

Evaluation of Daytime Sleepiness in Students from High School Number 16 and 22 from Guadalajara University During the Month of October 2019 using The Pediatric Daytime Sleepiness Scale (PDSS)

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Abstract

The purpose is to allow us to observe and evaluate the sleep quality and presence of sleep deprivation in high school students from the 16th and 22nd establishment under the University of Guadalajara with the objective of allowing us to observe if there is a relationship between their schoolwork activities, daily basis day to day, bodyweight and mood with the presence of sleeping during daytime using the pediatric daytime sleepiness scale.

Methods: This is an observational, retrospective, longitudinal and descriptive study with PubMed and NCBI Articles as variables.

Findings: We will evaluate with sleepiness daytime scale the quality of sleep in 100 students.

Conclusion: During this research 100 students comprised of 61 female and 39 male students all in freshmen or first year of high school were evaluated. All of them between ages 14 to 17 years of old.

Introduction

Important reasons to evaluate sleep deprivation on the human brain according and more importantly in teenager students, it will help us understand the importance of an efficient sleep, and also the importance of seeing what factors are contributing to this state of absence of sleep and what is happening from absence of sleep to extended wakefulness. Because of sleep deprivation several symptoms can be present mood swings, to decreased consciousness and physiological alterations, we also must evaluate if patient has anxiety, depression or and addiction disorder which is common amongst young individuals [1].

Sleep is essential to the development of an adolescent and is also essential in his success and health overall, according to an article from 2011 sleep deprivation was reported in two thirds of young adolescents is often associated with sleeping during daytime, mood change, lack of energy, and poor school performance [2]. We can observe this pattern in students and imply that it has a psychological, behavioral, sociocultural and environmental pattern [1].

We have different factors that are seen in adolescents such as hormonal time shifts, they experience a shift in circadian rhythms causing them a peak in the production of melatonin, the hormone that helps maintain circadian cycles during sleep [1].

Furthermore the schedule seeing that classes usually start around 7:30 am allows us to see that many students don't sleep the recommended 8 hours of rest, or some stay up late because they enter at 2:00 pm at the afternoon and have classes from 2:00 pm till 8:00 pm and have a sleep cycle that is not best because they come home and do their school subjects and homework and have to sleep at late hours besides the fact that they can wake up until late hours equally.

We also have that different activities students make on their daily basis, affects their sleep cycles such as videogames, computers, the use of mobile phones and different gadgets.

Sleep

Sleep is accomplished by the ventrolateral pre optic area which activates and uses adenosine accumulation as a mean. There is more adenosine found during day light and it decreases during night time. Adenosine receptors are present in the ventrolateral pre optic area and it helps alternate the sleep switch.

REM and non REM sleep

Rapid eye movement sleep is associated with dreaming and non REM sleep is associated with a non rapid sleep controlled by cholinergic neurons, while during non rapid eye movement sleep they are decreased. REM sleep is the continuation to non REM sleep

during rem sleep characterized by decreased senses, heart rate and respiratory rate [3].

Stages of sleep non rem and rem sleep

It takes five minutes to enter stage N1 which is seen in EEG as four to seven cycles characterized by decreased body temperature, muscle relaxation, eyes slowly moving. During stage N2 it takes around 10-25 minutes characterized by lower heart rate, lower respiratory rate, with the activation of k complex which helps maintaining alertness in case there is an external stimuli, this phase lasts most of the night [4]. During N3, delta waves appear and the subject enters deep sleep as blood pressure falls. During Rem Sleep there is rapid eye movement sleep, there is rapid eye movement and body temperature rises with intermittent body movement, the body will enter this phase around 3 to 5 times during sleep with cycles of 90 minutes in between. With the help of EEG we are able to see different stages during sleep while on N1 we see theta waves, during this stage we see lower heart and respiratory rate, during N2 we see lower body temperature and sleep spindles, during stage N3 we see slow wave sleep and delta waves and on the final stage of sleeping we are able to see rapid eye movement and beta waves in high frequency [5].

The Pediatric Daytime Sleepiness Scale (PDSS)

Is the scale that was used during this study it consists of a 9 item questionnaire that measures sleep habits on high school children according rating from if they sleep during daytime, during school or during homework, how are they feeling, its important to mention that the questionnaire is measured by 4 options: never, frequently, sometimes and almost always.

Methods

During this study we will use as methods the scale known as The Pediatric Daytime Sleepiness Scale (PDSS), we will test it in a random sample of 100 students from High Schools 16th and 22nd under the University of Guadalajara in Jalisco, Mexico. It will be tested during the month of October in a random sample that will include underage students ranging from 14 to 17 years of age until we account for 100 students in the sample. An observational, retrospective, longitudinal and descriptive study method as basis.

