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**Review Article**

# Nonpharmacological intervention in the management of delirium: an integrative bibliographic review

## *Intervenção não farmacológica no manejo de delirium: uma revisão bibliográfica integrativa*

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## Abstract

**Introduction:** Delirium is a complex clinical condition characterized by a neuropsychiatric expression organic disease, in which the individual has a sudden change in cognitive capacity, possible fluctuations in sleep, awareness, and attention. The treatment of delirium must be carried out using a multicomponent and interdisciplinary approach. **Objective:** Learning about non-pharmacological interventions for the management of delirium by a multidisciplinary team and those conducted specifically by the occupational therapist. **Method:** Integrative bibliographic review on Lilacs, Pubmed, Scopus and Web of Science database and SciELO. **Results:** The interventions aimed at the empowerment and participation of all agents involved in the treatment of patients with delirium. We highlight strategies focused on: increasing patient autonomy and independence; adequacy of environmental conditions, promote safety, comfort, familiarity, and temporal-spatial orientation; adaptation of the routine to favor the sleep-wake cycle; physical, cognitive, and sensory stimulation; improving occupational performance and encouraging significant activities; prescription of assistive technology resources and complementary therapies, when indicated; constant evaluation and monitoring of the patient; control of pain, emotional symptoms and clinical conditions that predispose to delirium; improved communication of the patient and his bonding with the team and the support network; and health education. **Conclusion:** Interventions aim at integrality of care and therefore, must be carried out by the different professionals that compose the team, highlighting the role that occupational therapists play in the management of delirium.

**Keywords:** Delirium, Patient Care Management, Occupational Therapy.

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***Resumo***

**Introdução:** O delirium é um quadro clínico complexo caracterizado por uma expressão neuropsiquiátrica de doença orgânica, em que o indivíduo apresenta súbita alteração da capacidade cognitiva, possíveis flutuações do sono, consciência e atenção. O tratamento do delirium deve ser realizado por meio de uma abordagem multicomponente e interdisciplinar. **Objetivo:** Conhecer as intervenções não farmacológicas para o manejo de delirium por equipe multiprofissional e aquelas conduzidas especificamente pelo terapeuta ocupacional. **Método:** Revisão bibliográfica integrativa da literatura indexada nas bases Lilacs, Pubmed, Scopus e Web of Science e SciELO sem recorte temporal. **Resultados:** As intervenções visavam ao empoderamento e a participação de todos os agentes envolvidos no tratamento do paciente com delirium. Destacaram-se estratégias voltadas para: o aumento da autonomia e da independência do paciente; adequação das condições ambientais, o modo a promover segurança, conforto, familiaridade e orientação temporal-espacial; adaptação da rotina para favorecer o ciclo sono-vigília; estimulação física, cognitiva e sensorial; melhora do desempenho ocupacional e estímulo à realização de atividades significativas; prescrição de recursos de tecnologia assistiva e terapias complementares, quando indicado; avaliação e monitoramento constante do paciente; controle da dor, de sintomas emocionais e de condições clínicas que predispõem ao delirium; melhora da comunicação do paciente e sua vinculação com a equipe e com a rede de apoio; e educação em saúde. **Conclusão:** As intervenções visam à integralidade do cuidado e devem, portanto, ser realizadas pelos diferentes profissionais que componham a equipe, destacando-se o papel que os terapeutas ocupacionais exercem no gerenciamento do delirium.

**Palavras-chave:** Delírio, Administração dos Cuidados ao Paciente, Terapia Ocupacional.

## Introduction

Delirium is a neuropsychiatric manifestation of organic disease, corresponding to a multifactorial clinical picture characterized by an acute decline in cognitive capacity, which can present episodes of instability in the levels of attention and awareness, and also confusions and disorganized thoughts (Oh-Park et al., 2018).

The prevalence of delirium in the general population is about 1-2%. However, it increases severely in elderly people, reaching 87% in cases of hospitalization (American Psychiatric Association, 2014). In addition to old age being an important risk condition, hospitalization is the main precipitating factor for delirium due to the great environmental and routine variation imposed (van Velthuijsen et al., 2018). Also, behaviors adopted in the hospital environment can increase the risk of developing delirium, for example, the use of mechanical ventilation devices, immobilization, and sedative medications (Balas et al., 2014).

Delirium can be classified as hyperactive, hypoactive, or mixed, according to the level of psychomotor activity presented by the patient. The hyperactive subtype is the most frequently recognized and the hypoactive subtype is the most common in older people (American Psychiatric Association, 2014). The fluctuation of the symptoms that

characterize delirium can make it difficult, in addition to its diagnosis, to establish communication between the patient and the team, needing to implement non-pharmacological strategies (Rosen et al., 2015).

Studies point out non-pharmacological management as an important way of preventing cases of delirium, through environmental and supportive measures. The use of drugs can later be adopted, if necessary, as part of a multicomponent approach (Robinson & Eiseman, 2008; Hipp & Ely, 2012).

According to Morandi et al. (2017), the treatment of delirium should be based on an interdisciplinary and multidimensional approach, involving different health professionals. Occupational Therapy interventions reduce the impacts of the pathology and allow actions focused on prevention (Tobar et al., 2017; Álvarez et al., 2017; Herling et al., 2018).

An unsystematic search in the literature suggested a scarcity of studies that emphasize non-pharmacological interventions for the management of delirium. In this context, we conducted an integrative bibliographic review aimed to learn about non-pharmacological interventions for the management of delirium by a multidisciplinary team and to verify the role of the occupational therapist with this population.

## Methodology

This research was developed along the lines of an integrative bibliographic review. This is the most comprehensive type of review, as it allows the inclusion of experimental, non-experimental studies and also the combination of data from empirical and theoretical literature (Whittemore & Knafl, 2005). The work was carried out according to the following phases: elaboration of the guiding question; search or sampling in the literature; data collection; critical analysis of the included studies; discussion of results; and presentation of the integrative review (Souza et al., 2010).

