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**DIABETIC PATIENT'S SELF-CARE AND MANAGEMENT  
VISITING TO THE LAHORE GENERAL HOSPITAL PAKISTAN**

**A cross-sectional quantitative approach**

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## ABSTRACT

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Diabetic Patient's self-care and management visiting to the Lahore General Hospital Pakistan  
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Diabetes Mellitus appears to be a global epidemic and increasingly major non-communicable disease threatening in both affluent and non-affluent society. At present, Pakistan ranks 6th among the countries with the highest burden of diabetes mellitus Pakistan with a population of 200 million has more than 10% of its adult population as diabetics (Shaikh, 2009). A decision of this research was made to study about the management and the self-care of the patients visiting to the Lahore General Hospital.

Aim of this research is to study about the patient's self-care and management visiting to the Lahore General Hospital and the research question is that, How the patients are taking care of themselves and How much patients have the knowledge about the diabetes and the possibilities of the complications of untreated disease? Purpose was to find out the possible gaps in the knowledge and management of diabetes mellitus.

A descriptive cross-sectional study has been carried out on 120 patients visiting the medicine department OPD Lahore General Hospital, Lahore. Data has been collected over the period of 3 months during the March, April and May 2019 by the non – probability convenience sampling method for both genders. Prior permission has been taken from the ethical review committee and by signing the consent forms before collecting the data.

The results show that the overall level of awareness in both male and female diabetics has been found low; and comparatively the occurrence of diabetes has been found high in females as males.

It has been observed from the results that, the patients are lacking the awareness of the possibilities of the complications of untreated disease. The highest response was 78.3 percent who responded to the correct answer. The lowest percentage of correct answers was 39.2%. It was asked from the participants if they know what does hypoglycaemia means and what are its symptoms. The results are very surprising that more than half of the participants are not having awareness about the management and the self-care plans of the disease. Rest of the percentages of correct answers falls between 39.2% - 78.3%.

The overall level of awareness in both male and female diabetics was low; and. In diabetics, patients are expected to follow a complex set of self-care and management for their diabetes on daily basis and it have a dramatic impact on the progression and development of their disease by participating in their own care. Major gaps have been found on which diabetic patients have to work on. In diabetics, patients are expected to follow the special guidelines of self-care and management on daily basis.

**Keywords:** Self-care, Management, Diabetics, Quantitative, Cross-sectional, challenges, knowledge, awareness.

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## 1 INTRODUCTION

Diabetes Mellitus appears to be a global epidemic and increasingly major non-communicable disease threatening both affluent and non-affluent society. A large population of the world is suffering from the chronic disease named Diabetes Mellitus. It is a very common and progressive long-term condition, which places a significant burden of self-care on the individual. The occurrence of all types of diabetes is increasing, with type 2 diabetes at an epidemic percentage. In low- and middle-income countries people are lacking the awareness of this upcoming issue. According to WHO report 2010, the total number of people with diabetes worldwide has been calculated from 171 million in year 2000 and expecting to increase up to 366 million in year 2030. According to this estimate there is going to be a huge multiplication of diabetic people in 2030. On the other hand, according to the WHO Global report, 2016 it has been estimated that 422 million adults were living with diabetics in year 2014, as compared to the 108 million adults in year 1980. There has been a major increase in the rate of diabetic people in few decades.

At present, Pakistan ranks 6th among the countries with the highest burden of diabetes mellitus. Pakistan with a population of 154 million has more than 10% of its adult population as diabetics and an equal number of people are suffering from impaired glucose tolerance (IGT) (Shaikh, 2009).

According to Tang et al., (2007) patients with diabetes with inadequate health literacy and hypertension have poorer disease knowledge than those with adequate health literacy. In this regard, aim of the research is to create awareness among those who don't have enough knowledge about this chronic disease and self-care. Majority of the Diabetic Patients are facing the severe symptoms. The rate of this unawareness is higher in urban people as compared to the rural people. Focus will be on the self-care of the patients who visit the Lahore General Hospital and what can be the preventive measures to prevent from this silent killer disease (Tang et al., 2007).

By focusing on the projected situation by 2030, according to Akter et al. (2014) Diabetes mellitus is a leading cause of death and disability worldwide. In 2011 Global prevalence was about 8% and is predicted to rise to 10% by 2030. Nearly 80% of people with diabetes

live in low- and middle-income countries Asia and the eastern Pacific region are particularly affected in 2011, China was home to the largest number of adults with diabetes (i.e. 90.0 million, or 9% of the population), followed by India (61.3 million, or 8% of the population) and Bangladesh (8.4 million, or 10% of the population).

Shera et al. (2017) explains about the diverse socio-economic standards of Pakistan. Pakistan is a low-income country with limited resources and diverse socio-economic standards. The evidence base for low- and middle-income countries, especially in Pakistan is weak, however, and previous reviews have noted a considerable amount of subjective and analytical research for the research topic. This study investigates the main factors and challenges which diabetic patients are facing living in low- and middle-income country like Pakistan. It is very important to find out the solutions for the upcoming global disaster in this field. Many people are not aware of their sickness unless they don't reach to their final stage.

The alarming situation has become a challenge for the people as well as the professionals. A decision of this research was made to study about the management and the self-care of the patients visiting to the Lahore General Hospital. Purpose of the research is to study about the patient's self-care and management of diabetes mellitus. Aim is to find the possible gaps in the knowledge and the management of the diabetic patients. With the help of previous literature this study will be conducted in order to find out the gaps for the further studies. Researcher wants to know that how the patients are taking care of themselves and how much patients have the knowledge about the diabetes and the possibilities of the complications of untreated disease.

## 2 THEORITICAL BACKGROUND

In this section, researcher is going to discuss about the theoretical background and the previously studied literature about the prevalence of diabetics, self-care behaviors and its management. The focus will be on the self-care behavior globally, concept of health literacy and self-care behavior, health promotion and self-care in diabetes, management awareness among diabetic patients and the barriers and risk factors to diabetic self-care.