Justification

The purpose is to allow us to observe and evaluate the sleep quality and presence of sleep deprivation in high school students from the 16th and 22nd establishment under the University of Guadalajara with the objective of allowing us to observe if there is a relationship between their schoolwork activities, after school curriculares, bodyweight and mood with the presence of sleeping during daytime using the pediatric daytime sleepiness scale.

We want to evaluate the importance of sleep cycles and there effect on the individual to present and thus emphasize on achieving and enforcing as a routine proper sleeping habits. The study involves variables that affect sleep deprivation such as, the use of mobile phones, laptops, video games, homework and studying or cramming to complete an essay. These effects may be catastrophic on the body and may account for further anomalies and illnesses as the years progress.

Parents and teenagers alike should come to understand the value of have a proper circadian sleep cycle insuring the hormone(s) melatonin, human growth hormone (HmGH) and others are stimulated properly.

Results

A random sample of freshmen high schoolers were took a non experimental, observational, prospective and longitudinal survey. A hundred student survey from High Schools 16th and 22nd from the Universidad of Guadalajara, different components were taken into account such as body fat percentage, sleeping during day time, exercise during day, use of videogames between other components, 39 male students from random clases and 61 female students, most of them between ages 14-15 years of age, all of them were evaluated with Sleepiness daytime scale. Taking into account situations like the use of video games, computers, gadgets, body weight, if they were overweight on in a normal range, if they were having problems at home, bullying, some sort of abuse in home or any stressful situation that could deprived them from sleep.

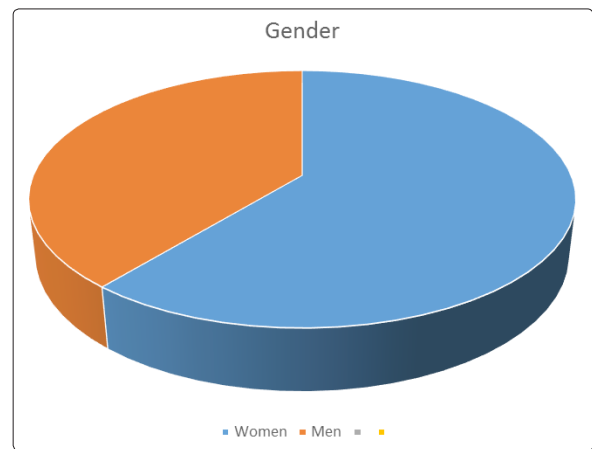


Figure 1: Patients gender: Most students were female during the research

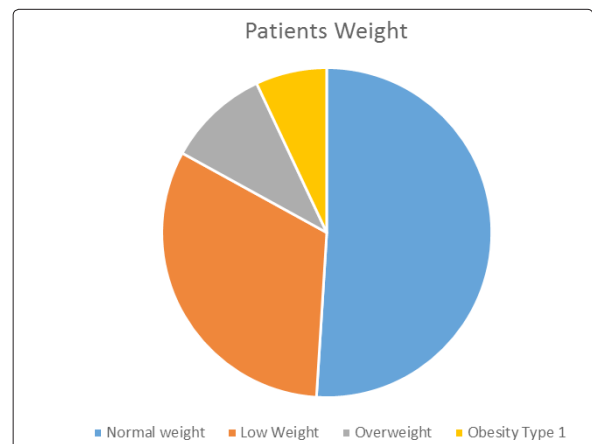


Figure 2: Patients weight. Most students had a weight on normal range but 7 percent of students had obesity and at least 10 percent had overweight it correlates with Mexico having the biggest obesity rate in the world nowadays, 51 percent had normal weight and 32 percent had low weight

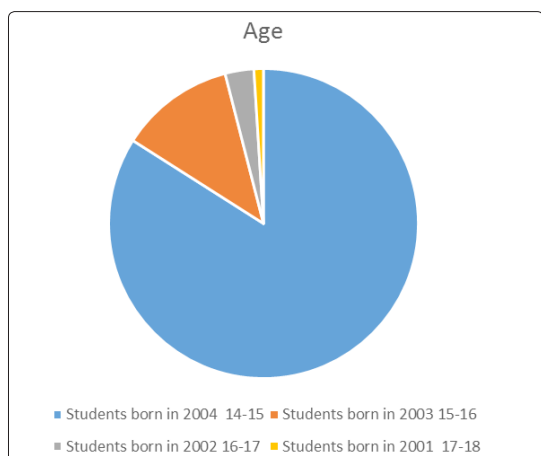


Figure 3: Ages Most students at least 84 percent of them were born in 2004 while 12 of them were born in 2003, 3 percent of them were born in 2002 and 1 percent were born in 2001