Two undergraduate students developed the study. One of the students was a volunteer enrolled in the Institutional *Programa Institucional de Bolsas de Iniciação Científica da USP (PIBIC-USP)* and one was fellow at the *Programa Unificado de Bolsas de Estudos para Apoio à Permanência e Formação de Estudantes de Graduação (PUB-USP)* of the University of São Paulo.

For the selection of articles in this study, we defined the following inclusion criteria: original articles, literature reviews or experience reports; with peer review; in Portuguese, English, and Spanish; indexed in the Lilacs, Pubmed, Scopus, and Web of Science databases and the SciELO; related to strategies of non-pharmacological interventions of occupational therapy or a multidisciplinary team aimed at the prevention or management of delirium; and articles that brought together the population with different clinical conditions, as long as one of them was delirium. To broaden the search, we did not use filters per year of publication in the databases. We excluded articles that addressed only pharmacological strategies aimed at delirium or other related health conditions; evaluation and validation studies of instruments; editorials, letters, expanded abstracts, and book reviews.

The descriptors used were *delirium* and *manejo*, delirium and management in English, combined with the Boolean logical operator "AND". During the search, the need for the term to be present in the title of the article was specified. This strategy aimed to find materials that addressed the management of delirium as a central theme. To ensure that

the articles dealing with interventions conducted specifically by the occupational therapist in the delirium and to recognize whether or not these were carried out together with other professionals, we sought to complement the data from the first search by conducting a second one. This included the descriptor "terapia ocupacional", and "occupational therapy" in English combined with "delirium" and "management" from the Boolean logical operator "AND". The same procedures as the first search were reproduced, except that the second was carried out by topic.

The results obtained in each database were exported to the Start data manager, a bibliographic management tool developed by the Software Engineering Research Laboratory (LaPES), of the Federal University of São Carlos (UFSCar). Initially, two reviewers selected the studies by reading the titles, their respective abstracts, and keywords, independently and blindly, according to the inclusion and exclusion criteria. The studies selected in this first search were read in full for definition as to their inclusion or exclusion. A third reviewer was consulted when there were differences in the selection of articles between the two reviewers.

The data from the studies of the final sample were extracted and systematized in tables, according to the Start protocol. The rigor of the selected studies was analyzed according to the level of evidence, following the definition of Stillwell et al. (2010).

## Results

Figure 1 shows the flowchart of the article selection process.

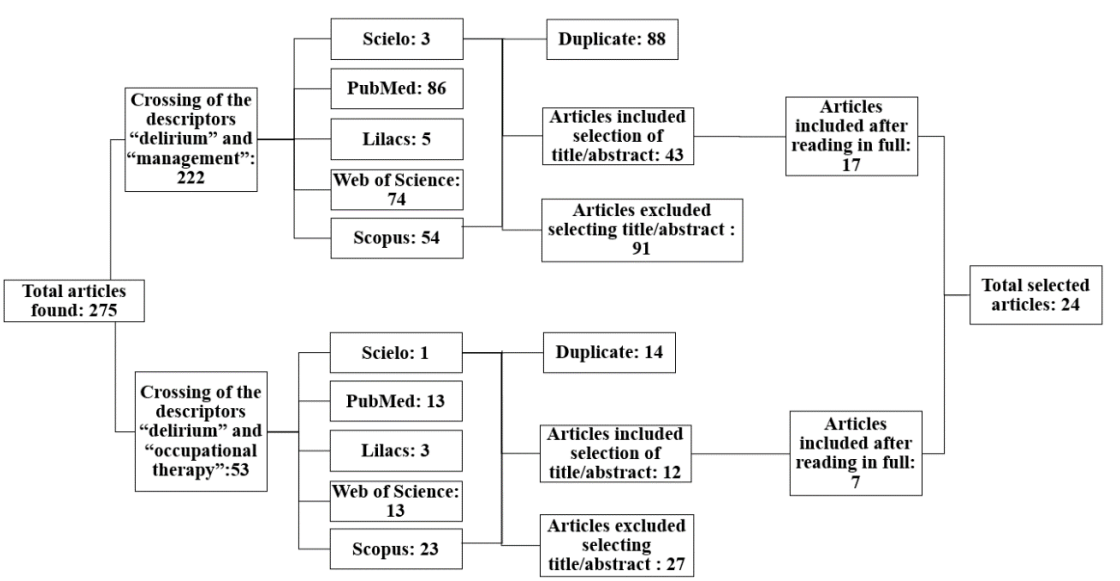


**Figure 1.** Flowchart of the article selection process. São Paulo - SP, 2020.
Source: Elaborated by the authors, 2020.

Table 1 shows the general characteristics of the selected articles.

**Table 1.** General characteristics of the articles included in the review. São Paulo - SP, 2020.

| Author (s) | Journal | Year | Country | Language | Study design | Study population | Level of scientific evidence |
|---|---|---|---|---|---|---|---|
| Banh (2012) | Journal of Pharmacy and Pharmaceutical Sciences | 2012 | Canada | English | Literature review | Adult patients with critical illnesses | V |
| Chevrolet & Jolliet (2007) | Critical care Journal | 2007 | Switzerland | English | Literature review | Critically ill patients admitted to the ICU | V |
| El Majzoub et al. (2019) | Annals of palliative medicine | 2019 | Lebanon | English | Literature review | Cancer Patients | V |
| Finucane et al. (2017) | Journal Psycho-oncology | 2017 | UK | English | Literature review | Caregivers of terminally ill patients with delirium | V |
| Hipp & Ely (2012) | Neurotherapeutics: the journal of the American Society for Experimental | 2012 | USA | English | Literature review | Critically ill patients | V |
| Hughes et al. (2012) | Best Practice & Research Clinical Anaesthesiology | 2012 | USA | English | Literature review | Not specified | V |
| Irwin et al. (2013) | Journal of palliative medicine | 2013 | USA | English | Literature review | Health professionals | V |
| Kalish et al. (2014) | American Family Physician | 2014 | USA | English | Literature review | Older adults | V |
| Kolanowski et al. (2016) | Journal of the American Geriatrics Society | 2016 | USA | English | Randomized controlled study | Hospitalized elderly who had a mild to moderate stage of dementia and delirium | II |
| Meagher (2001) | British Medical Journal | 2001 | UK | English | Literature review | Not specified | V |
| Morandi et al. (2017) | Critical Care Medicine | 2017 | Italy | English | Qualitative article | Not specified | VI |
| Oh-Park et al. (2018) | American JournalPhysical Medicine & Rehabilitation | 2018 | USA | English | Literature review | Patients admitted to rehabilitation facilities | V |
| Quiroz et al. (2014) | Revista Chilena de Neuro-Psiquiatría | 2014 | Chile | Spanish | Literature review | Older adults | V |
| Robinson & Eiseman (2008) | Clinical interventions in aging | 2008 | USA | English | Literature review | Older adults | V |
| Rosen et al. (2015) | Advanced Emergency Nursing Journal | 2015 | USA | English | Literature review | Older people with delirium treated in the emergency department | V |
| Salawu et al. (2009) | Annals of African medicine | 2009 | Nigeria | English | Literature review | Not specified | V |
| van Velthuijsen et al. (2018) | International Journal of Geriatric Psychiatry | 2018 | Holland | English | Retrospective cohort study | Older patients diagnosed with delirium | IV |

