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EXCESSIVE DAYTIME SLEEP AND SLEEP QUALITY IN DOCTORS AND NURSES OF THE REGIONAL MILITARY HOSPITAL OF SPECIALTIES" GUADALAJARA. 2019.

Dra. Karla Teresa Granados Velasco & Dr. Gabriel Miranda Nava.

Undergraduate intern at the Regional Military Hospital of Guadalajara specialties.

Neurologist Assigned to the Neurology Service of the Regional Military Hospital of Guadalajara specialties.

Email :drgabrielmiranda@hotmail.com

ABSTRACT

OBJECTIVE: To detect the sleep disorder Excessive Daytime Sleepiness and bad sleepers in doctors and nurses of the Hospital Militar Regional de Especialidades de Guadalajara.**MATERIAL AND METHODS:** A cross-sectional, analytical study was carried out in 67 patients of doctors and nurses from the Hospital Militar Regional de Especialidades de Guadalajara during the period of October-November 2019, to whom a survey was applied with the Epworth sleepiness scale and the Pittsburgh Sleep Quality Index, to detect disorders of excessive daytime sleepiness and poor sleep hygiene. The clinical and demographic characteristics were studied between the study groups.**RESULTS: We** worked with 26 women (39%) and 41 men (61%), whose mean ages and standard deviations were 33.6 years and 9.2 years for men, and 27.3 years and 7 years for women. In the case of women, 62% (n = 16/26) answered that if they take naps while in men, those who take naps are 51% (n = 21/41). ICSP is evaluated in women, which 54% (n = 14) is highly associated with the category "deserves medical attention and medical treatment = and 31% (n = 8) have a serious sleep problem. Male students tend to have fewer sleep quality problems than women, but it is observed that a mean of 9.6 (with a standard deviation of 6.31) for HMREG doctors and nurses in this variable indicates that in general 78 % (they should have medical attention). 2 on slopes are excluded as they were not answered. In the case of excessive daytime sleepiness, a slight difference is observed in the average score obtained between men and women. Therefore, in general, the mean of both sexes is 5.66 with a standard deviation of 4.24, being 30% (n = 21) those who fall into the category of EDS with a slight predominance.**CONCLUSION:** There is a sleepiness disorder and poor sleep quality at the Hospital Militar Regional de Especialidades de Guadalajara, so it is recommended to open an investigation with a larger sample size to make an association between excessive daytime sleepiness and poor quality of sleep with habits such as risk factor.

KEY WORDS: Excessive daytime sleepiness (EDS), Sleep Quality, Circadian rhythm.

JUSTIFICATION

Sleep problems are a growing concern for healthcare workers because lack of sleep is associated with impaired motivation, emotion, and cognitive functioning, and with an increased risk of serious illness (for example, diabetes, cardiovascular diseases, cancer ...). The neurology and public health branch has endeavored to promote sleep hygiene as a necessity to achieve a healthy sleep that shares a better quality of life and has raised some interesting questions, from quantitative concepts such as how many hours to sleep, to all those qualitative issues that help to get a better rest, such as the importance of schedules, the environment, food and sports. Each individual component of sleep hygiene is known to be related to getting better sleep. eleven

The desire to understand the phenomenon of sleep has accompanied the human being throughout its history. Each culture has tried, in its own way, to document and understand it, but it is not until recent decades that the pattern has been set for the methodological analysis of sleep and its various implications for human health. Around the world, there are scientists of various nationalities working on specific study concepts of sleep and its patterns. In Mexico, young medical professionals have been promoting research and clinical application of sleep studies for some years.

Sleep has a definite effect on homeostatic balance. Loss or restriction of sleep time produces dramatic changes in the normal functioning of different systems. On the other hand, when sleep is unchanged, it has a clear restorative effect on the entire organism. The mechanisms through which it exerts this global restorative effect have not been fully defined. However, in recent decades, experimental evidence has begun to emerge suggesting that, while sleeping, different systems undergo drastic changes, and that these phenomena may be the basis for the body and its systems to be fully functional upon awakening.

restored and ready for a new period of activity. 12

Therefore, in the study of sleep and its impact on the organic level, we must take into account this close relationship between the nervous system and the endocrine and immune systems in order to elucidate and clarify how sleep occurs, how it is influenced by other systems. , and how, in turn, sleep impacts and regulates the proper functioning of these systems.

Different investigations have documented the effect of sleep disorders on cognitive functions, psychosocial adaptation and the repercussions on the individual's quality of life. In these studies, it is recognized that in cases in which nighttime sleep is insufficient (due to unstructuring, deprivation or fragmentation), general performance during the day decreases due to fatigue and the individual's difficulties in staying awake.

This research project aims to identify poor sleep quality and the most common sleep disorder, Excessive Daytime Sleepiness (EDS) in the doctors and nurses of the Hospital Militar Regional de Especialidades de Guadalajara to disseminate recommendations on sleep hygiene in relation to importance of the environmental environment (noise, temperature, lighting...), sleep schedules,

and diet –including substances such as caffeine, alcohol, nicotine …– and sports. Raise awareness of the need to seek medical attention and treatment in serious situations.

2. THEORETICAL FRAMEWORK

1. BACKGROUND

Sleep is a physiological process that occurs in all human beings and in animal species. It has been the object of study for many years and the inspiration of various artists, as it has always been seen as an enigmatic period in which our brain processes what we are and what we do.

In medicine, sleep also participates in the successful evolution or in the deterioration of patients. Throughout history, the mysteries surrounding the sleeping process have been unraveled.

One of the most important findings is due to Constantino von Economo who, between 1916 and 1927, described the role of the hypothalamus in sleep during the period of the encephalitis lethargic epidemic. This disease presented as main symptoms inflammation of the throat and sleep disorders, ranging from excessive sleep to the inability to conciliate it. Economo performed autopsies on patients who died of this condition. This is how he found that the hypothalamus was particularly affected: if the damage was prior, it caused insomnia; if it was later, it generated hypersomnia. Based on these findings, various clues about the origin of sleep were deciphered at the central nervous system level.

Shortly after von Bursar, the German psychiatrist Hans Berger studied the electrical activity of the brain by placing surface electrodes on the cerebral cortex. Thanks to this research, carried out in 1929, the alpha rhythm was discovered, and with this the concept that sleep was a passive process of the brain was modified.

In 1949, the physiologists Magoun and Moruzzi described the role of the reticular formation of the brainstem in the activation of EEG activity. This helped to understand the physiological aspects of the sleep-wake cycle.

Different researchers spent a lot of time evaluating the origin of the dream and the systems involved. In 1953, Eugene Aserinsky, a student of Dr. Kleitman, observed rhythmic eye movements in different subjects studied, which they called rapid eye movements (REM), a name that to this day refers to this stage of sleep.

