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ASSESSING THE PREVALENCE OF EXCESSIVE DAYTIME SLEEPINESS BY EPWORTH SLEEPINESS SCALE TECHNIQUE

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Abstract

Excessive Daytime Sleepiness (EDS) is the most common concern for many people presenting with sleep disorder and significantly a public health problem. However, it is also associated with a wide range of diseases, including psychiatric, neurological disorders. At an individual level, the symptom itself not only reduces personal effectiveness at school or work, but it also leads to problems with concentration, memory and mood, which have further negative impacts on performance. Mostly there cannot be exact cause for EDS and the only diagnostic possibility may be idiopathic hypersomnia. The present article asses the prevalence and severity of EDS in university students by using Epworth Sleepiness Scale (ESS) technique and concluded that, female respondents are very high in the category of "very sleepy" during day time compared to male respondents.

Key Words:-EDS, ESS, behaviorally induced insufficient sleep syndrome, narcolepsy and hypersomnia**.**

Introduction

Excessive Daytime Sleepiness (EDS) is the most common concern for many people suffering from sleep disorder and significantly a public health problem. The International Classification of Sleep Disorders (ICSD-2) includes EDS as an essential feature for three diagnostic categories: narcolepsy, hypersomnia and behaviorally induced insufficient sleep syndrome. It is also associated with a wide range of diseases, including psychiatric and neurological disorders, pulmonary and cardiac conditions. Mostly there cannot be exact cause for EDS and the only diagnostic possibility may be idiopathic hypersomnia. However, the most common causes may be found in disturbance of sleep quality, sleep quantity or other contributors. Most frequently, insufficient sleep duration is responsible for this symptom. The present study examines the prevalence and severity of EDS encountered in university level students.

On the individual level, the symptom itself not only reduces personal effectiveness at school or work, but it also leads to problems with concentration, memory and mood, which have further negative impacts on performance. On the societal level, the negative impacts of sleepiness are likewise significant.

Sleepiness may be thought of as a physiological state or `urge' which promotes the onset of sleep, and which is reversed or satiated (although not always) by the attainment of adequate sleep. Most subjects may use other terms, such as `tiredness' or `fatigue' to describe sleepiness, thus leading to potential semantic confusion. In the recent past, progress has been made in the understanding of several syndromes associated with EDS. These probably act in concert with environmental factors to bring about full expression of sleepiness.

Review of Literature

For quite some time, introspective behavioral scales and performance tests have been used to measure sleepiness. Subjective scales query the individual's perception of alertness/sleepiness. The Stanford Sleepiness Scale (Hoddes et al., 1972)[1] and the Karolinska Sleepiness Scale (Akerstedt, 1996)[2] assess the momentary degree of alertness/sleepiness. These scales are useful in tracking symptoms during a given time epoch; they are less helpful in examining more global feelings of sleepiness.

More objective tests, relying on measurement of physiological parameters, are widely available. Pupillography (Schmidt and Fortin, 1982)[3], based on changes in pupil stability with level of alertness, has been used to assess sleepiness, but is limited by eyelid ptosis, which occurs with drowsiness and tends to obscure the pupil. Sensory evoked potentials are rarely employed. Most commonly, objective testing is based on polygraphic monitoring.

The Multiple Sleep Latency Test (MSLT) (Carskadon et al., 1986)[4] is performed immediately after an overnight polysomnogram to ensure adequate sleep during the prior night and to exclude obvious causes of nocturnal sleep disruption, which would explain the daytime symptoms(6).

Methodology of Study

To study the prevalence and severity of EDS in university level students a standard pre tested questionnaire of ESS is administrated to 100 students randomly selected of whom 50 respondents are females and rest 50 respondents are males. The respondents are selected from Dilla University, Dilla, Gedio Zone, Ethiopia- East Africa. To measure the EDS among these university level students ESS technique has been used. ESS is the most widely used subjective measure of sleepiness. This takes the form of a questionnaire where students' rate their perceived likelihood of falling asleep in eight everyday situations, to give a total score from 0-24 points (5). Although the test is quick and easy to administer, it is dependent on the subject's interpretation of the rating system. However, objective and subjective

measures of sleepiness may be confounded by factors such as the respondents' motivation to stay awake (6), sleep hygiene or the previous night's sleep quality and quantity.

