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"Excessive Daytime Sleepiness and Sleep Quality in Doctors and Nurses of The Regional Military Specialty Hospital" Guadalajara. 2019.

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Keywords:

Excessive daytime sleepiness (SDE); Sleep quality; Circadian rhythm

1. Summary

1.1. Objective: Detect sleep disorder Excessive Daytime Sleepiness and bad sleepers in doctors and nurses of the Guadalajara Regional Military Specialty Hospital.

1.2. Material and Methods: A cross-sectional, analytical study was conducted on 67 patients of doctors and nurses at Guadalajara Regional Military Specialty Hospital during the October-November 2019 period, who were surveyed with the Epworth Sleepiness Scale and Pittsburgh Sleep Quality Index, to detect disruptions of excessive daytime sleepiness and poor sleep hygiene. Clinical and demographic characteristics among study groups were studied.

1.3. Results: Worked with 26 women (39%) and 41 men (61%), whose average 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) replied that if they take a nap while in men those who take naps it is 51% (no. 21/41). ICSP is evaluated in women, which 54% (n-14) is highly associated with the category "deserves medical care and medical treatment" and 31% (no. 8) have severe sleep problem. Male students tend to have lower sleep problems than women, but it is observed that an average of 9.6 (with standard deviation of 6.31) for HMREG doctors and nurses in this variable indicates that overall, 78% (should have medical care). 2 are excluded in slopes as they were not answered. For excessive daytime sleepiness, there is a slight difference in the average score obtained between men and women. So, in general the average of both sexes is 5.66 with standard deviation of 4.24, with 30% (n-21) entering the SED category with mild predominance.

1.4. Conclusion: There is sleepiness disorder and poor sleep quality at Guadalajara Regional Military Specialty Hospital, so it is recommended to open a larger sample size research to make association between excessive daytime sleepiness and poor sleep quality with habits as a risk factor.

2. Abstract

2.1. Objective: To detect sleep disorder Excessive Daytime Sleepiness and bad sleepers in doctors and nurses of the Regional Military Hospital of Specialties of Guadalajara.

2.2. Material and Methods: A cross-sectional, analytical study was conducted in 67 patients of doctors and nurses of the Regional Military Hospital of Specialties of Guadalajara during the period of October-November 2019, to whom a survey with the Epworth sleepiness scale was applied and The Pittsburgh Sleep Quality Index, to detect disorders of excessive daytime sleepiness and poor sleep hygiene. The clinical and demographic characteristics among the study groups were studied.

2.3. Results: We worked with 26 women (39%) and 41 men (61%),

whose average 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) replied that if they take a nap while in men, those who take a nap 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) has a serious sleep problem. Male students tend to have lower sleep quality problems than women, but it is observed that an average of 9.6 (with standard deviation of 6.31) for HM-REG doctors and nurses in this variable, indicates that in general 78 % (should have medical attention). 2 are excluded in slopes since they were not answered. In the case of excessive daytime sleepiness, there is a slight difference in the average score obtained between men and women. Therefore, in general, the average of both sexes is 5.66 with a standard deviation of 4.24, with 30% (n = 21) being those who fall into the category of SED with a predominance in a mild degree.

2.4. Conclusion: There is sleepiness disorder and poor sleep quality at the Regional Military Hospital of Specialties of Guadalajara, so it is recommended to open a larger sample size investigation to make association between excessive daytime sleepiness and poor sleep quality with habits such as risk factor.

3. Justification

Sleep problems are a growing concern for the area of health personnel because lack of sleep is associated with damage to motivation, emotion, and cognitive functioning, and with an increased risk of serious illnesses (e.g., diabetes, cardiovascular disease, cancer...). The neurology and public health branch have strived to promote sleep hygiene as a necessity to achieve 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 achieve a better rest, such as the importance of schedules, the environment, food and sport. It is known that each individual component of sleep hygiene is related to getting better sleep [11].

I desire to understand the phenomenon of sleep has accompanied the human being throughout his history. Each culture has tried, in its own way, to document and understand it, but it is not until recent decades that the pattern for methodological analysis of sleep and its various implications in human health has been set. Around the world, scientists of various nationalities work 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 cause dramatic changes in the normal functioning of different systems. In contrast, when sleep occurs unaltered, it has a clear restorative effect on the whole body. The mechanisms through which this global restorative effect exerts have not been fully defined. However, experimental evidence has begun to emerge in recent decades to suggest that, while asleep, different systems have drastic changes, and that these phenomena may be the basis for the organism and its systems to be fully

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 consider this close relationship between the nervous system and the endocrine and immune systems to velocity and clarify how sleep occurs, as influenced by the other systems, and how, in turn, sleep impacts and regulates the proper functioning of those systems.

Different research has documented the effect of sleep disorders on cognitive functions, psychosocial adaptation, and the impact on the individual's quality of life. In such studies it is recognized that in cases where nighttime sleep is insufficient (due to destructiveness, deprivation, or fragmentation), the overall daytime performance decreases due to the individual's fatigue and difficulty staying on vigil.

This research project aims to identify poor sleep quality and the most common sleep disorder, Excessive Daytime Sleepiness (SED) in doctors and nurses at Guadalajara Regional Military Specialty Hospital to disseminate sleep hygiene recommendations regarding the importance of the environment (noise, temperature, lighting...), sleep schedules, and eating – including substances such as caffeine, alcohol, nicotine...– and sport. Raise awareness of the need for medical care and treatment in severe level situations.

