

RELATIONSHIP BETWEEN SLEEP DURATION AND BODY MASS INDEX (BMI)
AMONG ADOLESCENTS IN KUALA SELANGOR

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ABSTRACT

Introduction: Obesity among adolescents has increased over the last decades and changes in lifestyle including sleep deprivation are known to be associated with it. The aims of this study were to determine the association between sleep duration and body mass index (BMI), to study the correlation between sleep duration and dietary pattern, and to determine the association between sleep duration and physical activity among adolescents aged 13 to 17 years old at 6 secondary schools in Kuala Selangor.

Methodology: Body weight and height were measured to determine the body mass index (BMI). Sleep duration and nutrient intake were assessed by using self-report questionnaire where 7-days sleep time and 3 day recall for food intake was collected. Meanwhile, physical activity level was measured using self-administered questionnaire developed by National Health and Morbidity Survey (2011).

Results: From total sample of 345 adolescents involved, 47% of subjects were males while 53% were females with mean age of 14.6 ± 1.17 years old. Based on BMI classification, 48.1% of total sample were of normal BMI, followed by thinness (19.7%), overweight (16.2%), obese (9.9%) and severe thinness (6.1%). Based on National Sleep Foundation Criteria, most of the subjects recorded insufficient sleep duration ($n=275$, 79.7%), 11.3% ($n=39$) conform to the recommended duration while 9% ($n=31$) were classified as long sleep duration. Result obtained shows that no significant relationship between sleep duration and BMI. The mean values for energy intake for all subjects were 1625 ± 557 kcal/day while for males and females were 1668 ± 558 and 1587 ± 556 kcal, respectively. Some 53.3% ($n=183$) of the subjects were found to be active, 37.4% ($n=12$) were moderately active, while 5.2% ($n=18$) were inactive. There was no significant association between sleep duration and physical activity level obtained.

Conclusion: Based on study done, there is no significant association between sleep and BMI, nutrient intake and physical activity among adolescents in Kuala Selangor. However, more attention is needed to improve the sleep quality among adolescents to ensure the quality of life can be maintained.

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

Adolescence is defined as the period of life between 11 to 21 years of age. Adolescence is a transitional stage between adulthood and childhood where changes on biological, emotional, social and cognitive occurs. Rapid growth and maturation are dominant during adolescence. Sleep is found to be an important factor during growth period among adolescent as it contributes to physical and mental health. Adolescents need sufficient sleep to ensure better cognitive function such as learning, memorizing, and understanding (Leger et al, 2012). In an article entitled “How Much Sleep Do We Really Need” by National Sleep Foundation (2013), the adolescents need to get sleep between 8.5 to 9.25 hours per day.

Sleep duration could be a factor in determining Body Mass Index (BMI). As stated by Buxton & Marcelli (2010), sleep duration either short or long can lead to obesity, diabetes and cardiovascular disease. The ignorance of achieving optimum sleep may increase the risk morbidity and mortality in long term. This is supported by Stone, Stevens, & Faulkner, (2013) which stated that reduced sleep duration shows a corresponding effect in the increment of obesity. Obesity has reached to an alarming state whereby World Health Organization (WHO) (2013) has stated that in 2008, 35% of adults aged 20 and above were overweight while 11% were obese.