**Table 1.** Continued…

| Author (s) | Journal | Year | Country | Language | Study design | Study population | Level of scientific evidence |
|---|---|---|---|---|---|---|---|
| Álvarez et al. (2012) | Revista Chilena de Terapia Ocupacional | 2012 | Chile | Spanish | Randomized clinical trial | Older patients admitted to the intensive care unit | II |
| Cavallazzi et al. (2012) | Annals of Intensive Care | 2012 | USA | English | Literature review | Patients admitted to the intensive care unit | V |
| Ibrahim et al. (2018) | Journal of the American Heart Association | 2018 | USA | English | Literature review | Cardiac intensive care unit patients | V |
| Morandi et al. (2019) | BMC Geriatrics | 2019 | Italy | English | Literature review | Not specified | V |
| Pozzi et al. (2020) | European Geriatric Medicine | 2020 | Switzerland | English | Literature review | Older adults | V |
| Rains & Chee (2017) | Journal of the Intensive Care Society | 2017 | UK | English | Literature review | Not specified | V |
| Tobar et al. (2017) | Revista Brasileira de Terapia Intensiva | 2017 | Chile | English | Literature review | Not specified | V |

According to the systematized data, the articles addressed the management of delirium in different populations: older adults (n = 8), patients with critical illnesses (n = 6), caregivers of terminally ill patients (n = 1), patients with cancer (n = 1), health professionals (n = 1) and unspecified population (n = 7).

We identified the following locations in the studies: ICU (n = 10), hospitals (n = 4), rehabilitation facilities (n = 1), emergency department (n = 1) and the unspecified location (n = 5). Also, 3 studies pointed out that strategies for managing delirium could be applied in more than one location: ICU, long-term care facilities, palliative care, and in the community (Kalish et al., 2014); ICU, rehabilitation facilities, and nursing homes (Pozzi et al., 2020); and in any care space, including home care (Irwin et al., 2013).

Few studies mentioned limitations, in which 17% referred to data collection, and in 4% they did not measure the effectiveness of the applied intervention protocol. Regarding the suggestions for future studies, 54% explained the need for more research related to the theme, 4% indicated that the participation of the patient and his family in the construction of the treatment must also be addressed. Also, 21% of the articles did not indicate limitations or suggestions for further studies.

One issue addressed in the studies referred to the delirium of the hypoactive subtype, which is not often identified in the assessments available for the diagnosis of delirium or is associated with a late start of treatment. This is inferred because patients with this delirium subtype frequently show apathetic, lethargic, and confusing behaviors due to depression, dementia, or sedation-related conditions (Oh-Park et al., 2018; Meagher, 2001; van Velthuijsen et al., 2018; Hipp & Ely, 2012; Hughes et al., 2012). In contrast, patients with hyperactive delirium often have visible symptoms, such as motor agitation, and are more easily diagnosed (Hipp & Ely, 2012).

Table 2 shows the professionals participating in the interventions described in the articles.

**Table 2.** Professionals who composed the interventions. São Paulo – SP, 2020.

| Author (s) | Occupational Therapist | | Doctor | Nurse | Physiotherapist | Pharmaceutical | Nursing Technician /Assistant | Speech-language therapist | Nutritionist | Social worker |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mention | Description of care | | | | | | | | |
| Álvarez et al. (2012) | X | X | X | X | | | | | | |
| Banh (2012) | | | X | X | | | | | | |
| Cavallazzi et al. (2012) | X | | | X | X | | | | | |
| Chevrolet & Jolliet (2007) | | | X | X | | | | | | |
| El Majzoub et al. (2019) | | | X | X | | | | | | |
| Finucane et al. (2017) | | | | X | | X | | | | |
| Hipp & Ely (2012) | | | X | X | | X | X | | | |
| Hughes et al. (2012) | X | | X | X | X | | | | | |
| Ibrahim et al. (2018) | X | | X | X | X | | | | | |
| Irwin et al. (2013) | | | X | | | | | | | |
| Kalish et al. (2014) | | | X | X | | | | | | |
| Kolanowski et al. (2016) | | | | X | X | | | X | | |
| Meagher (2001) | | | X | X | | | | | | |
| Morandi et al. (2017) | X | | | | | | | | | |
| Morandi et al. (2019) | X | X | X | X | X | X | X | X | X | X |
| Oh-Park et al. (2018) | | | X | X | | | | | | |
| Pozzi et al. (2020) | X | X | X | X | X | | | | | |
| Quiroz et al. (2014) | X | X | | X | | | | | | |
| Rains & Chee (2017) | X | X | | | X | | | | | |
| Robinson & Eiseman (2008) | | | X | X | | | | | | |
| Rosen et al. (2015) | | | X | X | | | | | | |
| Salawu et al. (2009) | | | X | X | | | | | | |

**Table 2.** Continued…

| Author (s) | Occupational Therapist | | Doctor | Nurse | Physiotherapist | Pharmaceutical | Nursing Technician /Assistant | Speech-language therapist | Nutritionist | Social worker |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mention | Description of care | | | | | | | | |
| Tobar et al. (2017) | X | X | | | X | | | | | |
| van Velthuijsen et al. (2018) | X | X | X | X | | | | | | |

Source: Elaborated by the authors, São Paulo – SP, 2020.

