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Research Article

**ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE
ABOUT ROLE OF EXERCISE FOR WEIGHT REDUCTION
AMONG DIABETICS**¹Dr. Usman Farooq, ²Dr. Awais Butt, ³Dr. Anum Qader¹Institute of Medical Sciences Lahore²Medical Officer THQ Hospital Sangla Hill³Allama Iqbal Memorial Teaching Hospital Sialkot**Abstract:**

BACKGROUND- The prevalence rate of diabetes mellitus in Pakistan is very high; it is around 10 per cent in adult population. To control diabetes effectively and minimize complications people should be aware about ways of effective management of diabetes sedentary lifestyles and the popularity of high fat, high energy diets are known to lead to obesity. Exercise plays important role in controlling weight and thus management of diabetes. This study is attempted to assess knowledge, beliefs and practices about role of exercise for weight reduction among people with diabetes.

OBJECTIVES- 1.To evaluate the level of knowledge about role of exercise for weight reduction among diabetics
2.To find out the source of knowledge about role of exercise for weight reduction among diabetics.

STUDY DESIGN cross- sectional survey. *PLACE AND DURATION OF STUDY* DMC: Services Hospital Lahore, June-July 2017.

RESPONDANTS AND METHODS. Pre- tested questionnaire was used to interview the diabetic patients. *RESULTS* 60% of people were aware about the life style modifications, 84.3% were aware that exercise is beneficial for diabetes. 72.9% had knowledge that weight gain effects management of diabetes, 82.9% had knowledge that exercise help in losing weight, 51.4% were exercising regularly; Source of knowledge of 77.7% subjects is physician

CONCLUSION- Knowledge of diabetics regarding benefits of exercise, importance of weight reduction, and benefits of dietary modifications was satisfactory. Although, attitude and practice of exercise among people was satisfactory but it needs to be improved further. Health care providers played major role in educating the patients. Health education programs could further improve the attitude of diabetics towards exercise and weight reduction.

Key words: - diabetes, exercise, weight reduction, KAP

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INTRODUCTION:

Diabetes is a chronic metabolic disorder, whose number is estimated to reach 6, 38,000 by the year 2025. Diabetes is a group of metabolic diseases resulting in high blood sugar.

The three main types of diabetes mellitus (DM) include Type 1 diabetes (insulin dependent diabetes mellitus), type 2 (non-insulin dependent diabetes mellitus) and gestational diabetes.

The overall prevalence of abnormal glucose tolerance is 20.5 per cent in women and 15.9 per cent in men are alarming. Overall cardiovascular morbidity and mortality rate in diabetics is 2-4 folds higher. Death from heart diseases in people with diabetes is 23 per cent more as compared to those without diabetes. People with diabetes are 2-4 times more likely to suffer stroke. The risk of leg amputation is 15-40 times greater in diabetes.

In Pakistan, the situation is alarming with a current diabetic population of 7.1 million. WHO ranks Pakistan 7th on diabetes prevalence list. In Pakistan 7.1 million people are affected by diabetes with IDF estimating that this number will increase to 11.5 million by 2025. It is estimated that by 2030, Pakistan will have the fourth largest diabetic population in the world — around 13.8 million people. The prevalence rate of diabetes mellitus in Pakistan is very high; it is around 10 per cent in adult population.

To control diabetes effectively and minimize complications people should be aware about ways of effective management of diabetes. 80-90% of cases of type 2 diabetes mellitus are linked to obesity. Control of weight through exercise and diet is an important step in maintaining optimum blood sugar level along with oral hypoglycemic and insulin.

