# EFFECT OF OBESITY AND OVERWEIGHT ON ACADEMIC PERFORMANCE AMONG SCHOOL GOING ADOLESCENTS

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# INTRODUCTION

Overweight and obesity can be defined as having abnormal or excessive fat accumulation. This is a very serious issue among school going adolescents (Nieto-García, Bush&Keyl,1990). The prevalence of obesity has increased at an alarming rate and it steadily affects many low-and middle-income countries (WHO, 2000). Rapid social cultural changes are the prime causes for changes in lifestyle and diet among adolescents (Wickramasinghe, 2005). There are numerous causes such as the regular consumption of fast food, pre-prepared food, artificial beverages and the sedentary lifestyle of adolescents that leads to the prevalence of obesity and overweight in recent years (Bray, 2000).

A significant increase in obesity has been noted in the Northern Province after the conclusion of civil war. Spending more time on watching television, playing computer games and attending extra classes after school hours have contributed to reduction in physical activity. Particularly overweight and obesity are becoming a serious problem in the urban areas of the Jaffna peninsula (Hettiarachchi,2018). Overweight and obese adolescents face more physical and mental health complications than those who are not (Knopf, 2017). Elevated blood pressure and cholesterol, joint problems, type II diabetes, gall bladder disease and asthma are serious health issues which negatively impact their quality of life (Heo, Pietrobelli, Wang, Heymsfield, & Faith, 2010).

Moreover, research had shown that overweight or obese children display lower self-esteem and low self-confidence (Davis, Wojcik, & DeWaele, 2016). Especially females demonstrated significantly lower levels of self-esteem due to their appearance which led to sadness, loneliness, and high-risk behaviours. Being constantly bullied and teased about their appearance, being threatened about their future also made them socially uncomfortable. Many studies indicate that childhood obesity may also affect cognition and academic achievement as well as memory dysfunction (Reel,Voelker & Greenleaf,2015). The purpose of the study was to determine the effects of obesity and overweight on academic performance of grade 10 girls in the Jaffna Municipal Council Area.

# RESEARCH QUESTIONS

There are five research questions this study attempts to answer. They are:

1. What percentage of grade 10 girls in Jaffna Municipal Council schools are obese and overweight?

2. What is the relationship between academic achievement and obesity and overweight among adolescent girls?

3. What challenges do adolescent girls face in their academic life?

4. What is their perception of their body weight?

5. What solutions can be proposed to overcome the problems obese students face and improve their academic performance?

# OBJECTIVES OF THE STUDY

* To determine the prevalence of overweight and obesity among grade10 girls in the Jaffna Municipal Council area
* To find a relationship between obesity, overweight and their academic performance.
* To assess find out their academic challenges
* To find out their attitudes about obesity and overweight.
* To propose solutions for the challenges and hardships they face.

# METHODOLOGY OF THE STUDY

This mixed method study used across sectional survey. The participants of the study included adolescent girls from four urban girls’ schools that were in the Jaffna municipal area. The sample for this study included 761grade 10 students.

The independent variables were overweight and obesity. The School Medical Inspection health records were used to collect the data of weight and height. The dependent variables were the academic performances, the challenges in their academic life and the perception of being obese and overweight.

The BMI was calculated, and students were categorized as obese, overweight, normal and underweight and respective percentages were calculated. The first term marks of six core subjects obtained by the overweight and obese students and randomly selected same number of normal weight students were collected in order to establish the relationship of academic performance. Sets of marks were analyzed in Minitab18 statistical software using Mann Whitney U test and two sample t tests. Challenges faced by overweight and obese participants and their perceptions and attitudes towards obesity were assessed using a structured questionnaire.

# RESULTS AND DISCUSSION

# Provide an intro to this section

1. **Prevalence of obesity and overweight among grade 10 girls in the Jaffna Municipal area**

In the Jaffna Municipal area, 78% of adolescent girls had a healthy BMI. 5% of the girls were underweight and 17% of the girls were in the obesity and overweight range.

# The relationship between obesity, overweight and academic performance

There is a significant difference between the marks of obese and overweight students and healthy students in Science, Tamil language, English language, and History (p value<0.05). The healthy participants performed well in the above subjects compared to the obese and overweight. At the same time, p value of the performances of Mathematics and Religion is higher than the alpha value (0.05). It implies that there is no any significant difference between the performance of healthy and overweight, obese students. The overall performance of the healthy students is comparatively higher than the obese and overweight students.

**Table.1**Comparison of school performance indices between obese students and healthy students

|  |  |  |  |
| --- | --- | --- | --- |
| **Subjects** | **Median of the marks** | | **p value** |
| Healthy adolescent girls | Obese, Overweight, adolescent girls |
| Science | 69.00 | 69.00 | 0.01 |
| Mathematics | 79.50 | 65.00 | 0.10 |
| Tamil language | 79.00 | 76.00 | 0.03 |
| English language | 69.00 | 61.00 | 0.00 |
| Religion | 85.00 | 83.00 | 0.07 |
| History | 73.000 | 64.500 | 0.00 |

**Table 2**. Comparison of average performance indices between obese students and healthy students

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category of students | Number of students | Mean of average | Standard deviation | p-value |
| Healthy students | 124 | 65.8 | 18.5 | 0.030 |
| Obese and overweight students | 124 | 70.7 | 16.9 |

# Academic challenges of overweight and obese adolescent girls

Thirty-three percent of the participants who were identified as obese were conscious of their weight. They checked their weight by checking the weight frequently. They were able to know their accurate body weight. But12%of girls were unaware of their body weight. The rest of 40%knew an approximate value of their body weight.

Eighty percent of them knew that the increasing body weight is harmful and can lead to many diseases. Twenty percent of girls did not know the consequences of being obese and overweight.

Fifty eight percent of them agreed that they have experienced with many hurtful body shaming comments made by their friends, relations, neighbors and even parents. 10% of them confessed that they got bullied by their schoolmates.

Forty percent of them reported as being tired often, 10%ofthe girls had high blood pressure and asthma, respectively.14% of girls had knee and joint pain due to their excess body weight. Sleepiness, headache, thyroxin problems and hormones problem are the other health conditions that were reported as having a negative impact of their throughout their academic life

Among the overweight and obese girls, 60%of them reported that daytime drowsiness affects their learning; 55%had shortage of memory; 10%of them had frequent fatigue which had a direct impact of learning.

# Perceptions and attitudes of overweight and obese students

Nearly half the participants were dissatisfied with their body image. Most of them were also not satisfied with their academic success. Most of the overweight and obese students believe their bodyweight is harmless and it will not affect their learning.

Eighty percent of the adolescent obese girls report of having the self-confidence to face their own challenges. Their ability to make friends, leadership and social skills are satisfied in the group of participants. Three forth of them have had got the chance to be leaders, presidents, secretaries and members in various unions and clubs.

From the open-ended questionnaire analysis, majority of the overweight and obese girls had several ways to keep their bodyweight under their control. They found some solutions for themselves which can be suitable for them to reduce their body weight. Half the girls stated that they are on a controlled diet and one third of them reported that they walked and jogged to reduce their weight.

# CONCLUSIONS AND RECOMMENDATIONS

This study provides evidence that a significant number of adolescent girls in the Jaffna peninsula suffers from overweight and obesity and it affects their academic performance and their physical, mental and personality development.

Therefore, further large-scale surveillance programs and preventive strategies should be implemented in the Jaffna peninsula to mitigate the problem of increasing body weight among adolescents.

Strict guidelines for school canteens and street food vendors, improved physical exercises for the obese students, intense care, guidance and support of medical officers, teachers and family is essential to overcome this problem.

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