

Sleep impairment and sleep promotion in intensive care units: an integrative review

Comprometimento e promoção do sono em unidades de terapia intensiva: revisão integrativa
Comprometimiento y promoción del sueño en unidades de cuidados intensivos: revisión integradora

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Descritores

Sono; Conforto do paciente; Unidades de terapia intensiva; Cuidados de enfermagem; Transtornos do sono-vigília

Descriptores

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Abstract

Objective: To identify, in the scientific databases, evidence of factors that impair sleep and nursing interventions to promote sleep in Intensive Care Units.

Methods: An integrative literature review was conducted across the databases MEDLINE and CINAHL and the Cochrane Database of Systematic Reviews between May and June 2019 using the PICO framework, seeking to answer the guiding questions of the study. The languages included in the literature review were English, Portuguese, and Spanish.

Results: One hundred and ten studies were identified, twelve of which were considered eligible for review. The analysis of the articles found that sleep impairment is multicausal, being influenced mainly by the patient's environmental and physical discomfort. Nursing interventions, such as environmental management of noise and light, grouping of care procedures, and control of pain and anxiety in the hospitalized patient, are fundamental for sleep quality.

Conclusion: The academic literature shows that the nursing interventions identified, particularly those that promote the patient's environmental and physical comfort, contribute to the quality of sleep in Intensive Care Units. However, promotion of the patient's psychospiritual and social comfort is still lacking, given the focus and priorities of this type of hospitalization.

Resumo

Objetivo: Identificar, nas bases de dados científicas, as evidências que comprometem o sono e as intervenções de enfermagem promotoras do sono em Unidades de Terapia Intensiva.

Métodos: Revisão integrativa da literatura, realizada nas bases de dados MEDLINE, CINAHL e Cochrane Database of Systematic Reviews, para responder às questões norteadoras do estudo, de acordo com o formato PICO, nos meses de maio e junho de 2019. Os idiomas considerados foram o inglês, português e espanhol.

Resultados: Identificou-se 110 estudos e 12 foram considerados elegíveis para a revisão. A análise reporta que o comprometimento do sono é multicausal, sendo este influenciado sobretudo por desconforto ambiental e físico do paciente. As intervenções de enfermagem, tais como a gestão do ambiente, no âmbito do ruído e da luminosidade, o agrupamento da prestação de cuidados, o controle da dor e da ansiedade do paciente internado, são fundamentais para a qualidade do sono.

Conclusão: A produção científica evidencia que as intervenções de Enfermagem identificadas, sobretudo no âmbito da promoção do conforto ambiental e físico do paciente, contribuem para a qualidade do sono em

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Conflicts of interest: none to declare.

Unidades de Terapia Intensiva, contudo a promoção do conforto psicoespiritual e social do paciente ainda é superficial, tendo em conta o foco e as prioridades nesta tipologia de internamento.

Resumen

Objetivo: Identificar, en bases de datos científicas, las evidencias que comprometen el sueño y las intervenciones de enfermería para promover el sueño en unidades de cuidados intensivos.

Métodos: Revisión integradora de literatura, realizada en las bases de datos MEDLINE, CINAHL y Cochrane Database of Systematic Reviews para responder las preguntas orientadoras del estudio, de acuerdo con el formato PICO, en los meses de mayo y junio de 2019. Los idiomas considerados fueron inglés, portugués y español.

Resultados: Se identificaron 110 estudios y 12 fueron considerados elegibles para la revisión. El análisis reporta que el comprometimiento del sueño es multicausal y lo que más influye en el sueño es la incomodidad ambiental y física del paciente. Las intervenciones de enfermería, tales como el manejo del ambiente respecto al ruido y a la luminosidad, el agrupamiento de la prestación de cuidados y el control del dolor y de la ansiedad del paciente internado, son fundamentales para la calidad del sueño.