### 2.1 Self-care behaviour globally

By explaining the rate of diabetes mellitus in 2013, According to Jalil and Zakir, (2007) 5.1 million people died because of diabetes mellitus and 8.3% died according to the International Diabetes Foundation. Hassan et al. (2018) also states that on a global scale the occurrence of diabetes mellitus is terrifying and disturbing. A total 387 million people with prevalence rate of 8.3 are living with diabetes. According to an estimate, one in every 12 persons is a diagnosed case of diabetes whereas one in two persons don't know that they are living with diabetes. A total of 4.9 million of 2 deaths were reported in 2014 due to diabetes.

According to Hassan et al, (2018) many people are not aware of their sickness. Several significant global and regional initiatives being undertaken to prevent diabetes and diabetes-related problems, seven out of the top ten countries with the greatest number of people living with diabetes are low- or middle-income countries. These include China, India, Russia Brazil, Pakistan, Indonesia, and Bangladesh, with China now having the largest number of individuals with diabetes (92.4 million) in the world (Rawal et al. 2012). Diabetes is now a global epidemic, but most cases are now in low- and middle-income countries (Essien et al., 2017).

Self-care behavior has been recognized as the cornerstone for effective management of diabetics from decades. Because of its chronic nature it needs a behavioral modification and self-management education for successful outcomes. Diabetic's self-care and management education empower participants by giving them a sense of control over disease and

incorporating diabetic's self-care activities into real life which ultimately leads to a well-being (Habib & Durani, 2015).

According to Rawal et al, (2012) and Essien et al. (2017) diabetes is now a global epidemic especially in low- and middle-income countries. Yousaf & Kausar (2016) explaining that, in case of Pakistan 6.2 million cases are diagnosed with diabetes which is estimated to increase up to 11.6 million in 2025. By adding to this, Gul et al. (2016) explains that diabetes mellitus is one of the common problems in Pakistan; it is a disease that is broadly spreading within all age groups. It is a frightening situation as indicated by the WHO that by 2030 Pakistan will be the 4th most diabetic populated country. Jalil et al. (2017) are focusing on the expected situation in Pakistan and explaining that, Pakistan is expected to have 12.84 million adults (20-79 years) with diabetes in 2035.

Younis et al. (2017) agreed to the previous researchers and added that Pakistan ranks among the largest countries in the world with high prevalence of diabetes mellitus. Pakistan, according to the IDF (Immune Deficiency Foundation), has an equal number of undiagnosed diabetics and established diabetics, and it is also projected that Pakistan will be 7th in the world diabetes rankings by 2035 in terms of the number of people with diabetes. But Hassan et al. (2018) are focusing on the gender-based comparison and explain that percentage that, Pakistan has 11.77% prevalence of diabetes mellitus. It is slightly more in males (11.20%) as compared to females (9.19%). Occurrence in urban areas is 14.81% whereas that in rural areas is 10.34%. Prevention is better than cure, best describes the awareness and supervision approach of an individual towards a disease.

## 2.2 Concept of health literacy and self-care behavior

According to the WHO, 2011 the health literacy is the intellectual and social skill which motivates the capability of people to gain access to, understand. In order to maintain the good health and health promotion, individuals use the information and their skills.

Even though Pakistan has taken so many initiatives and have been actively organizing the health awareness and health promotion programs, but these are not specifically being regulated with the exact concept of health literacy.



Furthermore, the health-related issues and concepts are not very much defined to assimilate all health-related education. Awareness level of individuals in any health care system, social support for improving health, evaluation and assessment of health care system are the core factors to health literacy. Health promotion and disease prevention are the backbone of the health literacy, which integrate personal as well as societal factors. There is a huge knowledge gap about health literacy and its influence on society. This represents that, at the moment the situation of health education and self-care behavior in Pakistan is inadequate. By targeting the most important areas of improved health outcomes in the whole country, there is a huge need to focus on health literacy and management of the diseases (Abdullah & Zakar, 2019).

Another concept of health literacy has been illuminated by Abdullah & Zakar, 2019 that health literacy is a type of art, which includes the ability of the person to implement the basic reading tasks and other numerical work required to manage in the health care settings. However, there is another generally used concept suggests that health literacy is an extent to which people could obtain, function and understand the primary health information and the facilities which are required to make the suitable health related choices. There are different concepts of health education and literacy, which suggests that there is a huge impact of health literacy on individuals, quality of life and their social settings in which they live. It is strongly connected to the social and cultural context of patients. It relates to the social and cultural aspects of individual. They are directly depending upon each other. It cannot be one-way process which only depends on the patients. There is a need of improvement and determination from both sides. A patient cannot fill this gap all alone and the society cannot bring any change without any active participation of patients in health-related programs. According to the researcher, health literacy competences are very important to lessen the errors by improving the connection between the health care providers and the patients (Abdullah & Zakar, 2019).

### 2.3 Health promotion and self-care in diabetes

The self-care practices of individuals are influenced by their knowledge about diabetes; the more they know about their illness; more they would have self-management skills. Many research works shown that, in Pakistan the diabetic population don't have enough

awareness of diabetes, the proper use of medications, lifestyle modifications, dietary plans, myths associated with insulin and other education programs on health issues. Patient awareness about diabetes, complications, medications adherence, diet plans and life style modifications can establish patient specific goals, like effectiveness of medications and decrease in like hood of adverse events in all types of diabetes and in all age groups of diabetic population (Rahman et al., 2014).

Diabetes education and awareness had been considering the corner stone for the management of diabetes. Different studies conducted in Pakistan showed that level of diabetes awareness among men and women were low and diabetic population did not have enough knowledge about better diabetes management, use of medications, behavior modifications and dietary plans. Therefore, patient glycemic level was persistently elevated due to inadequate diabetes knowledge and they suffered more from diabetes related complications (Siddique et al., 2017).