Obesity reduces body's ability to maintain proper blood glucose levels. Obesity causes body to become resistant to insulin. Sedentary lifestyles (reduced physical activity) and the popularity of high fat, high energy diets and convenient foods are known to lead to obesity. Urbanization with adoption of 'Western lifestyles' has resulted in the abandonment of the healthier 'traditional lifestyles' by people in developing countries. These traditional lifestyles are characterized by **regular and vigorous physical activity** along with subsistence on high fiber whole grain-based diet, rich in vegetables and fruits. Urban lifestyles have resulted in over-reliance on motorized transport and consumption of unhealthy diets rich in carbohydrates, fats, sugars, and salts. [1]

Exercise plays important role in controlling weight and thus management of diabetes. Exercise causes the muscles to use glucose at 20 times more than the normal rate. This reduces blood sugar and thus can reduce the need for insulin. Regular exercise 30- to 60-minute sessions three or four days a week generates the best outcome. Regular exercise reduces the risk for cardiovascular disease and an attainment of a more desirable weight. [4]

Health education sessions can help a lot in increasing knowledge attitude and practices of regular exercise among diabetics. Poor socioeconomic status and large family size is major factor in poor practices of diabetes among diabetics. People are so busy in earning their livelihood and supporting their family members that they have no time for exercise. Support of family members can help a lot in good attitude and practice about role of exercise for weight reduction among diabetics. Public health initiatives will be required to make affordable, healthful foods available, and initiatives in education and community planning will be needed to encourage and facilitate exercise. This study is attempted to assess knowledge, beliefs and practices about role of exercise for weight reduction among people with diabetes.

MATERIAL AND METHOD:

A study was conducted to assess the awareness about the role of lifestyle changes in the management of diabetes among diabetics at Diabetic clinics of Jinnah Postgraduate Medical Centre and Kidney Centre. Karachi. From April 7, 2008 to August 31, 2008. Total of 200 diabetics were interviewed. Their mean age was 48.8 years. Of these 92 (46%) were males and 108 (54%) were females. Diabetes was under control of 38% and 57% were taking regular treatment. Education sessions were attended by only 11%, counseling for lifestyle Modification was done with 16%, 30% followed diet chart and 18% of the study participants were doing regular / irregular exercise. 68% needed social and family support to cope up the disease. There was a lack of awareness about the role of lifestyle Changes in the management of diabetes among these diabetic patients. There is a need of health education programs for diabetics and general public. [1]

A study was conducted to assess attitudes and beliefs about exercise among 83 persons with non-insulin-dependent diabetes who had completed outpatient diabetes counseling. Fifty-two percent of the subjects were exercising 3 or more days per week. Those with a greater length of time since diabetes counseling were more likely to be currently exercising. The

results indicate that providing assistance in identifying support for exercise and overcoming perceived barriers to exercise may increase compliance to this important aspect of the diabetes regimen. [2]

A study was conducted to assess the association between physical activity and type II diabetes mellitus management at Evangelisms Hospital, Athens, Greece in 2009. Low-intensity, long-duration exercise programs And healthy nutrition are considered the most suitable for diabetic patients. Since it contributes positively to the maintenance of blood glucose within normal range and minimizes the complications of the disease.

They concluded that, encouragement to adopt healthy dietary choices in conjunction with increase of physical activity and reduce of sedentary behaviors is a successful public health approach. [3]

The American Diabetes Association believes a correlation exists between the increasing obesity problem and the "epidemic" of type 2 diabetes. Regular exercise--30- to 60-minute sessions three or four days a week generates the best outcome, according to The University of Maryland. [4]

A study was conducted to assess the general characteristics, knowledge, attitude and practices of type 2 diabetic patients attending the Out-Patient Department (OPD) of Baqai Institute of Diabetology and Endocrinology (Karachi, Pakistan). Fifty-seven percent of the patients were overweight or obese. Only 10.7% had good glycemic control. Sixty seven percent did not do exercise of any kind. The overall awareness about the risk of complications was satisfactory but the misconceptions regarding diet, insulin and diabetes were quite common. This study highlights the need for better health information to the patient through large scale awareness programmes so as to change the attitude of our public regarding diabetes. [5]

