Chapter VII

FINDINGS, SUGGESTIONS AND CONCLUSION

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Socio-economic background, dietary habits and leisure time activities of adolescents cause obesity, overweight and related health problems which lead to lifestyle diseases. The purpose of this study is to trace the correlation between these factors and overweight and obesity among adolescent students in Kottayam district. A multistage proportionate random sampling technique has been adopted for this study. 400 higher secondary (plus two) students from Kottayam district forms the sample. A pre-tested questionnaire is used for collection of primary data. Furthermore, the weight and height of the respondents are measured and their Body Mass Index (BMI) is calculated. The specific 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 backgrounds, consumption pattern, leisure time activities, health awareness and adolescent obesity in Kottayam district.

5. To suggest various measures to prevent overweight and obesity among adolescents.

In this study the changes in explanatory variables such as size of family, location, education and employment status of parents, income level, consumption of snacks and fast food, physical exercise, television viewing and use of computer are identified and their role in affecting BMI levels of adolescents leading to overweight and obesity is analysed. The study also highlights the role of health awareness given by parents, teachers and various governmental organizations in bringing down obesity among adolescents in the study area.

7.1 Findings

Analysis of primary and secondary data has resulted in the following major findings.

7.1.1 Findings Regarding Types and Causes of Lifestyle Diseases in Kerala

- The important diet and lifestyle related diseases prevalent in Kerala are obesity, type 2 diabetes, metabolic syndrome, cancer, hypertension, cardio vascular diseases, stroke, cholesterol, chronic respiratory diseases and osteoarthritis.

- Various factors leading to adolescent obesity are the modern lifestyle, unhealthy consumption pattern, reduced energy
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expenditure, improper marketing strategies, genetics or heredity, medical factors and social factors.

- The overall 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.

7.1.2 Findings Regarding Socio-Economic Factors and Obesity

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

- Christian students are found to be more obese and overweight (22.58%). It is 14.5 per cent and 16.6 per cent among Hindu and Muslim students respectively.

- The BMI values of students from nuclear families are higher than that of students from joint families.

- Obesity is found to be more among students from families with one or two children (5.25%) than among students from larger families with three or more children (3.9%).

- Obesity is found high among the children of educated parents.

- The problem of obesity is significantly higher among students whose fathers or mothers are fully employed, whereas it is significantly lower among students whose mothers are employed part time or unemployed.
The prevalence of obesity is significantly higher among students whose parents are employed either outside Kerala or abroad.

Obesity and overweight are significantly prevalent among the students from high income families (monthly income above Rs.25,000).

The respondents residing in urban areas have more overweight and obesity (20.4%) than those in rural areas (16.3%).

Among the five taluks - Kottayam, Changanasserry, Kanjirappally, Meenachil and Vaikom - the prevalence is significantly higher (P<0.05) among students from Kottayam taluk.

A significantly higher proportion of students from unaided schools is obese compared to students from aided and government schools.

7.1.3 Findings Regarding Food Consumption Habits and BMI

The respondents with the habit of eating too much snacks has overweight and obesity. The study finds out that 67.5 per cent of the respondents eat snacks between meals.

There is a tendency of junk food consumption among the respondents. The study shows that 56.75 per cent of them consume junk food regularly and overweight and obesity are significantly greater (P<0.05) among them.

Overweight is significantly higher (P<0.05) among the students who are regular consumers of soft drinks than among non-consumers of soft drinks.
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- Obesity is found high among students who consume confectionaries regularly (18.44%).
- The percentage of obesity and overweight is relatively high among respondents who consume meat frequently (20.07%).

7.1.4 Findings Regarding Leisure Time Activities and BMI

- Another important finding of the study is that exercise obtained from outdoor games or walking is very low among the adolescents. The percentage of adolescents doing regular exercise is only 33.3. Overweight is significantly high among the adolescents who do not have the habit of regular exercise through physical activities.
- Overweight and obesity is at a lower level among the adolescents who participate in outdoor games (P<0.05) than among the non-participants.
- 77.8 per cent of students at plus two levels do not get regular drill periods at their schools. Overweight is found high among them.
- The percentage of students who are walking regularly to school is only 21.5 per cent. Only 5.8 per cent of the respondents use cycle as a means of transportation to school. The prevalence of overweight and obesity is significantly lower (p<0.05) among the students who either walk to school or use bicycle than among the students who use conveyance such as buses or cars.
- Adolescents who watch television or use computer for more than 2 hours daily is having significantly higher (P<0.05) overweight and obesity compared to those who watch it for lesser hours.
7.1.5 Findings Regarding Awareness of Obesity

- 66.8 per cent of the adolescents do not get any awareness regarding obesity, healthy eating habits, exercise, lifestyle diseases etc. by their parents and 74.25 per cent are not made conscious by teachers.

- Overweight and obesity is found high among the students who are ignored or not well-informed either by their parents or teachers in health aspects.

- 76 per cent of the adolescents reported that they are not informed about good eating habits and fitness instructions by governmental bodies. The prevalence of overweight is higher (20.06%) among them compared to those getting health information (12.5%).

7.2 Suggestions

The study makes the following suggestions to parents, educational institutions, government/non-governmental agencies and adolescents to prevent the onset of obesity which leads to lifestyle diseases.