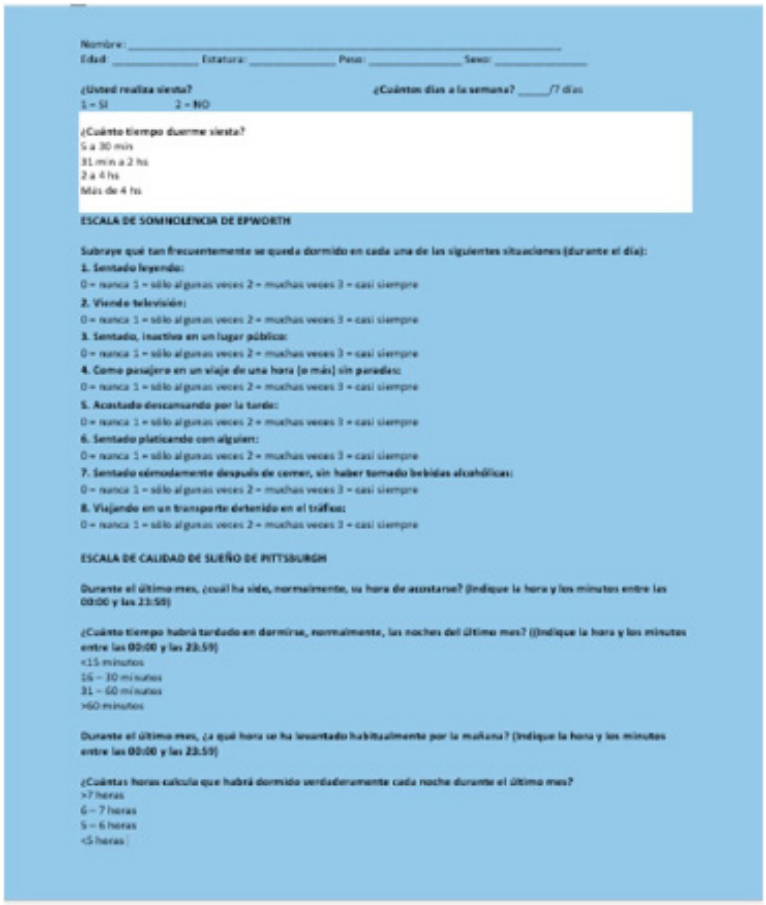
4. Theoretical Framework

4.1. Background

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

In medicine, sleep is also involved in satisfactory evolution or worsening of patients. Throughout history, the mysteries surrounding the sleeping process have been deciphered.

One of the most important findings we owe to Constantine von Economo who, between 1916 and 1927, described the role of the hypothalamus in sleep during the period of the epidemic of lethargic encephalitis. This disease had as main symptoms inflammation of the throat and sleep disorders, ranging from excessive sleep to the inability to reconcile it. Economo autopsies patients who died of this condition (Figure 1). This is how he found that particularly the hypothalamus was affected: if the damage was earlier, it caused insomnia; if it was later, it generated hypersomnia. From these findings, various keys were deciphered about the origin of sleep at the central nervous system level.



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 parada:
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 silenciosamente 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 tenido 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

Figure 1: Annex No. 2 Survey

Shortly after von Economo, German psychiatrist Hans Berger studied the electrical activity of the brain by placing superficial electrodes in the cerebral cortex. Thanks to this research, conducted 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, physiologists Majoun and Mouza described the role of brain stem reticular formation in activating electroencephalography activity. This helped to understand the physiological aspects of the sleep-wake cycle.

Different researchers spent a lot of time evaluating the origin of sleep 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 (MOR), a name by which to this day this stage of sleep is referred to (Table 1).

A graduate classmate working in the same lab was Dr. William Dement, who conducted various studies of subjects who remained asleep one night on a continuous night and develop what we now know as polysomnography. Dement divided and described the stages of sleep in MOR and NMOR sleep or without rapid eye movements.

Later, French researcher Michel J'ouvert, a student at Majoun, identified the muscle atony that occurs in MOR sleep and described the participation of the oblong marrow in this process.

It was in 1968 that Gottscheer and Kales created the first manual whose final name was as the American Academy of Sleep and Associated Events Qualification Manual, that the criteria for placing each sensor and marking each stage of sleep must be universal, which gives confidence to the results obtained by any sleep medicine researcher [13].

With the development of these tools, consensus was needed to identify and unify criteria for the diagnosis and treatment of sleep medicine. That is why 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 was mainly in the United States. However, the pioneer of sleep medicine in Mexico was Dr. Raúl Hernández Peon, who was a student of Majoun. Dr. Hernandez devoted 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 J'ouvert and was a distinguished student.

In 1964 he founded the Institute of Brain Research, where he started the study of sleep. His main hypothesis was that there was a sleep system of a cholinergic nature (Figure 2). To test it, I implement a system to introduce microcrystals of acetylcholine into stereotaxic implanted cannula in different regions of the brain and marrow of intact cats. It turns out that, within minutes of application, cats adopted postures that simulated a state of sleep. With these experiments, Dr. Hernandez made it clear that Acetylcholine was the neurotransmitter responsible for this physiological process, which led to hard research during which he trained specialists in this new branch of medicine. Raúl Hernández Peon 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 Colin. His experimental work developed in the same line and consisted of the search for the sleep-inducing substance using simple techniques. I conduct MOR sleep deprivation studies in cats, extracting cerebrospinal fluid from them for placing in cats that had normally slept. The latter slept in MOR sleep upon receiving fluid from private cats. With this, Dr. Drucker provided the knowledge that brain proteins are involved in MOR sleep control. Later, as he attended a conference on brain tissue transplants, he had the idea to venture into this area. Thus, together with Dr. Raúl Aguilar Robledo, then one of his students working with biological rhythms, performed the first tissue transplant to restore the circadian cycles of rats who had lost their rhythm from injuries caused by injuries to the suprachiasmatic nucleus. In 1984, Rene Drucker published an article pointing out that intestinal vasoactive 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), to evaluate the different sleep disorders from a multidisciplinary aspect. Given his great career on the subject, he was appointed president of the Mexican Society for Dream 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 is Dr. Javier Velázquez Moctezuma, who made important contributions around the effects of sleep deprivation as a stress-inducing model. It also provided fundamental information on the issue of sleep and its relationship to 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 anandamide as a promoter of slow-wave sleep. About sleep medicine, in addition to the UNAM clinic, Dr. Javier Velasquez, after many years of research on the subject, decided to venture into the clinical area, founding the Clinic of Sleep Disorders of the Metropolitan Autonomous University (UAM), which provides care for diagnosis and treatment. Later, other clinics were created at the national level, most of them belong to the private initiative. Some institutes have their areas of sleep, such as the National Institute of Respiratory Diseases (INER), the National Institute of Psychiatry (INP), the National Institute of Medical Sciences and Nutrition Salvador Zurbaran (INCMNSZ), and the National Institute of Neurology and Neurosurgery (INNN). However, there is still a lack of specialized centers that can meet the demand for

patients with sleep disorders in our country, and above all increase the work of spreading this branch of medicine [14-18].