The professionals most cited in the studies were nurses (n = 21) and doctors (n = 17), and 16 articles refer to both. Regarding the occupational therapist, only 7 of the 11 articles that mentioned this professional described his performance. We identified that these studies addressed the performance of occupational therapy together with physical therapy.

Table 3 shows the non-pharmacological interventions performed by the multidisciplinary team in the management of delirium, organized into categories.

**Table 3.** Categorization of non-pharmacological interventions for the prevention and management of delirium. São Paulo – SP, 2020.

| Interventions | Author (s) | Description and/or purpose of care |
|---|---|---|
| Ambient lighting | Pozzi et al. (2020) | To adjust ambient lighting |
| | Álvarez et al. (2012), Morandi et al. (2017), Quiroz et al. (2014) | To adjust ambient lighting to promote sleep |
| | Cavallazzi et al. (2012) | To expose the patient to natural light during the day and minimize exposure to artificial light at night |
| | El Majzoub et al. (2019), Irwin et al. (2013), Morandi et al. (2019), Tobar et al. (2017) | To minimize excess light stimuli using devices such as an eye mask |
| | Meagher (2001) | To guide the patient in the environment |
| | Rosen et al. (2015), Salawu et al. (2009) | To modify the intensity of the lighting to indicate the day/night change |
| Environmental noise reduction | Cavallazzi et al. (2012) | To reduce environmental noise |
| | Álvarez et al. (2012), Morandi et al. (2017), Oh-Park et al. (2018), Pozzi et al. (2020), Quiroz et al. (2014) | To reduce environmental noise to promote sleep |
| | Banh (2012) | To incorporate a protocol that introduces moments of silence twice a day at specific times; to stop using unnecessary monitors or equipment; to minimize phone usage and conversations around the patient |
| | Banh (2012), Morandi et al. (2019), Rains & Chee (2017), Tobar et al. (2017) | To minimize excess auditory stimuli using devices such as earplugs |
| | Meagher (2001) | To control noise levels, based on <45 decibels during the day and <20 decibels at night |
| Optimization of ambient temperature | Cavallazzi et al. (2012), Rosen et al. (2015) | To adjust the room temperature |
| | Pozzi et al. (2020) | To address specific causes that generate stress, such as excessive heat/cold |

**Table 3.** Continued…

| Interventions | Author (s) | Description and/or purpose of care |
|---|---|---|
| Strategies for temporal and spatial (re) orientation | Morandi et al. (2019), Pozzi et al. (2020), Tobar et al. (2017) | To implement (re) orientation strategies |
| | Álvarez et al. (2012), Finucane et al. (2017), Ibrahim et al. (2018), Irwin et al. (2013), Kalish et al. (2014), Meagher (2001), Pozzi et al. (2020), Quiroz et al. (2014), Rains & Chee (2017), Rosen et al. (2015), Salawu et al. (2009), van Velthuijsen et al. (2018) | To provide devices in the room for temporal reorientation, in visible places and with clear information, such as: clocks, calendars, guidance materials, reminders and tables with the day's schedule, daily news published in the media, the patient's diary life, talking about family events information leaflets and radio |
| | Álvarez et al. (2012), Oh-Park et al. (2018), Robinson & Eiseman (2008) | To guide the patient spatially |
| | El Majzoub et al. (2019), Ibrahim et al. (2018) | To guide the patient using daily reminders |
| | Álvarez et al. (2012), Ibrahim et al. (2018), Rosen et al. (2015) | To frequently provide information to guide the patient about the reason for their hospitalization |
| | Irwin et al. (2013), Meagher (2001), Oh-Park et al. (2018), Rosen et al. (2015) | To encourage the participation of family and friends to reorient the patient |
| Organization of the environment | Finucane et al. (2017), Meagher (2001), Pozzi et al. (2020) | To favor the environment with familiar and personalized objects |
| | Meagher (2001), Salawu et al. (2009) | To prioritize the patient to stay in individual rooms |
| Establishing the patient's relationship with the staff | Irwin et al. (2013), Meagher (2001), Rosen et al. (2015) | To make available, in a visible place, tables with the names of the employees that the patient has contact with |
| | Kalish et al. (2014), Meagher (2001) | To minimize changes in the nursing team |
| | Meagher (2001) | To establish a referral professional for patient care |
| Ensuring patient safety | Irwin et al. (2013) | To remove or monitor access to dangerous items, line the bed rails, lower the level of the beds as much as possible and place rubberized rugs on the floor |
| | Meagher (2001) | To allow adequate space between beds, removing unnecessary objects |
| | Quiroz et al. (2014) | To add a card access door and have low hospital beds |
| | Rosen et al. (2015) | To put the patient's bed in the team's field of vision; to minimize the use of devices that can reduce patient mobility |
| | Irwin et al. (2013), Oh-Park et al. (2018), Pozzi et al. (2020), Quiroz, Araya & Fuentes (2014), Robinson & Eiseman (2008), Rosen et al. (2015) | To adapt the bathroom with the installation of a light sensor; having beds with high protection at the headboards |
| | Salawu et al. (2009) | To assess patient safety and avoid using equipment that could injure themselves or others |
| | El Majzoub et al. (2019), Hughes et al. (2012), Ibrahim et al. (2018), Robinson & Eiseman (2008) | To remove or fix potentially harmful devices, such as: lines, catheters, Foleys, nasogastric tubes, or intravenous access connectors |
| | Robinson & Eiseman (2008) | To monitor patients at risk for self-mutilation |
| | Álvarez et al. (2012), Chevrolet & Jolliet (2007), El Majzoub et al. (2019), Irwin et al. (2013), Oh-Park et al. (2018), Robinson & Eiseman (2008), Rosen et al. (2015), Salawu et al. (2009), van Velthuijsen et al. (2018) | To reduce the use of physical restrictions or consider its use only in case of very agitated patients who pose a risk to themselves or when other means of treating delirium have not been enough. |
| Correction of sensory deficits related to vision or hearing | Álvarez et al. (2012), Banh (2012), El Majzoub et al. (2019), Ibrahim et al. (2018), Irwin et al. (2013), Kalish et al. (2014), Meagher (2001), Morandi et al. (2019), Oh-Park et al. (2018), Robinson & Eiseman (2008), Rosen et al. (2015) | To provide individualized visual devices, such as: glasses, contact lenses, magnifiers, and magnifying glasses |
| | Álvarez et al. (2012), Banh (2012), El Majzoub et al. (2019), Ibrahim et al. (2018), Irwin et al. (2013), Kalish et al. (2014), Meagher (2001), Morandi et al. (2019), Oh-Park et al. (2018), Robinson & Eiseman (2008), Rosen et al. (2015) | To provide individualized hearing aids, such as amplification devices |
| Oral health promotion | Meagher (2001) | To provide dentures |
| | Oh-Park et al. (2018) | To encourage oral hygiene |