However, Kishore et al. (2015), states that Patient's awareness and practices are vital components in reducing the burden of diseases and its obstacles. Diabetes is a silent disease-many sufferers became aware that they have diabetes only when they develop one of its life-threatening complications.

Yousaf & Kausar (2016) and Younis et al. (2017) agreed that Diabetes-related distress has an adverse impact on health outcomes, including hemoglobin, dietary and exercise behaviors. It was hypothesized that there is likely to be a relationship between self-care, coping strategies and quality of life of individuals with diabetes; coping strategies are likely to intervene the relationship between self-care and quality of life. Diabetes is one of the diseases in which self-care is important and patients themselves must modify and monitor their blood glucose levels and to keep up with dietary and exercise practices. Good control is necessary to avoid or delay the risk of chronic complications, both macro- and micro-vascular. It is reported that emotional distress in people with diabetes compromises the outcome and control. It is also equated with diabetes-related distress.

Younis et al. (2017) explained that in developing countries like Pakistan, where per capita income is low and the burden of diabetes is incredible, compliance and self-care issues are even more unwieldly and need to be addressed in a more vigorous way. The cost of living

and especially the education of children requires extra financial resources. Middle class families with only one bread winner, in most cases, are under a lot of stress. Moreover, people with diabetes-related complications like neuropathy have lower health-related quality of life as compared to people without complications. However, Iqbal et al. (2017) states that Health-Related Quality of Life is a multidimensional construct highlighting a person's physical, cognitive, emotional, psychological and spiritual eminence towards the current health status. Younis et al. (2017) also agree on that fact that quality of life is an important health-related factor that has an impact on all health interventions. Diabetes mellitus has a direct effect on the psychosocial adjustment and physical well-being of patients, resulting in complexity in regimens to manage diabetes.

#### 2.4 Management awareness among diabetic patients

The level of awareness concerning diabetes and its management was found inadequate. Rahman et al. (2014) states that awareness level in male and female is different and according to the research amongst, 36.3% male and 13% female diabetics were aware that why glycemic control is important, 63% male and 32.4% females were aware that diabetes could produce some complications. The overall level of awareness in both male and female diabetics was found low; and comparatively female patients have poorer awareness.

Hassan et al. (2018) has stated that education programs should be made for the diabetic patients and it is highly recommended. Awareness about diabetes, associate's complications, medications observance, dietary planning and modifications in lifestyle can result in decrease likelihood of adverse events within all age diabetic population. Research work published earlier has indicated that, in Pakistan, adequate awareness is not present in the masses regarding diabetes, proper medications use, modifications in lifestyle, changes in the dietary plans, myths inhabited with insulin and other related educational programs. As risk for Diabetes is increasing, general inhabitants should be made target for health education about Diabetes Mellitus and other diseases.

Kassahun et al. (2017) conducted a study in urban and semi urban population of Peshawar, Pakistan showed knowledge of symptoms and complications were 47.1% and 30.8%, Excessive sugar intake, obesity, family history, lack of physical activities and stress were

acknowledged by 46.2%, 42.3%, 39.3%, 33.4%, and 31.8% of the subjects respectively. Community's knowledge can help to assess causes, risk of diabetes and motivate them to seek proper treatment and care. All the above-mentioned authors agree on the fact that there is a need of creating awareness and there is a lot of literature regarding organizing educational programs in order to empower and educate the community.

## 2.5 Barriers and risk factors to diabetic self-care

Younis et al. (2017) explained that diabetes mellitus has a direct effect on the psychosocial adjustment and physical well-being of patients, resulting in complexity in treatments to manage diabetes. It is well known that diabetes is frequently accompanied by short term complications like hypoglycaemia and some long-term chronic complications including macro vascular and microvascular complications. Iqbal et al. (2017) Agree on that, Health-Related Quality of Life is a multidimensional construct importance on a person's physical, cognitive, emotional, psychological and spiritual distinction towards the current health status. Younis et al. (2017) explains that, emotional distress in diabetic people, compromises that outcomes and their controls. It is also associated with diabetes-related distress. Habtewoldn et al. (2016) agreed on that, emotional distress has a direct impact on the control and the outcomes of the disease but they have explained more about the gender-based stress, sociodemographic risk factors, low educational status, and nature of relationship status with partners, ethnicity and unemployment as well.

Lack of resources can be one of most important factor of unawareness lack of self-management. This can be one of the major factors which is why country is proceeding towards the high rate of diabetes and people of unaware of major factors behind this. Basit et al. (2015) and Shera et al. (2017) agree on that, Pakistan has high prevalence of diabetes and its complication, which is a huge challenge to the existing health care system. The major contributing risk factors are urbanization and change in lifestyle, maternal and fatal malnutrition and genetic factors. Country has high prevalence of diabetes and its obstacles, which is a great challenge to the existing health care system.

Iqbal et al. (2017) explains about the lack of resources and health care facilities. Although this alarming situation there are limited specialized diabetic centers and no formal diabetic

education is provided to the patients. Very less funds are allocated to the health sector; hence health care is beyond the reach of most people in Pakistan. Likewise, 24% of the population live below the national poverty line making things more complicated for patients suffering from chronic diseases. Lack of healthcare facilities, poor infrastructure and limited resources negatively affect health related quality of life, of population in general and of T2DM patients. Considering the rapid increase in the occurrence of T2DM in Pakistan and the inaccessibility of HRQoL information about the country.

