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CRITICAL CARE NURSING IN EUROPE: WORKING TOGETHER ACHIEVING MORE

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Sleep disorders. What can we do?

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Sleep Indispensable physiological need , often underestimated and disregarded (Mistraletti ed All, 2008)

...Sleep is important in the critically ill for healing and survival and yet there is consistence reporting that patients in ICU still do not have enough sleep....

(Tembo, Parker, 2009 - Richardson et al., 2007 - Pandharipande et all 2006 - Feeley et all, 2006 - Honkus, 2003).

For the patients in ICU, the sleep disorders are experienced as the main cause of stress, with sequels post discharge.

As many as **56%** of patients are sleep deprived by the end of their first day in the hospital. (Dines-Kalinowski 2002)

>73% bothered by the problem (Weinhaus et all 2006)

40 to 50% of the total sleep time in an ICU occurs during the day time. (Cooper et All 2000; Gabor et All 2003, Friese et All 2007; kimberly et all 2009))

All 22 patients of the study demonstrated sleep-wake cycle abnormalities. (Freedman et All 2001)

Disfunction on Sleep quality and quantity

Sleep deprivation
Sleep Fragmentations
Easy and frequent awakenings
Difficult induction/ maintenance
Daytime drowsiness and sleepiness
Short naps

The architecture of sleep in the ICU (normal: medium 90 min)

Total sleep	equal/diminished
Latency	equal/diminished
Efficacy	diminished
Fragmentation	increased
Phase 1	increased
Phase 2	increased
Phase 3 & 4	diminished
REM	diminished

This problem persists, with little improvement, despite recognition of the problem for more than 30 years

- The need to address **acute illnesses is a priority in the ICU**; therefore, sleep often becomes an afterthought
- The sleep disorders are **considered inevitable consequences of the ICU experience**, and are not recognized as secondary complications to the treatment of critical diseases.
- nurses **lack of knowledge** about the nature of sleep, sleep physiology, the psychological and physical benefits of sleep (Honkus, 2003).

Only 9 uninterrupted periods of 2 to 3 hours were available for sleep

During 147 nights, only 1 instance of a sleep intervention was documented.

(6% of 147 nights studied) (Tamburri, 2004).

Aim of the study.

Describe:

- factors that impact on sleep in ICU.
- consequences of sleep disruption.
- possible recommendations for nursing practice.

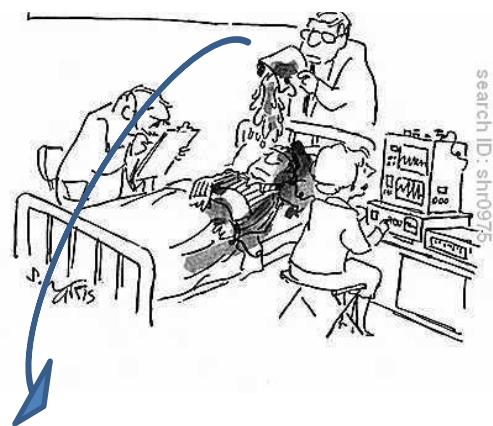
With the aim of **improving knowledge** of nurses on the phenomenon, to **enhance sleep** in the critically ill patient and improve the quality of their long of stay and outcomes.

Materials and methods:

Formal and informal Review of the literature (pubmed, nursing websites and books. Keywords: sleep disorder, critical care/ICU, nurse. Limits: old ten years, adults)

constant noise and light, makes it difficult for patients to distinguish between night and day, producing **changes in the circadian rhythm**

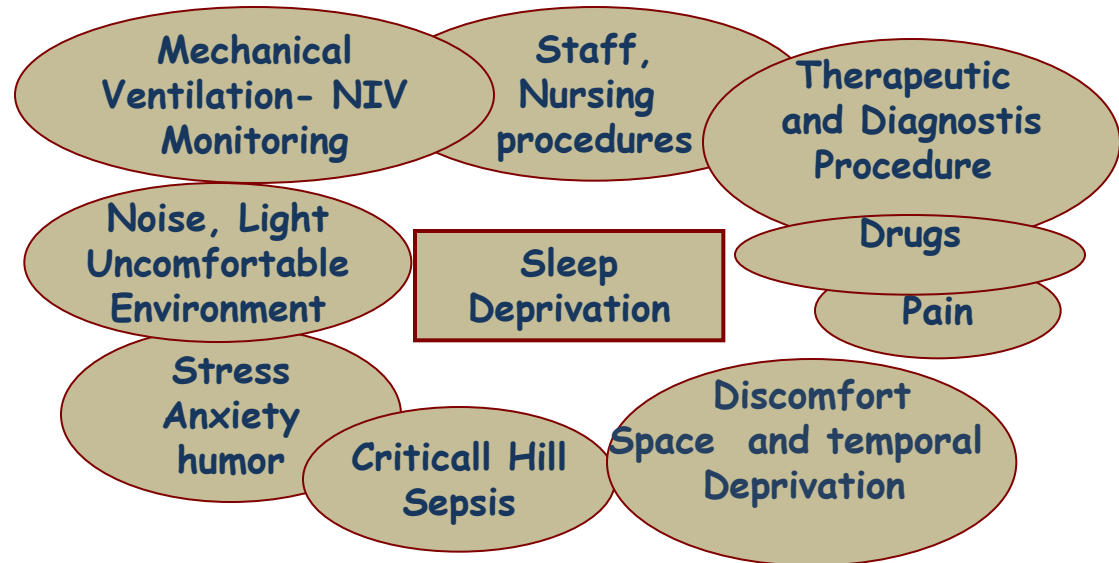
(Olson et al., 2001).