A study was conducted to describe knowledge, attitudes and behaviors related to exercise in Native American participants in New Mexico. Questionnaires were completed in offices in or near the communities. 514 Native Americans with diabetes were identified as potential participants, 40% (142 women, 64 men) participated. RESULTS: 37% of participants knew exercise lowers blood sugar. 82% reported they were in the preparation, action, or maintenance stage of change for exercise behavior. Average age, BMI and HbA1c were 58.5 yrs., 30.5 kg/m², 8.6%, respectively. They concluded

that Interventions to increase physical activity awareness and participation could improve diabetes management and overall health for Native Americans. [6]

A study was conducted to describe diet and exercise practices from sample of U.S. adults with type 2 diabetes. Data was analyzed from 1,480 adults older than 17 years with diabetes type 2. Lower income and increasing age were associated with physical inactivity. Thirty-six percent of the sample was overweight and another 46% were obtained. The research concluded that majority of individuals with type 2 diabetes were overweight, did not engage in recommended levels of physical activity, and did not follow dietary guidelines for fat and fruit and vegetable consumption. Additional measures were needed to encourage regular physical activity and improve dietary habits in this population. [7]

The aim of this study is to assess KAP on obesity among Bangladeshi type 2 diabetics. Under a cross-sectional design 160 type 2 diabetics were selected from outpatient department of Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine & Metabolic Disorders. A standard questionnaire was constructed. In this study the mean values of knowledge and practice score were found average but attitude score was encouraging. [9]

Another study was done to find out the level of awareness about diabetes in urban adult Indian population and to identify factors that influenced the awareness, including presence of diabetes. Details regarding awareness about diabetes in relation with physical activity, healthy and unhealthy diet, causes, symptoms, prevention, complications and measures to improve health were collected using a questionnaire. A high total score indicated good knowledge. Influence of age, gender, educational status, occupation and presence of diabetic history was analysed.the awareness was generally poor. The score was low especially in women and subjects with low education. The study highlights the urgent need for strategies to spread awareness about diabetes in the general population. Diabetic subjects also required better education on many aspects. [10]

Another conducted in Singapore was conducted to examine the evidence and possible mechanisms by which exercise produces benefits, and gives a brief review of appropriate exercise activities. From the research they concluded training is an essential component in both the medical management of patients with type 2 diabetes and in preventing the development of diabetes among those at risk. Despite the preponderance of evidence of the benefits for exercise, there is still a lack of participation among

patients. The reasons for the under-participation in regular exercise include patients' lack of knowledge about the benefits of exercise, a lack of motivation, and a lack of clear recommendations from health care professionals. Clinicians should view the need to encourage such patients to exercise regularly as an essential part of management of their condition. Specific instructions should be given to patients rather than general advice, which do not increase compliance. Furthermore, there are exercise programs available in most hospitals in Singapore. These can be a useful way to introduce patients to exercise. [11]

METHODOLOGY

STUDY DESIGN- cross-sectional survey

STUDY AREA- diabetes management center (DMC) of SERVICES HOSPITAL LAHORE.

STUDY DURATION- 1 month

STUDY SUBJECTS- known diabetic patients

Inclusion criteria both sexes (male and female)
Ages 30-65
Willing to participate

Exclusion criteria ages below 30 and above 65
Disabled

ETHICAL CLEARANCE-

All the subjects were explained the purpose and process of the study. They were explained the

benefits of study. Assurance was given to protect the life, health, privacy, and dignity of the human study subjects

DATA COLLECTION METHOD AND INSTRUMENTS-

A questionnaire was developed by keeping objectives of study in view and questions were directed to assess the knowledge, attitude and practices about diabetes among diabetics. Questionnaire was pretested before use for study.

Sampling

- Size -sample size of 70 calculated with 99% accuracy using epi info 2000 version 1.1 software.
- Technique- non-probability convenience sampling

Data management and analysis plan- SPSS computer software was used for entry, compilation analysis of the data. Descriptive and inferential stat will be applied on data. Chi Square test of significance will be applied.

