



KNOWLEDGE AND AWARENESS REGARDING TYPE II DIABETES IN OBESE PEOPLE OF RURAL COMMUNITY

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Abstract

Background: Diabetes mellitus (DM) is a metabolic disorder with elevated levels of blood sugar due to insufficient insulin secretion, insulin action or both. Factors associated with the prevalence of diabetes are people's age, fat and high fat diets and unhealthy lifestyles that eventually lead to obesity.

Objective: Objective of the study was to explore the level of knowledge and awareness regarding Type II diabetes in obese patients.

Study design: Cross sectional study.

Setting: Community Ali Raza Abad, Lahore, Pakistan.

Duration: 4 months from September 2019 to December 2019.

Methodology: the study was done among 138 obese people of community Ali Raza Abad, Lahore, Pakistan using convenient sampling techniques. Knowledge regarding diabetes was evaluated through diabetes knowledge questionnaire.

Results: Finding of the study revealed that mean knowledge about diabetes of the participants is 1.83 and overall mean score \pm 0.131.

Conclusion: This study finds out that majority of participants have poor knowledge on various aspect of

diabetes including etiology, management and prevention. Community based educational program were needed to enhance knowledge and understanding of diabetes.

Keywords: *Diabetes, knowledge, awareness, obesity*

I- INTRODUCTION

Where there's life there's health. In 1984 the World Health Organization characterized wellbeing as “the degree to which a person or community is able to realize desires and fulfill needs and to alter or adapt with the environment” (Clark, 2017). Health has been described as the field of physical and mental functioning. At this point, the state of well-being is the degree to which these abilities are in harmony with the physical, organic, and social background (Choudhry, Mani, Ming, & Khan, 2016).

Diabetes mellitus (DM) is a metabolic disorder with elevated levels of blood sugar due to insufficient insulin secretion, insulin action, or both. There are two basic categories of diabetes mellitus. Type I diabetes, also characterized as insulin-dependent diabetes mellitus due to a complete lack of insulin secretion from pancreatic islet cell

and type II diabetes due to decreased insulin target tissue sensitivity (Alanazi et al., 2018).

Factors associated with the prevalence of diabetes are people's age, fat and high fat diets and unhealthy lifestyles that eventually lead to obesity (Zuhaid, Zahir, & Diju, 2016). The prevalence of diabetes is higher in developing countries in the west but in developing countries. Diabetes affects a population of 34-65 years (Basit, Fawwad, Qureshi, & Shera, 2018).

The capacity of the body to control blood glucose levels is impaired by both type I and type II diabetes. Consumption of sugar cannot affect either type of diabetes directly but eating too much sugar, however, could lead to weight gain. Weight gain is a type II diabetes risk factor and there is some research finds that increased sugar consumption make diabetes more popular. The greatest likelihood of developing type II diabetes is due to one or more factors, reduced fasting glucose, poor glucose tolerance and excess glycated hemoglobin (Al-Goblan, Al-Alfi, & Khan, 2014).

According to a research done by (Hossain, Kavar, & El Nahas, 2015) concluded that 10% of Pakistan's 34-65-year-old population is diabetic. Whereas the most effective method for control of Diabetes mellitus is to increase the knowledge and information related to DM and its complications. Knowledge and awareness about DM risk factors and preventive measures is the first step in prevention, for public to make the informed decision of adopting a healthy lifestyle (Namageyo-Funa & Nanavati, 2016).

Diabetes mellitus a life-threatening conditions, place a huge burden on society as most of the adult population in Pakistan suffers from DM. who lives within the reproductive age which has a direct negative impact on the domestic economy (Haseeb et al., 2017). The success of a health initiative is influenced by the people's level of knowledge and awareness regarding the health condition. This study will evaluate the public's awareness and knowledge regarding diabetes in obese people in the rural community of Ali Raza Abad.

AIMS OF THE STUDY

The purpose of the study is to evaluate the public's awareness and knowledge regarding type II diabetes in obese people of the rural community of Ali Raza Abad, Pakistan.

SIGNIFICANCE OF THE STUDY

This study provide a general insight for primary prevention and early identification of T2D, and creation of awareness and knowledge about diabetes among obese patients will be first step in prevention, only then will it enable the public to make the informed decision of adopting a healthy lifestyle (Namageyo-Funa & Nanavati, 2016). The results of the study will be used to educate the society on the danger of obesity and how the population can prevent and manage T2D. For the public, the demonstrative data on awareness and knowledge about diabetes will be used to plan public

health strategies aimed at preventing and controlling diabetes.

II- LITERATURE SEARCH

According to a study conducted show that pre-diabetes is growing worldwide and it was expected that by the year 2030, there will be more than 470 million people develop pre-diabetes (Aramo et al., 2019). In Pakistan a study conducted in all four provinces put the prevalence of diabetes 10% and Prevalence of diabetes in urban and rural areas was 28.3% and 25.3% correspondingly (Basit et al., 2018).