The following table-1.1 is the standard form of questionnaire of ESS which is administered to university level students. Respondents are asked to rate their answers for each question on a four point scale ranging from 0 to 3 for each situation:

0 = would never doze. 1 = slight chance of dozing.
2 = moderate chance of dozing. 3 = high chance of dozing.

TABLE-1.1: ESS QUESTIONNIERE

No	SITUATION	CHANCE OF DOZING (0–3)
1	Sitting and reading	
2	Watching television	
3	Sitting inactive in a public place (e.g. a theater or meeting)	
4	As a passenger in a car for an hour without a break	
5	Lying down to rest in the afternoon when circumstances permit	
6	Sitting and talking or lessoning to class	
7	Sitting quietly after a lunch without alcohol	
8	In a car, while stopped for a few minutes in the traffic	
	TOTAL SCORE	
	Gender: M/F Age:	

On the basis of total score of each respondent, the results can be interpreted according to ESS scale has been presented in table1.2 as follows

TABLE-1.2:-ESS RESULTS

Total Score	Result
1-6	Getting enough sleep
7-8	Average sleep
9 -24	Very sleepy

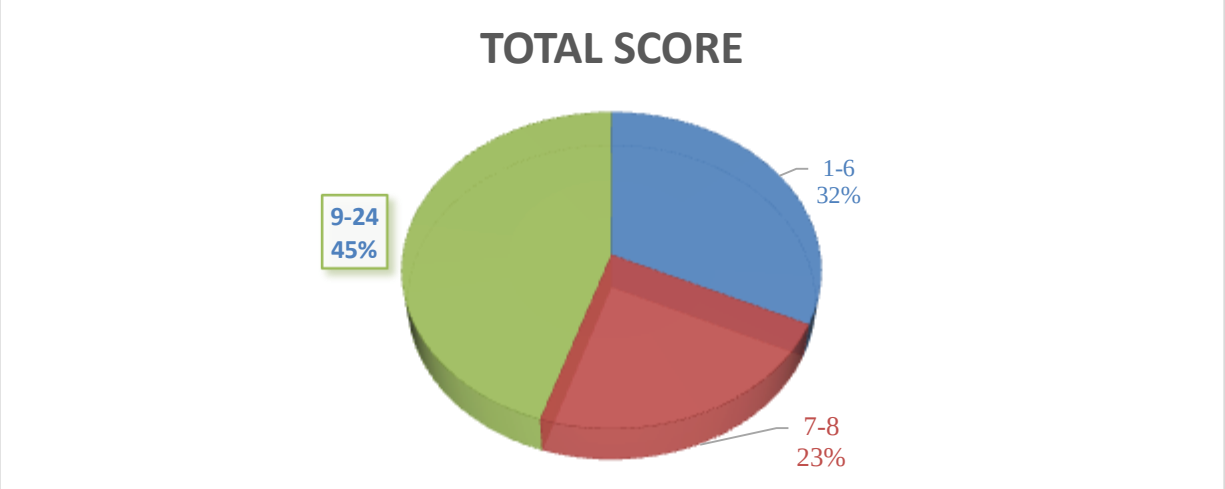
Results and Discussion

The results of the ESS questionnaire, total score as well as gender wise score are presented in the table-3.