Conclusión: La producción científica evidencia que las intervenciones de enfermería identificadas, sobre todo respecto a la promoción del bienestar ambiental y físico del paciente, contribuyen con la calidad del sueño en unidades de cuidados intensivos. No obstante, la promoción del bienestar psicoespiritual y social del paciente aún es superficial, teniendo en cuenta dónde se centra la atención y cuáles son las prioridades en este tipo de internación.

Introduction

Patients admitted to the intensive care unit (ICU) are often subjected to numerous external sensory stimuli that can impair their sleep and rest, thus further aggravating their situation of increased vulnerability and slowing their recovery.⁽¹⁾ Sleep is the result of a “recurrent reduction in bodily activity, marked by a decrease in consciousness (...), decreased metabolism (...), and decreased but readily reversible sensitivity to external stimuli.”⁽²⁾ Sleep is divided into two cycles: REM, which corresponds to the phase of rapid eye movement (20–25% of the total sleep time) and NREM, which corresponds to the phase of non-rapid eye movement (70–75% of the total sleep time). The NREM phase of the cycle is further subdivided into four stages; N1, N2, N3, and N4, which correspond to increasingly deeper sleep. These phases alternate during the night, with four to five complete cycles occurring during normal adult sleep.⁽³⁾

The patient admitted to the ICU is threatened by the failure or imminent failure of one or more vital functions and is dependent on advanced means of surveillance, monitoring, and therapy.⁽³⁾ The patient with impaired sleep quality presents fragmented sleep with various interruptions, a decrease or absence in the restorative phase of sleep, and changes in the circadian rhythm.⁽⁴⁾ These changes have several physiological repercussions on various bodily functions, such as the neurological system

(decreased memory, attention, and response time), the circulatory system (hypertension, bradycardia, and extensive changes in homeostatic mechanisms), the endocrine system (increased production of thyroxine, norepinephrine, and cortisol; decreased somatotropin; and increased insulin resistance) and the respiratory system (decreased muscle function, with repercussions for ventilatory weaning).⁽⁴⁾ Sleep deprivation is also a risk factor for delirium, which can lead to greater morbidity and mortality at six months and one year, resulting in increased hospitalization times and higher healthcare costs.⁽⁵⁾

Nursing interventions to promote sleep, in accordance with the quality standards of the profession, are aimed at promoting the patient’s health and well-being and preventing complications, assuming a dimension of humanization of care, with the Nursing having a duty to “contribute to creating an environment conducive to the development of the person’s potential”.⁽⁶⁾ According to Kolcaba’s Theory of Comfort, nursing care aims to promote patient comfort, which is defined as “the immediate and holistic experience of being strengthened through having needs met in three types of comfort (relief, ease, and transcendence),”⁽⁷⁾ and this can be achieved in four contexts of experience: physical (bodily sensations); psychospiritual (inner consciousness of oneself); social (interpersonal relations), and environmental (external influences of the context).⁽⁸⁾

Despite being essential for human well-being, sleep continues to be neglected in ICUs, where ac-

tions are mainly directed toward maintaining the patient’s vital functions.⁽⁹⁾ Therefore, we consider the nursing approach to sleep promotion to be a crucial aspect for the comfort of patients admitted to the ICU. Thus, the objectives of this article are to identify the factors that impair sleep and the nursing interventions that promote sleep in the ICU.

Methods

This is an integrative literature review (ILR) that gives a “summary of multiple published studies and enables general conclusions regarding a particular area of study.”⁽¹⁰⁾ The questions that guided this research were: “What are the causes of sleep impairment in ICU patients?” and “What nursing interventions promote sleep in ICU patients?” This research used the PICo (population, phenomenon of interest, and context) framework, which is represented in Table 1. The population (P) was identified as critical patients, the phenomena of interest (I) were sleep and nursing interventions, and the context (Co) was an Intensive Care Unit (Chart 1).

