PREVALENCE OF EXCESSIVE DAYTIME SLEEPINESS, SNORING AND PSYCHOLOGICAL DISTURBANCES AMONG ADOLESCENCE

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ABSTRACT

Introduction: Epidemiological and clinical research of sleep in adolescence has been limited but significant. Many studies suggested that sleep abnormalities could lead to depression and anxiety.

Objectives: The aim of this study is to determine the prevalence of daytime sleepiness and snoring among adolescence of college students at Mansoura University and to estimate the correlation between excessive daytime sleepiness and emotional disturbance in the context of presence or absence of snoring.

Methods: To assess excessive daytime sleepiness, we used Epworth Sleepiness Scale (ESS), for Psychological assessment we used the Middlesex Hospital Questionnaire (MHQ), to measure general emotionality e.g. free floating anxiety, phobic anxiety, obsessionality, somatic concomitant of anxiety, depression and hysteria. Both scales had been distributed to random sample of students in three colleges at Mansoura University i.e. college of Medicine, College of arts and college of Culture and education.

Results: 144 students (53 males and 91 female) out of 395 students (36.5%) reported excessive daytime sleepiness and 84 (21.3%) of them reported snoring. Excessive daytime sleepiness showed significant correlation with free floating anxiety, phobic anxiety, somatic concomitant of anxiety, depressive traits and low significant correlation with hysterical traits.

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among college students at Mansoura University, (2) correlate these abnormalities with the emotional experiences of those individuals as will as (3) clarify the comparison between snorers and non snorers in relation to their emotionality.

**SUBJECTS AND METHODS**

This study was conducted in the year 2005 on a sample of Mansoura University students from different colleges. They were selected by simple randomization. Epworth Sleepiness Scale (ESS) and Middlesex Hospital Questionnaire (MHQ) were applied to them after consent.

Subjects consisted of all students aged 18 to 25 years and of both sexes. Questionnaire Which included Arabic version of ESS and MHQ, were distributed to 500 students in three colleges at Mansoura University i.e. college of Medicine, College of arts and college of Culture and education. The scales were later collected between May and December 2005.

A self report question about snoring was added to Epworth Sleepiness Scale (ESS). ESS is a simple questionnaire measuring the general level of daytime sleepiness. It consists of 8 different situations and activities that are often part of everyday life. The total ESS score is a measure of the average sleep propensity and the probability of falling asleep in those conditions. The ESS score range from 0-24, with the upper limit of normal based on previous studies on healthy adults estimated to be 10^{12}.

Psychological study had been done by using the Arabic version of Middlesex Hospital Questionnaire to measure general emotionality e.g. free floating anxiety, phobic anxiety, obsessionality, somatic concomitant of anxiety, depression and hysteria. Each of these subset dimensions measured by 8 questions which are arranged through the test in such a fashion which is randomized for the tester, but systematic for the marker. For each question, give (2) for yes, (1) for sometimes and (0) for no. this can be applied for all questions except question number 5 and 34 where we can give (2) for no and (0) for yes. Scores above 12 will confirm neuroticism, scores between 8-12 will indicate suspicious neuroticism, while scores below 8 will indicate normality.

The total number of students who
ra University Students with daytime sleepiness. Female snorers who reported daytime sleepiness are more higher than male snorers (51.2% and 33.3%, respectively), and male snorers who did not report daytime sleepiness are more higher than female snorers (10.7% and 4.8%, respectively), with mild significant statistical difference (i.e. $X^2 = 4.7$, DF=1 and $P<0.05$). Non-snorer females snorers who reported daytime sleepiness are more higher than non-snorers males (15.4% and 8.0%, respectively), while, non-snorer males who did not report daytime sleepiness are less higher than non-snorer females (30.9% and 47.7%, respectively), with mild significant statistical difference (i.e. $X^2 = 0.2$, DF=1 and $P<0.05$).

Table (5) shows the prevalence of psychological manifestations among Mansoura University Students using Middlesex Hospital Questionnaire. A high percentage of students could be considered as neurotic on obsessionality subscale (27.8%) followed by depression and somatic concomitant of anxiety subscales (17.47% and 14.94, respectively). While, higher percentage of them reported suspect neurotic on depression scale (55.44%) followed by somatic concomitant of anxiety, Obsessionality, hysteria, free floating anxiety and Phobic anxiety (43.04%, 41.3%, 40.0%, 39.1% and 34.6%, respectively).

