

Life Style Disease to Diabetic Patients in Cuddalore Town

P. Abdul Jaleel

Ph.D. Research scholar, Department of Sociology, Annamalai University

Dr. S. Allah Baksh

*Associate Professor, Department of Sociology, Annamalai University,
Annamalai Nagar*

Abstract

Diabetes mellitus is a heterogeneous group of diseases characterized by chronic elevation of glucose in the blood. It arises because the body is unable to produce enough insulin for its own needs, either because of impaired insulin secretion, impaired insulin action, or both. Diabetes affects some 300 million people worldwide, and is on the increase. Chronic exposure to high blood glucose is a leading cause of renal failure, visual loss and a range of other types of tissue damage. Diabetes also predisposes to arterial disease, not least because it is often accompanied by hypertension, lipid disorders and obesity. Many cases of diabetes and almost all of its unwanted long-term consequences potentially avoidable, but this will require intervention at societal as well as at a medical level. The present study aims to find out the life style disease to diabetic patients in Cuddalore town. A sample of 130 respondents selected randomly were studied. Primary data were collected by using a structured interview scheduled. All the respondents were asked some questions in the same fashion and they were informed the purpose of study. Percentage analysis, Cross tabulation and Chi-square test analysis were applied to test the hypotheses. The findings and observations are the result and outcome of the interpretations made during the study of analysis.

Key words: *Life Style Diseases, Food habits and Demographic variables*



1. Introduction

Talcott parsons (1975) has defined illness as a state of disturbance in the normal functioning of the total human individual including both the state of the organisms as a biological system and of his personal and social adjustments. According to World Health Organization Consultation (2008) Diabetes is a chronic disease, which occurs when pancreas does not produce enough insulin (type 1 diabetes), or when the body cannot effectively use the

insulin it produces (type2diabetes). This leads to raised blood glucose (sugar) level and over time, serious damage to many of the body systems, especially the nerves and blood vessels. During the last twenty years the prevalence of diabetes has increased dramatically in many parts of the world and the disease and now a worldwide public health problem. The high blood sugar produces the classical symptoms of polyuria (Frequent and urination) polydipsia (thirst) and polyphagia (increased hunger). Diabetes mellitus is chronic disease which causes serious health complications including renal kidney failure; heart disease, and glaucoma is also associated with diabetes mellitus.

Deshpande (2008) Despite the efforts to control the growing number of diabetes patients, yet, the number of adults with diabetes worldwide is predicted to almost double over the next 25 years, from approximately 171 million in 2000 to 366 million by 2030 (Dhaturvedi 2007, 5). Diabetes mellitus is now getting close to what could be reoffered to as epidemic proportions. In the United States, diabetes prevalence and incidence is on the increase in the past 2 decades. According to data from the NHIS for the period from 1980 to 2005, the age-adjusted prevalence of diabetes that were diagnosed was little bit stable at about 3.0% and from 1980 to 1990, it started to rise . In 1990, the age –adjusted prevalence rate was 2.9%.It moved up to 4.5% in 2000 and to 5.3% in 2005. Therefore, the overall prevalence of diagnosed diabetes rises with age and the rate of increase over the period has been noted to be the largest among the people over 65 years of age.

Lefebvre & Silink (2006) has observed that human and economic costs of diabetes and its complications are abnormally high. In every 10 seconds, diabetes causes one death and one amputation every 30 seconds. It is also associated with adult- onset blindness. Nonetheless, diabetes can be kept under control through small investments, and can be wholly prevented through interventions that are simple and cost- effective. Current International Diabetes Federation data suggest that by 2025, 380 million people are expected to have diabetes, while most of them will experience lifestyle- related type 2 diseases.

Another concern is the increase in prevalence of obesity among children and adolescents. For example, collected date for the National Health and Nutritional Examination Survey shows that 17% of children and adolescents aged 2-19 years in the USA were overweight in 2003 -2004, and that the prevalence of obesity had increased since 1999-2000 from 13.8 to 16.0% in girls and from 14.0 to 18.2% in boys (Chaturvedi 2007).