continuous interruptions to their sleep time because of **nursing procedures**, as well as their own **discomfort**, thirst, and **pain among other factors**

Night nurse/patient interaction:

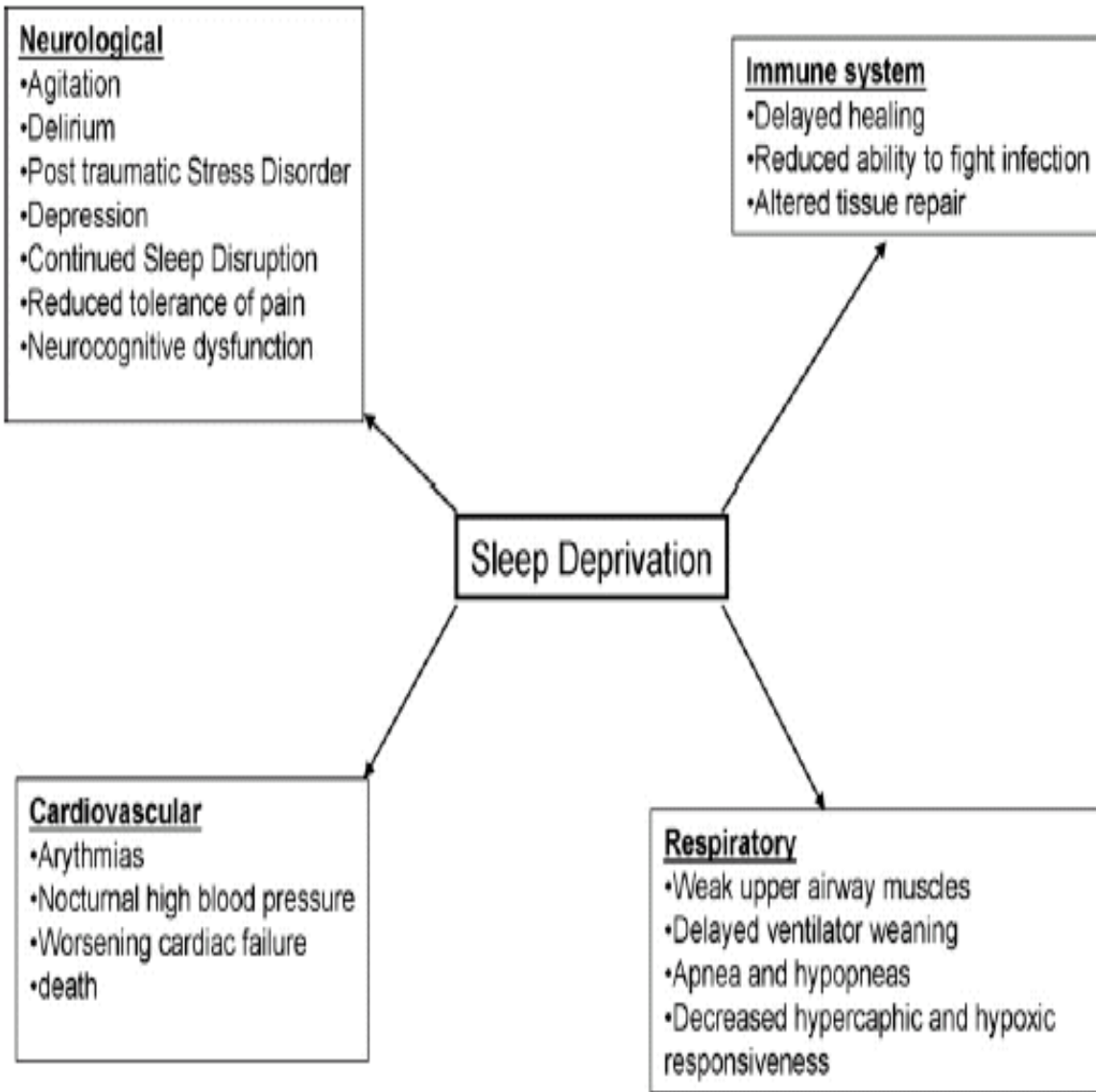
- **51** Celik S. et al 2005 J Clin Nurs 14, 102-1061
- **42,6-43** Tamburri et al 2002-2004



