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THE EFFECT OF CIRCADIAN RHYTHM ON JOB PERFORMANCE

Wasfi Dhahir Abid Ali¹, Semahir S, Hameed² and Luay Abdulwahid Shihab³

¹Ass. prof department of basic science – college of nursing - university of Basrah

²Ass, in the department of basic science – college of nursing - university of Basrah

³Ass.prof. department of basic science – college of nursing - university of Basrah

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ABSTRACT

The current study was conducted in the College of Nursing at the University of Basra to find out the effect of sleep regularity on job performance. The study included 50 employees who practice office and field work, whether male or female, and their marital status. The results of the study showed that 34% of them did not give importance to regulating sleep hours, and 68% of them supported that not regulating sleep hours had a negative impact on job performance, and 30% reported a change in mood and emotions. Fast paced and stressful (34%), and 50% preferred night work.

KEYWORDS: Circadian rhythm syndrome, Basrah, time work

INTRODUCTION

The regulation of sleep is processed by the homeostatic physiology of the circadian rhythm, the sleep/wake cycle. Circadian rhythm is the 24-hour internal clock in our brain that regulates cycles of alertness and sleepiness by responding to light changes in our environment.[1]. and Circa means around in Latin [2].

An abnormal circadian rhythm in humans is known as a circadian rhythm sleep disorder.[3]. The rhythm is linked to the light–dark cycle. Animals, including humans, kept in total darkness for extended periods eventually function with a free-running rhythm. Their sleep cycle is pushed back or forward each "day", depending on whether their "day", their endogenous period, is shorter or longer than 24 hours.

The primary circadian clock in mammals is located in the suprachiasmatic nucleus (or nuclei) (SCN), a pair of distinct groups of cells located in the hypothalamus. Destruction of the SCN results in the complete absence of a regular sleep–wake rhythm. The SCN receives information about illumination through the eyes. The retina of the eye contains "classical" photoreceptors ("rods" and "cones"), which are used for conventional vision. But the retina also contains specialized ganglion cells that are directly photosensitive, and project directly to the SCN, where they help in the entrainment (synchronization) of this master circadian clock [4].

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MATERIAL AND METHODS

Fifty employees participated in different fields of work (office and field) of both sexes with different marital status. A paper questionnaire was conducted for a group of questions that include the effect of the circadian clock on job performance. Statistical analysis was carried out by extracting the percentage and mean of the score.

RESULTS DISCUSSION

The quality of sleep may be poor. Sleep-wake cycle disturbances that interfere with daily activities may mean that the circadian rhythm is disturbed

Table (1) Demographic information

F=frequency %=percentage

Gender				Marital Status				Type of employment			
Male		Female		Married		Single		office		field	
F	%	F	%	F	%	F	%	F	%	F	%
20	40	30	60	37	74	13	26	32	64	18	36

The current study included 50 employees, 20 females and 30 males, 47% whom are married, and 64% work in office and the others are in the field. Table 1

Table (2) Frequency and percentage regarding effect of irregular biological time

Questions	yes		No		Total	MS	S
	F	%	F	%			
Do you regulate your sleep hours?	33	66	17	34	50	1.66	S
Does irregular sleeping hours affect on your work activity?	34	68	16	32	50	2	S
Does irregular hours of sleep cause mood changes and rapid agitation?	30	60	20	40	50	1.6	S
Do you feel tension when the lack of hours of sleep?	34	68	16	32	50	2	S
In emergencies that require more working periods than usual, are there comfortable sleeping places available in the workplace?	29	58	21	42	50	1.58	S

F=frequency %=percentage MS =mean of score S= significance

Through the questionnaire for the participants to answer the axes of questions related to the regulation of sleeping hours, 66% (significant mean of score=1.66)of them did not care about the regulation of sleeping hours, and 68%(significant mean of score=2)supported the effect of regular sleep on the cause of work activity, as well as 60%((significant mean of score=2)supported the irregularity of sleeping hours in mood changes and rapid emotions, and 68% felt stressed for a few hours Sleep, where the majority enjoyed 6 hours of sleep per day (56%) table (2), and 29% preferred to work at night. 25% of the participants did not have places to rest in emergency situations or during work. The number of hours of sleep for 56% of the participants was 6 hours.

Most shift workers sleep one to four hours less than non-shift workers. It is important to get at least seven to nine hours of sleep every day. Shift workers must be willing to make sleep a priority. People who work shifts other than a 9 a.m. to 5 p.m. routine might have to prepare for sleep even though it might be daylight outside.

Physiological rhythms disruption may be caused by misalignment of the endogenous circadian timing system and contribute to the development of the deleterious health effects associated with night shift work. [6].

Night shift and rotating shift work are associated with an increased prevalence of various medical disorders, such as diabetes, cardiovascular disease, and cancer [7] suggested that the increased risk of cancer associated to circadian disruption.

Study showed that 20–30% of the workforce in North America and Europe involved in shift work [8], and the physiological mechanisms contributing to these adverse health effects. And the altered sleep/wake schedule is thought to be an important contributor. [10].

Insomnia, excessive sleepiness, or both affecting people whose work hours overlap with the typical sleep period. Insomnia can be the difficulty to fall asleep or to wake up before the individual has slept enough.[11] And Shift work sleep disorder affects patient care within all aspects of the medical field [12]. Researchers have found that those who work long-term in night positions, like nurses, are at a great risk for wrist and hip fractures and depression [13]. low fertility and issues during pregnancy [14]. Obesity, diabetes, insulin resistance, elevated body fat levels [15]. [16] noted that time management seems to enhance wellbeing—in particular, life satisfaction—to a greater extent than it does performance. This challenges the common perception that time management first and foremost enhances work performance and that well-being is simply a byproduct. [17] indicated that the timing of the primary sleep episode is either earlier or later than required, irregular from day to day, and/or sleep occurs at times of the wrong circadian sleep disturbances caused by changes in the circadian clock.

It is not clear that reducing the duration of sleep-in harmful health outcomes is not clear, but laboratory studies on healthy adults who were subjected to sleep restriction showed harmful effects on various functions of vital body organs, which indicates that sleep restriction produces adverse physiological consequences [18]. The findings of [19] suggest that even severe periods of poor sleep may cause deficits in emotional experiences and increase impulsive and potentially high-risk behavior in young people [19]. our results showed 60 of the participants in the questionnaire agreed that irregular sleeping hours lead to mood changes and rapid agitation table (2).

CONCLUSION

The case study concluded that there is a significant effect on the lack of regulation of sleep hours on job performance, whether it is office or field work, and the participants in the questionnaire supported the negative effects of lack of hours of sleep.

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