

## **SYNOPSIS OF THE THESIS ENTITLED**

# **LIFESTYLE DISEASES IN KERALA : AN ANALYSIS OF SOCIO-ECONOMIC STATUS, CONSUMPTION PATTERN AND ADOLESCENT OBESITY IN KOTTAYAM DISTRICT**

## **INTRODUCTION**

Kerala enjoys a unique position in the health map of India. The health indicators in Kerala are at par with the Western World. However, the widely acclaimed 'Kerala model of health' has started showing a number of disturbing trends recently. Although the mortality is low, the morbidity is high in Kerala compared to other Indian states. Hence the Kerala situation was described as "low mortality high morbidity syndrome" (Panikar and Soman, 1984). It is interesting to note that both infectious diseases like dengue fever, diarrhoea etc and the so called lifestyle diseases are both prevalent in Kerala. Moreover the incidences of many lifestyle diseases are more than the national average.

## **LIFESTYLE DISEASES**

Diseases such as heart diseases, high blood pressure, cancer and diabetes are called modern lifestyle diseases. It is estimated that there are about 1.5 million diabetic subjects in Kerala. These people need

lifetime management involving lifestyle modifications, drugs and proper diet. Recent surveys in different categories of subjects in Kerala reveal that one out of three adults in Kerala is hypertensive. Hyper tension leads to heart attacks, stroke and kidney failure and it is a life long disease and needs careful and sensible management throughout life. Non-communicable diseases especially cardiovascular diseases, cancer, type 2 diabetics mellitus account for 53% and 43% of all deaths and disability. Similarly, overweight and obesity leads to heart attack, hypertension, breast cancer, diabetes and joint problems (*Economic Review*, 2011, p. 382).

Childhood and adolescent obesity is not limited to developed countries. It is seen in developing nations too (Popkin, 1998). In India urbanization and modernization has been associated with obesity (Yadav and Krishnan, 2008).

The prevalence of overweight and obesity is found to be 18.3% of Kerala children in a sample taken from Thiruvananthapuram (Ramesh K, 2010). Many studies have been conducted at international, national and state levels regarding obesity and its several aspects. However, the impact of socio-economic condition and consumption pattern on adolescent obesity has not formed the subject matter of any investigation so far. Therefore, this study aims to bring out the impact of changing

consumption habit and socio-economic condition on adolescent obesity in Kottayam District.

### **RESEARCH PROBLEM**

Health is a function not only of medical care but is the result of socio-economic, educational, consumption and behavioral factors. Therefore, to raise the health status and quality of life, a focused approach integrating all these socio-economic aspects needs to emerge to bring about the overall transformation of the attitude of society towards obesity and lifestyle diseases.

Therefore, the present study is an attempt to estimate the overall prevalence of overweight and obesity among adolescents of Kottayam District in central Kerala and to examine the economic, social and consumption factors contributing to this health crisis.

### **RELEVANCE OF THE STUDY**

Impact of socio-economic background and consumption pattern on adolescent obesity is an unexplored area. A lot needs to be done not only in the form of effective policies and legislation but also by targeting specific and need-based strategies. Adolescents have to be viewed and focused upon with utmost importance because firstly, it is their human right to achieve the highest attainable level of health. Secondly, a nation gets economic benefits because better prepared and

healthy adolescents will result in more productivity. Thirdly, there would be health benefits as the burden of morbidity and mortality in later life would be minimal.

Many studies conducted in the USA and other advanced countries regarding adolescent obesity reveal the far reaching consequences on their health. Kerala, which is at par with the developed countries in human development indices, must conduct serious studies on obesity and associated factors leading to lifestyle diseases.

Such a study of socio economic factors, consumption pattern and adolescent obesity will be an eye opener to parents, teachers, adolescents and policy makers towards prevention of lifestyle diseases in Kerala to enable the state in its march towards sustainable health indices.

### **OBJECTIVES OF THE STUDY**

The objectives of the study are:

1. To understand the different types of lifestyles diseases prevalent in Kerala
2. To study the various factors contributing to lifestyle diseases and obesity.
3. To examine the lifestyle of adolescents in the study area.

4. To trace the correlation between socio-economic background, consumption pattern, leisure time activities and adolescent obesity in Kottayam district.
5. To suggest various measures to prevent overweight and obesity among adolescents.