A study conducted on rural and urban areas to investigate diabetes awareness and information among patients with diabetes. This study evaluates Diabetes awareness and knowledge of contributing factors and symptoms of diabetes by using a structured questionnaire. This study concluded that the level of information and awareness of diabetes in rural area was low compared to urban areas. Because only 43.2 percent of the population had diabetes awareness and 58.4 percent of citizens had a high awareness rate (Mohan, Sandeep, Deepa, Shah, & Varghese, 2017).

The connection between increase body mass index and type II diabetes mellitus is very high, studies show that the overwhelming majority of Diabetes mellitus patients are obese and that obese individuals are at the highest risk of developing type II diabetes. Obese men had a seven-fold higher risk of developing T2DM in a paradigm-analysis of prefeasibility studies from the different countries and obese women had a 12-fold higher risk compared to individuals in the healthy weight. Many studies have already shown that people who are obese also have an increased risk of developing cardiovascular disease, as well as the risk in obese people with type II diabetes mellitus is even greater (Wilding, 2017).

(Ahmed et al., 2018) concluded that 60.8% participants know nothing about DM and about 48% participants have no knowledge about of DM. The lack of information about the association between obesity and DM was statistically significant. (Ahmed et al., 2018) conclude that people in northern Pakistan are less aware of DM, which represents the need for a comprehensive awareness program.

A study by (Davies et al., 2018) concluded that diabetes prevention programs require a certain degree of knowledge and awareness of diabetes in patients. this suggest that individuals at risk for developing Type II diabetes need specific interventions to ensure positive control of diabetes. In previous work research recommend that spreading knowledge about diabetes and its associated complications may increase patient compliance with treatment and activity plans (Mohan et al., 2017).

CONCEPTUAL FRAMEWORK

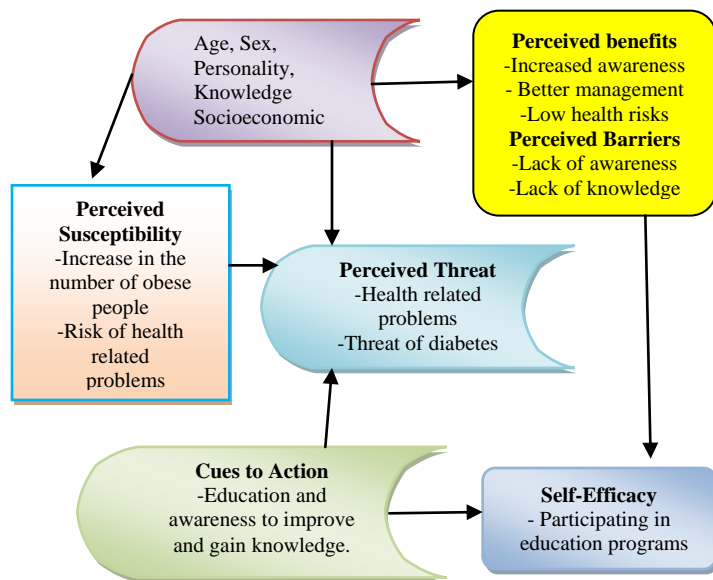


Figure showing Health belief model

III- METHODOLOGY

STUDY DESIGN: A quantitative cross sectional study was conducted.

STUDY SITE: The study setting was community Ali Raza Abad, district Lahore Pakistan.

DURATION: The study was conducted from September 2019 to December 2019 over a period of four month.

POPULATION

The targeted population of this Study obese people of community Ali Raza Abad, Lahore. A simple size of 138 was obtained after considering the prevalence of diabetes in Pakistan =10 % (Majeed, Afzal, Sehar, Gilani, & Alam, 2019). Sample size for this study is calculated according to formula $N = z^2pq/e^2$.

SAMPLING

A convenient sampling method was used for this study. It is the easiest and the most convenient method of engaging the sources of the primary data for research.

RESEARCH INSTRUMENT

Diabetes Knowledge Test (DKT) questionnaire was used to collect data from the obese patients in the community of Ali Raza Abad. The **Diabetes Knowledge Test (DKT)** questionnaire was developed by Michigan Diabetes Research Training Center (MDRTC), 2016 for the purpose of testing knowledge and awareness of diabetes. The questionnaire consists of close ended 23 questions. Pilot study was done to check filling the questionnaire from ten respondents. Reliability was 0.96 and validity was 0.65 which shows that the questionnaire used for collecting the

participant’s responses is reliable and valid (Darawad, 2013).

DATA GATHERING PROCEDURE Data collected from obese people of rural community of Ali Raza Abad, Lahore using DKT questionnaires. DKT questionnaires well-structured questionnaire with closed ended Likert scale is adopted Michigan Diabetes Research Training Center (MDRTC), 2016. These questionnaires were distributed among 138 people of rural community.