Table (6) represents the correlation between total score of Epworth Sleepiness Scale (ESS) and Middle-Sex Hospital Questionnaire Subscales. It is clear from the table that daytime sleepiness is highly correlated with free floating anxiety, phobic anxiety, somatic concomitant of anxiety and depression subscales ($r = 0.247$, 0.211, 0.150 and 0.307, respectively; $P < 0.001$), but it does not correlated with obsessionality and hysteria subscales ($r = 0.080$ and 0.073, respectively; $P > 0.05$).

Table (7) shows the Comparison between Snorer and Non-Snorer Students according to Middle-Sex Hospital Questionnaire Responses. There is no significant statistical difference between snorers and non-snorers as regard all Middle-Sex Hospital Questionnaire subscales i.e. free floating anxiety, phobic anxiety, obsessionality, somatic concomitant of anxiety, depression and hysteria subscales.

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Table 4. Gender Difference of Snoring among Mansoura University Students with daytime sleepiness.

<table>
<thead>
<tr>
<th>Epworth Scale cut off Scores</th>
<th>Snoring</th>
<th></th>
<th></th>
<th>Not-snores (311)**</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>&gt;10</td>
<td>28</td>
<td>43</td>
<td>33.3</td>
<td>51.2</td>
<td>25</td>
<td>48</td>
</tr>
<tr>
<td>&lt; 10</td>
<td>9</td>
<td>4</td>
<td>10.7</td>
<td>4.8</td>
<td>96</td>
<td>142</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>47</td>
<td>44.0</td>
<td>56.0</td>
<td>121</td>
<td>190</td>
</tr>
</tbody>
</table>

\[* \chi^2 = 4.7, \ DF = 1, \ P<0.05*
\[** \chi^2 = 0.2, \ DF = 1, \ P>0.05\]

Table 5. Prevalence of Psychological manifestations among Mansoura University Students using Middlesex Hospital Questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th></th>
<th></th>
<th>Patients</th>
<th></th>
<th></th>
<th>\chi^2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Free floating anxiety</td>
<td>228</td>
<td>57.9</td>
<td>155</td>
<td>39.1</td>
<td>12</td>
<td>3.0</td>
<td>70.1***</td>
</tr>
<tr>
<td>Phobic anxiety</td>
<td>245</td>
<td>62.0</td>
<td>137</td>
<td>34.6</td>
<td>13</td>
<td>3.4</td>
<td>77.4***</td>
</tr>
<tr>
<td>Obsessionality</td>
<td>122</td>
<td>30.9</td>
<td>163</td>
<td>41.3</td>
<td>110</td>
<td>27.8</td>
<td>2.4</td>
</tr>
<tr>
<td>Somatic concomitant of</td>
<td>166</td>
<td>42.02</td>
<td>170</td>
<td>43.04</td>
<td>59</td>
<td>14.94</td>
<td>22.9***</td>
</tr>
<tr>
<td>anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>107</td>
<td>27.09</td>
<td>219</td>
<td>55.44</td>
<td>69</td>
<td>17.47</td>
<td>35.1***</td>
</tr>
<tr>
<td>Hysteria</td>
<td>210</td>
<td>53.2</td>
<td>158</td>
<td>40.0</td>
<td>27</td>
<td>6.8</td>
<td>51.4***</td>
</tr>
</tbody>
</table>

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DISCUSSION

In this study, the Prevalence of excessive daytime sleepiness among a studied sample of Mansoura University Students was recorded in 36.5% of them. Inadequate sleep, in this percentage of students, may be due to many factors e.g. chronobiological changes of puberty, sleep disorders, co-morbid conditions, lifestyle choices and part-time work hours. As well, there are multiple factors that maximize adolescents phase-delayed bedtime behaviors, including Internet, TV, socializing with peers, and work. These should be taken into account when assessing the situation. Breslau N et al\textsuperscript{14} identified factors associated with daytime sleepiness among young adults in the general population e.g. being single and employed full time, as well as pathologic conditions such as snoring and major depression are positively associated with excessive daytime sleepiness. In addition, early school start times restrict total sleep time. Wahlstrom\textsuperscript{15} identified 50,000 students in Minnesota when their high school start times were changed from 7:15 to 8:40 A.M. in 1997-1998. Three years later, Wahlstrom\textsuperscript{15} found that average sleep times increased by one hour. Daily attendance improved, dropout rates decreased. Students reported improved behavior and less depression. There was a slight, but not statistically significant, improvement in grades. Young T, et al\textsuperscript{16} and Olsen, LG et al\textsuperscript{17} found that daytime somnolence was reported in a large proportion of subjects without apparent SDB, suggesting that factors other than SDB may be responsible for this symptom. These factors may include sleep deprivation due to demanding study or work schedules, together with irregular sleeping patterns common in this age group\textsuperscript{18}. Subjective complaints of sleepiness may not be as reliable as those reported by spouses or bed partners and do not correlate with objective measurements of sleepiness by multiple sleep latency test\textsuperscript{19}.

