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**OBESITY IN CHILDREN AND ADOLESCENTS:  
JOURNAL ARTICLE REVIEWS  
AND PERSONAL RESPONSE**

**LECTURER: DR. TAJUL ARIFFIN BIN MUHAMAD**

**LISA KWAN SU LI  
A123040  
TESL/3**

## **1.1 INTRODUCTION**

This paper will review three journal articles taken from several peer-reviewed scholarly journals. The first is *Obesity as a Prospective Predictor of Depression in Adolescent Females* by Kerri N. Boutelle, Peter Hannan, Jayne A. Fulkerson, Scott J. Crow and Eric Stice; the second *The Relationship between Sleep Duration and Obesity in Turkish Children and Adolescents* by A. Ozturk, M.M. Mazicioglu, S. Poyrazoglu, B. Cicek, O. Gunay and S. Kortoglu; and the third one being *Complications of Obesity in Children and Adolescents* by S.R. Daniels.

These three articles have been chosen because they concern the issue of obesity and adolescents. For each article that has been chosen to be reviewed in this paper, the author will also present her personal response to the article and attempt to relate it to the Malaysian context.

## **2.1 JOURNAL ARTICLE REVIEWS AND PERSONAL RESPONSE**

This section contains the reviews of the three articles mentioned above as well as a personal response for each.

### **2.1.1 Obesity as a Prospective Predictor of Depression in Adolescent Females**

Past studies have investigated the relationship between obesity and depression with depression as a risk factor for obesity later in life. However, very little research has been done on the opposing relationship – is obesity a predictor for depression?

This research focuses on adolescent females, the reason being females being more likely to develop depression as compared to males. The main purpose of the research is to evaluate overweight and obesity as increasing the risk for future development of depression in females during adolescent years.

496 adolescent girls were chosen as respondents from 8 schools in Austin, Texas. They had to complete a structured interview and a questionnaire, and had their

weight and height measured at baseline as well as at 3 subsequent annual check-ups. Height and weight measurements were then converted to Body Mass Index (BMI) as an indication of overweight or obesity.

The results showed that while both overweight and obesity could not be associated with a major depression diagnosis, obesity did however, have significant effects on the depressive symptom scale. This suggests that weight status may not contribute to a diagnosable level of depression, but may contribute to the *pathway* through heightened depressive symptoms.

#### **2.1.1.1 Personal Response**

Although obesity and overweight was not found to be a risk factor for future major depression, obesity does have a significant effect on the depressive symptom scale. Such an implication should not be taken lightly.

This suggests that even though obesity is not associated with a full-blown depression diagnosis, the increase in depressive symptoms might ultimately result in serious depression. Depressive symptoms are equally as damaging especially during high-risk years such as adolescence.

Adolescent females as well, seem to face more risks during these years. They face higher pressure to maintain their appearance as well as other gender-stereotype issues that adolescent males do not. Such pressure from peers and society causes chronic and psychological strain on these adolescent females.

Interestingly, these pressures that adolescent females face seem to transcend geographical and cultural barriers. Even female adolescents in Malaysia face similar issues. However, we cannot allow this to continue and escalate to more devastating proportions. If obesity causes an increase in depressive symptoms, then something should be done to curb obesity from a young age.

One way of doing this is through education. Obesity in children should be eradicated as it compromises the quality of health of the future generation. Children should be taught from a tender age on the importance of healthy living and a healthy diet. Parents as well should be reminded of this. Often times, the parents themselves do not guide their children in making the right decisions regarding their nutrition and food consumption. Therefore, education for both these parties is most important.

### **2.1.2 The Relationship between Sleep Duration and Obesity in Turkish Children and Adolescents**

The aim of this study is to investigate the relationship between sleep duration and obesity in a sample of Turkish children and adolescents. As a measure of the prevalence of obesity, several indices were used – the Body Mass Index (BMI), Waist Circumference (WC), Mid-Upper Arm Circumference (MUAC), Arm Fat Area (AFA) and Triceps Skinfold Thickness (TSF). The data for the sleep duration of each respondent was collected through parents' self-report of their child in terms of hours.

A total of 5358 respondents, with 2737 females and 2621 males, of ages 6-17 years were involved in this study. Height, weight, WC, MUAC and TSF were measured twice and the BMI calculated and recorded. The categories for sleep duration were  $\leq 8$  h, 8-9 h, 9-10 h and  $\geq 10$  h. All data analyses were done using the Statistical Package for the Social Sciences (SPSS) version 13.0.

The results of the analysis showed that BMI decreased through the sleep duration categories. BMI was significantly higher in girls sleeping  $\leq 8$  h as compared to those who slept  $\geq 10$  h. Similarly, WC and BMI were both significantly higher in boys sleeping  $\leq 8$  h than  $\geq 10$  h. For both females and males, BMI, WC and AFA decreased with the increase in sleep duration, with children sleeping  $\geq 10$  h having the lowest rate of overweight or obesity.