A graduate fellow who worked in the same laboratory was Dr. William Dement, who conducted various studies of subjects who remained asleep one continuous night and developed what we now know as polysomnography. Dement divided and described the stages of sleep into REM and SLOW sleep or without rapid eye movements.

Later, the French researcher Michel Jouvet, a student of Magoun, identified the muscular atony that occurs in REM sleep and described the involvement of the medulla oblongata in this process.

It was in 1968 when Rechtschaffen and Kales created the first manual whose final name remained as the Sleep Qualification Manual and Associated Events of the American Academy of Sleep Medicine, it was that the criteria for placing each of the sensors and for marking each of the stages of sleep should be universal, which gives

confidence to the results obtained by any researcher in sleep medicine. [13]

With the development of these tools, it was necessary to create consensus to identify and unify criteria for the diagnosis and treatment of sleep medicine. For this reason, the American Academy of Sleep Medicine drafts the first International Classification of Sleep Disorders, which was revised in its last edition in 2005.

The development of sleep medicine took place mainly in the United States. However, the pioneer of sleep medicine in Mexico was Dr. Raúl Hernández Peón, who was a student of Magoun. Dr. Hernández dedicated himself to the study of the physiology of the central nervous system, and his line of research was the role of reticular formation in sleep. Later, he made a stay in the laboratory of the French scientist Michel Jouvet, and was a distinguished student.

In 1964 he founded the Brain Research Institute, where he began the study of sleep. His main hypothesis was that a cholinergic sleep system existed. To test it, I implemented a system to introduce acetylcholine microcrystals into stereotaxically implanted cannulas in different regions of the brain and spinal cord of intact cats. It turns out that, within minutes of the application, the cats were adopting postures that simulated a dream state. With these experiments, Dr. Hernández made it clear that acetylcholine was the neurotransmitter responsible for this physiological process, which led to an arduous research effort during which he trained specialists in this new branch of medicine. Raúl Hernández Peón became one of the forerunners of the study of sleep worldwide. One of his students, who was also a pioneer of sleep medicine in our country, is Dr. Rene Drucker Colín. His experimental work was developed along the same lines, and consisted in the search for the substance that induces sleep using simple techniques. I conduct REM sleep deprivation studies in cats, extracting cerebrospinal fluid for placement in cats that had slept normally. The latter slept in REM sleep when receiving the liquid from the deprived cats. With this, Dr. Drucker contributed the knowledge that brain proteins participate in the control of REM sleep. Later, while attending a conference on brain tissue transplants, he had the idea to venture into this area. Thus, together with Dr. Raúl Aguilar Roblero, then one of his students who worked with biological rhythms, he performed the first tissue transplant to restore the circadian cycles of rats that had lost rhythm due to lesions caused in the suprachiasmatic nucleus. In 1984, Rene Drucker published an article in which he pointed out that vasoactive intestinal peptide (pvi) induces sleep in cats. Another of his great contributions was the creation of the first sleep clinic in Mexico, belonging to the National Autonomous University of Mexico (UNAM), in order to evaluate the different sleep disorders from a multidisciplinary point of view. Given his great career on the subject, he was appointed president of the Mexican Society for Sleep Research and Medicine, created in the 1990s. This society was born thanks to a group of scientists interested in the development of sleep. Among them, Dr. Javier Velázquez Moctezuma stands out, who made important contributions on the effects of sleep deprivation as a stress-inducing model. It also provided essential information on the subject of sleep and its

relationship with other processes, including sexual behavior and depression. Another of the founders of the Society is Dr. Oscar Prospero García, a student of Dr. Drucker, who for many years worked on the role of peptides in the regulation of sleep and memory. He also investigated the role of endogenous marijuana in sleep, describing that of anandamide as a promoter of slow wave sleep. With regard to sleep medicine, in addition to the UNAM clinic, Dr. Javier Velásquez, after many years of research on the subject, decided to venture into the clinical area, founding the Sleep Disorders Clinic of the Autonomous University Metropolitan (UAM), which provides care for diagnosis and treatment. Later, other clinics were created nationwide, most of them belong to private initiative. Some institutes have their sleep areas, such as the National Institute of Respiratory Diseases (INER), the National Institute of Psychiatry (INP), the National Institute of Medical Sciences and Nutrition Salvador Zubirán (INCMNSZ), and the National Institute of Neurology and Neurosurgery (INNN). However, there is still a lack of specialized centers that can meet the demand of patients with sleep disorders in our country, and above all increase the work to disseminate this branch of medicine. [14,15,16,17,18]

2.2 CONCEPTUAL FRAMEWORK

Sleep: according to neurobiologist Michel Jouvet it is defined as: "The natural, periodic and reversible decrease in the perception of the external environment, with the preservation of a certain degree of reactivity to the environment and of autonomous functions".

Circadian rhythm: The human sleep cycle is closely linked to the light-dark cycle, which is why it lasts approximately twenty-four hours. During this cycle, which we call circadian, on average we remain asleep for between seven and nine hours. Throughout this period, we go through different stages of sleep. Humans sleep in four stages: light sleep, which is subdivided into stages I and II; slow wave sleep or stage III; and Rapid Eye Movement (REM) sleep. These stages can be identified mainly by electroencephalographic changes, but also by changes in muscle tone, heart rate, temperature, and respiratory activity, just to name a few. The electrical-cerebral activity presents changes in the frequency and in the amplitude, according to the waking state. Therefore, for its study it has been divided into four bands: beta, alpha, theta and delta.

Sleep hygiene is defined as a set of environmental behaviors and recommendations intended to promote healthy sleep, originally developed for use in the treatment of mild to moderate insomnia. Through sleep hygiene, patients learn about healthy sleep habits and are encouraged to follow a series of recommendations to improve sleep (for example, avoid caffeine, exercise regularly, eliminate noise from the environment for sleep, and maintain a healthy sleep environment. regular sleep schedule).

Phases of sleep :

- **Vigil:** total interaction with the environment.

- **Phase 1 (drowsiness) and phase 2** make up light sleep (SLR) and account for 60% of total sleep time.
- **Phase 3 or slow wave sleep** : 20% of the total sleep time, subject completely asleep, **strengthening and repair of the immune system** , is related to rest → people who have a decrease in this phase of sleep report excessive daytime sleepiness and no sleep repairman
- **Mor phase or paradoxical dream** : consolidation of memory, daydreams appear. a lot of protein synthesis takes place.

NMOR sleep: Based on a large number of studies, it is now known with certainty that the mechanisms responsible for promoting sleep are found in the anterior hypothalamus, specifically in the preoptic area (APO). The neurons found in the APO are the ones that originate the hypnogenic process. Now, when stimulating the APO in an electrical, thermal, or chemical way, an increase in the amount of sleep is observed. By directly administering growth hormone releasing hormone, triazolam, prostaglandin D2, and adenosine agonists in this region, the amount of sleep is markedly increased.