**Table 3.** Continued…

| Interventions | Author (s) | Description and/or purpose of care |
|---|---|---|
| Pain control | Ibrahim et al. (2018), Oh-Park et al. (2018), Salawu et al. (2009) | To control the pain |
| | Rains & Chee (2017) | To assess and manage pain, based on a multifactorial approach |
| | Rosen et al. (2015) | To palpate the skin, bones, and joints to identify tender points; to check for the presence of chronic pain; to perform adequate analgesia; in case of acute injury, cryotherapy, elevation, or immobilization, if necessary |
| Prevention of other clinical conditions associated with the hospitalization process | Oh-Park et al. (2018), Quiroz et al. (2014), Salawu et al. (2009) | To assess swallowing in a supervised and assisted manner |
| | Morandi et al. (2019) | To manage hypoxia with a trained team for its prevention |
| | Hughes et al. (2012), Kalish et al. (2014), Morandi et al. (2019), Oh-Park et al. (2018), Quiroz et al. (2014), Salawu et al. (2009), Rains & Chee (2017), Robinson & Eiseman (2008) | To maintain adequate hydration |
| | Ibrahim et al. (2018) | To monitor the patient's electrolyte balance |
| | Irwin et al. (2013) | To monitor fluid intake and rehydrate the patient with salt-containing drinks, such as soups and sports drinks |
| | Robinson & Eiseman (2008) | To prevent hypovolemia |
| | Rosen et al. (2015) | To monitor renal biomarkers (blood urea nitrogen and creatinine) and, if necessary, to administer isotonic intravenous fluid |
| | Banh (2012), Morandi et al. (2019), Quiroz et al. (2014), Rains & Chee (2017), Robinson & Eiseman (2008), Oh-Park et al. (2018) | To maintain adequate nutrition |
| | Rosen et al. (2015) | To check the bladder with ultrasound and, if necessary, empty it with a straight urinary catheter |
| | Pozzi et al. (2020), Oh-Park et al. (2018), Robinson & Eiseman (2008) | To avoid incontinence and urinary retention |
| | Oh-Park et al. (2018), Morandi et al. (2019) | To prevent constipation |
| | Rosen et al. (2015) | To check the hygiene of the patient's underwear; rectal examination if necessary; to consider the need for disimpaction; to restrict the use of medications that cause constipation |
| | Finucane et al. (2017), Salawu et al. (2009) | To prevent sensory deprivation |
| | Oh-Park et al. (2018), Salawu et al. (2009) | To treat underlying systemic conditions |
| Proper positioning on the bed | Chevrolet & Jolliet (2007), Oh-Park et al. (2018) | To properly put the patient on the bed, avoiding: pressure ulcers or a sensation of pain in the bladder |
| Early mobility and exercise | Álvarez et al. (2012), El Majzoub et al. (2019), Hipp & Ely (2012), Hughes et al. (2012), Kalish et al. (2014), Meagher (2001), Morandi et al. (2017), Morandi et al. (2019), Oh-Park et al. (2018), Pozzi et al. (2020), Robinson & Eiseman (2008), Tobar et al. (2017) | To apply early mobilization exercises adapted to the capabilities of each patient, favoring daily walking, range of motion, and prevention of complications related to immobilization |
| | Morandi et al. (2017) | To apply combined passive range of motion (PROM) exercises, active physiotherapy, ambulation, cycle ergometry, and neuromuscular electrical stimulation |
| | Rains & Chee (2017) | To mobilize the seated patient, use a Stryker chair for transfers and *motomed* to perform passive and active exercises as soon as the patient is stable |
| Assistive Technology | Quiroz et al. (2014) | To use walking aids, such as a walker and cane, to assist in early mobilization |
| Sleep promotion strategies | Hipp & Ely (2012), Hughes et al. (2012), Kalish et al. (2014), Morandi et al. (2019), Rains & Chee (2017), Robinson & Eiseman (2008), Tobar et al. (2017) | To encourage peaceful and uninterrupted sleep |