5. Conceptual Framework

5.1. Sleep

according to the neurobiologist Michel J'ouvert is defined as: "The natural, periodic and reversible decrease of the perception of the external environment, with the conservation of a certain degree of reactivity to the environment and autonomic functions".

5.2. Circadian Rhythm

The cycle of sleep-in humans is intimately linked to that of light-darkness, so it lasts approximately twenty-four hours. During this cycle, which we call circadian, on average we remain asleep for seven to nine hours. Throughout this period, we go through different stages of sleep. Humans sleep in four stages: light sleep, which is subdivided into stage I and II; slow wave sleep or stage III; rapid eye movement (MOR) dream. 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. Electrical-brain activity has changes in frequency and amplitude, de according to wakefulness. Therefore, for his study it has been divided into four bands: beta, alpha, theta and delta (Table 2).

5.3. Sleep Hygiene

Is defined as a set of environmental behaviors and recommendations aimed at promoting 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 several recommendations to improve sleep (e.g., avoid caffeine, exercise regularly, eliminate noise from the sleep environment, and maintain a regular sleep schedule).

5.4. Sleep Phases:

5.4.1. Vigil: total interaction with the environment.

5.4.2. Phase 1 (Sleepiness) And Phase 2: make up light sleep (NMOR) and cover 60% of total sleep time.

5.4.3. Phase 3 or Slow Wave Sleep: 20% of total sleep time, subject completely asleep, strengthening and repair of the immune system, is related to rest people who have decrease in this phase of sleep refer excessive daytime sleepiness and non-repairing sleep

5.4.4. More Phase or Paradoxical Sleep: memory consolidation, dreaming appears. a lot of protein synthesis is carried out.

5.5. NMOR Dream

Based on a lot of studies, it is now known for certain that in the anterior hypothalamus, specifically in the preoptic area (APO), the mechanisms responsible for promoting sleep are found. The neurons found in the APO originate the hypnogenic process. However, by stimulating APO electrically, thermally, or chemically, an increase in the amount of sleep is observed (Table 3). When administered directly with micron sections in this region the growth hormone-releasing hormone, triazolam, prostaglandin D2, and agonists for adenosine, the amount of sleep is significantly increased.

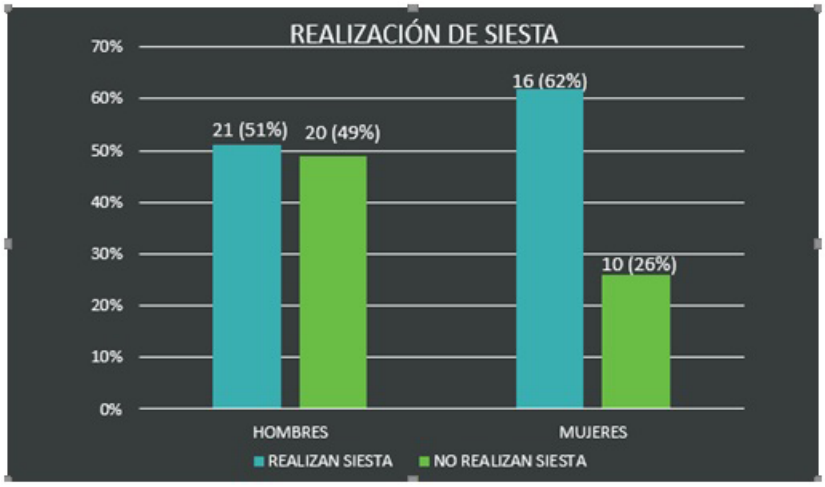


Figure 2: Graph No. 1 Napping Relationship Between Men And Women

Table 1: Variable Definition Table

Independent variables	Definition
Nap	Short sleep or rest after lunchtime meal.
Dream	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 autonomous functions.
SLEEP HYGIENE	Set of environmental behaviors and recommendations aimed at promoting sleep.
Dependent variables	Definition
Excessive daytime sleepiness	It is defined as the uncontrollable need for sleep. When it occurs frequently during the day, it could be the symptom of a sleep disorder or medical condition.

Bad sleepers	Poor sleep quality
Variables Intervinients	Definition
Sex	Specialization of humans that occurs in gestation to genetically determine, genotype and phenotype, whether male or female.
Age	The number of years of life a human being has.
Weight	Measurement of this property of bodies. .
Size	A person's height.

Table 2: Variable Operationalization Table

Variable	Variable type	Measuring scale	Measuring unit	Operational definition or value scale	Statistical test	Representation
Age	Quantitative	Reason	number of years	> 18 years old	average, dev. Standard, fashion	charts and graphs
Sex	Qualitative	nominal	Phenotype	female, masculine	frequency %	charts and graphs
Size	Quantitative	Range	Cm	Numerical	average, dev. Standard, fashion	charts and graphs
Weight	Quantitative	Range	Kg	Numerical	average, dev. Standard, fashion	charts and graphs
Do you take a nap?	Qualitative	nominal	Categories	yes, no	frequency %	charts and graphs
EPWORTH Total Scale	Qualitative	ordinal	Categories	0 to 3	frequency %	charts and graphs
Total Pittsburg Sleep Quality Index	Qualitative	ordinal	Categories	0 to 3	frequency %	charts and graphs