The anterior hypothalamus sends projections to several systems that modulate wakefulness in the posterior hypothalamus, including the histaminergic neurons, as well as the midbrain and the pons, where the noradrenergic and serotonergic (5HT) neurons are found. The waking system sends its projections to the thalamus and forebrain for activation, and from there it returns to the APO. [19, 20]

REM sleep: During this stage of sleep, phenomena such as daydreams, muscular atony, ponto-geniculo-occipital waves, rapid eye movements, and hippocampal theta rhythm occur. Imaging studies have been performed during REM sleep in humans and the pontine tegmentum has been found to be a crucial point in the generation of this phase of sleep. Jouvet suggests that the dorsal pontine tegmentum, specifically the noradrenergic neurons of the locus *coeruleus* , are essential for the generation of REM sleep. Hobson showed that, by suppressing the neuronal activity of the locus *coeruleus* during REM sleep, there is a parallel increase in the activity of the neurons of the medial pontine reticular gigantocellular nucleus. Based on these results, McCarley and Hobson propose a reciprocal interaction model, postulating an aminergic-cholinergic interconnection that promotes REM sleep. Desynchronized electroencephalographic activity with low voltage and fast frequencies, characteristic of REM sleep, is produced by impulses that go from the mesopontin region, the midbrain and the oral pontine reticular formation, towards the thalamus and from there to the cerebral cortex, using acetylcholine and possibly glutamate as neurotransmitters. The hippocampal theta rhythm is another bioelectrical activity that occurs during REM sleep.

Loss of muscle tone during REM sleep occurs when the motor neuron membrane is hyperpolarized. Several mesopontine and pontine structures - including the tegmental pontine peduncle nucleus, the retrorubral field, and the ventral part of the oral pontine

reticular nucleus - participate in the mechanisms of muscle atony during REM sleep. However, the locus *coeruleus* and perilocus *coeruleus* are crucial for such atony to occur during REM sleep, since by bilaterally injuring these structures, muscle atony does not occur during REM sleep, which is defined as a behavioral disorder. of REM sleep.

In a 24-hour period, we can find ultradian cycles such as the sleep-wake cycle, which are important for the maintenance of homeostasis of an individual. Within the ultradian cycles we can find the presence of changes in different physiological processes such as: heart rate, body temperature, respiratory rate, and hormone secretion, among others. [21, 22]

Cardiovascular regulation: In general, basal cardiac activity is higher during wakefulness and decreases throughout the sleep period, but at certain times it can also become higher than in wakefulness. Systemic blood pressure and heart rate usually present values lower than baseline during SLN stage III sleep, and during REM sleep the levels are lower than during wakefulness physiologically, several factors can modify the activity of the cardiovascular system during sleep. Among them, stand out the sleep stage in which the subject is (NMOR or REM), its depth (phases I, II, or III), and the sleep time.

When analyzing a pressure curve during NMOR sleep, we would see that in stage III there is a significant reduction in systemic blood pressure, which occurs gradually. A drop of up to 10% in blood pressure during sleep has been considered normal. During REM sleep, both blood pressure and heart rate are observed to fluctuate widely; these occur mainly during the phasic episodes of REM sleep. The amount of sleep is another factor that can modify the activity of the cardiovascular system, since throughout the night the subject loses water and, therefore, its intravascular volume is reduced. [23, 24]

Regulation of respiration: When we are awake, respiration is controlled by two mechanisms: the voluntary, managed by the cerebral cortex, and the involuntary, which is found in the brain stem. The latter responds to hypoxia, hypercapnia, and acidosis, in addition to controlling chest movements. When we are asleep, voluntary control of breathing is lost and there is a decrease in the response of involuntary mechanisms. These alterations during sleep lead the patient to a physiological state called hypoventilation. In sleep stages I and II, breathing becomes irregular, there are episodes in which the respiratory amplitude increases, but there are also lapses in which said amplitude decreases. These episodes are usually accompanied by short-term central apneas, which occur in 40-80% of the normal population. During stage III, respiration becomes regular, both in frequency and amplitude.

During REM sleep, there is an irregular breathing pattern characterized by sudden changes in both respiratory rate and amplitude; Apneas of the central type appear, which last from 10 to 30 seconds; periods of hypoventilation coincide with rapid eye movements. The hypoventilation that occurs during REM sleep is due to a reduction in the muscle tone of the rib cage, but also to the resistance of the airways. [25, 26]

Humoral regulation: Hormones are substances synthesized and secreted by specific cells, there are two classes of hormones: protein and steroid compounds. Some hormones are closely related to certain stages of sleep. This implies that, if the amount of any stage of it decreases, the hormone that must be released in that period will also be decreased.

- Growth hormone (GH): it is secreted by the anterior pituitary and its release is related to the presence of stage III of NMOR sleep.
- Cortisol: the highest concentration of this hormone occurs in the first hours of the morning, just before waking up. This decreases throughout the day, until it reaches the lowest level at the beginning of sleep.
- Prolactin: it is secreted by the anterior lobe of the pituitary. Its release occurs during sleep, its concentration decreases during wakefulness, it occurs between 60 and 90 minutes after starting sleep, and the maximum peak occurs in the early hours of the morning.
- Testosterone: low at the beginning of sleep, and the highest concentration of this hormone occurs in the early hours of the morning. The nocturnal increase associated with the first episode of REM sleep.
- Progesterone: modulates the quality of sleep, appetite, learning, memory and sexual activity. It is a hormone with hypnotic effects and that stimulates respiration, which is why it has been associated with the property of reducing central and obstructive apneas in men.
- Thyroid Stimulating Hormone (TSH): It is also secreted by the anterior pituitary gland and modulates the secretion of thyroid hormones. During the day it presents low levels in its concentration, being at night when the highest peak of the same occurs. [27,28,29]

Temperature regulation: The system responsible for regulating body temperature is found in the hypothalamus and has been called the hypothalamic thermostat. It controls both the loss and the production of heat. Through different studies, it has been shown that body temperature obeys circadian cycles. During sleep there are also changes in body temperature. At the beginning of the cycle, the temperature begins to drop, reaching its lowest levels in the second half of the night. Compared to wakefulness, during REM sleep temperature control is decreased, and during REM sleep temperature control is lost, in such a way that we become poikilothermic. [30]

2.3 Reference Framework

A cross-sectional, analytical study was carried out in 126 patients from the Víctor Lazarte Echegaray Hospital outpatient service, to whom the minimental state examination test and the Epworth scale test were applied to determine cognitive impairment and excessive daytime sleepiness, respectively. It was found that the frequency of cognitive impairment in patients with excessive daytime sleepiness was 43.9%, as opposed to patients without excessive daytime sleepiness, which was 11.6%. It was also observed that age, female sex and the absence of work activity showed significant differences between the study groups ($p < 0.05$). A highly significant dependence ($p = 0.00005$) was found between excessive daytime sleepiness as a factor associated with cognitive impairment (PR 3.78 95% CI 1.85 - 7.73)

reaching the conclusion that there is an association between excessive daytime sleepiness and cognitive impairment in patients older than 60 years. [1]

