

## Knowledge Regarding Weight Management Through Lifestyle Modification Among Overweight And Obese Type 2 Diabetes Mellitus Patients

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### Introduction

Diabetes mellitus is a leading cause of morbidity and mortality worldwide, with an estimated 80% of the affected population living in developing countries like Sri Lanka (Hu, 2011). Prevalence of diabetes in Sri Lanka, which was around 2.0 % in the early nineties, has increased by about five-fold during the last two decades. It is estimated that over 2 million people are suffering from diabetes (Katulanda et al., 2010).

Overweight and obesity are becoming more prevalent in developing countries due to change in lifestyle. One in five adults in Sri Lanka has either diabetes or pre-diabetes. Weight maintenance within the target body mass index (BMI) helps to prevent many diseases especially diabetes. The relationship between the metabolic control and development of chronic complications of diabetes is an important aspect of patient management. The causes of type 2 diabetes are multi-factorial. Diet and physical activity are important

modifiable risk factors that play a central role in the incidence, severity and management of diabetes.

Overweight and obesity are the major risk factors for type 2 diabetic patients. Weight reduction is an important goal for overweight or obese type 2 diabetes, because it improves glycemic control. Moderate weight reduction (5% of body weight) can improve insulin action, decrease fasting

blood glucose concentrations, and reduce the need for diabetes medications. Moreover, improvement in fasting blood glucose is directly related to the relative amount of weight reduction. According to the study result on May 2009 to November 2013 at Diabetic Center, Teaching Hospital Jaffna, more than half of the population were overweight (20.5%) and obesity (33.8%) (Sujanitha et al., 2015). Therefore, there is important to necessary for accessing knowledge regarding weight management for the type 2 diabetic patients. Objective of the study is assessing the level of knowledge regarding overweight, obesity and weight management through lifestyle modification among overweight and obese type 2 Diabetes mellitus patients and to assess the relation between socio demographic factors associated on knowledge.

### Methodology

It was an institutional based cross-sectional study conducted in Diabetic Center at Teaching Hospital Jaffna. Above age of 18 patients and patients diagnosed as type 2 diabetes mellitus above 6 months of period were recruited for this study. Estimated sample size was 414. Overweight and obese patients were identified among all type 2 diabetes mellitus patients in annual review. An interviewer administered semi structures questionnaire used to collect data. Questionnaire contains clinic details, socio demographic and economic related questions and questions to assess knowledge

regarding overweight, obesity and weight management through lifestyle modification. Overweight and obese patients were identified among all type 2 diabetes mellitus patients. Every overweight and obese patient was included in this study. In the morning and evening data was collected. Purpose of the study was explained and written consent was obtained before administering the questionnaire. Each interviewer administered questionnaire spent nearly twenty to thirty minutes to fill. Data was collected with the interview administrated questionnaire during the waiting time for the physician. Totally data was collected from four hundred fourteen patients in 29 days during week days.

Data was analyzed by using SPSS 22 (statistical Package for Social Sciences). Eighteen questions were used to assess knowledge regarding weight management through life style modification. Each correct response was scored with one mark while incorrect or don't know response were received zero mark. Total thirty-four marks were given for the section. The score less than fifty was considered as poor knowledge and the score above fifty was considered as good knowledge. Chi squared statistical test was used to identify the factors influence on knowledge related to weight management through life style modification. The data was analyzed based on research problems and objectives. Results presented as tables and diagram. All the data of the patients which collected for research purpose was confidentially kept in personal file and was not exposing to none other than researchers. All the data used to analysis was confidentially kept on personal computer with password protection. At the end of the research all data obtained from the patients was submitted to Unit of Allied Health Sciences, Faculty of Medicine, University of Jaffna.

## Results and discussion

The study was done among 414 overweight and obese type 2 Diabetes mellitus patients attended Diabetic Center at Teaching Hospital Jaffna. The response rate was 100%. 28% of the participants were overweight and 72% of the participants were obese. Nearly three quartiles (74.6%) of participants were female. Mean age of participants was 56.1 (SD-10.6) years. Age range of the participants was 27 to 82 years. More than three fourth (78.3%) of participants were married. Most of them were nuclear family (72.5%). Majority of the participants were Sri Lankan Tamil (98.8%). Most of them were hindus (73.4%). Ordinary level was the highest level of education for nearly one third (33.3%) of participants. Nearly three quartiles (75.6%) of participants were unemployed. Nearly two fifth of monthly family income less than 20,000 (43.2%) and 20,000-40000 (43.7%) SLRs respectively.

