# Factors Affecting Sleep Disturbances among Patients in Critical Care Units

### Thesis

Submitted for Partial Fulfillment of Requirement of The Master Degree
Nursing sciences
(Medical- Surgical Nursing – (Critical Care-Nursing)

By

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In the name of **Allah** the Most Gracious and most Merciful, for granting me the power accomplish this work.

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## **List of Abbreviations**

Abbrev.	Meaning
ATP	Adenosine Triphosphate
AASM	American Academy of Sleep Medicine
ABCC9	ATP-binding cassette, sub-family C member 9
CSA	Central Sleep Apnea
COPD	Chronic Obstructive Pulmonary Disease
CCU	Critical Care Unit
ECG	Electrocardiogram
EEG	Electroencephalogram
ESS	Epworth Sleepiness Scale
<b>GSQS</b>	Groningen Sleep Quality Scale
HPA	Hypothalamus-Pituitary-Adrenal
ICU	Intensive Care Unit
MSLT	Multiple Sleep Latency Test
NSF	National Sleep Foundation
NREM	Non- Rapid Eye movement Sleep
OSAS	Obstructive Sleep Apnea Syndrome
<b>PSG</b>	Polysomnography
REM	Rapid Eye movements Sleep
RBD	REM Sleep Behavior Disorder
RL S	Restless Legs Syndrome
RA	Rheumatoid Arthritis
SWS	Slow-Wave Sleep

#### List of Abbreviations

SSS Stanford Sleepiness Scale

**SCN** Suprachiasmatic Nucleus

**SNS** Sympathetic Nervous System

**CCF** The Cleveland Clinic Foundation

**TST** Total Sleep Time

**US** United states

**WHO** World Health Organizations

#### **Abstract**

Sleep is considered to be an essential biological function to maintain physiological and emotional wellbeing. However, sleep in the intensive care unit (ICU) has been reported poor quality and a major stressor associated with their admission caused by environmental and non environmental factors. Aim of study: to assess the factors affecting sleep disturbances among patients in critical care units. **Research design**: A descriptive exploratory design was applied in this study. Setting: The study was conducted at critical care units at ELdermerdash hospital one of the Ain Shams University Hospitals. **Subjects:** A purposive sample of 70 patients were included in the study. Tools: two tools were used for data collection; interviewing questionnaire sheet, Groningen's sleep quality Scale. **Results:** the study showed a highly statistically significance correlation between the quality of sleep pattern before and after hospitalization. Presence of noise, light, strange and bad odors, having pain, fears and a loud voice produced by the ICU personnel had the most significant negative impact on patients' sleep. Conclusion: poor sleep quality and disruptions are common problems among patients in critical care units. These problems are related to many factors as factors related to the patients such as pain and difficult breathing and critical care environment such as noise and lights. Recommendation: Create a suitable ICU environment that should decrease noises and lights and maintain suitable temperature during night time hours to promote sleep. Minimize staff conversation and minimize the duration of day time napping

**Keywords -** Sleep, critically ill patients, environmental

# Introduction

Sleep is considered to be an essential biological function to maintain physiological and emotional wellbeing. However, sleep in the intensive care unit (ICU) has been reported by patients of critical illness to be of the poor quality and a major stressor associated with their admission .The proclivity for sleep and circadian disturbance amongst patients in the ICU has been attributed to the intrusive clinical care and clinical environment, with environmental factors as noise, and light or due to etiological causes. As a result, patients exhibit symptoms consistent with insomnia, such as difficulty with sleep initiation and fragmentation, and early morning awakenings (**Delaney**, **Haren**, & **Lopez**, 2015).

Critical illness, various treatment modalities and the ICU environment itself can markedly impair sleep quality. Poor sleep and chronic sleep deprivation may impair recovery with adverse effects on cognition, mental status and immune function. After discharge from the ICU, many patients will continue to experience poor sleep with potential adverse effects on functional recovery (Wang & Greenberg, 2013).