### 3 PURPOSE, AIM AND RESEARCH QUESTIONS

The purpose of this research was to study about the patient's self-care and management of Diabetes Mellitus. The aim of the research was the health promotion and raising self-awareness of diabetic patients. Aim was to find out the possible gaps in the knowledge and management of diabetes mellitus and the needs of more emphasis. The research-questions are

1. How the patients are taking care of themselves?
2. How much patients have the knowledge about the diabetes and possibilities of the complications of untreated disease?

Hopefully, the diabetic patients will have a better understanding and a good knowledge about their self-care, management and its importance.

## 4 MATERIALS AND METHODS

In this chapter, researcher will describe the study area, research instrument and data collection, building the questionnaire and the structure, Data management and analysis and the ethical considerations.

### 4.1 Study area

Hospital territory is a piece of land measuring one square and seven acres i.e. (256 kanals) and the study site is located on Ferozepur Road Lahore, Province of Punjab, Pakistan. It is affiliated with Ameer-ud-Din Medical College Lahore. The institute is open for 24 hours and 7 days in a week.

In the beginning, the land was proposed for beggar house named Dar-ul-Falah. The foundation was laid down by her excellency Begum Naheed Sikandar Mirza (W/O then Governor General of Pakistan his excellency Maj Gen Iskander Mirza), on 27.02.1958. the first place of this building was completed in late 1958. An opening ceremony for held on 30.09.1958. due to some reasons the proposed beggar house plan was sacked, and it was decided by the Government to provide health facilities to the general public. Hence the birth of Lahore General Hospital took place in the early 1959. Hospital started functioning in the existing building of proposed beggar house named Dar-ul-Falah. At that time, Hospital was used as convalescent home for the overflow of patients of Mayo Hospital, Lahore and there were no proper treatment or diagnostic facilities available at Lahore General Hospital (Punjab Information Technology Board, 2019).

This hospital has different identity of serving patients for brain diseases at Punjab Institute of Neurosciences whereas other departments of Neurosurgery, Medical, Ortho, Radiology, Children Ward, Gynae, Surgical, Eye and others also serve patients at large. The latest laboratories and diagnosis centers are also working with a standard and this hospital has

been extended so much as compare to its creation. There is a capacity of 1600 beds for patients in the hospital building (Chaudhary I., 2018).

Focus of this study was in the outdoor department of diabetic clinic (OPD) of Lahore general Hospital. Influx of patients is around 400 patients per day. OPD department is an important part of the overall running of the hospital. It is normally integrated with the inpatient services and managed by the consultant physicians and surgeons who also attend inpatients in the wards. Many patients are examined and given treatment as outpatients before being admitted to the hospital later as inpatients. When discharged, they may attend the outpatient clinic for follow-up treatment (Punjab Information Technology Board, 2019).

#### 4.2 Research instrument and data collection

This is a descriptive cross-sectional study, and studies of this type are comprised of representative sample or subsample of the population of interest who are questioned at a certain point of time (Bowling, A. 2014).

It has been stated that, in quantitative research, firstly there is the identification of the research problem, then formulation of the research question and then research hypothesis, then comes the review of the literature, sampling, instrumentation, implementation, data analysis, interpretation of data, then accepting or rejecting the hypothesis aiming at generalization of results to the population (Farghaly, 2018).

A descriptive cross-sectional study was carried out on 120 diabetic patients visiting the medicine department OPD (outdoor Patients) Lahore General Hospital, Lahore. Data was collected over the period of three months during the April 2019 to June 2019 by the non – probability convenience sampling method for both genders. Prior permission was taken by signing or taking the thumb impressions (due to low literacy rate people cannot read and write) the consent forms and from the ethical review committee of the institute before collecting the data. Informed consent was taken from the study subjects and confidentiality of the patients was assured.



#### 4.2.1 Building the questionnaire and the structure

A pilot study was conducted on 20 respondents that resulted in a structured close ended questionnaire comprising of many different parts. By pre-testing the questionnaire, the researcher had better understand weather the participants will understand the questions well. Is the researcher going to get the enough information out of these questions or there needs to make more changes in order to get the required information? First part of the questionnaire contained the demographic profile of the respondents such as gender, age, type of diabetes and the population setting. The second part comprised of the basic awareness of the disease. Rest of the questionnaire recorded the management and self-care of diabetic patients such as

- General idea about diabetes
- Dietary plans
- Exercise and its importance
- Relation between the diet and Diabetes
- Foot care awareness
- Self-care plans
- Concept of hypoglycaemia
- Importance of routine check-ups
- Satisfaction of the patients
- Challenges of the patients in order to manage the diabetes
- How to help to master the disease and Recommendations for the management

With the help of the answers of the questionnaire questions, researcher was able to have the better understanding that if patients know that diabetes has a direct relation with diet, activities and daily routine etc. Following table explains about the structure of the questionnaire (table 1).

Table 1. Structure of the questionnaire

<b>Question no.</b>	<b>Included in the section</b>	<b>Self-care and management</b>
<b>Introduction</b>	<b>Background</b>	<b>Demographic characteristics</b>
1-3 & 12	General idea about diabetes Basic diet modifications e.g. eating sweets or sugar	Relation with food, exercise and weight
4 & 10	Glucose monitoring	awareness of sugar level controlled
5.	Foot care awareness	Recommendations awareness
6.	Self-care plans	Management of the disease
7.	Relation between body weight and diabetes	Connection between them
8.	Concept of hypoglycaemia	Situation
9 & 11	importance of routine check ups	Appointments
13.	Level of satisfaction of patients	Satisfaction of treatment
14.	Challenges to manage the disease	Factors creating hinders in management of disease
15.	Help to master the disease	How the help should be provided
16.	Recommendations for management	Improvement in the services

### 4.3 Data management and analysis

The data was collected from the diabetic patients (respondents) visiting the Lahore General Hospital, Lahore. Due to the low literacy rate in Pakistan the questionnaire was translated and filled by the researcher (myself). Close ended questions have been asked to do the survey. Paper version of the questionnaire have been used. Questionnaire has been constructed by the researcher, and themes of the questionnaire have been emerged by reviewing the literature of this study. Data has been collected by asking the demographic data of the diabetic patients such as, age, gender, profession, previously counselled, symptoms and type of disease (appendix 1: Questionnaire).

