SLEEPING PATTERNS OF RESIDENTS IN ELDERLY HOMES

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Of

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In

Gerontological Nursing

By

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أنماط نوم نزلاء دور المسنين

رسالة علمية

مقدمة إلى كلية التمريض – جامعة الإسكندرية
استفاءا للدراسات المقررة للحصول على درجة

الماجستير في العلوم التمريضية

في

تمريض المسنين

مقدمة من

إيمان حسن منير رضوان

أبريل ٢٠٠٩

أنماط نوم نزلاء دور المسنين

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للحصول على درجة
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في

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لجنة المناقشــة والحكم على الرسالة **موافقون**

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INTRODUCTION

Today the main philosophy of care for elders is adding life to years rather than adding years to life. To attain this objective, elders should be encouraged to modify their life style behaviors and health care practices to improve their overall health and quality of life. [1] Sleep is one of the basic physiological needs experienced by human beings. As it helps to conserve energy, prevent fatigue, provide organ respite, relieve tension, and protein synthesis is accelerated helps in tissue repair. In addition, it is fundamental to mental functioning, during the deeper stages of sleep cognitive and emotional information is stored, filtered, and organized. Sleep is often a mirror into ones state of health and well-being. [2-5]

Sleep is a natural periodic state of rest for the mind and body in which the eyes are usually closed and consciousness is completely or partially lost. It is considered a cyclic event, during each night a person goes through stages of two different types of sleep alternate with each other. The first type is called slow wave sleep (SWS), because in it the brain waves are very slow. It may also be called non rapid eye movement sleep (NREM).The second type is the rapid eye movement sleep (REM),because in it the eyes undergo rapid movements despite the fact that the person is asleep.[2, 6]

Good sleep is an important index of the quality of life in people and particularly in elderly persons. Approximately one- third of a person's lifetime is spent in sleep. Sleep patterns vary significantly across the life- course, with more disrupted and less efficient sleep seeming to occur in the elderly. So for optimal day time alertness elderly persons expected to sleep from six to eight hours of sleep each night. [1, 7, 8]

However, the gradual changes in the elderly bodies that occur as part of the aging process also affect their sleep even in healthy older people; sleep becomes more fragile and harder to settle into sleep. [9, 10] It can negatively affect cognitive functions resulting in poor concentration and mood changes, which can have a major impact on daytime performance and safety by increased risk of falls, fractures and even mortality. [11, 15] One in three persons aged 65 years and older complains of sleeping difficulties. The prevalence of altered sleeping patterns as frequent taking naps, difficulty in falling asleep, frequent nocturnal awakening, early-morning awakening, decreased amounts of sleep, and excessive daytime sleepiness, are very common among nursing home residents. [16- 18]

The gerontological nurse has an important role in assisting elders to sleep well. This can be achieved through identifying their sleeping patterns, and establishing a bedtime rituals, maintaining the same daily schedule for walking, resting and sleeping, getting up at the usual time even if the sleep has been disturbed or the bedtime changes temporarily, and limit naps to 30 minutes per day at the same time each day. Also improving the nursing home environment such as dark, quiet, comfortable temperature may be an important aspect of the management of sleeping difficulties. [19, 20]

Aim of the study is to identify sleeping patterns of residents in elderly homes in Alexandria.

LITERATURE REVIEW

Epidemiology:

The prevalence of sleep complaints increases steadily with age. Studies investigating sleep among elderly people living in geriatric homes, especially among Egyptians, are scarce. Approximately two-thirds of institutionalized elderly people's experiences sleep difficulties.[21] Because institution that provide care for the aged adhere to specific time schedule, which may not correspond to the biorhythm of the aged person and which may place the individual out of synchronization with her or his body functions.[22-24] In the United States, Older people experiencing institutionalization have additional risk factors for insomnia and it is estimated that 45% to 75% of elderly home residents have disturbed sleep.[25]

According to the New England Journal of Medicine, about one-third of the world's population experiences insomnia during a given year, with 17 percent reporting chronic problems, as many as 40% of elders over the age of 60 may experience insomnia, frequent awakening, and disrupted sleep.[26] In Thailand, nearly half of the elderly over the age of 60 years had insomnia.[27] In a survey carried out in USA on 9000 elderly aged 65 years or older, the prevalence rate of sleep disturbance was over half reported one or more of the following trouble falling asleep, waking up during the night, waking up too early, needing a nap and not feeling rested.[26]

In the United States, sleep disturbances affect 50% of elders who live in their own homes and 66% of those who live in long-term care facilities, and another study done in 2007 reported the prevalence of sleep complaints ranges from 16% to 68%.[2,28] In Canada, up to 40% of people aged 65 years are dissatisfied with their sleep or report trouble sleeping.[28] In Los Angeles, up to 45% of institutionalized elders suffered from at least transient difficulty sleeping and 14% of those residents receive sleeping pills.[29] In St. Louis, estimated 70% of elderly home residents experiences sleep disturbances. Insomnia is a common medical problem that is associated with decreased work performance, lost productivity, accidents and hospitalization. Sleep disorder are known to cause medical and psychiatric disorders and to have a huge societal and economic impact, the overall cost exceed $ 100 billion annually.[30]

In Egypt, A study done in geriatric homes in Alexandria in 2007 revealed that, difficulty initiating sleep was reported by 65% of the participants. Approximately half of them had difficulty maintaining their sleep (50.8%) or had non-restful sleep (51.4%). Short sleep was reported by 43.5% of the participants, while early morning awakening was reported by 28.2 %.[31]

Importance of sleep:

Sleep is a restorative mechanism that serves to regenerate individuals physiologically and emotionally. It plays an important role in the physical and mental well-being.