STUDY RESULTS:

Table 1: Frequency distribution according to age of diabetics

Age	Frequency	Percent
35-50	43	61.4
51-65	27	38.6
Total	70	100.0

Table 2: Frequency distribution according to sex

Sex	Frequency	Percent
F	33	47.1
M	37	52.9
Total	70	100.0

Table 3: FREQUENCY DISTRIBUTION ACCORDING TO INCOME PER CAPITA

INCOME PER CAPITA	Frequency	Percent
below 10000	13	18.6
11000-20000	17	24.3
21000-30000	22	31.4
31000 and above	18	25.7
Total	70	100.0

Table 4: FREQUENCY DISTRIBUTION ACCORDING TO JOB DESCRIPTION

JOB DESCRIPTION	Frequency	Percent
heavy labour	12	17.1
household	24	34.3
desk job	25	35.7
jobless	9	12.9
Total	70	100.0

Table 5: FREQUENCY DISTRIBUTION ACCORDING TO FAMILY HISTORY OF DIABETICS

FAMILY HISTORY	Frequency	Percent
yes	37	52.9
no	33	47.1
Total	70	100.0

Table 6: FREQUENCY DISTRIBUTION ACCORDING TO EDUCATION

EDUCATION	Frequency	Percent
illiterate	16	22.9
primary	6	8.6
middle	9	12.9
matric	11	15.7
intermediate	6	8.6
graduate	14	20.0
post graduate	8	11.4
Total	70	100.0

Table 7: Frequency distribution according to age of diagnosis

Age of diagnosis	Frequency	Percent
10-30	20	28.6
31-50	39	55.7
51 and above	11	15.7
Total	70	100.0

Table 8: FREQUENCY DISTRIBUTION ACCORDING TO BLOOD SUGAR LEVELS

BS levels	Frequency	Percent
below normal	2	2.9
80-100	1	1.4
100-200	39	55.7
above 200	28	40.0
Total	70	100.0

Table 9: FREQUENCY DISTRIBUTION ACCORDING TO SUBJECTS CHECKING HbA1c

Hba1c	Frequency	Percent
yes	24	34.3
no	46	65.7
Total	70	100.0

Table 10: FREQUENCY DISTRIBUTION ACCORDING TO LIFESTYLE CHANGES KNOWLEDGE

LIFESTYLE CHANGES	Frequency	Percent
regular exercise	13	18.6
diet control	15	21.4
diet control and exercise	42	60.0
Total	70	100.0

Table 11: FREQUENCY DISTRIBUTION ACCORDING TO KNOWLEDGE OF BENEFITS OF EXERCISE

BENEFITS OF EXERCISE	Frequency	Percent
yes	59	84.3
no	2	2.9
dont know	9	12.9
Total	70	100.0

Table 12: FREQUENCY DISTRIBUTION ACCORDING TO KNOWLEDGE OF WEIGHT GAIN AFFECTING MANAGEMENT OF DIABETICS

	Frequency	Percent
yes	51	72.9
no	7	10.0
dont know	12	17.1
Total	70	100.0

Table 13: FREQUENCY DISTRIBUTION ACCORDING TO KNOWLEDGE OF EXERCISE HELPING IN LOSING WEIGHT

EXERCISE HELP IN WEIGHT LOSS	Frequency	Percent
yes	58	82.9
no	3	4.3
dont know	9	12.9
Total	70	100.0

Table 14: FREQUENCY DISTRIBUTION ACCORDING TO DIABETICS DOING REGULAR EXERCISE

regular exercise among patients	Frequency	Percent
yes	36	51.4
no	34	48.6
Total	70	100.0

Table 15: FREQUENCY DISTRIBUTION ACCORDING TO REASONS FOR NOT DOING EXERCISE

REASONS	Frequency	Percent
	36	51.4
stressful life	5	7.1
non-avalabilty of parks and gyms	7	10.0
busy schedule	11	15.7
non-beneficial for diabetes	1	1.4
pain	9	12.9
headache	1	1.4
Total	70	100.0