Vicious cycles

surgical procedures and Drugs used in critical care such as benzodiazepines, opioids, continuous infusions of inotropes catecholamines), antihypertensives, antipsychotics, antidepressants including anticonvulsants were among the drugs that caused sleep disruption in ICU patients

(Drouot et al., 2008; Parthasarathy and Tobin, 2004; edeker, 2000).



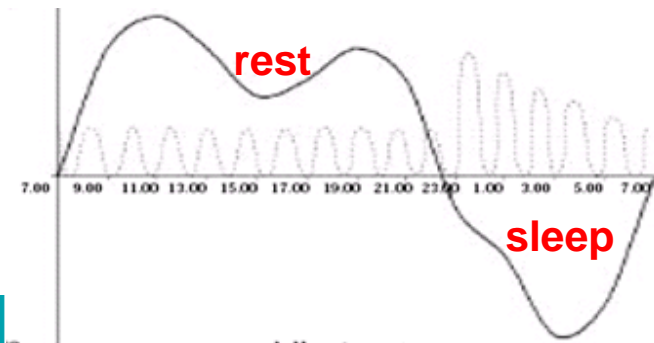
drowsiness, a sense of fatigue, tiredness, worsening irritability, aggressivity, difficulty in concentration, perceptual disorders, difficulty orienting, anxiety, and stress, delirium, post traumatic disorders, hallucinations, reduction in pain tolerance, alteration of hormonal secretions and catecholamines, emotional stress, decrease glucose tolerance, increase insulin resistance and immune dysfunctions with reduction of the immune defenses, fatigue and muscle deficit, Dysfunction of upper airway musculature, apnea spells, deficit of tissue repair, alterations in electrolytes and cardiovascular system, increase in energy consumption, decrease thermoregulation, increase gastric acid secretion, alteration physiologic parameters

Figure 1 The multisystem impact of sleep deprivation on critically ill patients.

Strategies to promote sleep/rest in the ICU

Create an environment that promotes sleep and rest:

- Educational
- Environmental
- Behavioral
- Non conventional treatment and medication



box 4-3 nursing interventions for Promoting Sleep

- Provide large clocks and calendars.
- Block sleep times.
- Provide a quiet time.
- Have the patient use earplugs.
- Assess sleep time and quality of sleep by asking the patient when possible.
- Provide opportunity for music therapy.
- Provide a 5-minute backrub before sleep.
- Consider using white noise or ocean sounds.
- Eliminate pain.
- Position patient for comfort with pillows.
- Stop the practice of bathing patients in the middle of the night for the convenience of the nursing staff.
- Titrate environmental stimuli: turn down lights, turn down alarms, and decrease noise from television and talking.
- Evaluate the need for nursing care interruptions.
- At bedtime, provide information to lower anxiety. Do a review of the day and remind patient of progress made toward recovery, then add what to expect for the next day.
- Institute "PM Care" back to basics, brushing teeth, washing face before "bedtime."
- Allow family to be with the patient.
- Use relaxation techniques and guided imagery.
- Ensure patient privacy: close door or pull curtains.
- Post sign at designated times: "Patient Sleeping."

Educational and human environment

- Clinical e Non-clinical communication and Psychological support;
- Orientation space-time: clocks, pictures, calendars, colors,
- Presence of relatives,
- when possible position patient near window to help maintain day/night
- Assist the patient to complete a familiar nighttime routine and to find a comfortable position for sleeping





Sunlight environment (Natural light in the day)

Reduce light during the night: close blinds, door, spotlights night vision

Speaking softly,

adjust limits and volumes of monitor's alarms, reduce false alarms

reduce staff conversation in room perimeter

mute telephones close to patient rooms

refrain from using intercom except in urgent situations



Rong-fang Hu et al. Effects of earplugs and eye masks on nocturnal sleep, melatonin and cortisol in a simulated intensive care unit environment Critical Care 2010, 14:R66