A cross-sectional correlational descriptive investigation in which we worked with a sample of 547 students who voluntarily participated in the investigation. The instruments used were the Epworth Sleepiness Scale and the Pittsburgh Sleep Quality Index. To compare the different averages of the total scores between male and female students. We worked with 258 women (47.2%) and with 289 men (52.8%) whose mean ages and standard deviations were 22.9 years and 3.8 years for men and 20.9 years and 2, 7 years in the case of women. It was found that, in general, students tend to have a quality of sleep that deserves medical attention and treatment (77.1%). Likewise, 70.3% present mild or moderate drowsiness. It was concluded that poor sleep quality and daytime sleepiness occur in different domain areas and disciplines, and not only in health undergraduates. Further education regarding sleep hygiene is required. [2]

In another analytical cross-sectional study using a random telephone survey; The structured interview was applied in order to obtain demographic and clinical data. Likewise, the Epworth scale was used. 200 inhabitants of Mexico City were studied, with a mean age of 37 ± 16 years. Of them, 31.5% had Excessive Daytime Sleepiness (EDS). In 12.5% of the subjects, the EDS significantly interfered with their daily activities and 9% admitted that it interfered with their work activities. Subjects with EDS were older, were more often from the low socioeconomic status, and had a significantly higher body mass index. [3]

This study is a cross-sectional correlational descriptive investigation. The non-probabilistic sample of 259 medical students from the University of Manizales who met the following inclusion criteria: age between 16 and 30 years; absence of neurological, psychiatric disorders, or a history of repetition, lag or school failure; signature of the informed consent. The Epworth Sleepiness Scale and the Pittsburg Sleep Quality Index (PSQI) were used as instruments. We worked with 149 women (57.7%) and 110 men (42.5%), in general it was evidenced that the students who participated in the research tend to have a quality of sleep that requires attention and medical treatment in 91, 9% of the cases, likewise, that 68.7% of the students presented moderate drowsiness. The study contributes to confirm the poor quality of sleep and the presence of excessive daytime sleepiness in the university population evaluated. [4]

A descriptive cross-sectional study was carried out with a qualitative approach; To obtain the information, the Pittsburgh Sleep Quality Index (Colombian version) was applied and a focus group was made with 17% of the population of nurses surveyed. The average sleep quality index of the population was 4.1 ± 2.6 and the prevalence of bad sleepers was 24.9%. The most disturbed components of sleep were sleep duration and latency; On the other hand, the main findings of the focus group are related to the incidence of having children, especially if they are small, in the quality of sleep; the identification of stress and its main precursors of an intra-work nature (job insecurity, workload and lack of institutional support, among others) and

extra-work (personal problems and the state of family relationships), as a construct related to quality of sleep. [5]

The objective of this work was to establish the prevalence of EDS and sleep quality and to evaluate its association with poor academic performance with a descriptive observational study that included a random sample of 217 medical students from the Technological University of Pereira who answered the questionnaire of Pittsburg Sleep Quality Index (ICSP) and the Epworth Sleepiness Scale. In addition, sociodemographic, clinical and academic variables were included. Multivariate analyzes were performed looking for association with low academic performance. The evaluated students had an average age of 21.7 ± 3.3 years; 59.4% were male. It was established that 49.8% had EDS criteria and 79.3% were poor sleepers (ICSP ≥ 5). 43.3% had low academic performance during the last semester. The bivariate analysis revealed that having consumed tobacco or alcohol into drunkenness, having quite poor subjective sleep quality, efficiency < 65%, and being a poor sleeper were associated with a higher risk of poor performance. In multivariate analysis, sleep efficiency < 65% was statistically associated with poor academic performance (p = 0.024; odds ratio = 4.23; 95% confidence interval, 1.12-15.42). [6]

Descriptive cross-sectional study in a sample of third-semester medical students from the National University of Colombia who agreed to participate in the research through informed consent. The locally validated Epworth sleepiness scale was applied. The evaluated participants were young, third semester medical university students, in whom excessive daytime sleepiness was found in 59.6% (n = 59/99), being more frequent in young men with an average age of 21 years. Higher data compared to those reported in other studies for the general population. The prevalence of excessive daytime sleepiness in the population studied is quantitatively important and higher than that found in other studies. [7]

The Pittsburgh Sleep Quality Index questionnaire and sociodemographic record were applied to 400 patients who attended outpatient consultation. Results: 23.5% did not report problems in their quality of sleep, 33.3% slight loss, 17.3% moderate loss and 26.3% poor quality of sleep. In comparison tests, there are statistically significant differences between men and women (p = 0.001), single and married (p = 0.007), between patients using anxiolytics, antidepressants, antipsychotics (p = 0.000), with antihypertensives, antihyperglycemics, diuretics, antacids (p = 0.001). In the present investigation, the prevalence of the alterations is from mild to severe in 76.9% of the population studied, higher in men, and the variables that alter quality, quantity, as well as disturbing factors have been studied in depth. [8]

The objective of this research was to describe the factors that determine quality sleep in resident physicians at Hospital Escuela Oscar Danilo Rosales. It was descriptive of a cross-section made to 60% of resident physicians of the specialties. The Pittsburg Sleep Quality Index was used as a measurement instrument, it provides a global quality score and partial scores in 7 components. The factors involved in a quality sleep are work and coffee consumption, in all specialties. The main

sleep disorders presented by resident physicians are: Conciliation insomnia, maintenance insomnia and non-restorative sleep, making it difficult to concentrate when carrying out assigned activities. It was concluded that the sleep quality of the surveyed resident physicians has a score greater than 5 points, considered POOR SLEEP QUALITY, the specialty with the highest score is Internal Medicine. [9]

Descriptive cross-sectional study, carried out in a sample of 76.14% (n = 83/109) students of the ninth semester of medicine who agreed to participate in the research through informed consent. The Epworth sleepiness scale and the Pittsburgh sleep quality index validated locally and the sleep hygiene index validated in Peru were applied. Those evaluated had an average age of 23 years, 60.24% (n = 50/83) had excessive daytime sleepiness. It was found 79.52% (n = 66/83) of poor sleepers and 44.58% (n = 37/83) with poor sleep hygiene. It was demonstrated that the prevalence of excessive daytime sleepiness in the studied population is quantitatively significant and higher than that found in other studies, showing a relationship with poor sleep quality and considerable poor sleep hygiene. [10]

3. STATEMENT OF THE PROBLEM

Excessive daytime sleepiness is the second most common condition treated in sleep clinics. Its incidence is 17.5% in adults and adolescents, and 25% in older adults. This is due to the fact that any sleep disturbance that affects its duration or architecture generates excessive daytime sleepiness. Among the most common disorders are respiratory disorders that, by increasing light sleep and decreasing slow wave sleep (SOL), produce excessive daytime sleepiness, regardless of how long the patient remains asleep. Insomnia and some kinetic disturbances, such as periodic limb movement disorder, decrease the time during which the patient remains asleep, leaving a sleep debt and the consequent daytime sleepiness. Patients with hypersomnia have poor wakefulness; they can easily fall asleep during the day; and in situations that require sustained attention, their cognitive abilities (attention and memory), mainly their reaction times, become slow.