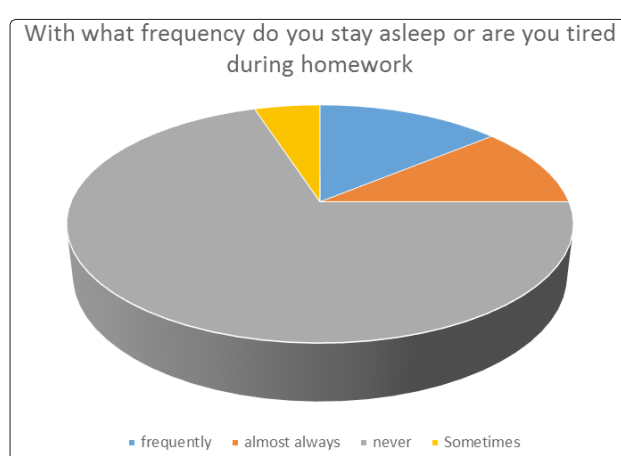


Figure 6: How often do you stay asleep during homework, 14 percent said frequently, 11 percent said always, 70 percent said never and 5 percent said sometimes

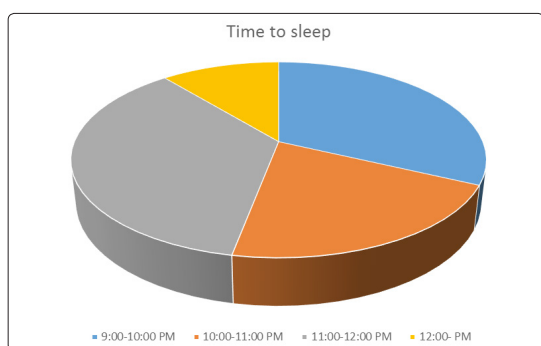


Figure 4: Patients hour of sleep, we have that 32 percent of them went to sleep at 9:00 PM to 10:00 PM, while 21 went to sleep between 10:00 pm and 11:00 PM, 36 percent and most students sleep between 11:00-12:00 PM they mentioned it was because of playing videogames or doing homework till late hours most students that range sleeping at 12:00 pm or further mentioned it was because they had trouble sleeping or had jobs they attended to during daytime and had to finish homework or duties

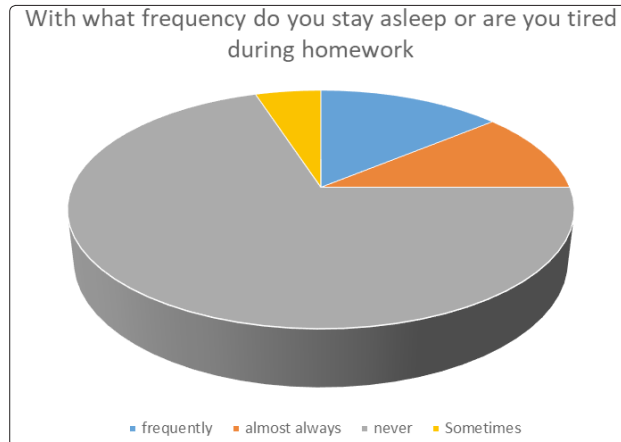


Figure 7: How often do you stay asleep or are you tired during homework. Never 33 percent, 45% said sometimes, 14% said frequently and 8% said almost always

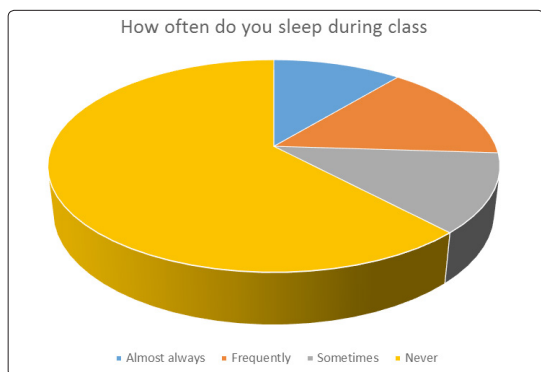


Figure 5: How often do you sleep during class: 62% said they never slept during class, 12% said they sometimes slept during class, 15% said they slept frequently during class and 11% said they slept always during class