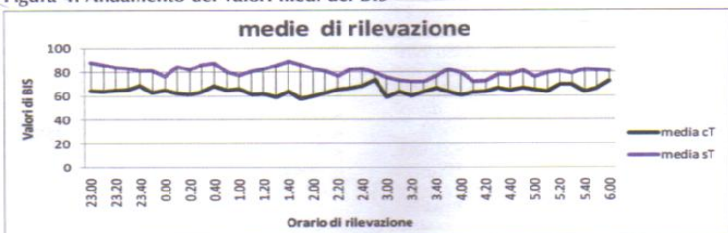
Table 4. Evaluation of earplugs and eye masks (n = 14) {5 column table}

	Helpful to sleep promotion	Comfortable	Effective for noise /light reduction	Easy to apply
Earplugs	6	6	10	11
Eye masks	8	10	13	14



the reduction of background distractions is necessary and can be achieved by offering the patient the means to isolate himself from his surroundings (eye masks, ear plugs etc.) (Olson et al., 2001 Xie H. et All. 2009; Pletti 2010)

Figura 4. Andamento dei valori medi del BIS



Poletti N. (2010). Applicazione di protesi auricolari antirumore in pazienti sottoposti a ventilazione con casco NIV: effetti sul sonno in Terapia Intensiva. Scenario, 27 (1), 4-11



DaiWai m. Olson et al. (2001) Quiet time: A nursing intervention to promote sleep in Neurocritical Care Units. American Journal of critical care Vol 10 (2), 74-78

The behavioural modified programme included: educational course changing nursing and staff routines, the introduction of afternoon and night non-disturbance periods and reduction of environmental noise and light. Monsen MG et al. *Intensive Crit Care Nurs*, 2005 Aug;21(4):208-19..

- Reorganize the interventions of the staff (Stop the practice in the middle of the night for the convenience)
- at night, promote long blocks of uninterrupted sleep by decreasing the number of unnecessary arousal and interaction

Richards K et al. Use of complementary and alternative Therapies to promote sleep in critically ill patients. Crit Care Nuers Clin North Am. (2003) Sep; 15 (3):329-40

Relaxing massage, music therapy, white sound, therapeutic touch, guided imaginary, Change position, Movement, frictions and back massages before bedtime, increase patient mobility, offer warm drink before bedtime, melatonin therapy

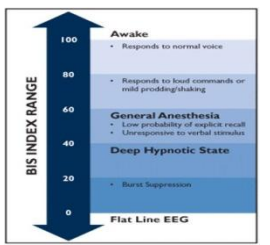
Melatonin use was associated with a 1-hour increased nocturnal sleep

Richard S B et All Crit Care. 2008;12(2)

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Orla Smith
Patrick J. Hanly



polysomnography
actigraphy
bisectral index



Sleep monitoring in the intensive care unit: comparison of nurse assessment, actigraphy and polysomnography

validated by Edwards and Schuring (1993) where nurses were asked to indicate patients sleep following a five-second observation of patients at eight pre-determined periods throughout 24 hours. Difficulties were encountered by nurses

1. A rating on the number of hours slept (banded in hours)

Assessment tool one

	0-2 hours	2-4 hours	4-6 hours	6-8 hours	More than 8 hours
Nurse	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Patient	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

3. A numerical rating score (1–10)

Assessment tool three

	No Sleep		Average Sleep				Slept Well			
	1	2	3	4	5	6	7	8	9	10
Nurse	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Patient	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

2. A rating based on a comparison with their normal/average sleep

Assessment tool two

	Much less than Average	Less than Average	Average	More than Average	Much more than Average
Nurse	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Patient	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Richards-Campbell Sleep Questionnaire (RCSQ)
(Richards et al. 2000)

Verran and Snyder Halpern Sleep Scale

Nurse observation check list by Edwards and Shuring

Jacobi J et All. *Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult.* Crit care Med 2002,30:119-141

A comparison of sleep assessment tools by nurses and patients in critical care
RICHARDSON A, CROW W, COGHILL E & TURNOCK C (2007) *Journal of Clinical Nursing* 16, 1660–1668

Concluding.....

Therapy should be directed at all potential causes, with particular attention given in terms of creating an environment that is both diurnal and, by minimizing unnecessary interruptions, conducive to sleep.

“Viewpoint: Although clinicians give lip service to the need to allow acutely ill patients to sleep, the reality is that with very ill patients, few nursing personnel, and the demands of time, it is often difficult for the nurse to "cluster" care. Nursing education must do a better job of teaching nurses to care for their patients without disrupting their sleep.

...Clearly the problem of sleep disruption is recognized but is anyone really paying attention and doing anything about it?”

Tembo AC; Parker V, Intensive Crit Care Nurs. 2009; 25(6):314-22

Thanks!

