

# Knowledge Attitude and Practice of Diet and Exercise among Diabetic Patients for Normal Plasma Glucose Level

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**Abstract- Objective:** Identify the Knowledge, Attitude and practice regarding diet and exercise for normal glucose level among diabetic patients.

**Method:** A descriptive cross sectional study was conducted among diabetic patients of KPK in tertiary care hospitals of Peshawar. Participants were selected through convenient sampling technique. The data was collected through a semi-structured questionnaire. The autonomy and confidentiality was assured through a well-defined informed consent.

**Result:** Out of 60 participants the gender distribution was 50% each. The Mean knowledge level of patients regarding diet and exercise for normal plasma glucose control was  $61.17\% \pm 27.62\%$ . Percentages of both Practice and positive attitude were also calculated. The Means and Standard deviations were  $53.33\% \pm 23.68\%$  and  $56.67\% \pm 23.33\%$  respectively. Gender and positive attitude has significant relation with  $P\text{-value}=0.026$ , knowledge was significant with practice through  $P\text{-value}=0.019$ .

**Conclusion:** the result of the study shows deficit in Patients' Knowledge and practice and also lack of positive attitude toward diabetic diet and exercise for maintaining normal plasma glucose level, so there is a great need of producing awareness among diabetic patients regarding the importance of both diet and exercise and to improve their compliance and changes their attitude.

## I. INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by increased levels of glucose in the blood (hyperglycemia) resulting from defects in insulin secretion or insulin action or both, American Diabetes Association, 2009 (1). The common effect of uncontrolled diabetes over time causes many complications especially the nerves and blood vessels. In 2012, diabetes was the direct cause of 1.5 million deaths and high blood glucose was the cause of another 2.2 million deaths worldwide WHO, Geneva, 2016 (2).

Diabetes Mellitus is now a leading cause of morbidity and mortality throughout the world, it is associated with high rates of hospitalization, blindness, renal failure and non-traumatic amputation. The World Health Organization (W.H.O.) has estimated that the global number of people with diabetes will be more than double over the next 25 years and the developing world would tolerate an increasingly larger burden of disease in that period (2). Control of diabetes and prevention of complication is associated with maintaining normal level of

plasma glucose. This level is achieved by pharmacological approaches such as anti-diabetic drugs as well as non-pharmacological management like diabetic diet and exercise etc.

Diet and exercise play an important role in maintaining normal blood glucose level and prevention of complications in diabetic patients. Most of the diabetic patients do not have enough knowledge about their diet plan and exercise which play an important role in controlling normal blood sugar level. A diabetic diet simply means, eating the healthiest food in moderate amounts at regular mealtimes. It is naturally rich in nutrients and low in fat and calories, the key elements are fruits, vegetables and whole grains, fish, chicken and eggs etc. In fact, a diabetes diet plan is the best eating plan for every diabetic patient (1).

A study about the knowledge, attitude and practice of exercise for plasma blood glucose control among patients with type-2 diabetes at Nigeria, in 2016 shows that patients demonstrated good knowledge of exercise for plasma blood glucose control but reported negative attitude and poor practice of exercise; where, 49.5% had good knowledge of exercise while 90.0% had negative attitude to exercise, Less than third, 27.4% were engaged in exercise practice for plasma blood glucose control (3). Another study about dietary behaviors among patients with type-2 Diabetes mellitus in Yogyakarta, Indonesia shows that Dietary behaviors was at a moderate level (4). A study conducted at Saurashtra region shows that Dietary modifications were relied more than exercises among the studied patients (5). For most people with T2DM, weight loss can also make it easier to control blood glucose and it can be achieved by a proper diabetes diet plan (1). A study conducted at faculty of Pharmacy in University of Baluchistan shows that 83% of the study participants believed that sugar should be avoided in food (6).

This study is about the knowledge, attitude and practice of diabetic diet and the importance of exercise in maintaining normal blood sugar level among patient in tertiary care hospital of Peshawar. It also identifies the associated factors, and further it will help the health department for making policies regarding education of diabetic patients with their diet and exercise. It will also provide a base for further research studies in Pakistan.

## II. METHODS

A descriptive cross sectional study was performed the Knowledge, attitude and practice of Diet and Exercise among diabetic patients in a tertiary care hospital of Peshawar. The

study setting was the medical and surgical ward of hospital, for sample selection convenient sampling technique was used, sample size was calculated by Rao-soft software online, with .05 level of significance and 10% nonresponse rate the calculated sample size was 60. The inclusion and exclusion criteria for participant was quite clear.

**Inclusion criteria:**

- The entire admitted patient with diagnosed diabetic status.
- The conscious patients.

**Exclusion Criteria:**

- Patients with Neurological problems (mentally retarded).
- Patients with language barrier.
- Patients on ventilator.
- Children less than 10 years.