## **METHODOLOGY**

Methodology consists of area covered, period of study and method of measuring obesity, sources of data, sample design, data management and analysis.

### **a) Area covered and period of study**

The study is conducted among the higher secondary students of Kottayam District of Kerala. Kottayam is one of the 14 districts of Kerala. It was formed on 1<sup>st</sup> July 1949. Kottayam is known as *land of letters, legends, latex and lakes*. Kottayam town became India's 1<sup>st</sup> fully literate town on 25<sup>th</sup> June 1989. The average literary rate in the district is 96.40% and 15.35% of population live in urban area. The district has 5 taluks namely Kottayam, Changanacherry, Kanjirappilly, Meenachil and Vaikom.

The study covers government, aided and unaided plus two schools in Kottayam district. Out of the total 61 higher secondary schools in the government sector, 37 are government plus two schools,

21 vocational higher secondary schools (VHSE), 1 technical higher secondary school (THS), 1 Kendhriya Vidyalaya and 1 Navodaya Vidyalaya. Out of the 70 aided higher secondary schools, there are 60 aided plus two schools and 10 VHSE schools. There are totally 74 unaided higher secondary schools in the district- 28 unaided plus two (State) schools, 48 Central Board of Secondary Education (CBSE) schools and 4 Indian School Certificate (ISC) schools. The study was conducted during the academic year 2010-2011.

#### **b) Method of Measurement**

Trained investigators weighed all the adolescents without shoes and heavy clothes, heavy belts and with empty pockets. The weighing machine was regularly checked up with known standard weight. A portable anthropometric rod was used for measuring height. The International Obesity Task Force references were used for measuring overweight and obesity.

#### **c) Sources of data**

The study has used both primary and secondary data. Primary data for the study has been collected from +2 students and their parents in Kottayam district by using pre-tested questionnaire. Books, research journals, reports, newspapers and websites are the sources of secondary data.

#### **d) Sample Design**

A multi- stage proportionate random sampling technique has been adopted for this study. The sample size is 400.

In the first stage of sampling, respondents are selected from five taluks of the district in proportion to their population in each taluk. Out of 54494 plus two students of Kottayam district, Kottayam taluk has 16893 students, Changanacherry taluk has 10463 students, Kanjirappally taluk has 5722 students, Meenachil taluk has 12424 students and Vaikom taluk has 8992 students constituting 31%, 19.2%, 10.5%, 22.8% and 16.5% of the total respectively. 400 students in the sample are also selected in the same proportion. Accordingly, 124 students are taken from Kottayam taluk (31%), 77 from Changanassery taluk (19.2%), 42 from Kanjirappally taluk (10.5%), 91 from Meenachil taluk (22.8%) and 66 from Vaikom taluk (16.5%)

In the second stage, plus two schools in each of these taluks are sub-divided into three types schools- Government, Aided and Unaided. Samples are selected proportionally from these types of schools.

In the third stage, one school each from these types of schools from each taluk is selected randomly. Therefore, there are total 15 schools. In fourth stage, one class from each school is selected randomly and sample students are taken randomly from these classes.

## **DATA MANAGEMENT AND ANALYSIS**

Simple statistical tools like ratios, averages, percentages etc. have been used for the analysis of data. T-test, F-test,  $X^2$  test and Z-test are also employed. Statistical Package for Social Sciences (SPSS) is employed for analysis.

## **LIMITATIONS**

The present study is exploratory in nature and has scope for life-long research. But time and money constraints have restricted the scope of the study. Some important limitations of the study are given below.

The coverage of study is limited to +2 level students and only Kottayam district is brought under study. Only regular students are brought under study. Though there are many methods of measuring obesity, BMI (Body Mass Index) is used for measuring obesity and overweight. The study analyses the impact of socio economic status, consumption pattern, leisure time activities and health awareness of adolescent on obesity and overweight. It has not taken into consideration more independent variables.

## **SCHEME OF STUDY**

The entire study is divided into six chapters. The introductory chapter includes relevance of the topic, objectives, methodology, sampling frame, area covered, limitations and schematic arrangement of



the study. Second chapter reviews the available literature on the subject which brings out the research gap and importance of the present study. Third chapter presents the socio-economic profile and consumption pattern of Kerala. An overview of lifestyle diseases and obesity in Kerala is provided in the fourth chapter. Fifth chapter deals with the analysis of data. Sixth chapter discusses the findings and recommendations of the study.