Will the doctors and nurses at the Hospital Militar Regional de Especialidades de Guadalajara have the sleep disorder, excessive daytime sleepiness and poor sleep quality?

4. HYPOTHESIS

Hi : The doctors and nurses of the Hospital Militar Regional de Especialidades de Guadalajara present problems of Excessive Daytime Sleepiness and poor quality of sleep

H0 : The doctors and nurses of the Regional Military Hospital of Guadalajara specialties do not present problems of Excessive Daytime Sleepiness and poor quality of sleep.

5. OBJECTIVE

GENERAL

To detect the sleep disorder Excessive Daytime Sleepiness and bad sleepers in doctors and nurses of the Hospital Militar Regional de Especialidades de Guadalajara.

SPECIFIC

- Identify age, sex and weight
- Identify doctors and nurses
- Identify if the subject takes naps

- Evaluate scores on the Epworth Excessive Daytime Sleepiness Scale. (greater than or equal to 8 = SED)
- Evaluate scores on the Pittsburg Sleep Quality Index (ICPS greater than or equal to 5 = poor sleepers)

6. VARIABLES

6.1 Variables Definition Table

INDEPENDENT VARIABLES	DEFINITION
NAP	Short sleep or rest after the noon meal.
SLEEP	The natural, periodic and reversible decrease in the perception of the external environment, with the preservation of a certain degree of reactivity to the environment and of autonomous functions.
SLEEP HYGIENE	Set of behaviors and environmental recommendations aimed at promoting sleep.
DEPENDENT VARIABLES	DEFINITION

EXCESSIVE DAYTIME SLEEPINESS	It is defined as the uncontrollable urge to sleep. When it occurs frequently during the day, it could be the symptom of a sleep or medical disorder.
BAD SLEEPERS	Poor quality of sleep
INTERVINENT VARIABLES	DEFINITION
SEX	Specialization of human beings that occurs in pregnancy to determine genetically, genotype and phenotype, whether male or female.
AGE	Number of years of life that a human being has.
WEIGHT	Measure of this property of bodies. .
SIZE	Height of a person.

6.2 Variables Operationalization Table

Variable	Type of variable	Measurement scale	Unit of measure	Operational definition or scale of value	Statistical test	Representation
Age	quantitative	reason	number of years	> 18 years	average, std. Standard, fashion	tables and graphs
Sex	qualitative	nominal	phenotype	Female Male	frequency%	tables and graphs
Size	quantitative	interval	centimeters	Numeric	average, std. Standard, fashion	tables and graphs
Weight	quantitative	interval	kilograms	numeric	average, std. Standard, fashion	tables and graphs
Do you take a nap?	qualitative	nominal	categories	but	frequency%	tables and graphs
EPWORTH scale total	qualitative	ordinal	categories	0 to 3	frequency%	tables and graphs

Pittsburg Sleep Quality Index Total	qualitative	ordinal	categories	0 to 3	frequency%	tables and graphs

7. MATERIAL AND METHODS

7.1 Research design

Descriptive, cross-sectional, analytical prospective study

7.2 Universe or Study Population

Male and female doctors and nurses between 18 and 60 years old who work at the Guadalajara Regional Military Hospital who agree to participate in the survey and be evaluated by the Epworth sleepiness scale and the Pittsburg sleep quality index.

7.3 Sample size

Z = 95% confidence or security level
p = Standard Deviation 0.5
e = Margin of error 5
n sample = 67

7.4 Sampling method

Non-probabilistic for convenience

7.5 Resources

a) Humans

- Dr. Gabriel Miranda Nava
- Undergraduate Internal Doctor Karla Teresa Granados Velasco

b) Materials

- 67 sheets of paper
- Printing machine
- 1 print cartridge

c) Equipment:

Does not apply

d) Financial

The approximate cost of the study is approximately 200 pesos and the account will be run by the tutor

7.6 Limits

on time

A time of 1 month is estimated, approximately all of October of the year 2019 for data collection.

b) Place and space

Regional Military Hospital of Guadalajara Specialties located in the ZMG

c) Person or selection criteria:

- Inclusion criteria: Male and female patients between 18 and 60 years old, doctors and / or nurses of the HMREG
- Non-inclusion criteria: pregnant women.
- Elimination Criteria: patients who decide not to continue with the survey.

7.7 Methodology

a) Data Collection Instrument:

In the survey, the name will be requested, to keep a reliable record of the number of patients, identifying age, weight, height, and sex. After the Excel sheet edited to collect the data from the evaluation of the Epworh sleepiness scale and the Pittsburg sleep quality index in order to have clear and precise information at the time of data emptying and variable relationship (See Annex 1 and 2).

7.8 General Plan

Once the HMREG doctors and nurses have been identified, authorization will be requested for their participation in the survey. It will be explained to them that they will be evaluated by the Epworh Sleepiness Scale and the Pittsburg Sleep Quality Index to detect SED sleep disorder and poor sleep quality, using the

information provided solely for research use, if they agree to To take part, they will be asked to answer the survey and we will proceed with the project collecting the data in the Excel base comparing the results.

7.9 Bioethical Considerations

a) General health law and Declaration of Helsinki

According to the general health law and the principles of the Declaration of Helsinki. According to articles 13, 14 and 17, the present investigation is a **prospective analytical descriptive cross-sectional investigation without risk** both for the study subjects and for the authors of the research work.

The right of individuals must always be upheld by **safeguarding their integrity and taking all necessary precautions to respect** people's **privacy** and minimize the impact of the study on their physical and mental integrity and their personality.

7.10 Information Processing and Analysis

The data will be captured in an Excel program for Windows for statistical analysis. The descriptive analysis of qualitative variables will be carried out with frequencies and percentages, for quantitative variables in case of symmetric curve, calculation of means and standard deviation will be carried out, in case of non-symmetric curve, medians and ranges.

8. RESULTS

We worked with 26 women (39%) and 41 men (61%), whose mean ages and standard deviations were 33.6 years and 9.2 years for men, and 27.3 years and 7 years for women.

In the case of women, 62% (n = 16/26) answered that if they take naps while in men, those who take naps are 51% (n = 21/41).

In table 1, where the Pittsburg Sleep Quality Index (ICSP) is set out in men, it is observed that only 22% (n = 9) do not have sleep problems, while the percentage rises with 59 % (n = 24) that from the outset already deserve medical attention, and 17% (n = 7) entered the category of serious sleep problem.