Table 3: ANNEX No. 1 Data Collection

	folio
	Sex 1st male; 2nd female
	Age
	Weight
	Do you take a nap? 1st IF 2ND
	How many days a week? 1-7
	How long do you take a nap? 1o<5 A 30 MIN 2 x 31MIN A 2H 3o 2 TO 4HS 4o> 4HS
EPWORTH SLEEPINESS SCALE **How often do you fall asleep in each of the following situations (during the day)?** **0-NEVER** **1st ONLY A FEW TIMES** **2.MANY TIMES** **3RD ALMOST ALWAYS**	Sitting reading
	Watching TV
	Sitting, inactive in a public place
	As a passenger on a one-hour (or more) journey without stops
	Lying resting in the afternoon
	Sitting chatting with someone
	Sitting comfortably after eating, without having had alcoholic drinks
	Travelling on a transport stopped in traffic
	EPWORTH Total Scale
PITTSBURG SLEEP QUALITY INDEX	For the last month, what has it been, your bedtime?
PITTSBURG SLEEP QUALITY INDEX	During the last month, what time have you usually got up in the morning?
PITTSBURG SLEEP QUALITY INDEX	How long will it have taken to fall asleep, usually on the nights of the last month? 0o <05MIN 1-06-20MIN 2-20-60MIN 3->60MIN
PITTSBURG SLEEP QUALITY INDEX	How many hours do you recede that you have truly slept each night during the last month? 0o >7HRS 1-6-7HRS 2-5-6HRS 3-<5HRS

PITTSBURG SLEEP QUALITY INDEX **During the last month, how many times have you had trouble sleeping because of...?** **1.NO TIME IN THE LAST MONTH, 2< 1 TIME A WEEK, 3ST 1ST OR 2 TIMES A WEEK, 4RD 3RD OR MORE TIMES A WEEK**	Not being able to fall asleep in the first half hour
	Waking up at night or in the early morning
	Having to get up to go to the service
	Not being able to breathe well
	Coughing or snoring noisy
	Feeling cold
	Feeling too hot
	Having nightmares or bad dreams
	Suffering pain
	During the last month How would sleep quality be worth together? 1'very good, 2'pretty good, 3'pretty bad 4's very bad
	During the last month how many times will you have taken medicines (on your own or prescribed by your doctor) to sleep? 1.NO TIME IN THE LAST MONTH, 2< 1 TIME A WEEK, 3ST 1ST OR 2 TIMES A WEEK, 4RD 3RD OR MORE TIMES A WEEK
	During the last month How many times did you feel drowsy while driving, eating, or other activity? 1.NO TIME IN THE LAST MONTH, 2< 1 TIME A WEEK, 3ST 1ST OR 2 TIMES A WEEK, 4RD 3RD OR MORE TIMES A WEEK
	During the last month have you had much trouble being encouraged to do any of the activities detailed in the previous question? 1st problem, 2nd only a slight problem, 3rd problem, 4th a serious problem
	Do you sleep alone or accompanied? 1st alone, 2nd with someone in another room, 3'In the same room 4' in the same bed
	Pittsburg Sleep Quality Index Total

The anterior hypothalamus sends projections to several systems that modulate wakefulness in the posterior hypothalamus, including histaminergic neurons, in addition to the mesencephalic and bridge, where noradrenergic and serotoninergic neurons (5HT) are found. The wakefulness system sends its projections to the thalamus and anterior brain for activation, and from there it returns to the APO [19, 20].

5.6. MOR Sleep

During this stage of sleep, phenomena such as dreams, muscle atonia, Ponto-gentile-occipital waves, rapid eye movements, and hippocampal theta rhythm occur. Imaging studies have been conducted during MOR sleep in humans and it has been observed that the pontine tegmental is a crucial point in the generation of this phase of sleep. J'ouvert suggests that dorsal pontine tegmental, specifically noradrenergic neurons of locus coeruleus, are essential for MOR sleep generation. Hobson demonstrated that by suppressing the neuronal activity of locus coeruleus during MOR sleep, there is an increase in the activity of neurons in the medial Ponto cellular reticular gigantic cellular nucleus. Based on these results, McCarley and Hobson propose a model of reciprocal interaction, postulating an aminergic-cholinergic interconnection promoting MOR sleep.

Desynchronized electroencephalographic activity with low voltage and rapid frequencies, characteristics of MOR sleep, is produced by impulses ranging from the Mesopotamia region, the mesencephalic and oral pontine reticular formation, to the thalamus and from there to the cerebral cortex, using acetylcholine and possibly glutamate as neurotransmitters. The hippocampal rhythm is another bioelectric activity that occurs during MOR sleep.

Loss of muscle tone during MOR sleep occurs when the motor neuron membrane is hyperpolarized. Several Mesopotamia and pontine structures – including the tegmental poetical peduncle nucleus, the retrobulbar field, and the ventral part of the oral pontine reticular nucleus – participate in the mechanisms of muscle atony during MOR sleep. However, locus *coeruleus* and peri locus coeruleus are crucial for such atony to occur during MOR sleep, since by bilaterally injuring these structures, (Table 4) muscle atony does not occur during MOR sleep which is defined as MOR behavioral sleep disorder.

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

Table 4: Pittsburgh Sleep Quality Index (Women)

VARIABLES	CATEGORY	FREQUENCY	PERCENTAGE (%)
Sound Quality Index	No Sleep Problem	9	22%
	Deserves Medical Attention	11	27%
	Deserves Medical Attention And Medical Treatment	13	32%
	serious sleep problem	7	17%
	No	1	2%
		41	100%

5.7. Cardiovascular regulation

In general, basal heart activity is higher during wakefulness and decreases over the sleep period, but at certain times it can also become higher than in wakefulness. Systemic blood pressure and heart rate typically have lower-than-baseline values during stage III of NMOR sleep, and during MOR sleep levels are lower than during physiological wakefulness, several factors can change cardiovascular system activity during sleep. These include the sleep stage in which the subject is located (NMOR or MOR), its depth (phases I, II, or III), and the sleep time.