It is clearly evident from table (4) that female college students showed snoring and daytime sleepiness more than males. This may be due to the number of females responded to questionnaires in our study is more higher than that of males (60% and 40%, respectively). These results are
most obvious consequence of insomnia, has posed especially thorny problems. First, even when subjective perceptions of sleepiness during the day are evaluated, analyses comparing good and poor sleepers have yielded mixed results. While some studies e.g., Fichten CS, et al\textsuperscript{25}, have found that people with insomnia report greater subjective sleepiness, other studies e.g., Martikainen K, et al\textsuperscript{26}, have failed to find significant differences between poor and normal sleepers. In addition, good and poor sleepers have generally not been found to differ on the most widely accepted objective measure of daytime sleepiness\textsuperscript{27}.

As previously mentioned daytime sleepiness was reported in a large proportion of students (36.5\%) more than those reported with snoring (21.3\%), suggesting that factors other than SDB may be responsible for these results. This agree with both Young T, et al\textsuperscript{16}, and Olsen, LG et al\textsuperscript{17}, who found that daytime somnolence more than appearing SDB by polysomnography. These factors may include sleep deprivation due to demanding study together with irregular sleeping patterns common in this age group. Also, may be due to anxiety, i.e. free floating anxiety, phobic anxiety, somatic concomitant of anxiety, and depression subscales that found to be highly correlated with total Score of Epworth Sleepiness Scale (ESS).

The relationship between snoring and psychological disturbances had not been proved in this research as seen in table (7). There is no significant statistical difference between snorers and non-snorers as regard all Middle-Sex Hospital Questionnaire subscales i.e. free floating anxiety, phobic anxiety, obsessionality, somatic concomitant of anxiety, depression and hysteria subscales. However, snoring in the absence of SDB has been shown to be associated with daytime sleepiness and impaired performance ability\textsuperscript{28}. This was thought to be related to arousals and sleep fragmentation as a result of partial upper airways obstruction during sleep without the presence of frank apneas or hypopneas\textsuperscript{29}. Sleep fragmentation has been shown to lead to sleepiness, impaired cognition, and altered mood\textsuperscript{30}. Thus, snor-


10. Williamson DE, Birmaher B, Anderson BP, Al-Shabbout M and Ryan ND

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27. Stepanski E, Zorick F, Sicklestee J, Young D and Roth T (1986): Daytime alert-
مدى إنتشار زيادة النوم النهاري والشخير والاضطرابات النفسية بين المراهقين

إن الدراسات الاستقصائية والسريرية للنوم في المراهقين ذات دلالة إحصائية على الرغم من
ندرتها. وقد أظهرت كثير من الدراسات أن اضطرابات النوم تزيد من احتمالية نشوء الاكتئاب
والقلق.

والهدف من هذه الدراسة هو تقييم مدى إنتشار زيادة النوم النهاري والشخير بين المراهقين من
طلبة الكليات بجامعة المنصورة ومعايرة العلاقة بين درجة النوم النهاري والاضطرابات الانتقامية
لهم في سياق وجود أو غياب الشخير.

ولا يتم هذه الدراسة استخدمنا كلا من مقياس إيبورث للنوم لتقييم زيادة النوم النهاري
ومقياس مستشفى ميدل سكس لقياس درجة الانفعال العام مثل القلق العام والخوف
والوسواس والجيمسة والاكتئاب والهستيريا. وقد تم توزيع كلا من المقياسين على عينة عشوائية من
طلبة ثلاث كليات بجامعة المنصورة وهم كلية الطب وكلية الآداب وكلية التربية.

وقد أظهرت النتائج أن 144 (32% من الذكور و 9% من الإناث) من 439 طالب بنسبة 33% سجوا
أنهم يعانون من زيادة النوم النهاري 84 و 84 بنسبة 32% منهم يعانون من الشخير. وقد أظهرت
الدراسة أيضًا وجود علاقة ذات دلالة إحصائية بين زيادة النوم النهاري وكل من أمراض القلق العام
والخوف والجيمسة والاكتئاب ولكنها بدرجة منخفضة مع سمات الهستيريا.

يبدو من ذلك أن مدى إنتشار زيادة النوم النهاري والشخير في طلبة الكليات المصرية مرتفع
ويبين أن درجة حدوث الاضطرابات السلوكي والانتقامية في المراهقين الذين يعانون من
اضطرابات النوم عالية.

وبهذا فمن الواضح أن هناك حاجة للقيام بدراسات إنتشارية بدرجة أكبر لتقييم المقاييس على
مستوى قومي عام.