Table 2 evaluates ICSP in women, which 54% (n = 14) is highly associated with the category "deserves medical attention and medical treatment = and 31% (n = 8) have a serious sleep problem.

According to table 3, male students tend to have fewer problems in sleep quality than women, but it is observed that a mean of 9.6 (with standard deviation of 6.31) for the HMREG doctors and nurses in this variable , indicates that in general 78% (they should have medical attention). 2 on slopes are excluded as they were not answered.

Table 4, which represents the Epworth sleepiness scale in men, shows an average of 5.29 with a standard deviation of 4.68, which in percentage indicates that 27% (n = 11) fall into the EDS category with a predominance in the mild.

In table 5, which assesses Excessive Daytime Sleepiness in women, manifests an average of 6.48 with a standard deviation of 3.34, 38% (n = 10) are identified within the EDS category, sharing the predominance between mild and moderate, none reaching severe .

In the case of excessive daytime sleepiness, a slight difference is observed in the average score obtained between men and women. Therefore, in general, the mean of both sexes is 5.66 with a standard deviation of 4.24, being 30% (n

= 21) those who fall into the category of EDS with a slight predominance.

9. DISCUSSION

Sleep problems are very common, such a fact that in general the doctors and nurses of the HMREG participating in the research have presented a mean evaluation of 9.6 (with a standard deviation of 6.3) in relation to the quality of sleep , deserves special attention and accompanied by counseling, taking into account that different studies have reported that the subsequent consequences of sleep disorder stand out: decreased attention, cognitive performance, job performance, fatigue, anxiety, stress, depression, sleepy behavior, impaired social relationships, irritability, impaired sympathetic nervous activity, increased cardiovascular risk, as well as poor health in general.

The results found in the present research, in the case of the HMREG doctors and nurses who participated in the study, allow us to point out that in general students tend to have a quality of sleep, which, according to the Pittsburg scale, deserves attention medical in 78% of the cases. Likewise, according to the results derived from the application of the Epworth Questionnaire, 30% present mild or moderate drowsiness. The above coincides with some studies in which problems in the quality of sleep and the presence of excessive daytime sleepiness have been found.

It was found that for women there is an association (54%) with the criterion of sleep quality "deserves medical attention and treatment"

These results seem to confirm what was indicated in different validation studies of the Pittsburg Questionnaire, in which it has been found that sleep problems are very common, with a reported prevalence between 19.2% and 57.5% among university students [50.51].

In the case of the evaluation of Excessive Daytime Sleepiness, in the present study a difference was observed in the average score obtained between men and women, a finding that differs from that reported in a study carried out with the general population by Tlatoa-Ramírez et al [54], including university students, at the Autonomous University of the State of Mexico in which it was found that using the Epworth Scale of the 227 cases analyzed, 76 of them (33.4%): 44 men (19.4% of the total) and 27 women (11.9% of the total) had excessive sleepiness. When comparing the Male-Female risk, an OR value of 4.1 was found in men aged 50 years and over, while in the female gender it was 1.0. By separating with subjects who had between 9 and 11 points on the Epworth scale, it was shown that the risk remained high at OR = 4.0. Based on these findings, they concluded that in the study population, males reported a risk four times greater than females, in terms of excessive daytime sleepiness [54].

10. CONCLUSION

It is recommended to carry out new investigations in the same population and that allow associating chronic degenerative AND neuropsychological variables involved in learning, such as attention, working memory and executive functions, among others, in order to provide guidance and medical monitoring tools and psycho-pedagogical, aimed at strengthening their quality of life and performance. Promote the training of doctors, for a correct detection and care of sleep problems. Identify students at risk

and provide guidance with programs and strategies that make it possible to improve sleep efficiency and hygiene. To have adequate sleep hygiene, the patient is asked to avoid activating before going to sleep; Mainly exercise, the intake of CNS activating foods, watching television, or being in front of the computer are restricted to avoid activation by light. It is important that sleep and bedtime are associated with a state of pleasant relaxation. Hence, we must avoid causing stress before going to bed. Bedtime restriction is used for patients who lie awake for many hours, which only contributes to anxiety and stress by forcing themselves to sleep. The recommendation indicates that, if in the first twenty minutes the person has not been able to fall asleep, they get out of bed and leave their room (to avoid the conditioning of being awake in the room or in bed at night), and when you feel drowsy again, go back to trying to sleep.

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9. ANNEXES

ANNEX no. 1 Data Collection

	Invoice
	Sex 1 = male; 2 = female
	Age
	Height
	Weight
	Do you take a nap? 1 = YES 2 = NO

	How many days per week? 1-7
	How long do you nap? 1 = <5 A 30 MIN 2 = 31MIN A 2H 3 = 2 A 4HS 4 => 4HS
EPWORTH SLEEP SCALE **How often do you fall asleep in each of the following situations (during the day)?** **0 = NEVER** **1 = ONLY SOME TIMES** **2 = MANY TIMES** **3 = ALMOST ALWAYS**	Sitting reading
	Watching television
	Sitting idle in a public place
	As a passenger on a trip of one hour (or more) without stops
	Laying down resting in the afternoon
	Sitting chatting with someone
	Sitting comfortably after eating, without having had alcoholic beverages
	Traveling in a transport stopped in traffic
	EPWORTH scale total
PITTSBURG SLEEP QUALITY INDEX	During the last month, what has been your bedtime?
PITTSBURG SLEEP QUALITY INDEX	During the last month, what time have you usually gotten up in the morning?
PITTSBURG SLEEP QUALITY INDEX	How long would it have taken him to fall asleep, normally, the nights of the last month? 0 = <05MIN 1 = 06-20MIN 2 = 20-60MIN 3 => 60MIN
PITTSBURG SLEEP QUALITY INDEX	How many hours do you estimate that you will have actually slept each night in the last month? 0 => 7HRS 1 = 6-7HRS 2 = 5-6HRS 3 = <5HRS
PITTSBURG SLEEP QUALITY INDEX **During the past month, how many times have you had trouble sleeping because of…?**	Not being able to fall asleep in the first half hour
	Waking up during the night or early morning

1 = NO TIME IN THE LAST MONTH, 2 = <1 TIME A WEEK, 3 = 1 OR 2 TIMES A WEEK, 4 = 3 OR MORE TIMES A WEEK	Having to get up to go to the toilet
	Not being able to breathe well
	Coughing or snoring loudly
	To feel cold
	Feeling too hot
	Having nightmares or bad dreams
	Suffer pain
	During the last month, how would you assess the quality of sleep as a whole? 1 = very good, 2 = quite good, 3 = quite bad 4 = very bad
	During the last month, how many times have you taken medicine (on your own or prescribed by the doctor) to sleep? 1 = NO TIME IN THE LAST MONTH, 2 = <1 TIME A WEEK, 3 = 1 OR 2 TIMES A WEEK, 4 = 3 OR MORE TIMES A WEEK
	During the past month, how many times have you felt drowsy while driving, eating, or doing some other activity? 1 = NO TIME IN THE LAST MONTH, 2 = <1 TIME A WEEK, 3 = 1 OR 2 TIMES A WEEK, 4 = 3 OR MORE TIMES A WEEK
	During the last month, has it been a big problem for you to have the courage to do any of the activities detailed in the previous question? 1 = no problem, 2 = only a slight problem, 3 = a problem, 4 = a serious problem
	Do you sleep alone or with someone? 1 = alone, 2 = with someone in another room, 3 = in the same room 4 = in the same bed

	Pittsburg Sleep Quality Index Total

ANEXO no. 2 ENCUESTA

Nombre: _____

Edad: _____ Estatura: _____ Peso: _____ Sexo: _____

¿Usted realiza siesta? **¿Cuántos días a la semana?** _____/7 días

1 = SI 2 = NO

¿Cuánto tiempo duerme siesta?