A semi-structured questionnaire was used as data collection tool. The questions for the questionnaire was compiled from combining questionnaire of from ' The Australian diabetes, obesity and lifestyle study (7) and diabetes knowledge questionnaire and nutrition, 2015 by Smith, J et'al (8) . The questionnaire was applied on 15% patients of the sample size as pilot testing to identify its reliability.

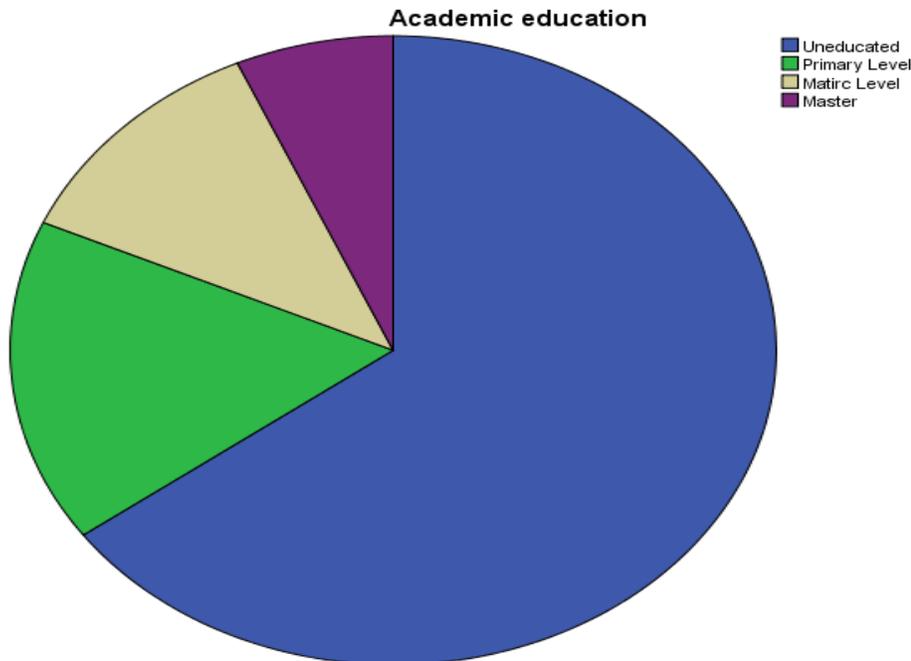
Keeping in view the ethical consideration of the study, a well-defined informs consent was presented and explained to patient to get his/her agreement as participant. Their autonomy and confidentiality was assured throughout the study.

For data analysis in descriptive statistic, percentages and frequencies were calculated for nominal and ordinal data, while Mean and Standard Deviation were calculated for scale data. In inferential statistic independent T-test and one-way ANOVA with post Hoc Tukey Test were applied for continues variable, while chi- square were applied on categorical variables.

**III. RESULT**

The sample was comprised of 50% male and 50% female patients. The Mean duration of diabetes among diabetic patients was 11.45 years  $\pm$  7.28 years. 65% of the participants were uneducated, 16.7% had primary level, 11.7% had matric level and 6.7% had master level as far as education is concerned. . 63.3% of the participants were unemployed, 6.7% were government employed, 26.7% were self-employed, and 3.3% were private employed. Family history of diabetes among the participants was 68.3%. Among the participants 65.0% had complication from diabetes. The overall graphical representation of education is showed in chart 1.1.