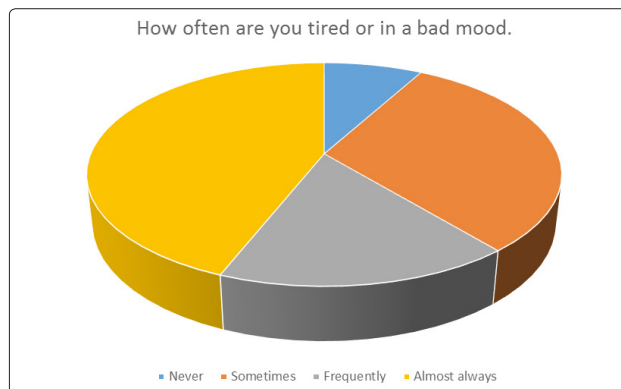


Figure 8: How often are you tired or in a bad mood: Most students said almost always 44%, 17 % said frequently, 31% percent said sometimes and the rest said never

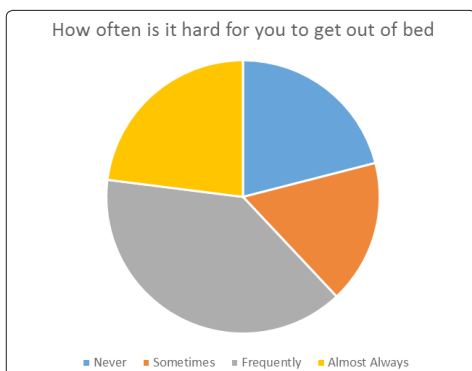


Figure 9: Most students said it was difficult for them to get out of bed saying 39% of them that it was frequent, while 23% said it was almost always, 21% said they never had trouble and 17% percent said sometimes they had trouble getting out of bed

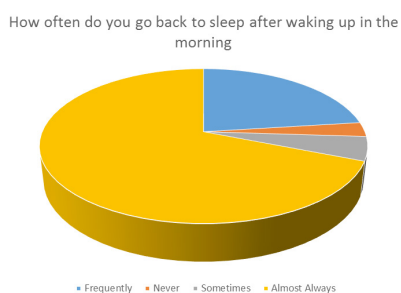


Figure 10: 69% said it was almost always that they felt the need to go back to sleep while 23% said it was frequent for them to get back to sleep 5% said sometimes they went back to sleep and 3 percent said they never went back to sleep

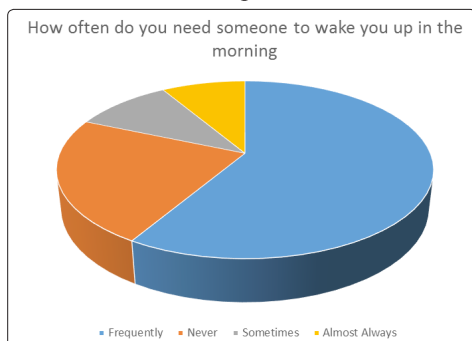


Figure 11: 59% students said that frequently they needed someone to wake them up in the morning usually their own parents 23% said they never needed someone to wake them up while 10% said sometimes and 9 percent said always

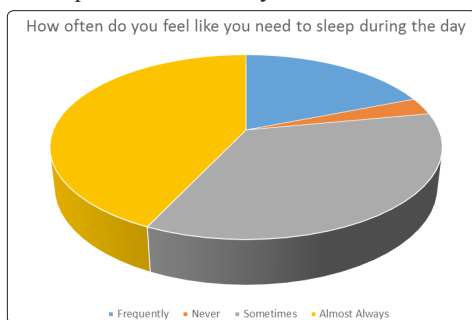


Figure 12: 43% said they always felt the need to sleep during day time 35% said sometimes and 19% said it was frequent for them to

need more sleep and 3% said they never needed to sleep during day

Most students were students with an age from 15 to 16 years old mostly female and in most cases they had trouble having an 8 hour sleep time during school days, most of them sleep 6-7 hours because of different distractions they have on their daily basis.

We can imply that many different reasons come into account ranging from the use of mobile phone during day and night time, the use of social networking, also working with their own family members or having time for school books it takes into account for many reasons as to why there is sleep deprivation on teenagers, many of them play video games during day and night time or come home at late hours, at least almost 20% of the students that were surveyed had overweight or obesity. This must be taken into account that some may develop sleep apnea on further years as they age as we know obesity during childhood will have a bigger increase in the possibility of having obesity during adulthood, also there were students with low weight which also correlate with future disorders that could develop in adulthood specially in women such as bulimia or anorexia which also have an effect on sleep deprivation. It must be taken into account the time in which students are attending class at 7:00 AM in the morning to the ones attending at 2:00 PM that sleep at late hours and awake at late hours.

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