In order to conduct the quantitative research method, researcher has used the IBM SPSS statistics 26, depending on the data gathered from the questionnaire. This data collection method is appropriate for this research because it will give the researcher to have the better understanding of the problem by calculating the answers that how much do they know about this chronic disease. Descriptive cross-sectional method has been applied in this study and studies of this type are based on representative sample or sub-sample of a population of interest who are questions at one point of time (Bowling, A. 2014).

The Raw data has been browsed thoroughly in order to find missing and invalid values. Descriptive statistics have been calculated and tables have been created when there is a need to illustrate the results. Kolmogorov Smirnov test (test of normality) have been conducted in order to test the normality of the age variable. Independent Samples Mann-Whitney test was used to evaluate the possible difference of the age of male and female participants. The level of statistical significance was set at  $p < 0.05$ .

### 4.4 Ethical Considerations

Bowling (2014) states that, “all research potentially rises ethical issues, and consent to proceed is required from the relevant ethical committees before a research study can commence”.

It is important for the researcher to respect the confidentiality of the patients while interviewing or conducting the surveys. Asking for the permission is very important from the participants. Researcher needs to have the enough information about the causes and reasons of this disease and how it should be treated. Researcher had some theoretical information before starting the surveys. Consent forms were being signed by the patients before filling up the questionnaire. In order to give the better understanding of the research, consent form was being translated in the national language of Pakistan named Urdu. Consent form in Urdu language have been attached in the appendix (appendix 2: Consent form).

It was important to explain about the whole study to the participants that where this study is going to be used and what are you going to benefit out of this research. That brought the confidence in the patient to participate in this research. The researcher took full responsibility of protecting rights and privacy of all participants. The data presentation was made in such a way that no participants can recognized. The data analysis was carried out using best possible measure known to the researcher and it was made with complete honesty and accurately. The researcher spent 2-3 months getting familiarized with data analysis tool (SPSS 26) in order to learn, understand and obtain accuracy while analyzing the data.

Bowling (2014) states that, “people who agree to take part in research studies need protection in relation to their privacy and protection from manipulation by the researcher also required is the protection of trust on which society and the research community depend; and the prevention of the good reputation of research.” By following and respecting the institutional rules and requirements. Researcher was told to get research approval from Article/Research Review Committee of Lahore General Hospital, Lahore. Prior approval from Ethical Review Committee was granted by presenting the research proposal to the Chairman and the other members of the Committee.

Moreover, in the context of research activity, Curtis et al., (2013) has stated the principal of respect for persons articulated in terms of rights, and they are; The right not to be injured or mistreated, the right to give informed, un-coerced consent to participate in the particular piece of research, the right to privacy, confidentiality and/or anonymity.

## 5 RESULTS

In this chapter, researcher is presenting the results based on the analysis of data. The researcher is going to evaluate the data and results will be produced.

### 5.1 General Characteristics of the Study Population

A total of 120 respondents participated in this study. The mean age of male and female participants were 45 years (standard deviation 11.285). There were 92 females (76.7%) and 28 males (23.5%) (table2).

**Table2. Frequencies and percentages of both genders**

<b>Gender</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Mean age</b>
<b>Female</b>	76.7%	92	45y
<b>Male</b>	23.5%	28	45y

## 5.2 Frequencies of symptoms

The most common symptoms of the diabetic patients have been represented with the help of a table 3. There were patients who mentioned a lot of different symptoms, but the researcher has mentioned the most frequent and the important ones. Which include the fatigue, numbness, dizziness, depression, nausea, vision problem and excess urination.

**Table 3. Frequencies of symptoms of 120 patients**

<b>Symptoms</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Fatigue</b>	13	10.8%
<b>Numbness</b>	14	11.7%
<b>Dizziness</b>	14	11.7%
<b>Feet infections</b>	16	13.3%
<b>Excess urination</b>	14	11.7%
<b>Stress</b>	13	10.8%
<b>Vision problems</b>	13	10.8%
<b>Nausea</b>	14	11.7%
<b>Others</b>	9	7.5%

### 5.3 Self-care and management awareness in outdoor patients (questions 1-13)

Table 4. represents the frequency distribution of the right answers according to questions 1 – 13. It explains the question numbers, frequency, percentage and the number of participants in the table. There is a clear frequency distribution of right answers with frequencies and percentages. Questionnaire has been attached in the appendix 1.

**Table 4. The frequency distribution of the right answers according to questions 1 – 13. Frequencies and percentages.**

Question no #	Discription of the questions	Frequencies of the Right Answers	Percentage	Total Frequency
1	Condition of DM	71	59.7%	119
2	Diet	85	70.8%	119
3	Daily excercise	70	58.3%	120
4	Blood glucose monitering	79	65.8%	120
5	Foot care recommendations	69	57.5%	119
6	Self-care plans	49	40.8%	120
7	Body weight	62	51.7%	120
8	Hypoglycemia	47	39.2%	120
9	Routine check-ups	90	75%	119
10	Suger level control	94	78.3%	118
11	Importance of appointments	83	69.2%	120
12	Eating suger and carbs	73	60.8%	120
13	Satisfaction of treatment	76	63.3%	120

#### 5.4 Challenges of managing the disease (COMD)

Table 5 shows that, the frequency and percentages of question 14 (appendix 1. Questionnaire) have been calculated in a descriptive way. It was asked from the participants, if they are facing some challenges in order to manage the disease. A lot of patients mentioned a variety of challenges and issues. But the researcher has mentioned the most common and the important challenges, which needs to be highlighted in this study. Which includes hard to control the diet, Poverty, Stress, weakness, frustration, depression, hard self-control (table 4). Details have been explained in the discussion part.