5 a 30 min

31 min a 2 hs

2 a 4 hs

Más de 4 hs

ESCALA DE SOMNOLENCIA DE EPWORTH

Subraye qué tan frecuentemente se queda dormido en cada una de las siguientes situaciones (durante el día):

1. Sentado leyendo:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

2. Viendo televisión:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

3. Sentado, inactivo en un lugar público:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

4. Como pasajero en un viaje de una hora (o más) sin paradas:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

5. Acostado descansando por la tarde:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

6. Sentado platicando con alguien:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

7. Sentado cómodamente después de comer, sin haber tomado bebidas alcohólicas:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

8. Viajando en un transporte detenido en el tráfico:

0 = nunca 1 = sólo algunas veces 2 = muchas veces 3 = casi siempre

ESCALA DE CALIDAD DE SUEÑO DE PITTSBURGH

Durante el último mes, ¿cuál ha sido, normalmente, su hora de acostarse? (Indique la hora y los minutos entre las 00:00 y las 23:59)

¿Cuánto tiempo habrá tardado en dormirse, normalmente, las noches del último mes? ((Indique la hora y los minutos entre las 00:00 y las 23:59)

<15 minutos

16 – 30 minutos

31 – 60 minutos

>60 minutos

Durante el último mes, ¿a qué hora se ha levantado habitualmente por la mañana? (Indique la hora y los minutos entre las 00:00 y las 23:59)

¿Cuántas horas calcula que habrá dormido verdaderamente cada noche durante el último mes?

>7 horas

6 – 7 horas

5 – 6 horas

<5 horas

Durante el último mes, cuántas veces ha tenido usted problemas para dormir a causa de:

- **No poder conciliar el sueño en la primera media hora:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Despertarse durante la noche o de madrugada:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Tener que levantarse para ir al servicio:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **No poder respirar bien:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Toser o roncar ruidosamente:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Sentir frío:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Sentir demasiado calor:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Tener pesadillas o malos sueños:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

- **Sufrir dolores:**

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

Durante el último mes, ¿cómo valoraría en conjunto, la calidad de su sueño?

Muy buena
Bastante buena
Bastante mala
Muy mala

Durante el último mes, ¿cuántas veces habrá tomado medicinas (por su cuenta o recetadas por el médico) para dormir?

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

Durante el último mes, ¿cuántas veces ha sentido somnolencia mientras conducía, comía o desarrollaba alguna otra actividad?

Ninguna vez en el último mes
Menos de una vez a la semana
Una o dos veces a la semana
Tres o más veces a la semana

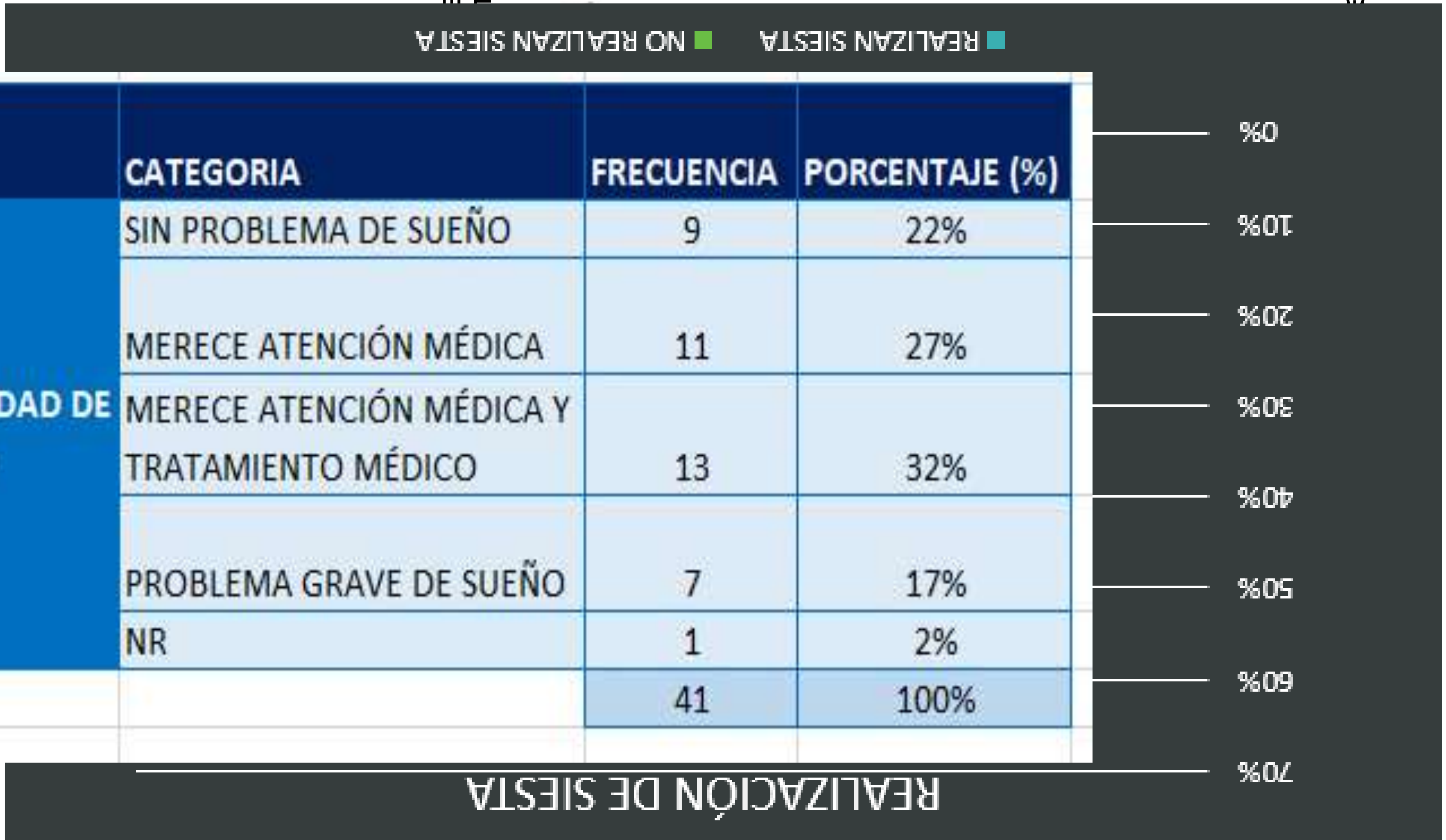
Durante el último mes, ¿ha representado para usted mucho problema el tener ánimos para realizar alguna de las actividades detalladas en la pregunta anterior?