Degenerative metabolism appears to peak during wakefulness when the levels of catabolic hormones such as cortisol, glucagons and catecholamine increase. Adrenaline released during wakefulness is thought to prevent the cell division necessary for healing to occur. It is necessary for the maintenance of good health, and that the need for sleep increases with illness.[6, 32, 34]

During the deeper stages of sleep production of growth hormone increases, it enhances amino acid transport into cells, promotes protein of ribonucleic acid (RNA) synthesis and cell division for renewal of tissues such as the skin, bone marrow, gastric mucosa, or brain. An optimum condition for protein synthesis is created within resting cells, eliminates waste products from muscle, tissue and repairs any cell damaged that occurred during the day. The body conserves energy by lowering the basal metabolic rate, the skeletal muscles relax progressively, and the absence of the muscular contraction preserves chemical energy for cellular processes. The heart rate falls 10 to 20 beats in each minute, which may be beneficial in preserving cardiac function.[18, 35, 36]

Sleep refreshes the immune system and therefore helps to prevent disease and recover physical abilities lost during the day. The immune function works harder during sleep than in the awaking state, this explains why many groups of people who are prone to sleep deprivation, suffer from illness and infection than the general population. Rapid eye movement sleep is associated with changes in cerebral blood flow, increased cortical activity, increased oxygen consumption, and epinephrine release. This association may improve cognitive and emotional functions such as enhances concentration and memory consolidation by stored, filtered and organized the information, learning and adaptation to stress. The older adults must have enough sleep to awaken well rested to be more alert, productive, healthy, and happy.[2, 34, 37, 38]

Effect of poor sleep on health:

Disturbed sleep can affect personal well-being and impede the rehabilitation and recovery of older people from illness. Prolonged sleep loss affects all areas of life, the physical, the mental, and the emotional. The physical effects include an altered appetite, fatigue, decreased energy expenditure, decreased body temperature, decrease ability to perform tasks that require high level of coordination and increased home accidents and falls. Also prolonged sleep loss may lead to neurological disturbances such as nystagmus, hand tremor, ptosis and reduced facial expression.[39- 41]

Serious physical consequences can arise as a result of chronic sleep loss. It can adversely affect the ability to metabolize sugar, increase the risk of obesity and diabetes. In one week of severe sleep deprivation, such as four hours per night can lead to a pre-diabetic state. A study done in the University of Chicago 1999 by the Medical Center showed that sleep deprivation severely affects the human body's ability to metabolize glucose, which can lead to early-stage diabetes type 2. Sleep loss is associated with altered glucose regulation, including insulin resistance and a dysregulation of the neuroendocrine control of appetite leading to excessive food intake and decreased energy expenditure. Which in turn lead to overeating, excess of the caloric demands and therefore, sleep loss is probably a risk factor for weight gain and obesity.[42-44]

While sleep patterns do change with aging process, disturbed sleep and waking up tired every day may not be a part of normal aging. Changes in sleep patterns may indicate signs of other problems in the elderly such as cardiac or respiratory problems, which produce difficulties such as orthopnea and pain during sleep. Loss of sleep has also been implicated in the onset of cardiovascular disease and cardiovascular morbidity may be activated by sleep complaints.[45]

Slow wave (deep) sleep have an immunoenhancement role, but with sleep deprivation results in a significant reduction of cortisol secretion the next day this is a stress hormone which is normally very low in the evening, to prepare the person for a relaxation state to go to sleep. However, in a state of sleep debt, cortisol levels in the evening are elevated. So somehow, a state of sleep loss is read as a stressor. Sleep decreases plasma thyroxin, increased plasma norepinephrine, an inhibitory effect on the Hypothalamic-pituitary [HPA] axis while it enhances the activity of the growth hormone [GH] axis. In contrast, sleep disturbance has a stimulatory effect on the Hypothalamic-pituitary axis and a suppressive effect on the growth hormone axis.[46 - 49]

Sleep deprivation destroys not only the physical health, but also the mental health as well. It can cause everything from minor irritation to outbursts of temper to full-scale mental illness. Most individuals develop cognitive deficits from chronic sleep debt after only a few nights of reduced sleep quality or quantity. It can adversely influences cognitive abilities as the ability to concentrate, make judgments, attention, equilibrium, intellect, impaired performance, difficulty with memory, confusion, and mood changes. Insomnia can lead to excessive daytime sleepiness that may result in psychomotor retardation; in addition, there is a close relationship between depression and sleep deprivation.[47, 49-52] 30-50 % of patients with psychiatric disorder were complaints from insomnia.[53]

Emotional aspect of sleep deprivation is also important; people with chronic insomnia are more likely than others to develop several kinds of psychiatric problems. Sleep deprived subjects become increasingly angry, irritable, aggressive, unfocused, and antisocial as may even have an effect on personality, problems in relationships, compromising productivity and create social and economic burdens for caregivers. Habitual short sleep duration less than six hours sleep per night or long sleep duration more than nine hours sleep per night is associated with increased mortality.[54- 57]

Sleep Regulation:

The sleep and wakefulness are governed by internal basic mechanisms which are circadian rhythms, hormonal changes, homeostatic sleep drive, and changes in the autonomic nervous system. These mechanisms, together with possible pathologic conditions or external stimuli, have a strong impact on sleep consolidation.[2, 29]

Circadian rhythms: The sleep/wake cycle is regulated by a circadian rhythm that under the controlled of suprachiasmatic nucleus in the anterior hypothalamus. The circadian rhythm is directly affected by prior sleep and waking and thus is considered to be the biological clock which causes the 24-hour. The major role of the biological clock is the regulation of sleep and wakefulness to provide an internal and very powerful wake-up signal to the brain. The suprachiasmatic nucleus itself is influenced by light so that the