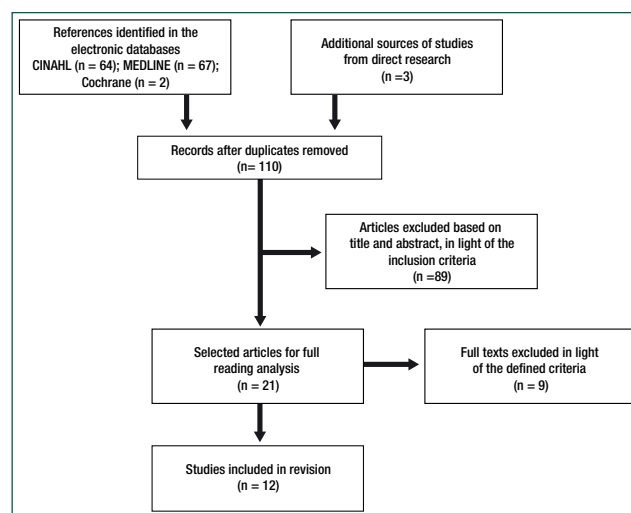
Chart 1. PICo model for the database searches according to the descriptors

P	I	Co
Critical Patient OR Critically Ill	Sleep OR Sleep Disruption OR Sleep Deprivation OR Sleep Disturbance AND Nurs*	Intensive Care Unit OR Intensive Care Units OR Critical Care

The review was conducted according to the following structure: selection of the topic of study; literature search; reading and analysis of the articles; organization of the results for description and discussion.⁽¹¹⁾ The research was conducted between May and June 2019; the starting point of which was the search engine EBSCO, through which we accessed three databases: CINAHL, MEDLINE, and the Cochrane Database of Systematic Reviews. We searched all the databases simultaneously to eliminate duplicates. The descriptors listed in Table 1 were organized according to the following Boolean operators: [(critical patient OR critically ill) AND (sleep OR sleep disruption OR sleep deprivation OR sleep disturbance) AND (nurs* OR nursing

care) AND (intensive care units OR intensive care unit OR critical care)] and selected according to the specific descriptors for each database, thus contributing to the sensitivity of the search.

The inclusion criteria included primary and secondary articles addressing the subject under study, available in Portuguese, English, and Spanish, published in the last ten years, considering the criterion of analytical feasibility, in view of the large number of publications. Articles addressing the pediatric or neonatal patient in ICU were excluded due to the specificities associated with sleep patterns in this type of population.⁽³⁾ The articles were independently reviewed by the authors in the search and selection phase, and after reading the articles in full, a final sample of twelve articles was obtained (Figure 1).



Source: Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Int J Surg*. 2010;8(5):336–41.⁽¹²⁾

Figure 1. Flowchart of the search and selection of the final sample of studies

For the analysis of the results, the selected articles were grouped by author, year, and country; objective; level of evidence;⁽¹³⁾ causes of sleep impairment and nursing interventions to promote sleep. The results were discussed in light of the four contexts of human experience of comfort (physical, psychospiritual, social, and environmental) as described in Kolcaba’s Theory of Comfort.⁽⁸⁾

Results

The characterization of the articles selected for analysis revealed that of the total number of articles, four (33.3%) were published in Australia and two (16.7%) in the United States of America, with the other countries having only one production, highlighting that three (25%) were published in Europe. In relation to the time of publication, most of the articles (four) were published in 2017. The level of evidence of the articles was variable, with most being level 4 studies.^(19,22–24) Analysis of the ev-

idence available in the articles enabled several causes of sleep interruption in the critical patient to be identified, namely, noise, care procedures, pain and discomfort, mechanical ventilation, negative emotions, severity of clinical condition, sedation, and lighting. The nursing interventions carried out to promote sleep in ICU patients included decreasing noise and lighting, grouping care procedures, pain control, implementation of protocols, promotion of circadian rhythm, emotional support, and training of professionals. The data extracted from the articles are summarized in Chart 2.