## **MAJOR FINDINGS**

Major findings of the study are related to BMI structure of the respondents, socio-economic factors and obesity, food consumption habits and BMI, leisure time activities and BMI.

### **a. BMI Structure of the Respondents**

The prevalence of obesity is 5 per cent and overweight is 13.2 per cent among the respondents. Thus 18.2 per cent of the respondents are above normal weight.

### **b. Socio-economic factors and obesity**

- Obesity and overweight are found slightly high among boys (19.6%) than among girls (16.5%). However no significant association is found between gender and overweight ( $P > 0.05$ ).

- The prevalence of overweight and obesity is higher among students residing in urban areas (20.4%) than in rural areas (16.3%).
- Among the five taluks, the prevalence is significantly higher ( $P<0.05$ ) among students in Kottayam taluk.
- A significantly higher proportion of students from unaided school are obese compared to students from aided and government schools.
- The BMI values of students from nuclear families are higher than that of students from joint families.
- Obesity is found to be more (5.25%) among students from smaller families (two children or less) than among students from larger families having 3 children or above (3.9%). Size of the family is showing a decreasing trend.
- Obesity is found high among the children of educated parents. It is significantly higher among the children of educated mothers ( $P<0.05$ ).
- The problem of obesity is significantly higher ( $P<0.05$ ) among students whose mothers are fully employed, where as it is significantly lower among the students whose mothers are part-time employed or unemployed.

- The prevalence of obesity is significantly higher ( $P < 0.05$ ) among students whose parents are either outside Kerala or abroad.
- Similarly the study reveals that obesity and overweight are significant ( $P < 0.05$ ) among students from families having monthly income above Rs. 25,000.

**c. Food consumption habits and BMI**

- The study finds out that 67.5 per cent of the respondents have snacking habits between meals. It is also observed that overweight and obesity are high among the students having snacking habits.
- There is a tendency of junk food consumption among students. The research identifies that 56.75 per cent consume junk food regularly. The proportion of overweight and obese students are significantly greater ( $P < 0.05$ ) among the consumers of junk food.
- 60 per cent of the students consume soft drinks regularly and the proportion of overweight is significantly higher ( $P < 0.05$ ) among the consumers of soft drink than among non consumers.
- Another important finding is related to the consumption of confectionary. 96.25 per cent of the respondents consume any

one of the confectionary items regularly. The prevalence of overweight is found high among the consumers of these items.

**d. Leisure time activities and BMI**

- Another important finding of the study is that physical exercise habits have decreased among adolescents. The percentage of adolescents doing regular exercise is only 33.3. Overweight is significantly high among the adolescents who do not have the habits of regular exercise.
- Majority of the adolescents (59.9%) do not play outdoor games regularly. The prevalence of overweight and obesity is significantly lower among the adolescents who participate in outdoor games ( $P < 0.05$ ) than among the non-participants.
- The study reveals another important fact that 77.8 per cent of students at plus two levels do not get regular drill periods. Overweight is found high among the students who do not get drill periods at school.
- The percentage of students who are walking regularly to schools is only 21.5 per cent and only 5.8 per cent use bicycle as a means of transportation to school. The prevalence of overweight and obesity are significantly lower ( $p < 0.05$ ) among students who

either walk to school or use bicycle than among students who use either bus or car.

- Adolescents who watch television or use computer for more than two hours a day have significantly higher ( $P < 0.05$ ) overweight compared to those who use them for less than two hours daily.

## **CONCLUSION**

The study reveals the significant factors leading to adolescent obesity and overweight. The major conclusion from this study is that urbanization, high socio economic profile, low levels of physical activity, sedentary lifestyle, consumption of junk food are contributing to high incidence of overweight among adolescents in the study area. Therefore, high calorie consumption and sedentary lifestyle are to be seriously considered by parents, teachers, governments, health personal and students to prevent obesity which is an indicator of lifestyle diseases and high morbidity. The study also offers preventive measures to check the incidence of obesity among adolescents.