Table 16: FREQUENCY DISTRIBUTION ACCORDING TO DAYS OF EXERCISE

DAYS	Frequency	Percent
	34	48.6
daily	21	30.0
3 days	7	10.0
4 days	3	4.3
5 days	5	7.1
Total	70	100.0

Table 17: FREQUENCY DISTRIBUTION ACCORDING TO TYPE OF EXERCISE

TYPE	Frequency	Percent
	34	48.6
walking	24	34.3
gym	5	7.1
jogging	5	7.1
brisk walking	2	2.9
Total	70	100.0

Table 18: FREQUENCY DISTRIBUTION ACCORDING TO PREFERENCE OF PLACE FOR EXERCISE

PLACE	Frequency	Percent
	34	48.6
park	26	37.1
indoor gym	4	5.7
house	6	8.6
Total	70	100.0

Table 19: FREQUENCY DISTRIBUTION ACCORDING TO DISTANCE OF WALKING

DISTANCE	Frequency	Percent
	34	48.6
1km	10	14.3
2km	14	20.0
3km	11	15.7
4km or greater	1	1.4
Total	70	100.0

Table 20: FREQUENCY DISTRIBUTION ACCORDING TO TIME SPENT ON EXERCISE

TIME	Frequency	Percent
	34	48.6
10min	1	1.4
15-30min	11	15.7
30min-1hr	18	25.7
1.5-2hr	6	8.6
Total	70	100.0

Table 21: FREQUENCY DISTRIBUTION ACCORDING TO DIABETICS CHECKING THEIR WEIGHT REGULARLY

WEIGHT CHECK	Frequency	Percent
yes	38	54.3
no	32	45.7
Total	70	100.0

Table 22: FREQUENCY DISTRIBUTION ACCORDING TO DIABETICS WHO TRIED TO LOSE WEIGHT

	Frequency	Percent
yes	35	50.0
no	35	50.0
Total	70	100.0

Table 23: FREQUENCY DISTRIBUTION ACCORDING TO KNOWLEDGE OF DIABETICS ABOUT EXERCISE CAUSING HYPOGLYCEMIA

KNOWLEDGE	Frequency	Percent
yes	35	50.0
no	14	20.0
dont know	21	30.0
Total	70	100.0

Table 24: MFREQUENCY DISTRIBUTION ACCORDING TO DIABETICS KEEPING SWEETS TO CONTROL HYPOGLYCEMIA

	Frequency	Percent
	34	48.6
yes	25	35.7
no	11	15.7
Total	70	100.0

Table 25
FREQUENCY DISTRIBUTION ACCORDING TO KNOWLEDGE ABOUT BENEFITS OF DIETARY ADJUSTMENTS

	Frequency	Percent
yes	66	94.3
no	4	5.7
Total	70	100.0

TABLE 26: FREQUENCY DISTRIUTION ACCORDING TO DIABETICS FOLLOWING CONTROLLED DIET PLAN

DIET PLAN	Frequency	Percent
yes	58	82.9
no	12	17.1
Total	70	100.0

Table 27: FREQUENCY DISTRIBUTION ACCORDING TO SOURCE OF KNOWLEDGE

SOURCE	Frequency	Percent
physician	54	77.1
media	3	4.3
relatives and friends	13	18.6
Total	70	100.0

DISCUSSION:

This study was conducted in diabetes management center (DMC) services hospital Lahore to determine the knowledge, attitude and practice about role of exercise for weight reduction among diabetics .A total of 70 patients, 33 females and 37 males ranging between 35-65 years of age were interviewed and the results were prepared.