Chart 2. Summary of the articles selected in the integrative literature review

Authors/Year/ Country	Objective	Level of evidence	Causes of sleep impairment	Nursing Interventions to promote sleep
Jones, C., et al. ⁽¹⁴⁾ 2012 United Kingdom	To evaluate the usefulness and effectiveness of eye masks and ear plugs for promoting sleep.	Level 3	Noise; light; Care procedures; Pain/Discomfort; Anxiety.	Use of ear plugs and eye masks; Administration of sedatives and/or pain relief
Ritmala-Castren M., et al. ⁽¹⁵⁾ 2015 Finland	To describe sleep quality in non-intubated patients; To describe the nursing interventions during the night shift in the ICU	Level 2	Care Procedures.	Grouping care procedures; Planning care in advance.
Beltrami, F., et al. ⁽¹⁶⁾ 2015 Brazil	To review the literature on sleep in ICUs; to analyze the methods of sleep assessment, the causes of sleep impairment and their implications on the recovery of critical patients and strategies for promoting sleep.	Level 5	Noise; Light; Care procedures; factors intrinsic to the patient; Mechanical ventilation; Medication.	Reducing noise levels (adjusting monitor and fan alarms, minimizing conversation of the team, and providing patients with ear plugs); Reducing lighting at night (lowering lights in the rooms and surrounding areas, providing patients with eye masks); Grouping care, procedures; improving patient's comfort (adjusting the fan, pain relief, relaxation techniques (massage or music therapy) and administration of medication
HU, RF., et al. ⁽¹⁷⁾ 2015 China	To assess the efficacy of non-pharmacological methods for promoting sleep; To assess the clinical efficacy in improving sleep quality and reducing hospitalization times.	Level 1	Ventilatory modality (e.g. asynchronous, central apnea or respiratory effort)	Adjusting ventilatory parameters; use of eye masks and ear plugs; music therapy; relaxation techniques (massage); emotional support; Valerian acupressure.
Rittayami, N., et al. ⁽¹⁸⁾ 2016 Canada, France and Thailand	To conduct a literature review of abnormal sleep patterns and changes in circadian rhythm, as well as the effects of mechanical ventilation and sedatives on sleep quality and duration in the UTI.	Level 5	Noise; invasive mechanical ventilation; Apneas of central origin due to excessive ventilatory support; Patient-ventilator asynchronies; Prolonged continual sedation.	Minimizing external stimuli (lights and noise of alarms); Monitoring for signs of patient-ventilator maladaptation; Adjusting ventilatory parameters; Connecting the ventilator during the night in tracheotomized patients on ventilatory weaning; Promoting good circadian rhythm; interrupting continual sedation during the day.
Aitken, L.M., et al. ⁽¹⁹⁾ 2016 Australia	To describe self-reported sleep of UTI patients during their stay in the UTI (RCSQ Questionnaire) and the interventions suggested by them to promote sleep.	Level 4	Pain/discomfort; Nausea, vomiting, diarrhea and incontinence; Cough, thirst, dry mouth and hunger; Too hot/too cold; Noise caused by the team and equipment; Light; Care procedures; Difficulty communicating Frustration; Fear, concerns and nightmares; Anxiety; Feeling of being in an unfamiliar place.	Four categories of intervention: Pharmacological (Pain relief, use of antiemetics, chronic psychiatric medication and sleeping pills); Environmental control (Reducing noise and light levels, reducing alarm volumes, offering eye masks and ear plugs); Care procedures (Grouping positioning care, hygiene and optimization of temperature); Psychosocial dimension (Respecting rituals and beliefs, building a relationship of trust, music therapy).
McAndrew, N. et al. ⁽²⁰⁾ 2016 USA	To investigate the effect of the Quiet Time protocol on sedation and its frequency in critical patients, and also at the level of delirium; To determine whether consecutive Quiet Times influence physiological level.	Level 2	Invasive mechanical ventilation (21.3%); care procedures (55.2%); other procedures (7.6%); noise (5.2%); change in patient's clinical status (4.5%).	Quiet Time Protocol: Turn off the lights in the room, close the door of the room and the curtains; switch off the television; grouping care procedures.
Boyko, Y. et al. ⁽²¹⁾ 2017 Denmark	To determine the role of the UTI environment in improving sleep quality in ventilated patients; To compare sleep patterns in ventilated and oriented patients over a 48-hour period with the Quiet Routine vs. the usual routine.	Level 2	Noise (noise levels in the UTI are higher than those recommended by the WHO).	Quiet Routine protocol: No visits during the night from 10.00 pm to 6 am, lowering alarms and light; no conversations in the rooms; health care interventions only as strictly necessary, and nursing team at an observation post.
Ding, Q., et al. ⁽²²⁾ 2017 USA	To explore the perceptions and beliefs of professions, patients and companies in relation to environmental and non-environmental factors that affect patients' sleep in the UTI.	Level 4	Noise; frequent interruptions in the room; unpredictable work flow; pain/discomfort; anxiety; chronic problems sleeping; sickness.	Reducing noise, closing the curtain and door to reduce light; grouping care procedures; emotional management of patients and establishing a close relationship with the healthcare professionals; promoting a good circadian rhythm by keeping patients awake during the day; education on topics related to sleep in the UTI; promoting the patient's comfort.