**Table 5. Challenges of managing the disease (COMD)**

<b>Challenges</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Total frequency</b>
<b>Hard to control the diet</b>	17	14.2%	120
<b>Poverty</b>	20	16.7%	120
<b>Stress</b>	15	12.5%	120
<b>Weakness can't work</b>	18	15%	120
<b>Frustration with disease</b>	16	13.3%	120
<b>Depression</b>	19	15.8%	120
<b>Hard self-control</b>	15	12.5%	120



### 5.5 Help to master the disease (HMD)

Percentages and the frequencies of the answers of HMD and number of respondents have been demonstrated in the given below table (table 6). It was asked from the participants that what kind of help they require in order to master the disease. A lot of different ideas came up in order to seek the assistance for mastering the disease. The most common and important ones have been mentioned in the table 6.

**Table 6. Help to master the disease HMD**

How to master	Frequency	Percentage	Total frequency
<b>Diet chart</b>	20	17.1%	117
<b>Proper coaching</b>	21	17.9%	117
<b>Keen to know</b>	40	34.2%	117
<b>Don't know</b>	36	30.8%	117

### 5.6 Recommendations for the better management of hospital care (RMBM)

The results for the recommendations to make the better management in hospital were very surprising and satisfying on the same time. Out of 120 respondents, 118 patients responded to these questions and they answered according to their own experiences with the management of the hospital. Table 7 represents the frequency distribution and the percentages of the patients respond to a certain answer (table 7).

Table 7. Recommendations for the better management of hospital care (RBMB)

<b>Recommendations</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Total</b>
<b>Respect for patients</b>	42	35.6%	118
<b>Long ques</b>	34	28.8%	118
<b>Rules and regulations</b>	31	26.3%	118
<b>Long distances</b>	1	0.8%	118
<b>Don't know</b>	10	8.5%	118

## 6 DISCUSSION

### 6.1 Discussion of the results

The purpose of this research was to study about the patient's self-care and management of diabetes Mellitus and how much knowledge does the patients have and the possibilities of the complications of untreated disease.

The aim of the research was to find out the possible gaps in the knowledge and management of diabetes mellitus and the needs of more emphasis. A three months of survey was conducted in Lahore general Hospital concluded that people are lacking the awareness to self-care and to manage themselves and they are facing a lot of challenges in order to overcome and control the disease. It has been observed from the results that, the patients are lacking the awareness of the possibilities of the complications of untreated disease. The highest response was 78.3 percent who gave the correct answer. It was asked from the participants that; do they know if they keep their sugar level controlled and check their sugar levels with care and attention. Out of 120 patients, 118 responded and 94 patients were aware of checking and keeping their sugar level controlled with care and attention. There are similar kind of previous research in the literature review section that, Rehman et al, 2014 suggests that, the self-care practices of individuals are influenced by their knowledge about diabetes; the more they know about their illness; more they would have self-management skills.

On the other hand, the lowest percentage of correct answers was 39.2%. It was asked if they know what does hypoglycaemia mean and what are its symptoms. Surprisingly, all the 120 respondents answered but only 47 gave the right answer. It explains that there are almost 60 percent of participants who did not know what hypoglycemia means and what are the symptoms.

Many research works have been shown that, in Pakistan the diabetic population don't have enough awareness of diabetes, the proper use of medications, lifestyle modifications, dietary plans, myths associated with insulin and other education programs on health issues. Patient awareness about diabetes, complications, medications adherence, diet plans and

life style modifications can establish patient specific goals, like effectiveness of medications and decrease in like hood of adverse events in all types of diabetes and in all age groups of diabetic population (Rahman et al., 2014).

## 6.2 General Characteristics of the Study Population

There were more females than males who participated in the study. Participants who answered the questionnaires, had poor socio-economic situation and literacy rate was low as well. Most of the respondents communicated in Urdu language and some of them could only communicate in the local language of Punjab province named Punjabi.

## 6.3 Frequencies of symptoms

The patients had enough knowledge and awareness with regards different symptoms and their awareness of diabetes Mellitus. Out of all the symptoms the percentage of feet infection was higher than any other (table 3). Kassahun et al. (2017) conducted a study in urban and semi urban population of Peshawar, Pakistan showed knowledge of symptoms and complications were 47.1% and 30.8%, Excessive sugar intake, obesity, family history, lack of physical activities and stress were acknowledged. Community's knowledge can help to assess causes, risk of diabetes and motivate them to seek proper treatment and care along with their symptoms.

## 6.4 Self-care and management awareness in outdoor patients (1-13)

Table 4. represents clear frequency distribution of right answers with frequencies and percentages. Out of all 120 patients, the highest percentage of participants answered to the correct answer was 78.3%. On the other hand, the lowest percentage of participants answered to the right answer was 39.2% and that is extremely low. There were participants who have never heard the term hypoglycemia, but they were aware of the symptoms and the condition. Researcher herself tried to explain the meanings and concepts of all the mentioned words in the questionnaire. The results are very surprising. More than half of

the participants are not having awareness about the management and the self-care plans of the disease. Rest of the percentages of correct answers falls between 39.2% - 78.3%.

It has been studied about the diabetes related distress and it has an adverse impact on health outcomes. Yousaf & Kausar, (2016) and Younis et al. (2017) agreed that Diabetes-related distress has an adverse impact on health outcomes, including hemoglobin, dietary and exercise behaviors. It was hypothesized that there is likely to be a relationship between self-care, coping strategies and quality of life of individuals with diabetes; coping strategies are likely to intervene the relationship between self-care and quality of life. Diabetes is one of the diseases in which self-care is important and patients themselves must modify and monitor their blood glucose levels and to keep up with dietary and exercise practices. Good control is necessary to avoid or delay the risk of chronic complications, both macro- and microvascular. It is reported that emotional distress in people with diabetes compromises the outcome and control. It is also equated with diabetes-related distress. According to the results of this study, same ideas goes for the patients of Lahore General Hospital that, there is a very strong relationship between the self-care, coping strategies and the quality of life.