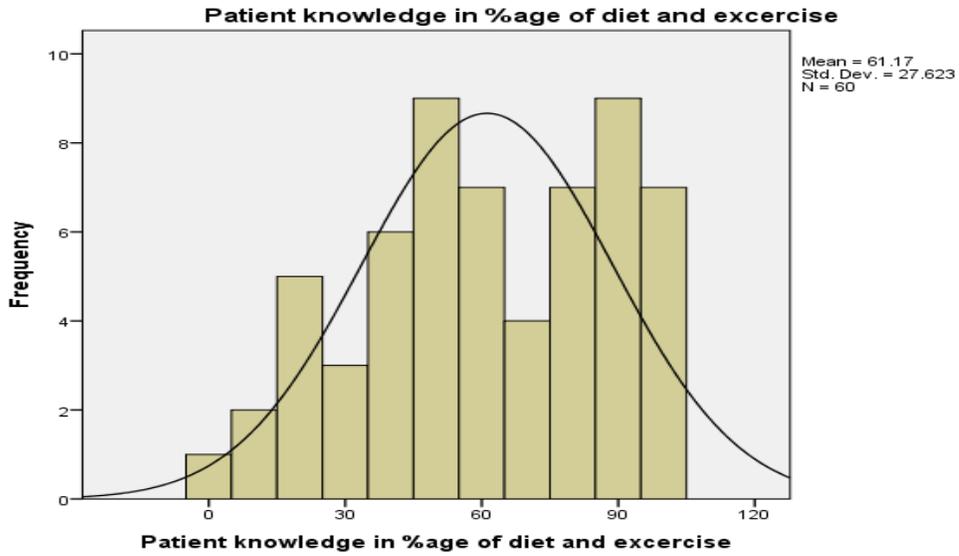
**Pie-Chart: 1.1**



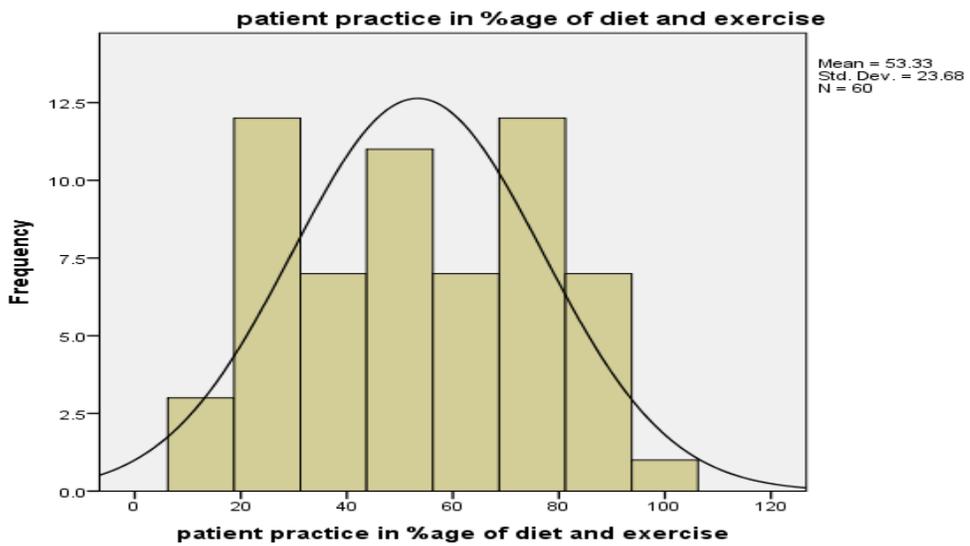
The Mean knowledge level of patients' regarding diet and exercise for normal plasma glucose control was 61.17%  $\pm$  27.62 %. Graphical representation is given in chart-3.2. Percentage of Practice and attitude regarding diet and exercise were also calculated. The Mean and Standard deviation of patients'

practice was 53.33% and 23.68% respectively, Graphical representation is given in chart-3.3. While the Mean and Standard deviation of patients' Attitude was 56.67% and 23.33% respectively, Graphical representation is given in chart-1.2-4

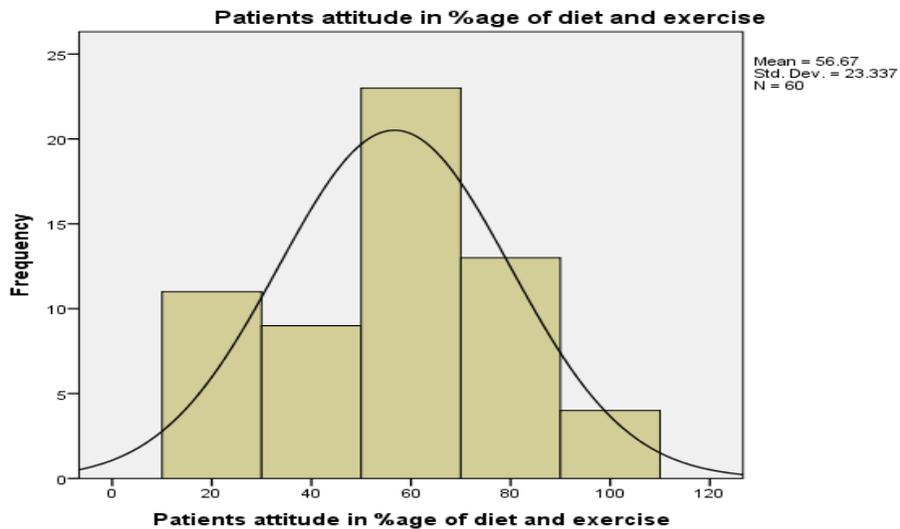
**Chart: 1.2**



**Chart: 1.3**



**Chart: 1.4**



The overall percentage of questions regarding knowledge, Attitude and Practice are given in table-3.1, table-3.2 and table-3.3 respectively.