The survey regarding knowledge of diabetics showed that 60% of people were aware about the life style modifications diabetics should bring in their life and that is exercise and diet control while 21.4 % opted for diet control and 18.6% opted for exercise. [Table 10] While in study conducted by doctor Shaikh ZA (2011) about awareness of lifestyle modification 16% were aware of lifestyle modification, while 30% opted for diet control, and 18% opted for exercise[2].In our research more number of diabetics were aware about the lifestyle changes diabetics should bring in their daily routine.

Information regarding HbA1c were available for a smaller group of subjects 34.3% got their HbA1c checked.[table 9] While similar trend was observed in Badruddin (2002) Information regarding HbA1c was available for a smaller group of subjects Around 2/3rd of the patients had their HbA1c done.[5] Regarding the awareness about benefits of exercise in diabetes 84.3% were aware that exercise is beneficial for diabetes.12.9% were not aware [table 11]. 72.9% had knowledge that weight gain effects management of diabetes while 17.1% responded with don't know and 2% said no[table 12].82.9% had knowledge that exercise help in losing weight while 14% were not aware.[table 13]

In our survey 51.4% were exercising regularly while 48.6% were not exercising regularly [table

14].Among those who were not exercising 15.7% gave busy schedule as the reason for not doing exercise 12.9% complained of pain during exercise and 10% had no availability of parks and gyms [table 15].

Among those diabetics who are exercising 30% exercise daily.10% exercise 3 days and 7.1% exercise 5 days respectively[table 16].34.3% preferred walking while 7.1% preferred gym and jogging.2.9% were doing brisk walking[table 17].37.1% prefer park,8.6%prefer house and 5.7% prefer gym[table 18].25.7% are spending 30min-

1hr on exercise,15.7% were spending 15-30min.[table 20]

While in the survey Badruddin (2002) Thirty five percent patients had very sedentary life style i.e. their work as well as leisure activities both did not involve much physical activity. 13% were exercising less than 15 minutes 11% were exercising for 15-30 min Only 5% patients exercised for more than half an hour daily. 4 While 32 patients did not exercise at all but reported to have an active life style (outdoor work involving walking and climbing stairs etc.)[5]. Doctor Shaikh ZA (2011) concluded that 18% were doing regular exercise and 82%were not doing exercise.6% were doing regular exercise and 8%were doing 2-4times/week. [2]

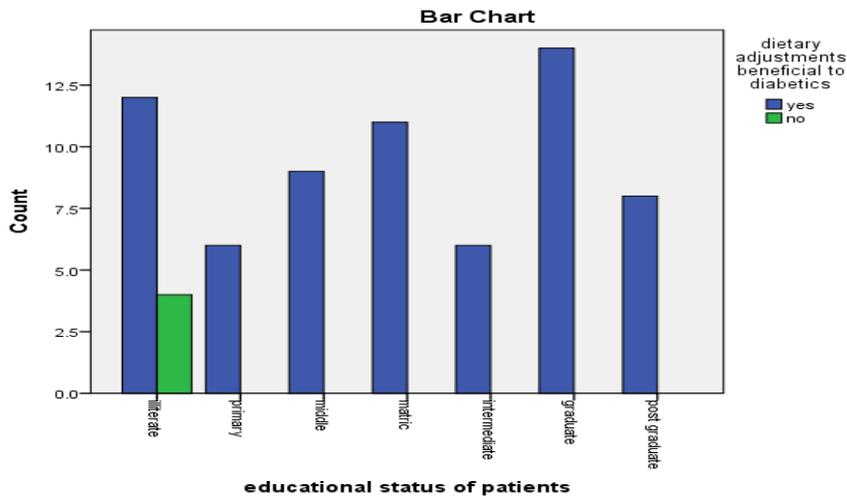
54.3% diabetics checked their weight regularly 47.5% diabetics do not check their weight regularly and 50% tried losing weight method used by them is exercise. [Table 21,22]

Regarding the dietary adjustments 94.3% had knowledge that dietary adjustments are beneficial to diabetics 5.7% did not have the knowledge [table 25] .82.9% were following controlled diet plan.17.1%