When analyzing a pressure curve during NMOR sleep, we would see that stage III shows a significant reduction in systemic blood pressure, which occurs gradually. A decrease of up to 10% in blood pressure during sleep has been considered normal. During MOR sleep, it is observed that both blood pressure and heart rate have large fluctuations; these occur mainly during phased episodes of MOR 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].

5.8. Regulation of breathing

When we are awake, breathing is controlled by two mechanisms: the volunteer, managed by the cerebral cortex, and the involuntary one, which is in the brain stem. The latter responds to hypoxia, hypercapnia and acidosis, as well as 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 disturbances during sleep lead the patient to a physiological state called hypoventilation. In the stages of sleep I and II, breathing becomes irregular, episodes are observed in which respiratory amplitude is increased, but there are also lapses in which this amplitude decreases. These episodes are usually accompanied by short-lived central apneas, which occur in 40-80% of the normal population. During stage III, breathing becomes regular, both in frequency and amplitude.

During MOR sleep, an irregular respiratory pattern is presented that is characterized by sudden changes in both frequency and respiratory amplitude; central apneas occur, which last from 10 to 30 seconds; periods of hypoventilation coincide with rapid eye movements. Hypoventilation that occurs during MOR sleep is due to a reduction in the muscle tone of the chest box, but also to the resistance of the airways [25, 26].

5.9. Humoral regulation

Hormones are substances synthesized and secreted by specific cells, there are two kinds of hormones: protein and steroid compounds. Some hormones are intimately related to certain stages of sleep (Table 5). 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.

Table 5: Pittsburgh Sleep Quality Index (Mixed)

VARIABLES	CATEGORY	FREQUENCY	PERCENTAGE (%)
Sound Quality Index	No Sleep Problem	3	12%
	Deserves Medical Attention	0	0%
	Deserves Medical Attention And Medical Treatment	14	54%
	serious sleep problem	8	31%
	No	1	4%
		26	100%

5.9.1. Growth hormone (HC): it is secreted by the anterior pituitary gland and its release is related to the presence of stage III of NMOR sleep.

5.9.2. Cortisol: the highest concentration of this hormone occurs in the early hours of the morning, just before waking up. It decreases over the course of the day, until it reaches the lowest level at the start of sleep.

5.9.3. Prolactin: the secret the anterior lobe of the pituitary gland. Its release occurs during sleep, its concentration decreases during wakefulness, occurs between 60 and 90 minutes after sleep has started, and the maximum peak occurs in the early hours of the morning.

5.9.4. Testosterone: low at the start of sleep, and the highest concentration of this hormone occurs in the early hours of the morning. The night increase associated with the first episode of MOR sleep.

5.9.5. Progesterone: modulates sleep quality, appetite, learning, memory and sexual activity. It is a hormone with hypnotic effects and stimulates breathing, so it has been associated with the property of decreasing central and obstructive apneas in males.

5.9.6. Thyroid: stimulating hormone (HET): also secretes adenohypophysis and modulates the secretion of thyroid hormones. During the day it has low levels in its concentration, being at night when the highest peak of it occurs [27-29].

5.8. Temperature regulation

The system responsible for regulating body temperature is in the hypothalamus and has been called a hypothalamic thermostat. Controls both loss and heat production. Through different stud-

ies, it has been shown that body temperature is due to circadian cycles. Changes in body temperature also occur during sleep. At the beginning of the cycle, the temperature begins to decrease, reaching the lowest levels in the second half of the night. Compared to wakefulness, during NMOR sleep temperature control is decreased, and during MOR sleep temperature control is lost, so that we become poikilotherm [30].

5.9. Marco Referential

A cross-sectional, analytical study was conducted in 126 patients at victor Lazare Echegaray Hospital's external consultation service, who were given the mini mental state examination test and the Epworth scale test, to determine cognitive impairment and excessive daytime sleepiness, respectively. The frequency of cognitive impairment in patients with excessive daytime sleepiness was found to be 43.9% compared to patients without excessive daytime sleepiness, which was 11.6%. It was also observed that age, female sex, and absence of work activity had significant differences between study groups ($p< 0.05$). Highly significant dependence (p-0.00005) was found between excessive daytime sleepiness as a factor associated with cognitive impairment (RP 3.78 CI 95% 1.85 – 7.73) concluding that there is an association between excessive daytime sleepiness and cognitive impairment in patients over 60 years of age [1].

A cross-cutting corella descriptive research in which a sample of 547 students who voluntarily participated in the research was worked on. The instruments used were Epworth's sleepiness scale and Pittsburgh's sleep quality index. To compare the different averages of total scores between students, men, and women. It worked with 258 women (47.2%) 289 men (52.8%) whose average ages and standard deviations were 22.9 years and 3.8 years for men and 20.9 years and 2.7 years for women. It was found that, in general, students tend to have a quality of sleep that deserves medical care and treatment (77.1%). In addition, 70.3% have mild or moderate drowsiness. It was concluded that poor sleep quality and daytime sleepiness occur in different areas of dominance and disciplines, and not only in undergraduates in health. Greater education is required in relation to sleep hygiene [2].

In another cross-sectional analytical study using a random telephone survey; the structured interview was applied in order to obtain demographic and clinical data (Table 6). The Epworth scale was also used. 200 inhabitants of Mexico City were studied, with an average age of 37±16 years. Of these, 31.5% were with Excessive Daytime Sleepiness (SED). In 12.5% of subjects the SED significantly interfered with their day-to-day activities and 9% admitted that it interfered with their work activities. Subjects with SED were older, more often at the low socioeconomic level, and had a significantly higher body mass index [3].