Majority of participants (98.3%) knew the important to maintain ideal body weight for the healthy living. Nearly 63% of participants knew weight should be appropriate for their height. Nearly one third (34.1%) of participants incorrectly said weight was appropriate for their age. Only 3.1% participants knew the method of calculation of the BMI. Only 2.4% participants knew healthy BMI range of Sri Lankan adult was 18.5-22.9 kg/m<sup>2</sup>. Only 0.2% participants knew that referred range of BMI for overweight was 23-24.9 kg/m<sup>2</sup>. While only 1.0% of the participants knew the referred range of BMI for obesity ( $\geq 25$ kg/m<sup>2</sup>). Only 13.8% knew their correct BMI category.

A similar study was done in Bangladesh; it revealed majority of respondents (99.0%) did not have any idea about meaning of obesity, more than half of the population (59.0%) could not give the answer about ideal body built (Saleh *et al.*, 2012). Another study was done in Ghana; it revealed 72.0% had adequate knowledge on the general

understanding of obesity, for ideal body weight 56.6% of them had inadequate knowledge (Obirikorang et al., 2015).

Nearly 61.6% participants correctly answered that increasing waist circumference can increase the risk of diabetic mellitus. Only 8.0% male participants knew ideal waist circumference for male. Only 3.2% female participants knew ideal waist circumference for female.

Nearly three fourth participants (77.8%) correctly answered about overweight and obesity has an impact on diabetic mellitus. Most of the participants knew that excess calorie intake (77.8%), Physical Inactivity (99.8%), family history (88.4%) were the causes of overweight and obesity. However, the participants knew that hypothyroidism (51.7%), steroids (12.1%), oral contraceptive pills (20.8%) were the causes of overweight and obesity. Another study was done in Ghana; higher proportion (76.9%) of the participants responded that poor diet was a common cause of obesity followed by physical inactivity (67.1%), family history of obesity (56.6%) (Obirikorang et al., 2015).

Majority of the participants stated that following proper diet (100%), doing regular exercises were the healthy ways to maintain ideal body built. However, nearly 90% of the participants knew that to take weight reduction medications (85.3%), skip breakfast (95.2%), fasting (94.4%) were not the healthy ways to maintain ideal body built. A similar study was done in Ghana; among 471 participants 86.7% knew that adjusting to dietary modification is the best mode of managing obesity while 68.6% and 28.7% of them knew that doing regular physical activity and health check-up, respectively, could help manage obesity (Obirikorang et al., 2015).

Nearly 64.7% the participants knew that they should be allocated half portion of their

plate for vegetables while 85.7% of the participants stated that quarter portion in the plate should be allocate for the starchy food items. However, 91.8% of the participants stated that quarter portion should be allocate for the protein foods.

Most of the participants (96.4) knew that overweight and obese persons should be taken reduce amount of cereals, yams, rice and wheat flour preparations rather than normal adult. Most of the participants knew that overweight and obese persons also can be take recommended amount of vegetables (98.8%), fruits (89.6%) like healthy adult. Nearly half (54.3%) of the participants knew that overweight and obese persons can be taken recommended amount of fish, pulses, meats, eggs like normal healthy adult. Nearly 70 % of the participants knew that overweight and obese persons should be taken reduce amount of milk and dairy products (70.8%), nuts and oil items (87.0%) rather than normal adult.

A study was done in Bangladesh; it revealed that majority of the respondents stated that fast foods (77%), soft drinks (84%) and mayonnaise (33%) were not bad for weight management. On the other hand, most of the respondents (97%) said fiber rich food is good for health. Majority of them gave correct answer about red meat (93%), egg yolk (89%), butter, cheese and cream (91%) (Saleh *et al.*, 2012).

Nearly one quartile (25.6%) of the participants said that thirty minutes was a minimal duration to perform an exercise in a day for an overweight person. However Only 5.8% of the participants knew that five consecutive days in a week was a minimal frequency to perform an exercise in a week for an overweight person. Nearly one fifth (18.4%) of participants knew that sixty minutes was a minimal duration to perform an exercise in a day for an obese person. However more than one third (37.2%) of the

participants correctly answered that seven days was a minimal frequency to perform an exercise in a week for an obese person

Most of the participants (81.2%) had good knowledge and nearly one fifth (18.8%) of the participants had poor knowledge.

### Conclusion and Recommendation

The present study shows that nearly four fifth of the participants had good knowledge regarding

weight management through lifestyle modification. Only 2.4% of the participants knew healthy

BMI range for the Sri Lankan. Only 13.8% of the participants knew whether they were obese or

overweight. Most of the participants stated that excess calorie intake, physical inactivity, family

history are the causes for overweight and obesity. Majority of the participants knew about

healthy ways to maintain ideal body built, portion and amount of food items while few of them

knew about frequency and duration of the exercise. According to their BMI health education should be done by health care professionals regarding ideal body built, importance of maintain target weight and weight management through life style modification. Further studies should be done to assess their practice pattern.

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