METHODS USED TO ANALYZE DATA

Statistical analysis was carried out using SPSS version .21. Descriptive statistics frequencies, tables and percentage used to analyze demographic data and knowledge and awareness of diabetes.

ETHICAL CONSIDERATION

Give complete information to the participant related to research. It makes sure that no harm was being given to the participant. Study was being beneficial. All patients were having open opportunity to participate in research. No one was being forced to participate in research. Informed consent form was sign by the participant in Urdu and English language. The information or data was being remained to the first researcher.

IV- RESULTS

This chapter consists of two sections. Section 1 represents the demographic characteristics of the participants whereas section 2 represents participants’ general level of knowledge and awareness regarding diabetes. Descriptive statistics such as percentages and frequencies were calculated to establish the variation in the level of knowledge and awareness about diabetes in the sample.

Section 1:

This section represents the distribution of participant by demographic characteristics. The data is summarized in terms of frequency and percentage.

Table 1: Description of Demographic Characteristics

Variables	Number (n)	Percent
Gender		
Male	55	39.9%
Female	83	60.1%
Age (years)		
18-30	51	37.0%
31-42	69	50.0%
43-54	10	70.2%
Level of education		

Illiterate	38	27.5%
Primary	19	13.8%
Middle	20	14.5%
secondary	33	23.9%
University	17	12.3%
high	11	8.0%
Occupation		
Government	13	9.4%
Private	31	22.5%
no job	53	38.4%
Housewife	41	29.7%

Table 1 elaborates the percentage and frequencies of demographic characteristics of the participants. Gender of the participants involved in the study were male n = 83 (60.1%) and female n = 55 (39.9%). The frequency of male is higher than female in this study. Out of 138 participants,

majority of respondent was belong to the age group of 31-42 n = 69 (50.0%). elaborate occupations of participants, 9.42% participants have government jobs, 22.46% participants were private employees, 38.41% were jobless, and 29.71% participants were housewife. the education level of the participants, 27.54% participants were illiterate, 13.77% respondents have primary level education, 14.49% have middle education, 23.91% have high level education, 12.32% have secondary level of education and 7.97% participants have university level education.

SECTION 2

This section represents the general level of knowledge and awareness regarding diabetes. Statistical analysis was carried out using descriptive statistics such as table, frequency and percentage.

Table no 02: Knowledge and awareness regarding diabetes graphical presentation

Questions	N	Yes		No		Not Sure	
		N	%	n	%	N	%
Eating too much sugar and other sweet foods is a cause of diabetes.	138	105	76.1	13	9.4	17	12.3
The usual cause of diabetes is lack of effective insulin in the body.	138	62	44.9	21	15.2	55	39.9
Diabetes is caused by failure of the kidneys to keep sugar out of the urine.	138	56	40.6	24	17.4	58	42
Kidneys produce insulin.	138	65	47.1	10	7.2	63	45.7
In untreated diabetes, the amount of sugar in the blood usually increases.	138	83	60.1	19	13.9	36	26.1
If I am diabetic, my children have a higher chance of being diabetic.	138	91	65.9	19	13.8	28	20.3
Diabetes can be cured.	138	58	42.0	42	30.4	38	27.5
A fasting blood sugar level of 210 is too high.	138	43	31.2	48	34.8	47	34.1
The best way to check my diabetes is by testing my urine.	138	62	44.9	29	21.0	47	34.1
Regular exercise will increase the need for insulin or other diabetic medication.	138	41	29.7	21	15.2	76	55.1
There are two main types of diabetes: (insulin dependent) (noninsulin dependent).	138	51	37.0	21	15.2	66	47.8
An insulin reaction is caused by too much food.	138	61	44.2	14	10.1	63	45.7
Medication is more important than diet and exercise to control my diabetes.	138	77	55.8	23	16.7	38	27.5
Diabetes often causes poor circulation.	138	47	34.1	29	21.0	62	44.9
Cuts and abrasions on diabetes heal more slowly.	138	53	38.4	25	18.1	60	43.5
Diabetics should take extra care when cutting their toenails.	138	69	50.0	20	14.5	49	35.5
A person with diabetes should cleanse a cut with iodine and alcohol.	138	60	43.5	25	18.1	53	38.4

Diabetes can damage my kidneys.	138	76	55.1	17	12.3	45	32.6
Diabetes can cause loss of feeling in my hands, fingers and feet.	138	68	49.3	16	11.6	54	39.1
Shaking and sweating are signs of high blood sugar.	138	75	54.3	21	15.2	42	30.4
Frequent urination and thirst are signs of low blood sugar.	138	69	50.0	20	14.5	49	35.5
Tight elastic hose or socks are not bad for diabetics.	138	67	48.6	20	14.5	51	37.0
A diabetic diet consists mostly of special foods.	138	86	62.3	38	27.5	14	10.1

