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Sleeping Hours and Academic Achievements: A Study among Biomedical Science Students

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Abstract

This study was carried out to determine the sleeping hours and their effect on the academic achievements among year 2 and year 3 Biomedical Science students of Faculty of Allied Health Sciences, Universiti Kebangsaan Malaysia for the session 2009/2010. A total of 104 subjects were involved in the study in which close-ended questionnaires were used. The result showed that there was no association ($p>0.05$) between sleeping hours and academic achievement (CGPA). There was also no association between stress level and CGPA ($p > 0.05$) and between study skill and CGPA ($p>0.05$). Using the Mann-Whitney test, there was no significant median difference seen in CGPA according to year of study ($p>0.05$). However, there was a significant ($p<0.05$) median difference in CGPA according to gender. The male CGPA was found to be higher than females. In conclusion, this report showed that sleeping hours did not affect students' academic achievements CGPA. However, CGPA differs among gender with male of 3.52 and female of 3.27.

1. Introduction

Sleep is one of our basic needs. It is important for our physical, intellectual and emotional health (Neinstein et al. 2008). According to Curcio et al. (2006), sleep is an active, repetitive and reversible behaviour serving several different functions, such as repair and growth, learning or memory consolidation, and restorative processes. All these occur throughout the brain and the body. Therefore, sleep deprivation would result in impairment of words, psychological and neurocognitive (Curcio et al. 2006). The integrity of learning and memory processes are

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fundamental in school achievement and academic performance, particularly in individuals like children and adolescents who are in a particular developmental phase. There are several parameters to be used as a measurement for school achievement, such as grade point average (GPA), self-reported average grades, teacher comments or behaviour ratings, parent reports, and school behavior.

Previous study by Trocker et al. (2000) to evaluate health related variables on academic performance found that sleep had the largest effect on semester GPA compared to the other health related variables such as exercise, nutrition intake, mental health, stress and time management. There was a significant relationship (p<0.001) between sleep habits and higher GPA. Long sleepers (sleep 9 or more hours a day) were found to achieve higher GPA's than short sleepers (sleep 6 or fewer hours a day) (Kelly et al. 2001). The lower GPA's of the short sleepers may have been the result of a decreased ability to focus on education-related activities. There may be other psychological variables that might help explain the results.

This study was carried out to determine the correlation between sleeping hours and the students' academic achievements, and to establish a standard or ideal sleeping time among the students to help improve their studies. The parameters involved in the study include measuring of the sleeping hours, stress level, study skills and cumulative grade point average (CGPA) among the second and third year Biomedical Science students of the Faculty of Allied Health Sciences (FSKB) session 2009/2010; comparing the CGPA between gender and year of study; and the association of sleeping hours, stress level and study skills with CGPA of the subject.

2. Methodology

The survey was conducted at the Kuala Lumpur Campus of Universiti Kebangsaan Malaysia (UKM). There were a total of 177 students of second and third year Biomedical Science students of FSKB, UKM 2009/2010 session. The inclusion criteria included students who were in between 19-24 years old, with comfortable sleeping environment and leading a healthy lifestyle. The exclusion criteria were Year 1 and Year 4 Biomedical Science students, students with sleeping disorders such as insomnia, on medication or those who had taken beverage containing caffeine at night. Year I was excluded because they were in the process of adapting themselves with the universitys' environment whereas Year 4 were involved with the final year thesis. A screening test was carried out to eliminate those with exclusion criteria from the study. The sample size comprised 104 students from Year 2 and Year 3 of Biomedical Science session 2009/2010 in UKM. Stratified random sampling was carried out. Two strata were formed (i.e. second year and third year students) and in each stratum, 52 samples were drawn randomly.

Close-ended questionnaire was used as an instrument for this study. The questionnaire consisted of three parts, i.e. general, stress scale and study skill. Close-ended question was designed for the general part, while Likert scale that was designed by the University of Minesota Morris (2007) was used in the assessment of stress level and study skill. In the general part, the data on student's sleeping hours and academic achievements were collected. Students' academic performance refers to the Cumulative Grade Point Average (CGPA). The sleeping hours included (1) short sleepers, individuals who sleep 6 or fewer hours, (2) average sleepers, individuals who sleep 7 to 8 hours, and (3) long sleepers, individuals who sleep 9 or more hours out of every 24 (Webb & Agnew 1970 ; Webb 1982).

The results were analysed by using SPSS version 16.0. Descriptive Statistic was used to measure the sleeping hours, stress level, study skills and CGPA among subjects. Mann-Whitney test was used to compare the CGPA with gender and year of study, whereas test of independence was used to find out the association of independent variables with CGPA.

3. Results

3.1. Descriptive Analysis on Sleeping Hours, Stress Level and Study Skill

Among the subjects, 22.1 % (n=23) were male and the rest of 77.9 % (n=81) were female. The results showed that 35.6 % (n=37) were short sleepers (sleep 6 hours or less), 62.5 % (n=65) were average sleepers (sleep 7 – 8 hours) and 1.9 % (n=2) were long sleepers (sleep 9 hours or more) among the subjects. The percentage of stress level among the subjects showed that 19.2 % (n=20) of them were not stressful, 75 % (n=78) of subjects' had a good balance in the ability to handle and control stress, 5.8 % (n=6) of subjects' stress level were at the borderline and none of the subjects were extremely or seriously stress. As for the assessment of the study skills, 96.2 % (n=100) of