Continue...

Continuation.

Authors/Year/Country	Objective	Level of evidence	Causes of sleep impairment	Nursing Interventions to promote sleep
Menear, A., et al. ⁽²³⁾ 2017 Australia	To study sleep quality of patients in the UI and to compare the use of strategies to promote sleep in the unit with those of previous studies; To identify the factors that inhibit sleep and strategies to promote sleep.	Level 4	Pain/discomfort; healthcare provided for the patient during the night.	Adopting protocols to promote sleep; Respecting the patient's sleeping rituals; providing eye masks and ear plugs; grouping care procedures for the patient; managing drug administration schedules.
Delaney, L., et al. ⁽²⁴⁾ 2017 Australia	To investigate nighttime noise levels in the UTI as a factor that disturbs sleep, comparing these with WHO recommendations, and to compare the noise levels in open spaces vs. private rooms	Level 4	Nighttime noise levels exceeded the international recommendations throughout the monitoring, even the minimal noise levels; Unpredictability of environment noise.	Regulating monitor alarms; teaching professionals about the psychological consequences of noise on patient recovery: offering ear plugs; redesigning the UTI environment (materials that absorb sound and structures that enable exposure to sunlight).
Knauer M. P., et al. ⁽²⁵⁾ 2018 Australia	To identify the sources of sleep impairment of patients during the night; To evaluate and review the Naptime protocol and adapt it to all units.	Level 3	Noise; pain; anxiety or sadness; Care procedures.	Grouping care procedures for the patient during the Naptime protocol; using night lights and speaking in a low voice; closing the curtains and doors before Naptime; keeping the window curtains open during the day to promote the circadian rhythm; adjusting the alarms (ventilators, infusion pumps and monitors).

Discussion

1.1. Causes of Sleep Impairment in Intensive Care Unit

Noise was identified as one of the main causes of sleep impairment in the ICU^(14,16,18-22,24,25). Noise may have various sources, including alarms on infusion pumps, monitors, and fans, conversations between members of the multi-professional care team, telephones ringing, televisions, door opening and closing, and care procedures being performed on nearby patients. In the article by Delaney et al.,⁽²⁴⁾ noise levels exceeded the recommendations of the World Health Organization (WHO) throughout the monitoring, and a wide variability of noise peaks was identified throughout the night, even in private rooms, as the professionals often increased the volume of alarms so that they could be heard from outside the room. However, other articles analyzed concluded that although noise was a cause of sleep impairment, it was not the main factor, as it was only mentioned by patients 5.2% of patients,⁽²⁰⁾ and only 10–30% of waking incidents were attributed to environmental noise⁽¹⁶⁾. In this point, these two studies therefore contracted the general evidence.