### 6.5 Challenges of managing the disease (COMD)

In the results section, Table 5 explains that, 16.7 participants mentioned that it is hard to manage the disease because of low socioeconomic situation, which is poverty. They mentioned that they don't have money to buy medicines and the healthy food. It is hard for them to manage the disease. The second highest percentage is 15.8% and participants mentioned about the depression and due to depression, they are unable to manage the disease. Lowest percentage of challenges is 12.5 percent and participants mentioned about the hard self-control. 14.2 percent of respondents answered that it is hard to control their diet. 12.5 percent of the participants mentioned that they have stress because of so many other factors as well as because of their disease. 15 percent of the participants mentioned that they cannot go to work because of the weakness and illness. That is also one of the reasons to get stressed and poverty. 13.3 percent participants mentioned that they are frustrated with this disease. They just want to get rid of it. However, the results of this study match the previous literature. Younis et al. (2017) agree on that fact that, diabetes mellitus has a direct effect on the psychosocial adjustment and physical well-being of patients, resulting in complexity

in regimens to manage diabetes. Habtewoldn et al. (2016) agreed on that, emotional distress has a direct impact on the control and the outcomes of the disease. Basit et al. (2015) agrees on that as well and says that, lack of resources can be one of most important factor of unawareness lack of self-management. This can be one of the major factors which is why country is proceeding towards the high rate of diabetes and people of unaware of major factors behind this.

#### 6.6 Help to master the disease (HMD)

Percentages of the answers of HMD and number of respondents are such as; the highest percentage is that people are keen to know about the diabetes (n=40, 34.2%), and secondly 30.8% patients mentioned that they do not know that what would help them to master the disease (table 6). Kassahun et al. (2017) agreed on the fact that there is a need of creating awareness and there is a lot of literature regarding organizing educational programs in order to empower and educate the community.

#### 6.7 Recommendations for the management of hospital care (RMBM)

It is shown that, high percentage of the patients responded to the respect for the patients in waiting areas as well as in the clinic. Secondly, long waiting and ques that includes no appointment system as well as corruption in que numbers. As a surprise, only one patient mentioned the long distance, even there were people coming from many other neighboring cities as well. Previous literature of this study matches the results of the recommendations to make the better management of the hospital as, Iqbal et al. (2017) explains about the lack of resources and health care facilities. Although this alarming situation there are limited specialized diabetic centers and no formal diabetic education is provided to the patients. Very limited funding is allocated to the health sector; hence health care is beyond the reach of most of the people in Pakistan (table 7).

## 7 RELIABILITY AND VALIDITY OF THE STUDY

It is essential to set up validity and reliability of a research. Reliability is simply the extent to which something gives the same measurement each time it is used, and validity refers to the extent to which something measures what it is supposed to measure. (Curtis et. al., 2013). Questionnaire was used as a data collection tool in this study. Questionnaires are accepted as having certain advantages over other data collection methods such as interviews (Bowling, 2014). They include, low cost of data collection and processing and can read much larger number of target population. This method of data collection seems most appropriate for the present descriptive cross-sectional study involving 120 participants. Moreover, the questionnaire was pretested by the field workers before using it as final version.

A weakness in quantitative research is the difficulty in collecting an enough range of recipients and have an enough response rate (Yin, 2011). Only an enough data can provide statistically significant results (Vilkka, 2007). As the purpose of this study was to know about the self-care and management of Diabetes Meletus of patients visiting to the Lahore General hospital, and the number of respondents were hundred and twenty, the sample size seems good for this cross-sectional study. Data analysis of this quantitative study was carried out using SPSS 26 for windows. The researcher spent significant amount of time getting familiarized with the software and making best use of the available tools. The data was analyzed and displayed in the forms of tables and figures for the easy visualization. The researcher made sure that the analysis was done accurately by re-checking the analysis process.

## 8 STRENGTHS AND LIMITATIONS OF THE STUDY

In this study, the data that was collected by the researcher herself during the period of March 2019 to May 2019 and has been analyzed from June 2019 to November 2019.

Influx of patients in OPD (Outdoor patients) department was too high and the private space has been the challenge during the data collection period.

Approval from ethical reviewal committee has been one of the biggest challenges in order to conduct the data collection in LGH. Researcher itself could communicate in the local language of the natives and language has not been the barrier at all. Researcher could communicate in three different languages depending on the local language of the respondents. Researcher had the opportunity to do the counseling of the diabetic patients on the same time while filling up the questionnaires.

In order to get a reliable and satisfactory background, many literature searches were conducted, mostly between autumn 2018 and early 2019. the searches were confined to academic articles in English and the duration was limited to 2010 to 2019. different research articles were found by forming the different word combinations and researching many online databases. Some of the articles have been found in the reference lists of the studies.

This study contains a good message for the Pakistani community especially for the patients of Lahore general hospital but still there is a need of highlighting the most important issues regarding diabetes mellitus.



## 9 CONCLUSION AND RECOMMENDATIONS

Conclusively, it has been revealed from this research that, the overall level of awareness in both male and female diabetics has been found low. Major gaps have been found on which diabetic patients have to work on. In diabetics, patients are expected to follow the special guidelines of self-care and management on daily basis. People need a lot of assistance, proper coaching and advices in order to reduce the complications of diabetics. By participating in their own care and management, there will be a dramatic impact on the progression and development of their disease. They can control the disease in a better way. It has been concluded that positive lifestyle and by engaging in following the proper food meal plans can help the patients to combat this disease. It is important for the diabetic patients to follow the foot care recommendations, monitoring blood glucose level and reducing the stress level in order to fight with this disease. It is advisable for the diabetic patients to join the diabetic related educational programs; and seeking the individually appropriate medical care for diabetics and other health related problems.