Diabetes mellitus is a metabolic disease which, when not properly treated or untreated is characterized by chronic hyperglycaemia and disordered carbohydrate, lipid and protein metabolism and is associated with the development of specific micro vascular complications and of non-specific macro vascular disease (Aalto 1999, 2) From the insulin angle of reasoning, diabetes mellitus is described as a group of chronic metabolic conditions, all of which are characterized by elevated blood glucose levels which is resulted from the inability of the body to produce insulin or resistance to insulin action, or both (Deshpande 2008).

Park (2003) has stated that it has been described as a killer disease in so many situations. Diabetes is now ranked among one of the most common non –communicable disease in the world. It falls within 4th-5th leading cause of death in most developed countries and there are facts and figures that it is epidemic in many developing and newly industrialized countries. Diabetes is a progressive condition initially characterized by insulin resistance, where muscle and adipose tissue become relatively insensitive to the effects of insulin. As the condition progresses, declining beta cell activity results in relative insulin deficiency and blood glucose levels rise above normal levels. (Hill 2009, 50.) Meanwhile, the global burden of diabetes was 110 million in mid-90 and it is projected to increase to 221 million by the year 2010.

Satlay (2008) for 2,000 years diabetes has been recognized as a devastating and deadly disease. In the first century A. D. a Greek physician, Aretaeus, described the destructive nature

of the affliction, which he named “diabetes “from the Greek word for “siphon” ([www, diabetes health, com](http://www.diabeteshealth.com)). Physicians in ancient times, like Aretaeus, recognized the symptoms of diabetes but were powerless to treat it effectively.

In the 17th century a London physician, Dr Thomas Willis, determined whether his patients had diabetes or not by sampling their urine. If it had a sweet taste he would diagnose them with diabetes mellitus, “honeyed” diabetes. This method of monitoring blood sugars went largely unchanged until the 20th century.

Before the discovery of the insulin little could be done for patients suffering from diabetes. Low calorie diets prolonged their lives but left them weak and near starvation. But in 1921, doctors in Canada treated patients dying of diabetes with insulin and managed to drop high blood sugars to normal levels. Since then, medical breakthrough has continued to prolong and ease the life of people with diabetes.

In the 50’s it was discovered that there were two types of diabetes; “insulin sensitive “(type 1) and “insulin insensitive” (type2).

Two thousand years have passed since Aretaeus spoke of diabetes as “the mysterious sickness”. It has been a long and arduous process of discovery, as generations of physicians and scientists have added their collective knowledge to finding a cure. It was from this wealth of knowledge that the discovery of insulin emerged in a small laboratory in Canada. Since then, medical innovations have continued to make life easier for people with diabetes.

In the 21st century, diabetes researchers continue to pave the road toward a cure. Today, it unclears what shape the road will take, perhaps another dramatic discovery like insulin waits around the corner, or possibly researcher will have to be content with the slow grind of progress.

Glasgow (1999) Diabetes affects over 24 million people in the United States today. It is a unique disease because people diagnose with it must be responsible for the majority of their own care. There area lot of areas to cover. Insulin , medication, blood glucose monitoring , diet, and exercise are all important parts of diabetes management that must be incorporated into their lifestyle .There is not just one way of coping with the disease because it needs to be managed on a lot of different levels. Good diabetes management requires many different treatments and strategies in order to be effective.

People experience a variety of feelings when they are first diagnosed with diabetes. Denial to accept that something is wrong, guilt of having caused the diabetes themselves or even anger is some of the most common reactions to the bad news.

Diabetes is a common disease, yet every individual need unique care (www.Diabetes.Org/ living-with-diabetes/ treatment-and-care). The health care team is the point to start from. However, patients should always keep in mind that they themselves are the most important member of the health care team, which in turn depends on them to talk to them honestly and tell them how they feel or if they have noticed any problem.

In general, treatment of diabetes aims to do what the body of a diabetic patient would normally do – maintain a proper balance of insulin and glucose. Living well with diabetes means keeping the level of glucose in the blood as close to normal as possible.

The three elements for controlling type 1diabetes are food, exercise and insulin. In many people with type 2 diabetes, diet and exercise alone can control blood glucose levels. A health care team will be able to suggest a specific lifestyle or exercise plan depending on age, lifestyle and overall health.

