention studies. Nurses are believed to be formulating interventions in collaboration with diverse healthcare practitioners while simultaneously striving to establish autonomous nursing interventions. Seven trials, or 77%, included cognitive treatments. Given that delirium presents with symptoms of cognitive deterioration, therapies aimed at preserving cognitive function, including cognitive activities, are mostly used.

Constraints

This research was performed as a systematic review to discover non-pharmacological nursing treatments for the prevention and treatment of delirium in hospitalized adult patients; yet, it has significant limitations. Initially, generalizing the non-pharmacological therapies included in this research to hospitalized adult patients may be challenging due to the variability in intervention activities, providers, and timing of implementation. This research may have inadequately conducted the gray literature search, and while targeting RCTs, only four out of nine studies had a low overall risk of bias. The screening measures for the incidence of delirium showed significant variability among trials. Furthermore, since this study included a scenario where nurses executed interventions as part of a research team, there is a constraint on the examination of non-pharmacological nursing interventions conducted by nurses.

Conclusions

Previous systematic studies have been conducted on non-pharmacological therapies for the prevention and treatment of delirium. Included in this analysis was research on non-pharmacological nursing treatments; however, there were few randomized controlled trials (RCTs). This research performed a comprehensive assessment of the treatments, timing, and frequency of non-pharmacological nursing interventions for the prevention and treatment of delirium in randomized controlled trials. The components of non-pharmacological nursing therapies include family involvement, multimedia strategies, music therapy, sleep management, orientation techniques, enhanced communication, and dietary oversight. Nurses initiated interventions prior to hospitalization or surgery, with the period of intervention application ranging from 1 minute to the length of hospitalization, and the majority of interventions were administered many times. This study's findings may provide explicit suggestions for nurses to choose delirium nursing strategies applicable in practical practice. This study also proposes avenues for further research on delirium nursing.

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السريرية للممارسة تطبيقات: المستشفيات في السن كبار لدى وإدارته الهذيان من للوقاية الدوائية غير التمريضية التدخلات

الملخص

الأمد ويلةط صحية نتائج إلى يؤدي ما وغالبًا، المستشفيات في السن كبار بين وخطيرة شائعة سلوكية عصبية حالة الهذيان يُعد: الخلفية الدوائية وغير الدوائية التدخلات يشمل، الجوانب متعدد نهجًا الحالة هذه مع الفعال التعامل يتطلب. ضعيفة

في السن كبار لدى وعلاجه الهذيان من الوقاية إلى تهدف التي الدوائية غير التمريضية التدخلات المنهجية المراجعة هذه تقم: الطرق Cochrane وسجل، Embase، وCINAHL، وPubMed مثل إلكترونية بيانات قواعد باستخدام شامل بحث إجراء تم. المستشفيات الأدلة جودة لضمان (RCTs) المنضبطة العشوائية التجارب على حصرًا المراجعة ركزت. المنضبطة العشوائية للتجارب المركزي

كونات الم متعددة استراتيجيات من بدءًا، متنوعة دوائية غير تدخلات تناولت منضبطة عشوائية تجارب تسع التحليلات شملت: النتائج حدوث م كبير بشكل تقلل الدوائية غير التدخلات أن إلى النتائج أشارت. الإدراكية والأنشطة بالموسيقى العلاج مثل فردية تدخلات إلى صةخا فعالية، الوسائط متعدد والتعليم العائلة إشراك مثل، معينة استراتيجيات أظهرت. المستشفيات في المرضى لدى الهذيان وشدة ممتدة زمنية فترات مدار على متكرر بشكل التدخلات معظم تنفيذ تم حيث، التدخلات وتكرار توقيت في تفاوت لوحظ، ذلك ومع

عمل إطار المراجعة هذه تقدم السن كبار لدى وإدارته الهذيان من للوقاية أساسية الدوائية غير التمريضية التدخلات تُعتبر: الخلاصة
تركز نأ ينبغي. السريرية البيانات في الممرضون ينفذها أن يمكن فعالة استراتيجيات على الضوء تسلط حيث، التمريضية للممارسة
المرضى نتائج على النهج لهذه الأمد طويلة الآثار واستكشاف التدخل بروتوكولات توحيد على المستقبلية الأبحاث

منهجية مراجعة، السن كبار، التمريضية الرعاية، الدوائية غير التدخلات، الهذيان: المفتاحية الكلمات