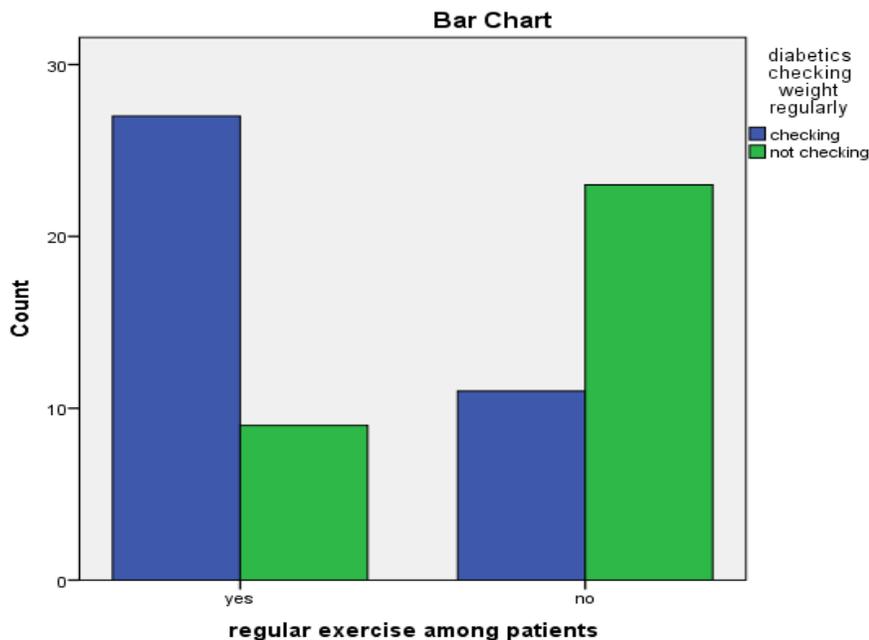
were not following the controlled diet plan [table 26]. The results are similar to research conducted in Bangladesh Saleh F(2012) in which 92% subjects were taking controlled diet[14].and Shaikh Z(2011) in which 52% were following controlled diet chart and 26% were not following controlled diet [2].

Source of knowledge 77.7% subjects was physician, 18.6% subjects were friends and relatives and 4.3% was media. [Table 27]

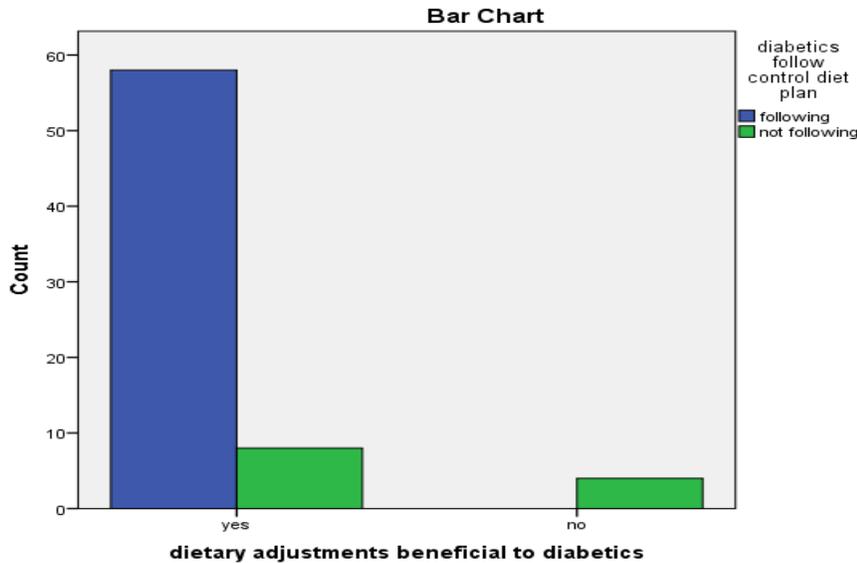
Age, sex, job influence regarding awareness about physical activity and diet has ($p > 0.05$).educational status and dietary adjustments beneficial have ($p = 0.026$) which is statistically significant. Thus are insignificant contrary to Murugesan N(2007) in which total score was significantly lower in women than in men ($p < 0.0001$). Professional or executive jobs ($p < 0.0001$) were significantly associated with better awareness and statistically similar in that Higher education ($p < 0.0001$) is significantly associated with better awareness. Age had no influence. [10]



