

Obesity Status among Type 2 Diabetic Patients

SHARMIN SULTANA

MS (Thesis), Department of Applied Nutrition and Food Technology
Islamic University, Kushtia
MD MONOARUL HAQUE¹

Technical Advisor, Institute of Neurodevelopment & Research
MD SHAH BILLAL MASUM

Consultant, Center for Neuro & Orthopedic Rehabilitation (CNOR)
SYEDA AFROSE JAHAN MOUSUMI

Assistant Professor, Department of Food & Nutrition, National
College of Home Economics
MD SHAFIULLAH PRODHANIA

Chief Consultant, DPRC Specialized Hospital & Research Center
MOHAMMAD SHAHINOOR ISLAM
MPhil in Public Health, BSMMU

MD. MOHSIN KABIR

Head, Department of Physiotherapy, Institute of Geriatric Medicine
SUMAN KUMAR ROY

Research Fellow, Bangladesh University of Health Sciences (BUHS)
MD. MURADUZZAMAN

Research Assistant, Training & Research Institute of Medicine
Acupressure and Nutrition
SHARKER MD. NUMAN

Associate Professor, School of Science & Technology, Bangladesh
Open University

MAHFUJUR RAHMAN (ASHIK)
Master in Pharmacy

Abstract:

Background: Obesity is a condition in which excess body fat may put a person's health at risk. In adults, the risk of disease increases independently with increasing BMI and excess abdominal fat. **Objective:** To assess obesity status among type 2 diabetic patients was goal of this study. **Methodology:** This was a cross sectional

¹ Corresponding author: monoarmunna@yahoo.com

*descriptive study conducted among conveniently selected 200 diabetic patients attending different diabetic center for treatment and check up purposes. Obesity was determined according to WHO cut off value for Asian people. **Result:** Most of the respondents (37.5%) were 50-54 years age group. Forty two percent were graduates. Thirty two percent were housewife. More than half of the respondent's monthly family income was 5001-10000 BDT. About 13% and 39% respondents were obese and overweight. About 52% study subjects had high waist circumference. **Conclusion:** Public education about obesity and its harmful effects can be an important measure to prevent or control type 2 diabetes.*

Key words: Obesity, Type 2 Diabetic

Background

Diabetes Mellitus is a major global health problem.¹ Type 2 diabetes is a complex metabolic disease, primarily characterized by insulin resistance, relative insulin deficiency and hyperglycemia² and leading to micro vascular diseases, blindness, nerve damage, atherosclerosis and renal complications.^{3,4} The cause of Diabetes Mellitus is poorly understood. Changes in diet and life style due to rapid economic development are foremost among the principle drives of diabetes in developing and developed countries. Barring the environmental impact, genetic component plays a vital role for the development of diabetes.⁵ Obesity is a leading risk factor for late onset of diabetes, life style habits play a vital role to become obese.⁶ Obesity results from an imbalance between energy expenditure and intake which is modulated by genetic predisposition. International Diabetes Congress in Helsinki, Finland reported that obesity is the most preventable and important risk factor for Diabetes Mellitus Type 2.⁷ Almost four out of five people who are newly diagnosed with diabetes are obese.⁸ The risk for diabetes has been reported to be about 2-

folds in the mildly obese, 5 fold in the moderately obese and 10 folds in morbidly obese persons.⁹ Increasing general obesity or central obesity is known to predispose individuals for insulin resistance. The prevalence of diabetes is 2.9 times higher in over weight than in normal weight subjects of 20 to 75 years of age.¹⁰ It has also been noted that for a given BMI, Asian Indian have higher fat percentage compared with Caucasian subjects.¹¹ High proportion of upper-body fat or abdominal fat independent of overall obesity is recognized as an important component in the insulin resistance linked to obesity and Diabetes Mellitus Type 2.¹² The present study was an initiative to assess obesity status among type 2 diabetic patients in selected area of Bangladesh.