Healthcare procedures being performed on patients is the second highest cause of sleep impairment,^(14-16,19-20,23,25) though in two studies, this was reported by patients as the main cause.^(20,23) In contrast, Beltrami et al.⁽¹⁶⁾ reached two contradictory conclusions: in one of the studied reviewed reports,

nine periods of care procedures were observed, each lasting from two to three hours, during the 147 nights in which the study was conducted, and it was observed that only 6% of the nighttime period was conducive to sleep. In contrast, the same authors also conclude that although healthcare procedures are a cause of sleep interruption, such as mouth and eye hygiene, positioning patients, administering therapy and taking blood, these nursing interventions did not appear to be the main cause of sleep disruption in ICU patients, accounting for only 20% of waking up incidents during the night.⁽¹⁶⁾ Nursing interventions in the ICU during care require handling natural and artificial elements in the environment, such as technological devices, causing environmental discomfort in the patient.

Another reason for sleep impairment addressed in the studies was pain and discomfort,^(14,19,22,23,25) and in one of the studies, this is the cause most reported by patients.⁽²³⁾ One study also reported that 50% of health professionals cited pain and discomfort as contributing to sleep disturbances.⁽²²⁾

Sleep impairment due to mechanical ventilation occurs due to Central Sleep Apnea generated by excessive ventilation, excessively high support pressure, and the existence of ventilator asynchronies.^(16-18,20) There is also discomfort from the endotracheal tube, aspiration of secretions, and frequent repositioning, all of which exacerbate poor sleep quality.⁽¹⁶⁾

Emotions such as anxiety, sadness, fear, frustration, and worry during hospitalization in the ICU

can also impair sleep.^(14,19,22,25) According to Ding et al.,⁽²²⁾ patients attached greater importance to anxiety and the emotions as factors that impair sleep, often caused by uncertainty and worry about their health condition. Of the patients interviewed in that study, 57% stated that emotional and cognitive factors affected their quality of sleep more than the ICU environment itself. In another study, both patients and health professionals identified emotions and insecurity as predominant causes of interrupted sleep.⁽²⁵⁾

The severity of the patient's clinical condition can be associated with a decrease in the quantity and quality of sleep.^(16,20,22) In the period immediately after major surgery, deep sleep is reduced or absent.⁽¹⁶⁾ Additionally, patients admitted to the ICU may have a pre-existing disease that contributes to the poor quality of sleep.⁽²²⁾ A recent study found that the predisposing factors for changes in sleep quality and duration included: being a woman, over 55 years of age, consumption of alcoholic beverages, use of illicit substances, history of angina pectoris, obesity, and depression.⁽²⁶⁾ Also, the need for continuous sedation can alter the circadian sleep rhythm, depending on the type of sedative used.^(16,18)

It was found that lighting contributes to changes in the patient's circadian rhythm. Yet lights are often left on continuously in the ICU,^(14,19) since light is needed for night-time care procedures or when collecting samples for laboratory tests,⁽¹⁶⁾ and this was cited as a factor that causes sleep disturbances.

Thus, it was found that environmental discomfort is the main cause of sleep disorders (noise, care procedures, and lighting), followed by physical discomfort (pain, mechanical ventilation, severity of the clinical condition, and sedation) and finally, psychospiritual and social discomfort (negative emotions). The experience of comfort is an intersubjective phenomenon and is a goal that health-focused behaviors adopted by the patient and/or nurse can contribute toward.⁽⁸⁾ From this perspective, the results of this research can provide guidance for nursing practice, encouraging nurses to reflect on their actions in relation to the context of discomfort and ways they can improve patient comfort.

1.2. Nursing Interventions for Sleep Promotion in the ICU

In terms of nursing interventions, one of the main interventions is reducing noise levels in general.^(14,16,18-25) This includes adjusting the alarms on monitors and fans and keeping conversation between members of the team to a minimum. Several studies also suggest the use of earplugs.^(14,16,17,19,23,24)

Interestingly, not all of the studies that suggested the use of earplugs recommended reducing environmental noise,^(17,23) which is based on the assumption that noise is unavoidable in the ICU setting.