As per Goodpaster, (2010) the first widely accepted classification was published by the World Health Organization WHO in 1980 (Second Report, 1980). Two major classes of diabetes mellitus were proposed: Insulin dependent diabetes mellitus (IDDM) Type 1 and non-insulin dependent diabetes mellitus (NIDDM) Type 2. Other types as well as gestational

diabetes were also included. The modified form of 1985 (Diabetes Mellitus: Report of a World Health Organization WHO Study Group, 1985) was widely accepted and is used internationally. It was recommended that the terms “insulin- depended diabetes mellitus”, and “non-insulin dependent diabetes mellitus” should no longer be used, because patients were classified according to treatment rather than pathogenesis. The terms type 1 and type 2 were introduced to describe the cases which are primarily due to pancreatic islet beta – cell destruction the former and the common major form of diabetes resulting from defects in insulin secretion the latter.

2. Review of Literature

The first widely accepted classification was published by the WHO in 1980 (Second Report, 1980). Two major classes of diabetes mellitus were proposed: IDDM (Type1) and NIDDM (Type 2). Other types as well as gestational diabetes were also included. The modification from of 1985 (Diabetes Mellitus Report of a WHO Study Group, 1985) was widely accepted and is used internationally. It was recommended that the terms “insulin – dependent diabetes mellitus” and “non-insulin dependent diabetes mellitus” should no longer be used, because patients were classified according to treatment rather than pathogenesis. The terms Type 1 and Type 2 were introduced to describe the cases which are primarily due to pancreatic islet beta –cell destruction the former and the common major form of diabetes resulting from defect in insulin secretion in the latter (Goodpaster, 2010).

It has recently been suggested that there is a link between Alzheimer’s disease and Type 2 diabetes mellitus (Pasinetti, 2011). Dr. Suzanne de la Monte from RIH is the one responsible for making this fascinating connection, having found in her research that diabetes is closely associated with several key neuronal factors implicated in dementia. It turns out that Alzheimer’s progresses as a result of the brain developing resistance to insulin, which in turn prevents proper lipid (fat) metabolism. Over time, these lipids build up in the brain rather than properly absorb, which results in increased stress and inflammation, as well as symptoms commonly associated with dementia (Monte et al, 2011).

Medical nutrition therapy is an essential component of diabetes management; unfortunately, patient’s adherence to nutrition principles is one of the most challenging aspects of diabetes care. A goal of medical nutrition therapy is to achieve and maintain blood glucose concentrations as close to normal as possible by balancing food intake with anti-diabetic drug therapy and physical activity levels. More than 30% of total daily caloric intake should come from fats; 10% to 20% from protein and the balance of daily calories from carbohydrates. Exercises improve insulin sensitivity and glycaemia control, especially in patients with mild diabetes or a high degree of resistance (American Diabetes Association (ADA) 2012).

Smoking is the inhalation of the smoke of burning tobacco encased in cigarettes, pipes, and cigars. Casual smoking is the act of smoking only occasionally, usually in a social situation or to relieve stress. A smoking habit is a physical addiction to tobacco products. Many health experts now regard habitual smoking as a psychological addiction and one with serious health consequence. No one starts smoking to become addicted to nicotine. It is not known how much nicotine may be consumed before the body becomes addicted. Once smoking becomes a habit, the smoker faces a lifetime of health risks associated with one of the strongest addictions known to man. It is thought that some genetic variations affect the speed of nicotine metabolism in the body and the activity level of nicotinic receptors in the brain. Tobacco smoke contains over 4,000 chemicals and more than 200 of these chemicals are known be toxic and capable of causing cancer in people (US Department of Health 2013).

Obesity is associated with many lifestyle diseases that are hugely increasing the burden on society including type 2 diabetes, cardiovascular disease, hypertension, some cancers, osteoporosis, hip and knee problems (Visscher and Seidell 2001). Manson and Spielberg (1994) estimated that obesity contributes up to 75 % to the risk of type 2 diabetes. The reason why obesity contributes too many diseases may be because of the extra strain the fat puts on the body's metabolism. It may be also partly due to the fat that obese/ overweight individuals tend to have a high fat, high sugar, hyper caloric diet and a sedentary lifestyle (Gunnel Feb 2015, 19).