7.2.1 Suggestions to Parents

a) It is suggested that parents have to control affluent eating culture and celebrations with energy dense and packed food items with harmful preservatives at any cost. Parents should ensure that their children are getting a balanced diet which has adequate calories, protein, fats, carbohydrates, minerals and vitamins.

b) Employed parents should find more time to spend with their children and also try to provide home-made food regularly to their
children. Time spent for television watching and computer viewing must be reduced to a minimum.

c) Parents working away from home should make sure that their children get enough recreational facilities and are consuming balanced diet regularly. They should also make sure that the pocket money they give is spent for proper use and not for fast food, internet chatting etc. which again adds to obesity.

d) Parents should also encourage their children to participate in various household activities. Use of motor vehicles for short distance journey must be discouraged.

7.2.2 Suggestions to Educational Institutions

a) The study recommends that all the educational institutions should follow methods of measuring BMI from school levels and report the results to parents and students.

b) School authorities should see that academic excellence should not be at the cost of outdoor games, sports and drill periods.

c) Nutrition and health education must be included in the curriculum. Health promotion programme at schools must be encouraged by providing information to teachers and staff.

d) Unaided schools should not encourage the use vending machines for calorie rich junk food like soft drinks, snacks, candy etc.
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7.2.3 Suggestions to Government/Non-Governmental Agencies

a) Government can impose higher taxes on all fast foods, soft drinks, snacks and other packaged low nutritional value foods. The tax revenue can be used for giving subsidy for home based cultivation of vegetable and fruits.

b) Children cannot evaluate the advertisement or information critically and weigh future consequences. Therefore, government should ban unethical marketing strategies. Through various Medias like television, newspaper etc. government can provide information regarding maladies of junk food and advantage of physical activities to prevent the onset of lifestyle diseases among the prime age group. It is also suggested that various governmental and non-governmental organizations can conduct programmes like seminars, debates and poster presentations etc. that give health awareness to the younger generation.

c) Government should designate a school health coordinator and maintain an active school health council. Frequent evaluation of the health policies and programme are also required.

d) The study found that 77.8 per cent of plus-two levels students do not get drill periods at school. Therefore, Education departments should ensure that students are getting allotted drill periods regularly.

e) There is an urgent need to educate the society in the aspects of healthy food habits and desired lifestyle to prevent obesity and its associated ill effects.
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f) Town planning must be scientific by providing adequate playground, park etc. Since roads and neighbours’ courtyards are unsafe today, government can provide playgrounds in every village where every child can play outdoor games without any fear.

g) The study found that obesity and overweight is increasing in rural areas too (16.3%). Therefore, health departments must educate rural people regarding the adverse effects of junk food, confectionaries, bakery and other processed food items.

7.2.4 Suggestions to Adolescents

a) Adolescents must take care of their eating habits. They must devote time to cooking healthy food, playing outdoor games, washing their own clothes and engage in various household activities.

b) By attending fitness classes and health club programmes, they can cultivate a habit of maintaining normal BMI at all ages.

c) Peer group influence should be used to prevent obesity and not to fall prey to advertisement tactics.

7.3 Areas of Future Research

- The present study has been limited to the impact of socio-economic status and consumption pattern on obesity among adolescents only. This could be extended to children of different ages, middle aged and elderly people.

- The area of study can be extended to the whole of Kerala or different states in India. International comparisons will throw more light into various aspects of obesity leading to lifestyle diseases.
• The impact of socio-economic status and consumption pattern on all lifestyle diseases can be studied about.

• An interdisciplinary approach towards studies on obesity will be contributory. There is a need to study the genetic and hormonal aspects of obesity. Further studies can be conducted on the physical and emotional stress of obese adolescents.

• There is need for more formulation of theories to analyse biased information on calorie to identify high risk children and to study association between externality and obesity.

### 7.4 Conclusion

This study highlights the fact that urbanization, high socio-economic profile, low levels of physical activity, sedentary lifestyle and consumption of junk food are associated with and cause high prevalence of overweight and obesity among adolescents.

The onset of obesity can be prevented or postponed by establishing more active lifestyle and healthier eating habits. Lifestyle modification involves modifying and bringing changes in our day-to day activities of life like physical activities, attitude, belief and behaviour. Children can be influenced to limit television viewing to a minimum. The food habits of adolescents must be modified to select a balanced diet by cutting down junk food and fried items. Changing from a high calorie diet to a low calorie diet brings manifold advantages like getting antioxidants and vitamins. It makes digestion easier by increasing natural fibre consumption. The study also highlights the need to create supportive population based
environment through public policies that promote the availability and accessibility of a variety of low fat and high fibre food. We should also provide effective clinical programmes to help obese people to lose weight or avoid further weight gain.

Schools can work together with parents and policy makers to create an environment where children eat healthy food, become physically fit and develop lifelong habits that contribute to wellness so that the nation could be well on its way to prevent obesity and lifestyle diseases. It is pity to allow our children to fall prey to this serious disorder when there are easy and inexpensive ways to prevent it. Obesity among adolescents and absence of physical activity and high calorie consumption and sedentary lifestyle are to be reconsidered by parents, teachers and health personnel to prevent obesity which is an indication for lifestyle diseases.