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Insomnia and Excessive Daytime Sleepiness among Nigerian University Students

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ABSTRACT

Background and Objectives : Insomnia is a common condition caused by a number of factors. Sleep loss is also a risk factor for Excessive daytime sleepiness (EDS). The objectives of this study were to investigate insomnia and EDS among a student population and to determine whether or not there is a linear association between them.

Materials and Methods : Seven hundred and eighty undergraduate students of the Obafemi Awolowo University, Ile-Ife, Nigeria were recruited into the study. Insomnia was investigated with the Insomnia Severity Index (ISI) while the Epworth Sleepiness Scale (ESS) was used to investigate for the presence of Excessive daytime sleepiness (ESS).

Results: With a 90.5% response rate, 65.6% of the subjects had subthreshold insomnia while 19.5% had insomnia of the moderate severity. On the ESS, 16.3% of the subjects had EDS. There was no linear association between insomnia and EDS among the subjects. An incidental finding of this study is that an unspecified number of the students are on self- prescribed sedative/hypnotic medications.

Conclusion: Both insomnia and EDS are common among the student population. More studies are encouraged to document the pattern of different conditions and have a database for reference purposes.

KEYWORDS : Insomnia; Excessive daytime sleepiness; psychopathology

Introduction

Insomnia is a complaint of inadequate quantity and or quality of sleep. An individual suffering from insomnia may have one or more of the following combinations: Difficulty initiating sleep; difficulty maintaining sleep and or non-restorative sleep, in which case the individual wakes up in the morning without the usual refreshing feeling that accompanies a good sleep. There is thus decreased sleep efficiency.

Insomnia is a very common sleep disorder and frequently constitutes a component of many psychiatric syndromes. Different studies have found the prevalence of insomnia in the general population anywhere from about 12% to about 40 %.(1-2) In a small sample sized nonrandomized study prevalence rate as high as 60% was reported by certain individuals (3)

The causes of insomnia are numerous and if not addressed insomnia may lead to impairment in a number of cognitive functions (4)

Excessive daytime sleepiness (EDS) is characterized by increased sleepiness or drowsiness in the day in events and situations in which the individual should normally be awake and alert. Sleep deprivation is considered to be one of the causes of EDS. If excessive daytime sleepiness is caused by insomnia, it will simply mean that the EDS is a sort of compensatory sleep following insomnia.

This study was designed to investigate insomnia and EDS among the student population and to determine whether or not there is a linear association between them.

Materials and Methods
Setting of the Study

This study was carried out among the Undergraduate Students of Obafemi Awolowo University, Ile-Ife, Nigeria. The proposal for the study was approved by the Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC) Ile- Ife, Nigeria.

Subjects

Through a multi-stage, stratified random sampling method, a total of seven hundred and eighty (780) Undergraduate Students of Obafemi Awolowo University were recruited into the study. Those who were receiving treatment for any clinic condition were excluded from the study.

Instruments
Insomnia Severity Index (ISI)

The Insomnia Severity Index (ISI) measures the subject's perceived severity of insomnia symptoms (falling asleep, staying asleep, and waking early) and the degree of impact of the symptoms on daily functioning, quality of life, and the amount of worry the subject feels from sleep problems. The scale has a total of 7 items, each scored on a 0–4 scale with a score range of 0–28. The higher the score, the more severe the degree of insomnia There are four categories of severity: no clinically significant insomnia (0–7), subthreshold insomnia (8–14), clinical insomnia of moderate severity (15–21), and severe clinical insomnia (22–28) (5)

Epworth Sleepiness Scale (ESS)

The Epworth Sleepiness Scale (ESS) is a subjective sleepiness scale (6). The subjects are scored on their likelihood of falling asleep in eight different situations and has a range of score 0 – 24 with higher score equating with higher likelihood of sleepiness. In this study as in some previous ones (7 – 8), EDS was defined as ESS score ≥ 10.

Procedure

The subjects were required to provide information on their sociodemographic characteristics. Insomnia and excessive daytime sleepiness (EDS) were assessed respectively using the Insomnia Severity Index (ISI) and the Epworth Sleepiness Scale (ESS)

Statistical Analysis

The data were analyzed using SPSS version 20. Regression analysis was done using insomnia as the dependent variable and ESS Score as the independent variable.

Results

Out of the 780 subjects who were recruited into the study, 706 provided complete data, respectively 90.5% response rate. The data from them were used for analyses.