Table 6: Epworth Sleepiness

Man			
VARIABLES	CATEGORY	FREQUENCY	PERCENTAGE (%)
Sound Quality Index	Normal	30	73%
	Light	6	15%
	Moderate	2	5%
	Grave	3	7%
	No	0	0%
		41	100%

This study is a cross-cutting correlal descriptive research. 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, or history of repetition, lag, or school failure; signature of informed consent. The Epworth Sleepiness Scale and pittsburg Sleep Quality Index (PSQI) were used as instruments. Work was worked with 149 women (57.7%) and 110 men (42.5%), it was generally shown that students who participated in the research tend to have a sleep quality that requires medical care and treatment in 91.9% of cases, as well as 68.7% of students had moderate drowsiness. The study helps confirm poor sleep quality and the presence of excessive daytime sleepiness in the university population assessed [4].

A descriptive cross-cutting study was conducted with qualitative approach; for information, the Pittsburgh Sleep Quality Index (Colombian version) was applied, and a focus group was conducted with 17% of the nurse population surveyed. The average sleep quality index for the population was 4.1 to 2 ±.6 and the prevalence of bad sleepers was 24.9%. The most altered sleep components were sleep duration and latency; on the other hand, the main findings of the focus group relate to the incidence of having children, especially if they are young, in sleep quality; identification of stress and its main intra-labor precursors (insecurity at work, workload and lack of institutional support, among others) and extra-labor (personal problems and the state of family relations), as a construct related to sleep quality [5].

The objective of this work was to establish SED prevalence and sleep quality and evaluate its association with low academic performance with an observational descriptive study that included a random sample of 217 students of Medicine from Pereira University of Technology who answered the Pittsburg Sleep Quality Index (ICSP) questionnaire and the Epworth Sleepiness Scale. In

addition, sociodemographic, clinical, and academic variables were included. Multivariate analyses were performed seeking association with poor academic performance. Students evaluated had an average age of 21.7±3.3 years; 59.4% were male. It was established that 49.8% had SED criteria and 79.3% were bad sleepers (ICSP ≥ 5). 43.3% had poor academic performance during the last semester. Bivariate analysis revealed that having consumed tobacco or alcohol up to drunkenness, having poor subjective sleep quality, efficiency < 65% and being poorly sleeping were associated with increased risk of underage performance. In multivariate analysis, a sleep efficiency < 65% was statistically associated with poor academic performance (p x 0.024; odds ratio x 4.23; 95% confidence interval, 1.12-15.42) [6].

Cross-sectional descriptive 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 participants evaluated were young, third semester university students of medicine, where excessive daytime sleepiness was found at 59.6% (n-59/99), being more common in young men with an average age of 21 years. Higher data comparatively with those reported in other studies for the general population. The prevalence of excessive daytime sleepiness in the studied population is quantitatively important and higher than that found in other studies [7].

The Pittsburgh Sleep Quality Index questionnaire and sociodemographic data sheet were applied to 400 patients who attended external consultation. Results: 23.5% reported no problems in their sleep quality, 33.3% slight loss, 17.3% moderate loss and 26.3% poor sleep quality. 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 this research the prevalence of alterations is mild to severe in 76.9% of the population studied, higher in men and has delved into variables that alter quality, quantity, as well as disruptive factors [8].

The objective of this research was to describe the factors that determine a quality dream in physicians residing at the Hospital Escuela Oscar Danilo Rosales. It was descriptive of transverse cutting made to 60% of doctor's resident of the specialties. Pittsburg's Sleep Quality Index was used as a measuring instrument, providing an overall quality score and partial scores on 7 components. The incident factors in a quality dream are work and coffee consumption, in all specialties. The main sleep disorders presented by resident physicians are: Sleep insomnia, maintenance insomnia and non-repairing sleep, hindering the ability to concentrate on the realization of assigned activities. It was concluded that the sleep quality of the resident physicians surveyed has a score greater than 5 points, considered BAD DREAM QUALITY, the highest-scoring specialty is Internal Medicine [9].

Cross-sectional descriptive study conducted in a sample of 76.14% students (no. 83/ 109) of ninth semester of medicine who agreed to participate in the research by informed consent. The locally validated Epworth Sleepiness Scale and Pittsburgh Sleep Quality Index and Validated Sleep Hygiene Index were applied in Peru. Those evaluated had an average age of 23 years, had excessive daytime sleepiness of 60.24% (n-50/83). 79.52% (n-66/83) of bad sleeping subjects and 44.58% (n-37/83) were found with poor sleep hygiene. The prevalence of excessive daytime sleepiness in the studied population was shown to be quantitatively important and higher than that found in other studies, showing a link to poor sleep quality and considerable poor sleep hygiene [10].

6. Approach to the Problem

Excessive daytime sleepiness is the second most common condition in sleep clinics. Its incidence is 17.5% in adults and adolescents, and 25% in older adults. This is because any sleep disturbance that affects the duration or architecture of the sleepiness results in excessive daytime sleepiness (Table 7). Among the most common disorders are respiratory disorders that, by increasing light sleep and decreasing slow wave sleep (SOL), cause excessive daytime sleepiness, regardless of how long the patient stays asleep. Insomnia and some kinesics disorders, such as periodic limb movement disorder, decrease the time during which the patient remains asleep, leaving a sleep debt and 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.

Table 7: Epworth Sleepiness Scale (Mixed)

Man and Women			
VARIABLES	CATEGORY	FREQUENCY	PERCENTAGE (%)
Sound Quality Index	Normal	46	69%
	Light	11	16%$
	Moderate	7	10%
	Grave	3	4%
	No	0	0%
		67	100%

Will doctors and nurses at Guadalajara Regional Military Specialty Hospital have excessive daytime sleepiness and poor sleep quality?

7. Hypothesis

7.1. Hi: Doctors and nurses at Guadalajara Regional Military Specialty Hospital have Problems of Excessive Daytime Sleepiness and poor sleep quality

7.2. H0: Doctors and nurses at Guadalajara Regional Military Specialty Hospital have no Problems of Excessive Daytime Sleepiness and poor sleep quality.

8. Objective

8.1. General

Detect sleep disorder Excessive Daytime Sleepiness and bad sleepers in doctors and nurses of guadalajara Regional Military Specialty Hospital.