**Table 3.** Continued…

| Interventions | Author (s) | Description and/or purpose of care |
|---|---|---|
| | Álvarez et al. (2012), Ibrahim et al. (2018), Meagher (2001), Morandi et al. (2017) | To avoid the administration of medications at dawn, close doors and keep the lights off during this period |
| | Cavallazzi et al. (2012), Pozzi et al. (2020), Rains & Chee (2017) | To facilitate sleep through the use of devices such as earplugs and eye masks |
| | Banh (2012), Quiroz et al. (2014) | To encourage a pleasant evening environment through: massages, relaxing music, and drinking warm or hot drinks |
| | van Velthuijsen et al. (2018) | To involve the family to spend the night with the patient, bringing pillows and sheets from their home to make the hospital environment more comfortable |
| Reduced use of pharmacological strategies | Cavallazzi et al. (2012), Oh-Park et al. (2018), Rains & Chee (2017) | To reduce daily sedation, adapting to their unique needs |
| | Álvarez et al. (2012), Kalish et al. (2014), Morandi et al. (2019), Rains & Chee (2017), Oh-Park et al. (2018), Tobar et al. (2017) | To reduce the use of drugs that can trigger delirium. Therefore, considering the interaction with other drugs, such as: psychoactive, anticholinergics, and benzodiazepines |
| Patient participation | Irwin et al. (2013) | To involve the patient when filling out their hospital documentation |
| | Meagher (2001) | To encourage the patient to provide feedback on their pain, aiming to promote self-care and participation in treatment |
| Family participation and empowerment | Álvarez et al. (2012), Finucane et al. (2017), Kalish et al. (2014), Meagher (2001), Morandi et al. (2017), Morandi et al. (2019) | To involve and empower families, to encourage their presence and prolonged visits; having a family support team |
| | Irwin et al. (2013), Meagher (2001), Rosen et al. (2015) | To encourage family members and friends to assist the patient in communicating and can calm, help, protect, support, and advocate for the patient |
| Health education | Chevrolet & Jolliet (2007); El Majzoub et al. (2019), Finucane et al. (2017), Irwin et al. (2013), Kalish et al. (2014), Morandi et al. (2017), Oh-Park et al. (2018), Tobar et al. (2017) | To offer health education to family members and caregivers, either verbally or written about: prevention, identification, and treatment of delirium. To do so, using guidelines in leaflets and booklets; and providing clear, complete, and objective explanations about treatment options, how to deal with the patient with delirium, and how to provide him with emotional support |
| | Álvarez et al. (2012), Finucane et al. (2017), Meagher (2001), Tobar et al. (2017) | To offer health education to professionals on the causes of delirium in older people, their types, risk factors, prodromal symptoms; and the roles of each team member in preventing this condition |
| | Salawu et al. (2009), van Velthuijsen et al. (2018) | To specialize the team regarding specific treatments and interventions in delirium |
| Psychoeducational interventions to reduce anxiety | Salawu et al. (2009) | To apply psychoeducational interventions to reduce anxiety and reframe delirium experiences |
| Communication between staff and patient | Irwin et al. (2013), Cavallazzi et al. (2012), Rosen et al. (2015) | To improve communication between staff and patient by: identifying each time they meet the patient, repeatedly offering verbal reminders, not using extremely technical language, addressing the patient personally with objective instructions |
| | Oh-Park et al. (2018), Pozzi et al. (2020) | To avoid confrontations with the patient, to act calmly and repeat instructions whenever necessary |
| | Meagher (2001) | To consider whether an interpreter is needed in the case of sensory impairments |
| Evaluation and monitoring of the patient by the team | Hipp & Ely (2012), Oh-Park et al. (2018), Salawu et al. (2009) | To daily monitor the patient, from admission to discharge, with attention to aspects such as: assessing vital signs, electrolyte fluid status, oxygen saturation, respiratory and cardiovascular status, possible skin infections, neurological deficit |
| | van Velthuijsen et al. (2018) | To apply Delirium Observation Screening, morning, afternoon, and evening, to assess and monitor delirium |
| | Salawu et al. (2009) | To perform a cognitive assessment |

**Table 3.** Continued…

| Interventions | Author (s) | Description and/or purpose of care |
|---|---|---|
| Cognitive stimulation | Banh (2012), Hughes et al. (2012), Kolanowski et al. (2016), Irwin et al. (2013), Rains & Chee (2017), Tobar et al. (2017) | To offer cognitively stimulating activities, in an early, regular, and individualized way |
| Routine organization | Rains & Chee (2017) | To implement a routine of daytime activities, organized into schedules, including functional tasks and rest periods |
| Music Therapy | Banh (2012), Tobar et al. (2017) | To use music therapy |
| Chromotherapy | Quiroz et al. (2014), Salawu et al. (2009), Tobar et al. (2017) | To use light therapy |
| Relaxing therapies | Banh (2012), Quiroz et al. (2014) | To apply relaxation techniques and massage therapy to help improve agitation and sleep |
| Alternative and complementary medicine | Banh (2012) | To use practices such as: Chinese medicine techniques, Ayurveda, homeopathy/naturopathic medicine, animal-assisted therapy, art therapy, guided imagery, meditation, music therapy, prayer, acupressure, chiropractic/manipulative therapy and massage, use of food supplements and products based on plants, Qigong, reiki, therapeutic touch and therapies based on bioelectromagnetic |
| ABCDEF package | Hipp & Ely (2012), Ibrahim et al. (2018), Morandi et al. (2017), Rains & Chee (2017), Tobar et al. (2017) | To implement the strategies that make up the ABCDEF package, which refer, respectively, to the "spontaneously waking/waking test", "daily spontaneous breathing tests", to the appropriate choice of sedatives, to the removal of the patient from mechanical ventilation and the ICU as soon as possible, to early mobilization to reduce delirium and improve long-term cognitive outcomes and carry out interventions aimed at involving and empowering the family |
| Life Program for Old People at the Hospital (HELP) | Hipp & Ely (2012), Kalish et al. (2014), Oh-Park et al. (2018), Quiroz et al. (2014) | To reorient the patient with wall calendars, pictures with family photos visits from friends and family; to promote early mobilization; to favor a peaceful evening atmosphere with the consumption of hot drinks and pleasant music; to reduce light and environmental noise; to avoid unnecessary controls, and maintain adequate hydration and nutrition |

As observed in Table 3, the management of delirium is carried out through different interventions, which are directed at the patient, his support network, his connection with the team, and the environment. Also, we identified strategies considered complementary and structured multi-component programs.

## Occupational therapy

Table 4 shows the interventions performed by the occupational therapist, described in the articles, uniprofessionally or together with other team members.