The researchers concluded that short sleep duration, especially  $\leq 8$  h, may be a risk factor for obesity and overweight. Sleep duration certainly could be an indicator

for overweight and obesity. They recommend that  $\geq 10$  h of sleep is required to prevent obesity, especially for children and adolescents.

### **2.1.2.1 Personal Response**

The relationship between sleep duration and obesity is not well-known. Typically, obesity and overweight is associated with unhealthy lifestyles or eating habits. However, this research proves that the sleep duration of a person may affect one's weight.

There are two findings from this study that are important to note. As aforementioned, the BMI of respondents was significantly lower in those sleeping  $\geq 10$  h, while being significantly higher in those sleeping  $\leq 8$  h. This means that the longer one sleeps, the lower one's BMI, or weight. Conversely, the less one sleeps, the higher one's BMI.

There are two inferences that can be drawn from these two findings. The first is that with sufficient sleep of  $\geq 10$  h, obesity or overweight can be decreased. The second is that the consequence of insufficient sleep, meaning  $\leq 8$  h of sleep, can cause obesity and overweight to worsen in children and adolescents. Ideally, children and adolescents should get at least 10 hours of sleep.

More often than not, adolescents, even in Malaysia, take their sleep for granted. They are preoccupied with other activities that demand their attention and time like computer games, surfing the net and loitering. Because of these activities, their sleep duration is compromised. Consequently, adolescents end up spending possibly only 3 to 4 hours of sleep daily. Therefore, it should be of no surprise that, combined with unhealthy lifestyles and eating habits, our children and adolescents today are significantly affected by the obesity phenomenon.

This study has shown the importance of sufficient sleep especially for children and adolescents. Hence, children and adolescents should be made aware of the

consequences of insufficient sleep and recognize that one's sleep duration should not be taken lightly.

### **2.1.3 Complications of Obesity in Children and Adolescents**

It is undeniable that there is a wide variety of conditions and complications that can be experienced as a consequence of obesity. Some complications which were earlier known to occur only in adults have now surfaced even in children and adolescents. Several areas which are affected by obesity are discussed in this paper namely *mortality, cardiovascular, metabolic, gastrointestinal, pulmonary, orthopedic and psychosocial*.

Obesity increases the risk for mortality. In the article, it is cited that researchers even predict that the life span for the current generation of children will be shortened due to obesity and its related comorbidities<sup>1</sup>. There is also a strong relationship between obesity and hypertension in both adults and children. The increase in blood pressure paralleled the increase in the prevalence of obesity.

Obesity during childhood is associated with decreased insulin sensitivity which may develop into Type 2 diabetes mellitus. This insulin resistance is also thought to be responsible for the development of non alcoholic fatty liver disease (NAFLD). Besides that, obstructive sleep apnea (snoring, irregular breathing etc.) was also found to be associated with prevalence in overweight and obesity.

In addition, the excess weight causes excess stress on the musculoskeletal system. Here, there is also mention of increased symptoms of depression, with obese children with obstructive sleep apnea having the lowest quality of life among children and adolescents with obesity.

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<sup>1</sup> Olshansky SJ, Passaro DJ, Hershov RC, Layden J, Carnes BA, Brody J et al. 2005. A potential decline in life expectancy in the United States in the 21st century. *N Engl J Med* 352: p. 1138–1145.

### **2.1.3.1 Personal Response**

This article is a compilation of the current knowledge of the consequences of obesity and overweight on children and adolescents. It is disconcerting to think that many of these complications described in this article, which were formerly thought to occur only in adulthood, occur in children and adolescents.

Horrifyingly, such complications which now occur in children and adolescents would severely jeopardize the quality of life as well as the life span of the future generation. It would then be a logical observation to predict that in a decade or so, the average life span of a person would slowly, but surely, decrease.

Important to note is the fact that obesity in itself is not an independent risk factor for mortality but rather its related comorbidities and complications are. Hence, by curbing obesity, especially in children and adolescents, all these related complications and conditions may be prevented as well.

## **3.1 CONCLUSION**

The prevalence of childhood obesity has increased worldwide over the last few decades. The reason obesity has raised such concern is because not only is it associated with numerous negative health outcomes as well as psychological effects, it also affects our young generation of children and adolescents.

From these three articles, it has been shown that obesity affects various organ systems of the body thus influencing mortality, and also causes an increase in depressive symptoms. Unsuspectingly, sufficient sleep is the key to the prevention of obesity and overweight.

Steps should be taken, in terms of awareness through education, in order to preserve the quality of life of our future generation and provide a life that is free of health complications and comorbidities as a consequence of obesity.

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