Table no 02 elaborate participants knowledge about cause of diabetes, majority of respondent answer correct to the item refer to eating too much sugar can cause diabetes 76.1% and on the other hand most respondent have correct answer in cause related to lack of insulin 44.9%. In the question Diabetes is caused by failure of the kidneys to keep sugar out of the urine, the majority of participants were not sure 42%. In the items regarding production of insulin 47.1% participants give wrong answer that kidney produces insulin as the majority of participants 60.1% responds that in untreated diabetes, the amount of sugar in the blood usually increases. However 44.9% thinks that the best way to investigate diabetes is performing urine test and 55.1% knows that diabetes can damage kidneys. Majority of the participants that suggest that population under the study is unaware of or having lack of knowledge regarding signs and symptoms of diabetes 50.0% and 47.8% have no knowledge about diabetes types. The complication of diabetes of is an area where all of the participants give correct answer to the question asked. In the question regarding the heritability knowledge of diabetes, 65.9% respondents have correct option. In the aspect related to the knowledge and awareness about diabetes management and blood sugar control, 34.1% participants were not sure about the value of 210mg/dl fasting glucose level, 45.7% were not sure about the association between food intake and sugar level. The most respondents show poor knowledge in the relative importance and effect of food, physical activity and medication in the control of blood sugar level. In the area related to the knowledge and awareness of self-management regarding diabetes and care, Majority of participants give correct answer to the items asked. 43.5% answer corrects to a question clean the wound with alcohol.

V. DISCUSSION

Knowledge and awareness about diabetes plays a significant role in prevention and management of diabetes. Focus on the results of this project, the level of knowledge and awareness about diabetes was poor, especially in rural areas. A study conducted by (Mohan et al., 2017) concluded that there is a great need of patients education to advance knowledge and awareness regarding diabetes and also promote management and prevention of diabetes.

There were several interesting finding in this study. In items related to the cause of diabetes the 76.1% of respondent answer to the question refers to eating too much sugar can cause diabetes and 44.9% answer to cause related to lack of insulin. Diabetes is caused by failure of the kidneys to keep sugar out of the urine; the 42% of participants were not sure. 55.1% thinks that exercise will increase the need for insulin or other diabetic medications which mean that participants are unaware or lack of knowledge about diabetes. The finding of this study is comparative to a study conducted by Hu et al. (2013), who also adopt the same scale for evaluating knowledge and awareness in a population and these items also shows higher percentage of correct answer (Hu, Tang, Zhang, & Liu, 2013).

The question on which smaller no of correct answer identified were "sugar level of 210 is too high fasting" (31.2% correct answers), types of diabetes (37.0% correct answers), and insulin reaction is caused by too much food (44.2% of correct answer), Diabetes often causes poor circulation (34.1% of correct answer), slow healing 38.4%. The finding of this study is comparative with the study of (Bastos, 2004) which also shows that these items also obtained smaller number of correct answer, which is acceptable since people are culturally close to one another and having similar characteristic (Bastos, 2004).

This study presents a low level of knowledge and awareness about diabetes as studied by the diabetes knowledge questioner. Different studies conducted in Pakistan, Karachi, Nepal, urban and rural areas using the same DKQ also reported low level of knowledge (Upadhyay, Palaian, Shankar, Mishra, & Pokhara, 2008), (Al-Adsani, Moussa, Al-Jasem, Abdella, & Al-Hamad, 2009). On the other hand studies conducted in Sri Lanka, Malaysia using DKQ reported satisfactory level of knowledge regarding diabetes (Padma, Bele, Bodhare, & Valsangkar, 2012).

The study finding shows that population under study knows little about complication of diabetes. The 55.1% participants correctly answer diabetes can damage kidneys, Diabetes can cause neuropathy (39.3% correct answers). Generally the participants know about the consequences but however they have difficulty in identifying key elements for preventing and manage these consequences (such as high and low blood sugar level management, insulin reaction, diet choices, and the

important of exercise), this situation need to developed health education program for population under study. (Hu et al., 2013) additionally suggest that health care provider can provide health education related to age and literacy level of participants through family involvement.

LIMITATIONS

This study has following limitation.

- This study is carried out in only one rural community, so its findings cannot be generalized to overall populations.
- The results are based on self-reported data from participants, which limit the validity of the data.
- Simple size was small. Large sample will improve the accuracy of the results.

CONCLUSION

This study aimed is to assess level of knowledge and awareness regarding type II diabetes in obese people of rural community. This study finds out that majority of participants have poor knowledge on various aspect of diabetes including etiology, management and prevention. Community based educational program were needed to enhance knowledge and understanding of diabetes.

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