Diabetics doing regular exercise and checking weight regularly was found statistically significant ($p = 0.001$)



P value $p (0.000)$ of dietary adjustments beneficial to diabetes and diabetics following controlled diet plan was found statistically significant



CONCLUSION:

- ❖ Knowledge of diabetics regarding benefits of exercise, importance of weight reduction, and benefits of dietary modifications was satisfactory.
- ❖ Although, attitude and practice of exercise among people was satisfactory but it needs to be improved further. Busy schedule, stressful life, lack of motivation, pain was the factors responsible for patients not exercising despite having knowledge.
- ❖ Health care providers were playing major role in educating the patients and making them realize the importance of exercise and weight reduction for effective management of diabetes.

Recommendations

- ❖ Health care providers should play major role in educating and counseling the patients
- ❖ Thus there is need for arranging large scale health education programs for diabetics and the general public and to use media to spread the message which could further improve the attitude of diabetics towards exercise and weight reduction.
- ❖ Awareness programs in the form of dramas, short plays, and health related talk shows can benefit a lot in improving knowledge and practice about exercise.
- ❖ Print media is also an effective media for increasing knowledge and practice through articles.
- ❖ The vital role of family must be recognized.
- ❖ The parks should be made in every locality to facilitate diabetics for exercise.

LIMITATIONS OF THE STUDY

- ❖ The duration of study was short.

- ❖ Small sample was size, so care must be taken while projecting these results to whole population.

- ❖ The Study was conducted only in DMC. So variation from these results can occur while considering other diabetic centers and hospitals.

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Questionnaire CONSENT

We are conducting research on exercise awareness among diabetics. We are investigating this because it might act as a proper feedback of public awareness to diabetic disease. Your participation is limited to filling this questionnaire form. These forms that you fill are not public documents and your anonymity will be respected at all time. The data and results of this research are purely for educational purposes. If you take part in this project it will help u with judging your lack of knowledge regarding diabetes and its disease process

Taking part in this project is entirely up to you. In addition, you may ask to have your data withdrawn from the study after the research has been conducted. If you want to know more about this research project, please contact me at [phone # & email address, include adviser's name, phone number, and email address if appropriate]. This project has been approved by the community medicine department SIMS .

Consent Statement

I agree to take part in this project. I know what I will have to do and that I know that I can stop at any time.

Signature

Date

BIODATA

Name _____

Age _____

Sex _____

Marital status _____

Address _____

Occupational status _____

Socioeconomic status and occupation

1. How much do you earn

a) Below 10000

c)10000 to 20000

b) 20000 to 30000

d)30000 and above

2. Your job description includes

a) Heavy labor

c)desk job

b) mild work as house hold

d)jobless

3. Do you have a family history of diabetes

a) Yes

b)no

4. Educational status

a) Illiterate

b) primary

c) Middle

d) matric

e) Intermediate

f) graduate

g) post graduate

Patient status

5. At what age were you diagnosed with diabetes

a) below 10

c)10 and 30

b) 30 and 50

d)50 and above

6. What is your usual blood sugar level

a) below normal

c)100 and 200

b) 80 to 100

d)above 200

7. Do you get your glycated hemoglobin Hba1c checked

a) Yes

b) no

Exercise

8. What changes to his life style should a diabetic bring

a) regular exercise

c)reduce eating habits

b) diet control

d)diet control and regular exercise