Of the 706 subjects, there were 398 males (56.4%) and 308 females (43.6%). The subjects were aged 16 – 33 years with a mean age of 23.2 years (Sd = 4.5; sem = 0.2)

The range of scores on the Insomnia Severity Index (ISI) was 2 – 21 with a mean score of 10.0 (sd =5.2; sem = 0.2). On the Epworth Sleepiness Scale (ESS) the range of scores was 3 – 17 with a mean score of 7.7 (sd = 2.2; sem = 0.1). Table 1 shows the age of the subjects and their scores on ISI and ESS

Table 1: Age and Scores on ISI and ESS

Variable	Range	Mean	SD	SEM
Age (years)	16 – 33	23.2	4.5	0.2
ISI Score	2 – 21	10.0	5.2	0.2
ESS Score	3 – 17	7.7	2.2	0.1

On Insomnia Severity Index, one hundred and five out of the seven hundred and six subjects (14.9%) scored 2- 7 and as such did not have clinically significant insomnia. Four hundred and sixty- three subjects (65.6%) scored 8-14 and so had subthreshold insomnia while 138 subjects (19.5%) scored 15- 21 qualifying for clinical insomnia of moderate severity. Some of those in this category (moderate severity) approached the investigator and were assisted to receive treatment. Incidentally a number of them were on self-medication - they were on a variety of sedative/hypnotic medications.

None of the participants had severe clinical insomnia. On the whole 601 out of the 706 participants (85.1%) had some degree of insomnia. However if we consider those with insomnia of moderate severity only, it is 19.5% of the subjects that we will consider to have insomnia. One hundred and fifteen out of the 706 subjects (16.3%) scored 10 and above on ESS and thus had excessive daytime sleepiness. These facts are presented in Figures 1 and 2 respectively.
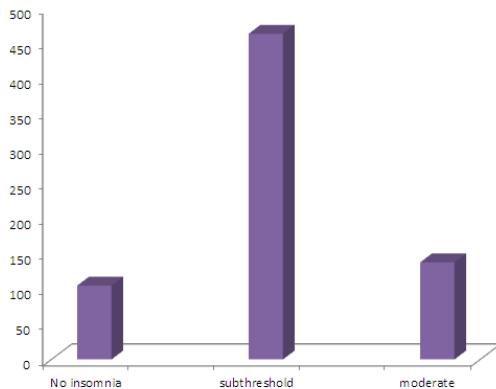

Figure 1: Distribution of insomnia

One hundred and five subjects (14.9%) did not have clinically significant insomnia. Four hundred and sixty- three subjects (65.6%) had subthreshold insomnia while 138 subjects (19.5%) had clinical insomnia of moderate severity
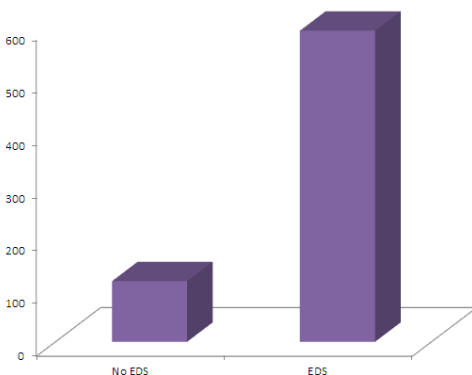

Figure 2: Distribution of Excessive daytime sleepiness

One hundred and fifteen out of the 706 subjects (16.3%) scored 10 and above on ESS and thus had excessive daytime sleepiness

On linear regression model, score on insomnia severity Index was the dependent variable while scores on Epworth Sleepiness Scale was the independent variable. There was no linear association between insomnia and excessive daytime sleepiness among the student population.

Discussion

Operational definition and methodological issues determine the prevalence rates often quoted for a number of conditions including insomnia. In this study if we had applied very rigid criteria such as the duration of symptoms and the frequency of occurrence per week, we would have arrived at a very low prevalence rate among the population. This is why it is difficult to compare rates obtained in different studies.

There is however no doubt that insomnia in its various forms and severities is a common condition. In this study none of the subjects had insomnia of the severe grade.

This study showed that 16.3% of the subjects had EDS. This figure is reasonably different from the EDS prevalence rate of 11.2% obtained in a similar study in the same university sometimes ago (8). It is however understood that the student population is dynamic. There are also other factors such as sample size and response rate which can affect the prevalence rete obtained.

Many of the risk factors of EDS are factors that cause disruption of night time sleep. It is interesting that no linear association was found between EDS and insomnia in this study. It is however not surprising because if an association exists between them, it does not necessarily have to be linear. There is also the other aspect that many of the subjects who had insomnia had the mild category.

An incidental finding of this study is that an unspecified number of the students are on self- prescribed sedative/hypnotic medications. This is a very serious problem and the use of sedative/hypnotic medications is a maladaptive way of dealing with insomnia.

This study has somehow constituted a follow-up to an earlier one in the area of EDS among the student population (8). Studies of this type should be encouraged in order to show the pattern and evolution of different conditions in populations. It will be beneficial to design studies dedicated to the investigation of the use of sleep-inducing drugs, not only in student populations but also in the general population.

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