**Table 4.** Categorization of non-pharmacological interventions for prevention and management of delirium performed by occupational therapists. São Paulo – SP, 2020.

| Occupational therapy action | Author(s) | Purpose/Detail of the action of occupational therapy |
|---|---|---|
| Occupational therapeutic intervention | Hughes et al. (2012) | To improve functional and cognitive ability |
| | Cavallazzi et al. (2012) | To shorten the duration of the delirium and improve the functional state |
| | Hughes et al. (2012), Ibrahim et al. (2018), Kolanowski et al. (2016) | To decrease delirium |
| Modification of activities | Morandi et al. (2019) | To modify activities according to functional and cognitive skills aiming at greater autonomy, sense of effectiveness, satisfaction, and well-being |

**Table 4.** Continued…

| Occupational therapy action | Author(s) | Purpose/Detail of the action of occupational therapy |
|---|---|---|
| Social interaction | van Velthuijsen et al. (2018) | To use activities with music or art in a comfortable room to encourage interaction between older people with delirium |
| | Álvarez et al. (2012) | To encourage patient interaction with objects and close people |
| Restoring a daily routine | Morandi et al. (2019), van Velthuijsen et al. (2018) | To create a meaningful routine, alternating activities and rest periods; to avoid occupational deprivation, promoting autonomy and involvement in daily activities |
| Sensory Stimulation | Álvarez et al. (2012), Tobar et al. (2017) | To stimulate the patient's different sensory channels (visual, auditory, tactile, proprioceptive, and taste), for five days, with the frequency of two daily interventions, each lasting 40 minutes |
| | Álvarez et al. (2012), Morandi et al. (2019), Pozzi et al. (2020), Tobar et al. (2017) | To perform frequent stimulation of the different sensory channels |
| | Pozzi et al. (2020) | To provide multisensory stimulation; to intervene in sensory impairment through meaningful and family occupations |
| | Morandi et al. (2019) | To reduce sensory stimuli in the environment that exacerbate delirium in the patient |
| Positioning | Álvarez et al. (2012), Pozzi et al. (2020), Tobar et al. (2017) | To put the patient properly to provide comfort, maintain or improve functionality and avoid complications due to little mobilization |
| | Morandi et al. (2019) | To make postural changes and encourage interaction with the environment |
| Cognitive stimulation | Álvarez et al. (2012), Rains & Chee (2017), Pozzi et al. (2020), Quiroz et al. (2014), Tobar et al. (2017) | To promote stimulation of different cognitive functions through the use of communication and the performance of activities |
| Training of basic activities of daily living (BADLs) | Álvarez et al. (2012), Morandi et al. (2019), Pozzi et al. (2020), Tobar et al. (2017) | To diversify the routine; to offer training for the performance of basic activities of daily living and leisure aimed at independence |
| Motor stimulation of the upper limbs | Álvarez et al. (2012), Tobar et al. (2017) | To maintain or activate functional movements and improve the strength of the upper limbs through activities such as equipment exercises, ergotherapy, and bimanual activities |
| Assistive Technology | Álvarez et al. (2012), Morandi et al. (2019), Tobar et al. (2017) | To use assistive technology devices for proper positioning and prevention of pressure ulcers and deformities |
| Health education | Morandi et al. (2019), Pozzi et al. (2020), Tobar et al. (2017) | To suggest problem-solving strategies; support and guide informal caregivers on the recognition of delirium signs and symptoms, how to provide adequate assistance to perform activities of daily living and how to communicate more adequately with the patient |
| | Pozzi et al. (2020), Rains & Chee (2017) | To offer health education to the patient, staff, family, and caregivers |
| Participation of family members and caregivers in the treatment | Álvarez et al. (2012), Morandi et al. (2019), Pozzi et al. (2020), Tobar et al. (2017) | To favor the presence and involvement of the family in care through strategies, such as: collaboration for cognitive stimulation, participation in family meetings, provision of guidance materials |
| Sleep promotion strategies | Pozzi et al. (2020), Rains & Chee (2017) | To promote sleep hygiene |
| Behavioral adaptations | Pozzi et al. (2020) | To relate to the patient calmly, avoiding confrontation, repeat information whenever necessary, avoid exchanges of professionals who are in contact with the patient; encourage self-care; to address specific causes of stress |
| Environmental adaptations | Pozzi et al. (2020) | To modify the environment; to offer the patient a single room; to adjust the ambient lighting and temperature; to provide temporal, spatial guidance and access to familiar objects; and to avoid unnecessary bed transfers |

The care offered by occupational therapists focused on individualized strategies that emphasized occupational performance, the improvement of physical and cognitive abilities, proper positioning, the performance of significant activities, the increase in autonomy, satisfaction and well-being, the encouragement of participation of the family, the promotion of health education to favor interaction with the patient, the management of behavioral and environmental factors and the possible triggers of stress in the patient.

## Discussion

This study highlighted non-pharmacological strategies for the management of delirium, including those carried out by the occupational therapist. We found that 80% of the studies in the sample were classified as having low scientific evidence. We observed little elaborated descriptions of non-pharmacological interventions and there was a lack of information about which professionals are responsible for their implementation.

Different populations are addressed in the studies found, however, not all authors specified the sample in addition to people with delirium. However, in greater numbers, the older people were cited as the target population for the interventions. This fact proved to be relevant, considering that the singularities of the older adult should be welcomed during hospitalization (Hammerschmidt & Santana, 2020).

The hospitalized patient's routine is structured by clinical care protocols that influence the relationships between patients, staff, and service. In the case of a hospitalized patient with delirium, such protocols imply depersonalization and difficulty in appropriating the patient's care process. Also, the condition of hospitalization causes a departure from everyday life and the environments in which the patient identifies (Imanishi & Silva, 2016). The results of this research demonstrate the need to address the relational technologies that involve interaction with the patient in the care space, and changes in the environment and rigid protocols that predispose to delirium or its aggravation.

Also, the results favor reflection on the underdiagnosis related to the different existing types of delirium, a factor that directly implies the prognosis and treatment provided. In delirium cases, patients who are not communicative, apathetic, or who do not frequently request the team during the treatment may receive less attention from professionals, who are sometimes considered discouraged or forget to interact with the patient (Alasad & Ahmad, 2005). Some studies also point out that the relationship with non-communicative patients can generate feelings of frustration in professionals working in the hospital (Happ et al., 2011). Thus, it is possible to infer that the little feedback brought by patients with hypoactive delirium influences their interaction with the team. This aspect, quite possibly, harms the quality of care offered, which shows the relevance of investing in non-pharmacological approaches for these patients.