**Table-1.1:**

S No.	Questions regarding knowledge	Yes	No	Don't Know
1	Sugar level can be controlled with exercise:	65%	13%	21%
2	Diet plays an important role in controlling blood sugar level:	76.7%	6.7%	16.7%
3	Diabetes can cause a number of complications:	46.7%	21.7%	31.7%
4	A food rich in carbohydrate may cause hyperglycemia:	61.7%	5.0%	33.3%
5	Taking low amount of carbohydrate may cause hypoglycemia:	61.7%	5.0%	33.3%
6	A frequent and small amount of food is necessary for plasma sugar control:	70.0%	18.3%	11.7%
7	Sedentary life style may worsen condition:	83.3%	10.0%	6.3%
8	Exercise can prevent complication:	68.3%	11.7%	20.0%
9	Protein in diet is good for diabetic patient:	35.0%	23.3%	41.7%
10	low carbohydrate and low fat diet is good for diabetic patient:	41.7%	13.3%	45.0%

**Table-1.2**

S No.	Question regarding Attitude	Yes	No
1	Do you like eating sweets?	76.7%	33.7%
2	Are you getting bored of sugar free diet	53.3%	46.7%
3	Adaptation with diet plan is easy for you:	46.7%	53.3%
4	Do you enjoy exercise?	35.0%	65.0%
5	Would you like to advice for exercise to other diabetic patients?	75.0%	25.0%

**Table-1.3:**

S No.	Questions regarding Practice	Yes	No	
1	Have you ever visited a dietitian for your diet plan?	43.3%	56.7%	
2	Do you have any meal plan?	65.0%	35.0%	
3	Do you strictly follow your diet plan?	36.7%	63.3%	
4	Have you been told to follow any diet restrictions?	50.0%	50.0%	
5	Do you take any anti-diabetic medications?	91.7%	8.3%	
6	Do you take vitamin or herbal supplements?	30.0%	70.0%	
7	Do you use any meal products such as, (Ensure, Glucerna)?	30.0%	70.0%	
8	Any change in your weight during last year:	83.3%	16.7%	
		Never	Sometime	Usually
9	How often you use sweets in your diet?	40.0%	58.3%	1.7%
10	How would you describe your appetite?	40.0%	26.7%	33.3%
11	How often you go for exercise?	43.3%	41.7%	15.0%

Furthermore; independent sample T-test was applied to identify the association of gender with patients' knowledge, attitude and practice. Gender had significant association with patient positive attitude with p-value =0.026.

One-way ANOVA showed significant association with p-value =0.019. Between patients' educational level and their practice of diabetic diet and exercise for normal plasma glucose control.

#### IV. DISCUSSION

Literatures were searched on published work about patients' knowledge, attitude and practice (KAP) regarding diet and exercise. A number of studies were found in different countries of the world. There were some studies in Pakistan on the stated topic, a limited literature might be found about studies in KPK.

A study was conducted by Jain, Pavan Kumar, 2012 in Pune city showed that 43.42% patients had poor knowledge regarding diabetic diet, exercise and foot care. 47.41% has average

knowledge regarding Exercise, whereas in the current study the mean Knowledge is  $61.17\% \pm 27.62\%$ . (9).

A study conducted by Iral.N.Shah,2009 shows that most of the patients believed in self-care in diabetes, the Practice of taking herbal drugs identified in 40% of patients. The percentages of Practice regarding diet and exercise were calculated in current study's result. The Mean and Standard deviation of patient practice was  $53.33\% \pm 23.68\%$ , respectively (10).

A study conducted by Gregory Joseph, et'al, 2010, about the knowledge, attitude and practice with type-2 diabetic patients showed that the overall mean percentage of knowledge among 156 diabetic patients was 43% (11). According to Naila Akbar et'al, 2014 shows that 83% of diabetic subjects believe that sugar cannot be used at any cost and 68% believed that special diabetic food is used in diabetes(5). This result is a bit different form the current study where 40% of the patients said that they never take sweets in their diet, 58% of the participants use sweets rarely, were as 1.7% use sweets in their diet regularly. The overall Mean patients' positive Attitude was  $56.67\% \pm 23.33\%$ .

## V. CONCLUSION

The study shows that the patients knowledge about the diet and exercise for normal blood glucose level is not up to the mark, furthermore the lack of positive attitude and noncompliance to practice might causes complications for diabetic patients, and might increase the burdened of disease on population.

## VI. RECOMMENDATION

The tool used in the study may help for researchers in future. This study is not confined so, further studies should be conducted that might help in producing awareness among diabetic patients regarding the importance of diet and exercise for normal plasma glucose level. Government and non-government organizations should made policies for health education reading sugar control. Special dietitians department should be established in all public and private hospitals for preparing diet plans and providing health education regarding the importance of diet and exercise for diabetic patients for prevention of diabetic related complications. Print and electronic media might be used for creating awareness regarding the importance of diet and exercise for diabetic patients.

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