Central obesity – the association of obesity with type 2 Diabetes is well known. Even with an acceptable body weight range, weight gain could increase the risk of diabetes. An excess of body fat specially concentrated within the abdomen has an increased risk of diabetes. The cut- off limit for waist circumference for Indians have been recommended to be 90 cm for males and 80 cm for females. Abdominal obesity is defined by waist circumference above these limits (Gunnel Bistro 2016).

3. Objectives of the Study

To understand the awareness about the importance of physical exercise and Whether they do physical exercise

- To find out the problems of people living with diabetes disease
- To formulated suitable measured, prevent or maintain patient with diabetes.

4. Universe

The respondents for the present study are diabetic patient belong to Cuddalore Town. It was decided to select the respondents through the clinical labourites to where they approach for blood test, in the first step four reasonable popular labourites were identified from four directions via east, west, north and south. From each Labourites 35 respondents were selected purposive sampling by waiting in the Labourites from morning to evening. The number of respondents selected according the number of diabetic patient visiting the labourites per day. Totally 140 respondents were selected, and among them 10 responses were omitted due to improper responses. Thus finally 130 respondents were selected for the study.

5. Research Design

The research design used in this study descriptive in nature and attempts to examine the overall health conditions of people with food habits and life style disease with reference to diabetic patients in Cuddalore Town, to identify the major diabetic diseases prevailing in the study area and explore the difference in health care practices among various categories of people. It also tries to explain the relationship between socio-economic condition and health status of the people in the study area.

6. Tools and Data Collection

The interview schedule method was mainly used for the purpose of data collection. The schedule consists of question regarding the personal data, family particulars, food habit and lifestyle of the respondents. The respondents were given ample freedom to express their opinion frankly. The questions were simple so that it will be easily understood by the informants and the responses were quicker.

7. Source of Data

Both primary and secondary source of information have been made used in this study. The primary data were collected through a careful structured interview schedule. The secondary

data were collected through written materials about the topic available in books, internet source, journals, newspaper, articles and reports.

8. Data Analyses

Statistical techniques were used for the analysis of data by using the SPSS Package (Statistical Packages for Social Sciences). Statistical techniques like Cross tabulation, Percentage analysis and Chi-square have been used to test the relationship between several categorical variables. The data was planned to be analysed on the basis of the objectives of the study, the quantitative analysis was planned.

9. Analysis and Discussions

Table 1
Distribution of the Respondents by Type of Exercise

Type of exercise	Before Affected		After Affected	
	Yes	No	Yes	No
Yoga	23 (17.7%)	107 (82.3%)	49 (37.7%)	81 (62.3%)
Walking	67 (51.5%)	63 (48.5%)	128 (98.5%)	2 (1.5%)
Cycling	41 (31.5%)	89 (68.5%)	32 (24.6%)	98 (75.4%)

The above table shows the type of exercise, how often the respondents doing exercise before and after affected by the diabetes. Regarding the type of exercise just above half (51.5%) of the respondents going for walking before affected by the disease and it is risen to 98.5 per cent after affected. Merely one third (31.5%) of them cycling before affected by diabetes and it has follow 24.6 per cent after affected. Merely one fifth (17.7%) of them did yoga before affected and it have risen to 37.7 per cent after affected. With respect to how often they are doing exercise (51.5. %) of them did exercise before affected and it has increased (98.5%) after affected.

Table 2
Distribution of the Respondents by Food Items they Take Before and After Affected by Diabetes

	Before Affected		After Affected	
	Yes	No	Yes	No
Raggi	59 (45.38%)	71 (54.62%)	118 (90.77%)	12 (9.23%)
Wheat	119 (91.54%)	11 (8.46%)	130 (100.0%)	0
Rice	130 (100.0%)	0	130 (100.0%)	0
Direct Sugar	130 (100.0%)	0	106 (81.54%)	24 (18.46%)
Vegetables grow below the ground	130 (100.0%)	0	130 (100.0%)	0

Regarding the food item the respondents take before and after affected by the diabetes the above table shows that 45.38 per cent of the respondents take ragi before affected by the diabetes and 90.77 per cent of them take ragi after affected by the diabetes, majority (91.54%) of them take wheat before affected and all are taking wheat after affected, all the respondents are taking rice both before and after affected by diabetes, all are taking direct sugar items before affected and 81.54 per cent taking direct sugar items after affected; all are taking vegetables grow below the ground level before and after affected and all are taking non vegetarian before and after affected by diabetes.