8.2. Specific

- Identify age, sex, and weight
- Identify doctors and nurses
- Identify if the subject takes naps
- Evaluate scores on Epworth's Excessive Daytime Sleepiness Scale. (greater than or equal to 8 x SED)
- Evaluate scores in the Pittsburg Sleep Quality Index (ICPS greater than or equal to 5 bad sleepers)

9. Material and Methods

9.1. Research Design

Cross-cutting descriptive study, prospective analytical

9.2. Universe or Study Population

Male and female doctors and nurses between the age of 18 and 60 working at Guadalajara Regional Military Hospital who agree to participate in the survey and be evaluated by the Epworth Sleepiness Scale and Pittsburg Sleep Quality Index.

9.3. Sample size

$$n = \frac{k^2 \cdot p \cdot q.N}{\left(e^2.(N-1)\right) + k^2.p.q}$$

Z 95% confidence or safety level

p - Standard Deviation 0.5

e - Margin of error 5

n sample s 67

9.4. Sampling method

Non-probabilistic for convenience

9.5. Resources

9.5.1. Humans

- Dr. Gabriel Miranda Nava

- Undergraduate Physician Karla Teresa Granados Velasco

9.5.2. Materials

- 67 sheets of paper

- Printer

- 1 cartridge for printing

9.5.3. Equipment:

Does not apply

9.5.4. Financial

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

9.5.5. Limits

a) Time

It is estimated a time of 1 month, approximately all October 2019 for data collection.

b) Place and space

Guadalajara Regional Military Specialty Hospital located in the ZMG

c) Person or selection criteria:

- Inclusion criteria: Men's and Women's patients 18 to 60 years of age hmREG doctors and/or nurses

- Non-inclusion criteria: pregnant women.

- Elimination Criteria: patients who choose not to continue with the survey.

10. Methodology

10.1. Data Collection Instrument:

The survey will request the name, to keep a reliable record of the number of patients identifying age, weight, size, and sex. After the edited Excel sheet to collect the evaluation data of the Epworth Sleepiness Scale and Pittsburg Sleep Quality Index to have clear and accurate information at the time of data emptying and variable ratio (see Annex 1 and 2.

10.2. Plan General

Once the HMREG doctors and nurses are identified, authorization will be requested for their participation in the survey. They will be explained that they will be evaluated by the Epworh Sleepiness Scale and Pittsburg Sleep Quality Index to detect SED sleep disorder and poor sleep quality, using the information entrusted solely for research use, if they become part of it they will be asked to answer the survey and proceed with the project by collecting the data in the Excel database by comparing the results.

10.3. Bioethical Considerations

a) Helsinki General Health and Declaration Act

In accordance with the general health law and the principles of the Helsinki declaration. According to Articles 13, 14 and 17, this

research is a risk-free prospective cross-cutting analytical descriptive investigation for both study subjects and research processors.

People's right should always be based on safeguarding their integrity and taking all necessary precautions to respect people's privacy and minimize the impact of the study on their physical, mental integrity and personality.

10.4. Information Processing and Analysis

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

11. Results

Worked with 26 women (39%) and 41 men (61%), whose average 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) replied that if they take a nap while in men those who take naps it is 51% (no. 21/41).

Table 1, which raises the Pittsburg Sleep Quality Index (ICSP) in men, which shows that only 22% (n-9) have no sleep problems, while raising the percentage with 59% (n.24) that already deserves medical attention at the outset, 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 care and medical treatment" and 31% (n-8) has severe sleep problems.

According to Table 3, male students tend to have lower sleep problems than women, but it is observed that an average of 9.6 (with standard deviation of 6.31) for HMREG doctors and nurses in this variable indicates that overall, 78% (they should have medical care). 2 are excluded in slopes as they were not answered.

Table 4, which represents Epworth's sleepiness scale in men, yields an average of 5.29 with standard deviation of 4.68, which by percentage refers to 27% (n-11) entering the SED category with predominance in mild.

Table 5, which evaluates Excessive Daytime Sleepiness in women, shows an average of 6.48 with standard deviation of 3.34, 38% (no. 10) is identified within the SED category by sharing the predominance between mild and moderate none reaching severe.

For excessive daytime sleepiness, there is a slight difference in the average score obtained between men and women. So, in general the average of both sexes is 5.66 with standard deviation of 4.24, with 30% (n-21) entering the SED category with mild predominance.

12. Discussion

Sleep problems are very common, such that in general HMREG doctors and nurses participating in the research have presented an average assessment of 9.6 (with a standard deviation of 6.3) in relation to sleep quality, 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, work performance, fatigue, anxiety, stress, depression, drowsy behavior, impaired social relationships, irritability, impaired friendly nerve activity, increased cardiovascular risk, as well as overall poor health.

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

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

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

In the case of the excessive daytime sleepiness assessment, this study observed a difference in the average score obtained between men and women, a finding that distances itself from what was reported in a study with a general population by Toatoa-Ramírez et al [54], including university students, at the Autonomous University of the State of Mexico in which , 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) were excessively drowsy. Comparing male-female risk found an O.R. value of 4.1 in men 50 years of age or older, while in the female gender it was 1.0. By establishing a separation 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. From these findings, they concluded that in the population studied, the male gender reported a risk four times higher than women, in terms of excessive daytime sleepiness [54].

13. Conclusion

It is recommended to advance new research in the same population and to associate variables of chronic degenerative and neuropsychological involved in learning, such as attention, working memory and executive functions, among others, to provide tools of medical and psycho-pedagogical guidance and accompaniment, aimed at strengthening their quality of life and performance. Encourage the training of doctors, for the correct detection and care of sleep problems. Identify at-risk students and provide guidance

with programs and strategies that improve sleep efficiency and hygiene. To have adequate sleep hygiene, the patient is asked to avoid activating before bedtime; mainly restricted exercise, intake of CNS-activating foods, watching television, or being in front of the computer, to avoid light activation. It is important that sleep and bedtime are associated with a state of pleasant relaxation. That is why we should avoid stress before we go to bed. Bedtime restriction is used in patients who lie down but wake up for many hours, which only contributes to them developing anxiety and stress when forced to sleep. The recommendation states that if in the first twenty minutes the person has failed to fall asleep, he or she will get out of bed and leave his room (to avoid the conditioning of being awake in the room or in bed at night), and when he or she is feeling drowsy again try to sleep.