TABLE-3:-SCORES OF RESPONDENTS

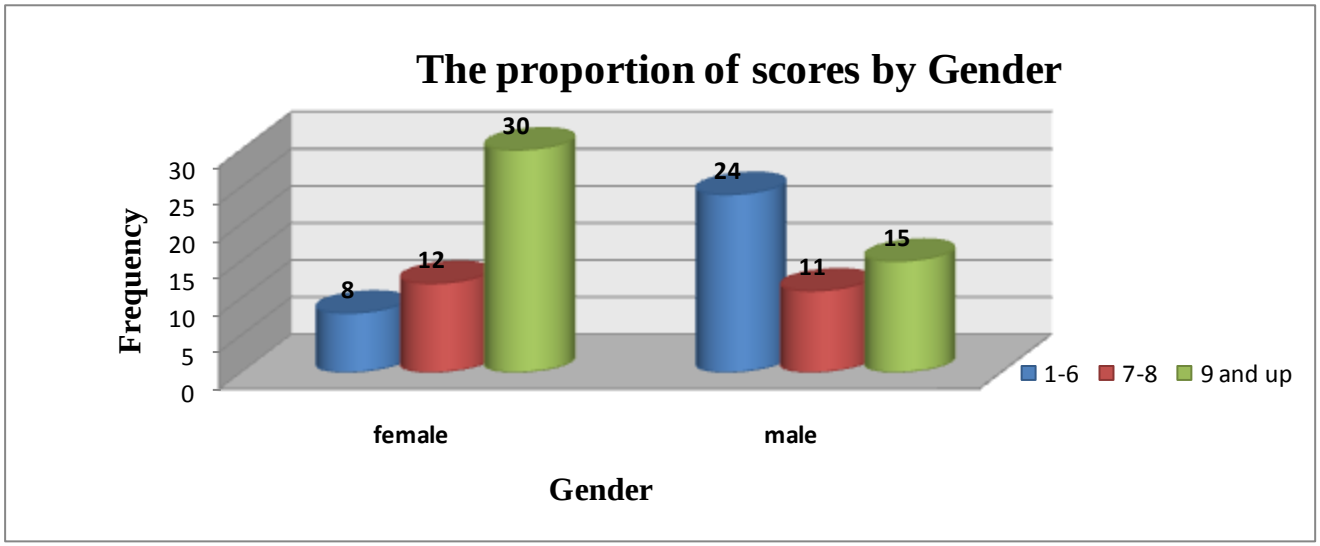
Score	Female	Male	Total %
1-6	8(16%)	24(48%)	32
7 -8	12(24%)	11(22%)	23
9 -24	30(60%)	15 (30%)	45
Total	50 (100%)	50(100%)	100

The scores of total respondents are presented in the form of a pie graph in following Graph-1:



GRAPH-1:TOTAL SCORES OF RESPONDENTS

From the above graph-1 and table-3 it can be inferred that, 32% of total respondents are getting enough sleep as they scored 1-6. It can also infer that 23% of total respondents scored between7-8, which means they are getting average sleep. Disturbingly, 45% of total respondents fall in the range of 9-24 score, indicating very sleepy category.
The gender wise results are presented in the following graph-2 and gender wise differences are discussed based on that.



GRAPH-2:-THE PROPORTION OF SCORE – GENDER WISE

Total Score (1 to 6) - Getting Enough Sleep:

Out of the 32 (32 %) of total respondents, inferred to be getting enough sleep, having scored points between 1to6, 8 (16%) are female respondents and 24 (48%) are male respondents. This shows that males out number females in this category.

Total Score (7 to 8) – Average Sleep:

Out of the 23 (23%) total respondents, inferred to be getting average sleep, having scored points between 7 to 8, 12 (24) are female respondents and 11 (22%) are male respondents. This shows that female respondents outnumber males in this category.

Total Score (9 to 24) – Very Sleepy:

Similarly out of the total of 45 (45%) of respondents, inferred to be very sleepy, having scored 9 and above, 30 (60%) are female respondents and 15 (30%) are male respondents. This shows that female respondents are double in number compared to males in this category.

Thus as the female respondents are very high in the category of ”very sleepy” during day time compared to male respondents, chi-squire test has been applied to find out whether there is any relation between gender and excessive day time sleepiness.

Chi-Square Test:

Null Hypothesis H_0: There is no association between score and gender

Alternative hypothesis H_1: There is association between score and Gender

The calculated value of chi-square statistic value is 0.0234, and the tabulated value of chi-square value at 5% level of significance with 2 degrees of freedom is 0.1026

Since the calculated value is less than the tabulated value of chi-square, the null hypothesis H_0 is accepted.

Result

There is no association between the two attributes score and Gender. By the chi-squire test it is clear that there is no relation between gender and excessive sleep in university level students.

Conclusion

From the analysis of the answers to the questionnaire by the respondents, it can be concluded that a significant number of university level students (45%), suffer from EDS. Among those students who can be classified as “very sleepy”, the proportion of females is alarmingly high. Even in the category of students who can be classified as getting only average sleep and not fully normal sleep, female students out number male students. But a statistical analysis of the results could not establish any overall association between the score and gender. As EDS affects the cognitive faculties and performance levels of the students, and is also a public health concern in general, a wider and deeper study, with a larger sample involving respondents from different universities and delving deep in to its root causes is warranted.

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