It could be concluded take after affected by the diabetes the number of respondents taking ragi increased from 45.38 per cent to 90.77 per cent, all are taking rice and vegetables grow under the ground level even before and affected by diabetes and to all are taking direct sugar before affected by the diabetes and it is decreased to 81.54 per cent after they affected.

Table 3
Distribution of the Respondents by Diet Control They Follow

	Yes	No	Total
Reducing intake of fatty foods	110 (84.6%)	20 (15.4%)	130
Eating mainly vegetables	126 (96.9%)	4 (3.1%)	130
Fruits	120 (92.3%)	10 (7.7%)	130
Cereal	125 (96.2%)	5 (3.8%)	130
Rice	130 (100.0%)	0	130
Eating small amount of refined sugar (jam, sweets etc.)	41 (31.5%)	89 (68.5%)	130
Eating at regular intervals	95 (73.1%)	35 (26.9%)	130

The above table shows of the respondents' dietary pattern. All the respondents taking rice, followed by majority 96.9 per cent of them add r mainly vegetables in their food and most 96.2 per cent of them taking cereal, large number 92.3 per cent are taking fruits, majority have reduced intake of fatty foods, large number of them eating at regular intervals, 31.5 per cent taking small amount of food items refined by direct sugar.

It could be concluded that all the respondents take rice in their daily food and they also taking vegetables, fruits and rice. However, they have reduced intake of fatty foods and following the habit of eating at intervals.

Table 4
Distribution of the Respondents by Doing Exercise Regularly

Exercise regularly	Before Affected		After Affected	
	Yes	No	Yes	No
Daily exercise	56 (43.1%)	74 (56.9%)	114 (87.7%)	16 (12.3%)

Twice a day	45 (34.6%)	85 (65.4%)	79 (60.8%)	51 (39.2%)
Twice a week	34 (26.1%)	96 (73.9%)	84 (64.6%)	46 (35.4%)

The table shows that majority 87.7 per cent of the respondents doing exercise daily after affected by the diabetes, and below half 43.1 per cent of them doing exercise before affected by diabetes, most 60.8 per cent of them do exercise twice a day after affected diabetes, and more than one third 34.6 per cent do twice a day before affected diabetes 64.6 percent of them do twice a week after affected diabetes and 26.1 per cent do before affected. It could be concluded that majority of the respondents do exercise daily after affected by the diabetes but less than half (43.1%) of them did exercise before affected by diabetes.

Table 5

Distribution of the Respondents by Sex and Satisfaction about the Doctors Treatment

Gender	Satisfied about doctor treatment					Total
	Satisfied	Highly Satisfied	Neither Satisfied Nor Dissatisfied	Dissatisfied	Highly Dissatisfied	
Male	14 (10.8%)	0	24 (18.5%)	23 (17.7%)	5 (3.8%)	66 (50.8%)
Female	16 (12.3%)	16 (12.3%)	13 (10.0%)	19 (14.6%)	0	64 (49.2%)
Total	30 (23.1%)	16 (12.3%)	37 (28.5%)	42 (32.3%)	5 (3.8%)	130 (100.0%)

Calculated chi-square value	Degrees of freedom	Probability Value
24.760	4	0.001 (S)

S – Significant

With respect to the relationship between sex and satisfaction about the doctor's treatment, the above table shows that 32.3 per cent are dissatisfied with doctor's treatment among them 17.7 per cent are male and 14.6 per cent are female. Out of 28.5 per cent who are neither satisfied nor dissatisfied with the treatment, 18.5 per cent are male and 10.0 per cent are female. Among 12.3 per cent who are highly satisfied with the treatment by all are female. Among 23.1 per cent who are satisfied with the treatment, 12.3 per cent are female and 10.8 per cent are male. Among 3.8 per cent who are highly dissatisfied with the treatment, all are male respondents.