There are a lot of diabetic patients who have significantly combat with the long-term complications of diabetics by improving and engaging themselves to the self-care activities. All these activities have been physically correlated with good glycemic control, reduction of complications and improvement in quality of life.

As the occurrence of diabetics have been found so high there is need to take quick actions on governmental level. In order to make the difference on huge level, general inhabitants should arrange some programs for diabetic education. There are so many other factors which are being the hurdles of improving the patient's health such as; the management of hospital needs to be improved, socioeconomic challenges, lack of education and awareness and poor economic situations of patients. Some patients do not have access to the health care centers because of long distance and economic instability as well. It has been seen in this study that most of the patients are unaware of the problems they are having, and they cannot decide for themselves that what they should do. There is a need to empower the diabetic patients having low literacy level.

In this study, it has been found that there is a need of creating awareness in self-care and management of diabetic patients. Previous research has been focusing on the diabetics, creating awareness and its occurrence but now it is the time to do the implementations on the guidelines and to fill up the possible gaps which have been found in this study and many other researches. Diabetic patients need to be empowered and educate in order to make the difference and to bring the change in the society.

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## APPENDIX 1. Questionnaire

Age of the patient -----

Gender Male  Female  Other

Diabetes mellitus type -----

Diabetes awareness (previously counselled) yes  No

Symptoms -----

The following statements describe self-care activities related to your diabetes. Thinking about your self-care and management, please mark the right answer, which you think that is correct according to your knowledge.

1. What do you understand about the condition called diabetes?
  - a. Is it a life lasting chronic disease?
  - b. Is it a short-term disease?
  - c. Can it be vaccinated
  - d. It is a communicable disease
  
- 2. Do you think if there is a direct relation of diabetes with your diet?**
  - a. No, there is a no relation with diet
  - b. Yes, there is a relation with diet
  - c. It is complicated to say about the relation
  - d. There is never any relation with diet
  
- 3. Do you know if there is any advantage of daily exercise in diabetes?**
  - a. It is useless
  - b. No advantage
  - c. Yes, it is important to do daily exercise
  - d. It is hard to do exercise in diabetes
  
- 4. Do you know if blood glucose monitoring is important?**
  - a. It is not important
  - b. People can survive without monitoring

- c. It is so important to monitor blood glucose
- d. It can never be important

**5. Do you think if a diabetic patient should follow the foot care recommendations?**

- a. No, diabetic patient should not follow
- b. Yes, diabetic patient should follow
- c. It is not compulsory to follow
- d. It is up to the patient if they want to follow

**6. Do you think, if diabetic patient should have any self-care plans to manage the disease?**

- a. Diabetic patients should have a proper self-care plan
- b. There is no need to have a proper plan
- c. Change in lifestyle does not effect
- d. May be sometimes there should be self-care plan

**7. Do you know if your body weight has a direct relation with diabetes?**

- a. Body weight has nothing to do with diabetes
- b. Body weight does not influence on diabetes
- c. Yes, body weight has a direct relation with diabetes
- d. I think body weight is a different matter

**8. Do you know what does hypoglycaemia means and what are its symptoms?**

- a. It is caused by a high sugar level and symptoms are dizziness, anxiety, headache
- b. It is caused by the low sugar level and symptoms are dizziness, anxiety, headache and shakiness
- c. it is a low sugar level and symptoms are diarrhea, fever, Ebola
- d. It's a high sugar level and symptoms are diarrhea, fever and Ebola

**9. Do you have any idea if routine check-ups are important?**

- a. No, they are not important
- b. Yes, they are important
- c. Maybe they are important



- d. They are never important

**10. Do you know that if you keep your sugar level controlled and check your blood sugar levels with care and attention? you will**

- a. Create more problem
- b. Manage your diabetes well
- c. It will not require any other precaution
- d. Not need as a part of your treatment

**11. Do you think if it is important to keep all the doctor/ nurse appointments recommended for your diabetes treatment?**

- a. Not important
- b. Very important
- c. Complicated
- d. Useless

**12. Do you think if it is ok to eat lots of sweets or other foods rich in carbohydrates?**

- a. Yes
- b. No
- c. May be
- d. Don't know

**13. How much are you satisfied about your treatment in hospital?**

- a. Unsatisfied (0 -25%)
- b. Moderately satisfied (26 – 50 %)
- c. Satisfied (51-75%)
- d. Highly satisfied (76-100%)

**14. What are the challenges are you facing in order to manage your disease (COMD1)?**

1	2	3	4	5
Difficult				
6	7	8	9	10
			Easy	

**15. What would help you to master your disease (HMD)?**

--

**16. What would you recommend making better management in hospital (RMBM)?**

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## APPENDIX 2. Consent Form

Dear Sir/ Madam

I am Nazish Ghaffar. Doing masters in Global health care disaster management and emergency preparedness from Diaconia University of applied sciences Finland, Arcada University of Applied Sciences Finland and University of East Africa Baraton, Kenya. I am conducting a research on The Self-care of diabetic patients and constructing health promotion related guide for the patients who are visiting in OPD of Lahore General Hospital.

I request you to participate in the study, you will have no effect on the course of your treatment, and it will be beneficial to humanity. I assure you that your name and data will only be used for research purpose and all the information will be kept confidential.

Thank you,

Sincerely,

Nazish Ghaffar

Master of Global health care student

I have read and have been explained the protocol of this study. I, hereby, agree to participate in the above-mentioned study.

Name of the participant: \_\_\_\_\_

Date and signature or thumb impression:

\_\_\_\_\_

Place: \_\_\_\_\_