Ningún problema
Sólo un leve problema
Un problema
Un grave problema

¿Duerme usted solo o acompañado?

Solo
Con alguien en otra habitación
En la misma habitación, pero en otra cama
En la misma cama

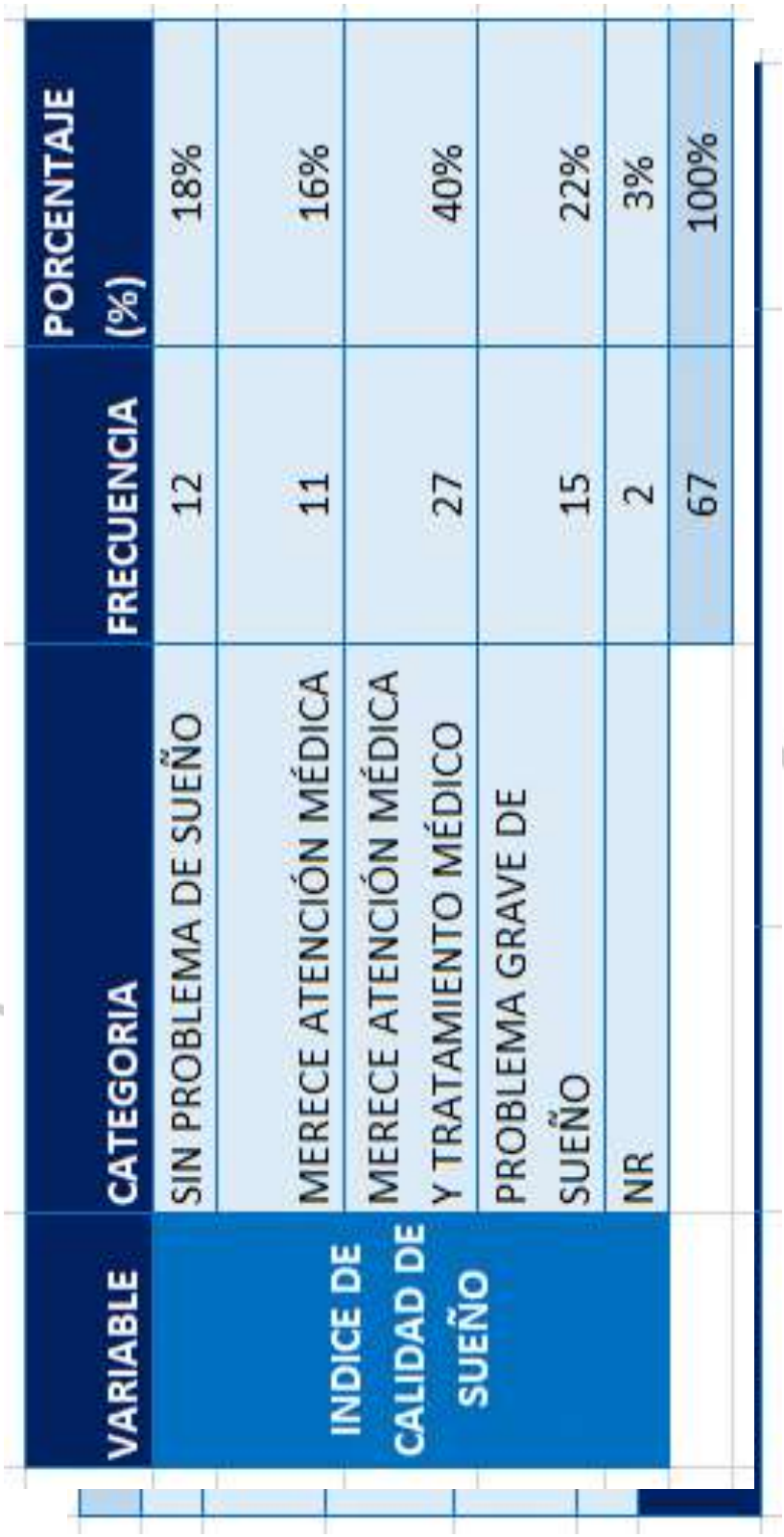
G BRES Y MUJERES



TABL 1 ÍNDICE DE CALIDAD
DE EÑO DE PITTSBURGH
(HOMBRES)

VARIABLE	CATEGORIA	FRECUENCIA	PORCENTAJE (%)
INDICE DE CALIDAD DE SUEÑO	SIN PROBLEMA DE SUEÑO	9	22%
	MERECE ATENCIÓN MÉDICA	11	27%
	MERECE ATENCIÓN MÉDICA Y TRATAMIENTO MÉDICO	13	32%
	PROBLEMA GRAVE DE SUEÑO	7	17%
	NR	1	2%
		41	100%

TABLA DE



VARIABLE	CATEGORIA	FRECUENCIA	PORCENTAJE (%)
INDICE DE CALIDAD DE SUEÑO	SIN PROBLEMA DE SUEÑO	12	18%
	MERECE ATENCIÓN MÉDICA	11	16%
	MERECE ATENCIÓN MÉDICA Y TRATAMIENTO MÉDICO	27	40%
	PROBLEMA GRAVE DE SUEÑO	15	22%
	NR	2	3%
		67	100%

NO. 2 ÍNDICE DE CALIDAD SUEÑO DE PITTSBURGH (MUJERES)

TABLA ÍNDICE

NO. 3
DE CALIDAD DE SUEÑO DE PITTSBURGH (MIXTA)

TABLA

TABLA

HOMBRES			
VARIABLE	CATEGORÍA	FRECUENCIA	PORCENTAJE (%)
SOMNOLENCIA EXCESIVA DIURNA	NORMAL	30	73%
	LEVE	6	15%
	MODERADA	2	5%
	GRAVE	3	7%
	NR	0	0%
		41	100%

TABLA NO. 6 Escala de somnolencia de EPWORTH (MIXTA)

VARIABLE	CATEGORÍA	FRECUENCIA	PORCENTAJE (%)
SOMNOLENCIA EXCESIVA DIURNA	NORMAL	46	69%
	LEVE	11	16%
	MODERADA	7	10%
	GRAVE	3	4%
	NR	0	0%
HOMBRE Y MUJERES		67	100%