Methods

This was a cross sectional descriptive study conducted among conveniently selected 200 diabetic patients attending different diabetic center for treatment and check up purposes. The standing height was measured with a standiometer with minimal cloths. A standiometer consist of a metric tape affixed to a vertical surface and a movable headpiece attached to the vertical surface that can be brought down to the crown of the head. The position of the eyes and ear lobes were horizontal, feet were together, knees straight and heels, buttocks and shoulders blades were in contact with vertical surface of standiometer. Arms were hanging freely at the sides with palm facing the thighs. The subjects were asked to inhale deeply and maintained a fully erect position. The headpieces were brought down until it touched the head; sufficient pressure was applied to compress the hair. Three measurements were taken three times and if the difference among reading was less than 1 cm, the mean measurement was taken and recorded to the nearest 0.1 cm. If the reading fell between two values, the lower reading

was recorded. The body weight was measured using a platform beam scale. The beam of the platform scale must be graduated so that it can be read from both sides; the calibration of the scale should also be done before taking the weight. The subjects stand still over the center of the platform with body weight evenly distributed between both feet with light indoor clothing. Weight was recorded to the nearest 0.1 kg. Nutritional status was determined according to WHO cut off value for Asian people. After coding and editing, data were analyzed by using Statistical Package for Social Science or SPSS (version 16.0).

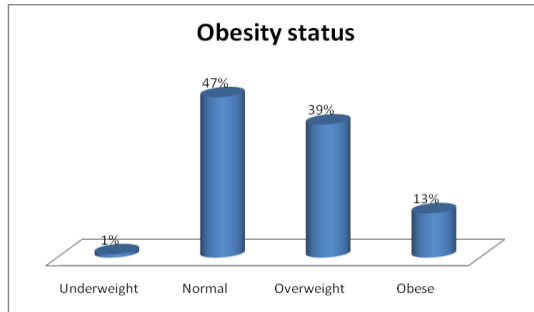
Result

Table1. Socio-demographic characteristics (n=200)

Variables	Number	Percentage
Age (in years)		
35-44	39	19.5
45-49	36	18
50-54	75	37.5
55-59	50	25
Education		
Primary	52	26
Secondary	51	25
Higher-secondary	14	7
≥Graduate	83	42
Occupation		
Housewife	60	30
Business	24	12
Service	52	26
Others	64	32
Monthly income(BDT)		
<5000	70	35
5001-10000	117	58
≥10001	13	7

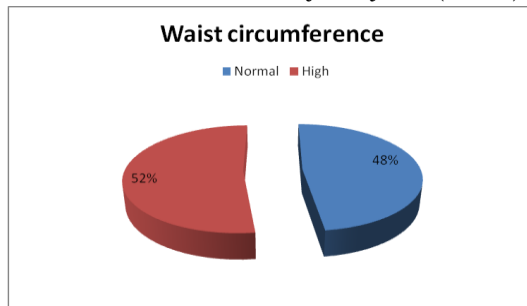
Most of the respondents (37.5%) were 50-54 years age group. Forty two percent were graduates. Thirty two percent were housewife. More than half of the respondent's monthly family income was 5001-10000 BDT.

Figure1. Obesity status of study subjects (n=200)



About 13% and 39% respondents were obese and overweight.

Figure 2. Waist circumference of study subjects (n=200)



About 52% study subjects had high waist circumference.

Discussion

The risk of type 2 diabetes increases markedly with age and unfortunately the age of onset of type 2 diabetes has steadily decreased down into younger adults and even adolescents in recent decades.¹³ Most of the respondents (37.5%) were 50-54 years age group in the present study. Obesity has been identified as the single most important risk factor for Type 2 diabetes. The WHO estimates that there are currently 1.1 billion people who are overweight with estimations of over 1.5 billion by 2015.¹⁴ Longitudinal studies have shown obesity to be a powerful predictor for type 2 diabetes.¹⁵ This is further strengthened by the fact that interventions aimed at reducing

obesity also reduce the incidence of Type 2 diabetes. The average BMI value in South Asians is lower than seen in white Caucasians, Mexican- Americans, and blacks, but unfortunately South Asians have a higher percentage of body fat compared to white Caucasians and blacks at this lower BMI values.¹⁶ Because of this increased cardiovascular risk among Asian people occurring at lower waist circumference compared to European populations, both the WHO and the IDF have adopted the definition of overweight and obesity in Asians at a BMI of 23 kg/m² or above and 25 kg/m² or above, respectively, while central obesity is defined as a waist circumference of 90 cm or above in men and 80 cm or above in women.¹⁷ The present study found that 13% and 39% respondents were obese and overweight.

Conclusion

Obesity is considered a major risk factor for type 2 diabetes. It has been found that the incidence of diabetes increases by a factor of 2-3 fold in obese individuals when obesity is defined as 120% of ideal weight. Public education about obesity and its harmful effects can be an important measure to prevent or control type 2 diabetes.

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