It could be concluded that, among majority are dissatisfied with the doctors treatment most of them are male. The chi- square value shows that the relationship is not statistically significant.

Table 6

Distribution of the Respondents by Educational Level and Satisfaction about Doctor's Treatment

Education	Satisfied about Doctor Treatment					Total
	Satisfied	Highly Satisfied	Neither satisfied Nor Dissatisfied	Dissatisfied	Highly Dissatisfied	
Illiteracy	4 (3.1%)	2 (1.5%)	0	3 (2.3%)	0	9 (6.9%)
Primary	2 (1.5%)	14 (10.8%)	24 (18.5%)	20 (15.4%)	0	60 (46.2%)
Secondary	5 (3.8%)	0	0	6 (4.6%)	2 (1.5%)	13 (10.0%)
Higher Secondary	0	0	9 (6.9%)	3 (2.3%)	0	12 (9.2%)
Degree	19 (14.6%)	0	4 (3.1%)	10 (7.7%)	3 (2.3%)	36 (27.7%)
Total	30 (23.1%)	16 (12.3%)	37 (28.5%)	42 (32.3%)	5 (3.8%)	130 (100.0%)

Calculated chi-square value	Degrees of freedom	Probability Value
76.661	16	0.001 (S)

S – Significant

The above table shows that among 32.3 per cent of the respondents who are dissatisfied with the treatment, 15.4 per cent are studied up to primary level, 7.7 per cent studied up to degree level, 4.6 per cent studied up to secondary level and 2.3 per cent studied up to higher secondary level and another 2.3 per cent are illiterates. Out of 28.5 per cent who are neither satisfied nor dissatisfied with the treatment, 18.5 per cent are primary level 6.9 per cent studied up to higher secondary level and 3.1 per cent studied up to degree level. Among 23.1 per cent who are satisfied with the treatment 14.6 per cent are studied up to degree level, 3.8 per cent studied up to secondary level, 3.1 per cent are illiterate and 2 respondents are studied up to primary level. Among 12.3 per cent who are highly satisfied with the treatment, 10.8 per cent studied up to primary level and 2 respondents are illiterate, 3.8 per cent who are highly dissatisfied with the treatment ,2.3 per cent studied up to degree level and 2 respondents studied up to secondary level. It could be concluded that majority (32.3%) of the respondents are dissatisfied with the doctors treatment, among them most of them (15.5%) studied up to primary level. The chi-square value shows that the relationship between educational level and satisfaction about the doctor's treatment is statistically significant.

10. Conclusion

The study was conducted in Cuddalore town to understand the diabetic patients' awareness about after math effects of diabetes. Further it is to find whether there is a change in their lifestyle and problems faced by them because of the diabetes including economic and social problems. With respect to dietary practices the result shows that majority (76.4%) of the respondents are non-vegetarian. After affected by diabetes the number of respondents taking ragi increased from 45.38 per cent to 90.77 per cent. All are taking rice and vegetables grown under the ground level before and after affected by diabetes and all are taking sugar directly

before affected by diabetes and it is decreased to 81.54 per cent affected by diabetes. When diet control followed is considered all of the respondents take rice in their daily food and taking vegetables and fruits. However, they have reduced the intake of fatty foods and following the habit of eating at intervals. More than half of the respondents do not eat junk food. To reiterate, majority of the respondents have awareness about the complication of diabetes, it is evident from their change of food habits, started doing physical exercise, reduce habit of smoking and using alcohol. Further problems faced by them are comparatively less, as majority of the respondents income level is comparatively better.

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About the authors



Abdul Jaleel P is the principal of Wayanad Muslim Orphanage higher secondary school, Muttill, Kalpetta, Kerala. He is a columnist in Malayalam newspapers. He presented more than ten scholarly papers in national and international seminars and Published more than five articles.



Dr. S. Allah Baksh, Associate Professor, Department of Sociology, Annamalai University, Annamalai Nagar, Tamilnadu, India. His area of specialization in Rural and Environmental Sociology. He has Published more than forty scholarly papers in National / International Journals. He published more than thirty articles. He has visited many International Conferences in abroad.