Sleep among critically ill patients has gained recent attention as part of widespread ICU staff efforts to decrease delirium. minimize daytime sedation. promote mobilization, and prevent adverse post-ICU neurocognitive and physiologic outcomes. Sleep promotion is encouraged in the clinical practice guidelines (Society of Critical Care Medicine 2013) for the management of pain, agitation, and delirium in adult patients in the ICU. Furthermore, ongoing efforts are needed to improve the sleep of critically ill patients, and associate these efforts with clinically meaningful measures of sleep quality in the ICU and post-ICU outcomes (Barr, Fraser, & Puntillo, 2013).

There are many factors affecting sleep in the ICU such as the general crowd of the health professionals and technological equipment, the lighting, noise, temperature, unpleasant odors of the environment, foreign instruments, nursing interventions, and invasive interventions. Other many factors originating from the patient such as pain, loss of physical activity, medical treatment, severity of the disease, fear of death, sedation, as well as factors that affect melatonin release (sepsis, light, mechanical ventilation, benzodiazepines, adrenergic agents, beta blockers, opioids, etc.), loss of privacy and staying away from the family, all these factors could lead to sleep disorders (Little, et al., 2012).

The critical care nurse is an integral part of the multidisciplinary health care team who is responsible for recognize patient's problems and caring it to achieve optimal care. The maintenance of normal sleeping pattern should feature high on the nurse's list of priorities. Critical care nurse can identify patients at risk for sleep disturbance, and then nurses could target interventions toward specific aspects of sleep problems by considering characteristics that are unique to the individual (Motron & Fontaine, 2013).

### Significance of the study:

Evidence suggests that acute illness/injury and the ICU environment diminish restorative sleep. Despite the challenges, evidence suggests that a substantial proportion of ICU patients experience poor sleep quality, prolonged sleep latency, and frequent arousals/awakenings that contribute to physical and emotional distress. In a large study of medical and surgical ICU patients 38% experienced difficulty falling asleep, and 61% reported a greater than usual need for sleep (Matthews, 2011).

Disturbances in sleep patterns in critically ill patients are still a subject given little attention by health professionals, especially in nursing, and thus this important event is being neglected. Practitioners do not acquire suitable knowledge for the diagnosis and subsequently for the prophylaxis and treatment of

complications associated with this problem. By understanding the physiology of the sleep cycle, rest and ways to promote relaxation and sleep, nurses can minimize the factors that cause sleep disruption in ICU patients and avoid the possible negative effects caused by sleep deprivation (Silveira, Bock, & Silva, 2012).

Promotion of sleep for patients is therefore not only a humanistic intervention but can be a life- sustaining one as well. Critical care nurses play a vital role in the care of critically ill patients since they spend more time beside the patients and they are concerned with human's responses to life threatening problems. This study is conducted to assess the factors affecting sleep among patients admitted to intensive care units.

## Aim of the study

## The aim of the study is to:

Assess the factors affecting sleep disturbances among patients in critical care units.

#### **Research question**

What are the factors affecting sleep disturbances among patients in critical care units?

## **Review of Literature**

### **Sleep overview**

Sleep, comprises approximately one third of the human life. It is a state of unconsciousness in which the individual can be awakened by sensorial or other stimuli. Sleep provides mental and physical restructuring of energy storage. Achievement and maintenance of normal sleep and rest are more important in unhealthy conditions. Sleep is essential for physical and psychological recovery, while insufficient sleep can cause lifethreatening disorders (Cicek et al., 2014).

Sleep is a recurrent state of altered consciousness characterized by relatively inhibited sensory activity and nearly all voluntary muscles are reduced. As well as interactions with the surroundings, that occurs for sustained periods to restore energy and, provide time for the repair and recovery of body systems for the next period of wakefulness (Potter, Perry, Stockert, & Hall, 2013).

**Sleep reduces fatigue and restores energy**, Fatigue resulting from a lack of sleep and rest can affect the person ability to participate in self care, physical therapy, or other activities leading to increase the person's risk for falls and other injuries .According to (**Schmidt, 2014**) theory, the sleep-wake