References

1. Loyola IM, Ramirez A. Excessive daytime sleepiness as a factor associated with cognitive impairment in patients at Victor lazarte Echegaray hospital. UPAO. 2019; 3: 25-27.
2. Maya PS, Lubert DC, Londoño MDM, Chaurra TJ, Osorio NLS. Excessive sleep quality and daytime sleepiness in college students from different domains. To Promoc. Bless you. 2019; 24: 84-96. DOI: 10.17151/hpsal.2019.24.1.8.
3. López E, Olmos A. Excessive daytime sleepiness in Mexico City. Ins Nac of Neurology and Neurosurgery. 2006; 1: 1-3.
4. Maya PS, Lubert DC. Characterization of sleep quality and excessive daytime sleepiness in sample students of the medical program of the University of Manizales. Manizales. 2017; 17: 2339-3874.
5. Moreno S, Pilar J, Ariza M, Andrés D. Sleep quality of nursing staff. Journal of Health Sciences. 2018; 16: 75-86.
6. Machado M, Echeverri J. Excessive daytime sleepiness, poor sleep quality and poor academic performance in medical students. Rev Fac Med. 2015; 44: 137-42.
7. Escobar F, Cortés M. Excessive daytime sleepiness in third semester medical students of the national university of Colombia. Rev Fac Med. 2008 56: 235-244.
8. Cabada E, cross J. Sleep quality in patients from 10 to 59 years old. Rev Esp Méd Quir. 2015; 20: 275-283.
9. Martínez LM, Mayorga CI, Mendoza HN, Valdez DG, Mairena LF. Quality of Sleep in Resident Physicians of HEODRA. Universitas. 2008; 2: 13-17.
10. Escobar F, Benavides R. Excessive daytime sleepiness in ninth semester medical students of the national university of Colombia. Rev Fac Med. 2011; 59: 191-200.
11. Arana-Lettuce D, Escandón SO. Compendium of physiology and sleep medicine. Grapondi of Mexico. 2011; 2.
12. Lorton D, Lubahn CL, Estus C, Millar BA, Carter JL, Wood CA, et al. "Bidirectional communication between the brain and the immune system: implications for physiological sleep and disorders with disrupted sleep". Neuroimmunomodulation. 2006; 13: 357-74.
13. Moser D, Anderer P, Gruber G, Parapatics S, Loretz E, Boeck M, et al. "Sleep classification according to AASM and Rechtschaffen & Kales: effects on sleep scoring parameters". Sleep. 2009; 32: 139-49.
14. American Academy of Sleep Disorders. International classification of sleep disorders. Diagnostic and coding manual. Westchester, Illinois, American Academy of Sleep Medicine. 2005.
15. American Academy of Sleep Medicine. The AASM Manual for the Scoring of Sleep and Associated Events. USA, Westbrook Corporate Center. 2007.
16. Pérez RP, Salín RP, Valencia MF, Castorena A. Sleep Medicine: historical evolution and current situation. Mexico, McGraw-Hill. 2009: 29-37.
17. Rechtschaffen A, Kales A. A manual of standardized terminology, techniques and scoring system for sleep stages of human subjects. Los Angeles, California, Brain Information Service, University of California. 1968.
18. Velázquez JM. Sleep Medicine: Basics and clinical aspects. Mexican Dream Society in collaboration with the Universidad Autónoma Metropolitana, 2007. current one. Mexico, McGraw-Hill. 2009: 29-37.
19. Asala SA, Okano Y, Honda K, Inoue S. "Effects of medial preoptic lesions on sleep and wakefulness in unrestrained rats". Neurosci Let. 1990; 114: 300-304.
20. Schmidt M, Valatx JL, Sakai K, Fort P, Jouvet M. "Role of the lateral preoptic area in sleeprelated erectal mechanisms and sleep generation in the rat". J Neuroscience. 2000; 20: 6640-47.
21. Braun AR, Balkin TJ, Wesensten NT. "Regional cerebral blood flow throughout the sleepwake cycle". Brain. 1997; 120: 1173-97.
22. McCarley RW, Hobson JA. "Neuronal excitability modulation over the sleep cycle: a structural and mathematical model". Science. 1975; 189: 58-60.
23. Bonsignore MR, Marrone O, Insalaco G, Bonsignore G. "The cardiovascular effects of obstructive sleep apnoeas: analysis of pathogenic mechanisms". Eur Respir J. 1994; 7: 786-805.
24. Zanchetti A. "The physiologic relevance of smooth twenty four pressure control". J Hypertens. 1994; 12: s17-s23.
25. Douglas NJ. "Respiratory physiology: control of ventilation". En: Principles and practice of sleep medicine 4ª ed. 2005: 224-231.
26. Krieger J. "Respiratory physiology: breathing in normal subjects". En: Principles and practice of sleep medicine, 4ª ed. 2005: 232-244.
27. van Cauter E. "Endocrine physiology". En: Principles and practice of sleep medicine, 4th ed. 2005: 266-282.
28. Andersen ML, Bittrncourt LRA, Antunes JB, Tufik S. "Effects of progesterone on sleep: a possible pharmacological treatment for sleep-breathing disorders?". Current Medicinal Chemistry. 2006; 13: 3575-82.
29. Lucke C, Hehrmann R, von Mayersbach K, et al. "Studies in circadian variations of plasma TSH, thyroxine and triiothyronine in man". Acta endocrinol. 1976; 86: 81.
30. Timbal J, Colin J, Boutelier C. "Circadian variations in the sweating mechanism". J ApplPsychol. 1975; 39: 226.