In the context of environmental comfort, reducing light levels during night-time was also cited.^(16,18,20-22,25) This can be done by lowering the lights in use or by providing patients with eye masks.^(14,16-17,19,23) Patients who were given eye masks and ear plugs reported better quality sleep than those who received the standard treatment. Also, patients who used only earplugs reported having better quality sleep compared to the control group.^(14,17) The use of eye masks and ear plugs serves as a reminder for health professionals regarding the importance of sleep, and it increases the patient's sense of control, reducing the anxiety of being in a strange and stressful environment.

According to some studies, sleep can be promoted in the ICU by grouping healthcare procedures.^(15,16,19,20,22,25) Care procedures should be planned for certain times to avoid unnecessary interruptions of sleep. Patients who underwent a greater number of nursing care procedures that were not grouped into certain time periods had longer periods of superficial sleep.⁽¹⁵⁾ Concentrating care procedures during the daytime helps promote the circadian rhythm and decreases patient anxiety associated with constant monitoring by health professionals.⁽²²⁾

In relation to the patient's physical comfort, this is achieved by managing bodily sensations, such as pain, pharmacological measures (analgesics, sedatives, psychotropic, antiemetics, and chronic medication) and non-pharmacological measures (positioning, hygiene care, music therapy, massage, and optimization of patient-fan timing).^(14,16-19,22,23)

There is a need to create and implement specific protocols aimed at promoting sleep in these contexts, focusing particularly on the nighttime period, based mainly on nursing interventions to reduce noise and

light levels.^(15,20,21,23,25) Having such protocols in place helps reduce reliance on sedatives, leading to more successful ventilatory weaning and shorter hospitalization times.⁽²⁰⁾ It is important to adapt the protocol according to the patient's individual needs and the resources available in the ICU.⁽²⁵⁾

Academic studies have increased awareness of the benefits of promoting a good circadian rhythm, whether by keeping patients awake during the daytime^(18,22) or by exposure to sunlight during the daylight hours.^(24,25)

Finally, in relation to the psychospiritual and social dimension of comfort, emotional support is important for promoting sleep. This is provided by building a relationship of trust and respect for the patient's rituals and beliefs.⁽¹⁹⁾ The importance of emotional management of patients is important, since 50% of patients admitted that having a close relationship with the healthcare professionals can improve sleep quality.⁽²²⁾ Also in the dimension of social comfort, given the importance of maintaining significant interpersonal relationships, the ambivalent role of the family in the patient's sleep is highlighted; on one hand, visits from friends and family are seen as a factor that disturbs sleep, hence visiting during the night is not permitted,^(21,25) but on the other hand, visits from family and friends provide the patient with emotional support, decreasing their anxiety and, thereby, promoting better sleep. In fact, the total number of sleeping hours was significantly increased in the group in which visiting hours were extended up until the time of the evening meal.⁽¹⁷⁾

The importance of educating health professionals about the consequences of sleep deprivation, their role in promoting sleep, and the interventions that need to be adopted was emphasized in only two of the studies reviewed.^(22,24) Education is an aspect that would assist in the implementation of specific protocols to promote sleep.

Conclusion

Impairment of sleep, which is a basic human need of the ICU patient, is largely influenced by environmental factors and can have repercussions on

patient's clinical condition and their experience of environmental comfort, according to Kolcaba's theory of comfort. Based on the integrative literature review conducted, it is concluded that emphasis is mainly given to environmental factors such as sleep inhibitors, which is to the detriment of the emotional dimension of the critical patient. More research is, therefore, needed on the impact of the emotional dimension on sleep in ICUs, promoting psychospiritual comfort. It was seen that in most of the articles analyzed, the interventions conducted were mainly focused on environmental and physical comfort, but these were not always effective in actually improving the patient's quantity and quality of sleep. It was also seen that few of the articles addressed the patient's social comfort for sleep, raising the need for further investment in this dimension, seeking to promote a holistic view of the person, and including the family as a partner and focus of care. In view of the gaps identified in the discussion of the results, and their implications for nursing practice, further studies are recommended.

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