Thus, as pointed out by the studies found, it is important to consider communication between the team and the patient as a non-pharmacological strategy that helps in the management of delirium. It should be carried out clearly and effectively, involving a dialogue between the reference professional and the other team members. Communication between patient and team is a determining factor in the quality of care, so the health professional must develop skills to understand the verbal and non-verbal communicational aspects of the patient (Kourkouta & Papathanasiou, 2014).

Communication, both verbal and non-verbal, allows the identification of explicit and implicit content that the individual wishes to emit. Also, the listening involved constitutes an essential tool in the health area and influences the intersubjective relationships between team, patient, and family (Campos et al., 2019). Therefore, these tools favor the understanding of the desires and feelings of each individual in their illness process.

We also identified in the results that the treatment of delirium should emphasize the role of the individual and their caregivers in the construction of the care plan. According to Pinheiro & Guanaes (2011), having a social support network is important to reinforce feelings of well-being and expand support for coping with crises. In this perspective, the involvement of the patient and family members favors their active participation and appropriation of their care, in contrast to the medicalization of suffering (Tesser & Dallegrave, 2020).

The complexity involved in the condition of the patient with delirium requires an interdisciplinary team with constant communication and coordinated actions. In this perspective, the team has the potential to develop health work in line with the principle of integrality and that considers the fields of technical, social, and cultural knowledge (Ramos & Ferreira, 2020).

However, we noted in the results of this research that interventions related to the management of delirium, especially in the hospital environment, are more centralized in medical professionals and nurses. They are the main actors in the implementation of pharmacological and non-pharmacological strategies. However, although in a smaller number, we identified other professionals in the articles, which shows the need for investment in teamwork to manage this complex condition. In this management, we highlight the integrative and complementary practices that encourage the participation of patients in their treatments, as it is the union of popular and specialized knowledge (Tesser & Dallegrave, 2020).

The composition of a multi-component approach is often encouraged by authors who discuss the management of delirium. The role of the occupational therapist collaborates with the implementation of non-pharmacological interventions, as it emphasizes the expansion of patients' autonomy and independence, the involvement of their patients in meaningful activities, the empowerment of patients and their families, and the management of feelings that bring suffering.

The patient-centered occupational therapist's approach implies appropriate strategies for each individual. In this perspective, it requires an understanding that considers the individual's physical and cognitive abilities; their social, cultural, and relational contexts; their singular way of existing; their subjective experiences; their values and knowledge (World Federation of Occupational Therapists, 2010). This complexity demands the construction of a joint care plan, opposing the centralization of knowledge in the figure of the professional, and favors the co-responsibility of the person in his health-disease process (Agreli et al., 2016).

Despite the evident relevance of occupational therapy in the management of delirium, only 45% of the selected articles addressed the performance of this professional. Of these, 16% briefly cited the presence of the profession in the treatment team, usually in conjunction with physical therapy practices, and 29% explained which interventions were performed by the occupational therapist. Therefore, there are still few studies that bring together specific occupational therapy interventions and that detail how they are carried

out. Although few, these articles demonstrate the importance of this professional in the treatment of delirium.

Occupational therapists who work in hospital contexts understand the relevance of their work and are engaged in what they do. However, they often face difficulties in valuing their practices by the team, with little recognition and legitimation, experiencing feelings of invisibility (Galheigo & Tessuto, 2010).

However, the management of delirium must address the biopsychosocial aspects of the individual based on an interdisciplinary team, based on the integrality and humanization of care. According to Pozzi et al. (2020), recent studies have shown the effectiveness of implementing multi-component and multidisciplinary rehabilitation programs, with an emphasis on improving the cognitive functions of patients hospitalized with delirium. These interventions must be carried out individually and with the greatest involvement of the occupational therapist, which, according to evidence, results in lower rates of hospital readmission (Pozzi et al., 2020).

Finally, we noted that the lack of specification of which professionals carry out certain interventions mentioned in the studies sometimes allows the interpretation that they can be performed by any professional, causing the devaluation of the professions. We recognize that the occupational therapist is the professional whose focus of action resides on the intrinsic relationship between the individual, his/her environmental, social, and cultural context, and the performance of significant daily activities to the individual (Pozzi et al., 2020; Tobar et al., 2017). As an example, the articles highlight the relevance of providing devices for temporal and spatial orientation in the environment and objects of familiarity to the individual but do not point to the need to consider the person's uniqueness in this prescription and how much these strategies can interfere in the person's relationship with the environment and its relational network.

Historically, occupational therapy has sought to ensure its role in hospital care teams because it is a professional that "[...] causes and disturbs the hospital routine, avoiding its crystallization, given its expanded view of the human condition" (Galheigo & Tessuto, 2010, p. 30). In this perspective and consistent with the results of the present research, part of the non-pharmacological interventions that appear in the texts make up the repertoire of occupational therapy. However, we observed that this professional is rarely mentioned as the one who performs them, placing the need for this to be referenced for the development of these actions as pressing and indispensable.

## Final Considerations

Interdisciplinarity is required for the management of delirium, and the occupational therapist is an indispensable professional in the composition of the teams. Their interventions favor the improvement of autonomy, the increase of independence in occupational performance, the promotion of well-being, the empowerment of the patient and his informal network in the care process. Its performance is centered on the individual's uniqueness and needs, considering the intrinsic relationship between the person, the context, the environment, and the performance of significant activities. Thus, occupational therapy contributes significantly to the non-pharmacological management of the complex condition called delirium.

The research results indicate that the literature referring to the role of the occupational therapist in the management of delirium is still incipient and limited in practical data. Then, we suggest that future studies may focus on their specific clinical practices, presenting detailed information on the non-pharmacological strategies adopted by these professionals for the prevention and management of delirium.

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Giovanna Marina Caetano and Barbara Tiemi Niyama: Participated in all stages of the design and development of the research project and the writing of the manuscript. Maria Helena Morgani de Almeida: Guided all stages of the design and development of the research project and the writing of the manuscript. Marina Picazzio Perez Batista: Coordinated all stages of the design and development of the research project and participated in all stages of the writing of the manuscript. Ana Paula Pelegrini Ratier: Participated in the stages of conception and design of the study, contributing to its analysis. She participated in the stages of conception, session of results, and review of the manuscript. All authors approved the final version of the text.

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