

Managing Diabetes at Household Level; A case study of Diabetic Patients in Rawalpindi City

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Abstract



In the middle- and low-income developing countries like Pakistan treatment of diabetes is very expensive and people can't afford the cost of medications in this way households face many financial hardships. Therefore, the study was focused on how cultural myths influence the patients in managing diabetes at household level to avoid the use of medications. The purpose of this research is to study the relationship of treatment cost and household budget and further to explore the cultural myths in regards to managing diabetes. The study was carried out in Cantonment area of Rawalpindi city. Further the research study was qualitative in nature and selecting 20 diabetic patients through purposive sampling technique of non-probability sampling type. Moreover, for this study research methodology was exploratory and data were collected through face-to-face interview. Interview has been recorded with due permission of the respondents and transcribed in order to analyze or generate various themes. In this study findings identified in six theme, mode of treatment, affordability of treatment, bearing of expenditure, budget disturbance, Cultural belief and practices, and Cultural myths in management of diabetes. these were found that patients who bear expenses on self without any health insurance or not having any panel of hospital facing issue to manage the diabetes. Due to costly medicines their household budget was badly disturbed and most of them let the visit of doctor, use medication only once in a day just to pass the whole month from these medicines. Further most of the patients never conduct hba1c test regularly and the reason is non-affordability of test cost. Only those who are on the panel of certain hospitals conduct this test after every three months. Furthermore, due to costly medications patients looking for alternative solutions as they choose cultural belief and myths to control diabetes just to satisfy the self.

Keywords: Diabetes Mellitus, type 1&2, Self-management, Medication cost, Household, Income, Budget, Myths, Misconception, Belief, Culture, Exploratory, Qualitative.

Introduction

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood glucose (World Health Organization, 2022). In simple words diabetes mellitus is a metabolic disease in which there is an excess of glucose in the blood of the individual suffering from this disease. The insulin moves sugar from the blood into the body cell for the purpose of energy. In diabetic patients their bodies unable to make insulin or not be able to used it effectively. If high blood sugar is not treated properly, other organs of the body like eyes, kidneys, nerves and bones etc. are affected badly. Usually, diabetes is classified into two main types. Type I, which is an autoimmune disease. In this type immune system destroys the cell in pancreas where insulin is produced and patient become dependent on insulin. Second one is Type II, in which human body resistant to insulin and sugar level rises in the blood. There are certain symptoms which a diabetic patient feels himself/herself for example, fatigue in the body, frequent urination, slow healing of wound and blur vision etc.

Pakistan is a most populous country with the population of 235 million people and the rate of various chronic and non-communicable disease including diabetes with the prevalence of 26.7%, this

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is high because the less income and mental stress of people (Azeem, Khan, & Liaquat, 2022). Due to meager financial resources they can't afford the treatment of the disease like diabetes. Majority of the families depend on a sole breadwinner. Whenever, a family member suffering from diabetes, other member affected directly due to increase cost of medication and diagnostic. To cure diabetic patient a lot of financial resources are needed and as result other members of the family also faced financial or dietary problem due to extra spending on diabetic patient. Medication and diagnostics expenditure increased which are definitely cut out from the budget of other persons dietary expenditure also increase when diet of patient will prepare as per diet plan suggested by the health care giver hence all members are suffered a lot due to one diabetic patient. Diabetic patient also need extra care and special person as a care giver when the diabetic patient was in old age.

Pakistan is developing country and majority of its population is uneducated so people in household level control their diabetes by believing in myths. There is a lot of misconception and myths regarding many diseases and especially about diabetes. Myths and misconceptions are entrenched in culture of Pakistani society in such a way that no one can deviate from these misconception in spite of knowing the facts and cause of any disease including diabetes that are simply disorder in human hormonal system. The actual reason is illiteracy, ignorance, low level of education and economic problems etc. Beliefs are a great hinder in actual diagnoses or late treatment of the disease. Such belief are so strong that even today modern era of advancement, majority of people depend upon spiritual healing or DAM from any religious scholar or PIR (Khan & Abbas, 2012). Further 'people visit HAKIM (traditional herbal medicines practitioner) for treatment of diabetes. They also believe in spiritual treatment or alternative forms of medicines (Rai & Kishore, 2009). Another myth and misconception to 'drink bitter gourd juice (KARELLA WATER) to decrease the glucose level of blood sugar' (Kapoor, 2021). Most of the people blindly follow others and trust in their experience or even begin to use medicines of others, without knowing their own disease complication and try to treat it by self. Such tactics leads to more complications and causes of many other diseases like eyes, muscular pain, and cardiovascular disease beside diabetes. It's a matter of common observation that low education and poor economic condition are major barriers to reach up to health care giver which in turns cause difficulty when diabetic patient approach to the health care in case of severity and acute situation.

Diabetes mellitus (DM) is global killer and most prevalent disease throughout the world as number of patients increases in worldwide. According to International Diabetic Foundation (2021), approximately 'about 537 million people are suffering from diabetes and this number is expected to reach 643 million by 2030 and 783 million by 2045. Moreover 6.7 million deaths are recorded in 2021 due to diabetes. The prevalence of diabetes is observed in low- and middle-income countries as 3 in 4 people living with diabetes. If we talk about Pakistan which has the highest worldwide prevalence of diabetes with 1 in 4 (26.7%) people suffering from diabetes and its rank on 3rd place among countries with highest ratio of people living with diabetes (33 million) followed by China (141 million) and India (74 million). Consequently, diabetes accounted for 400,000 deaths in Pakistan in 2021 and statistics show that 11 million people in Pakistan are at high risk of being diagnosed with type 2 diabetes. In addition, (26.9%) of people in Pakistan living with diabetes are undiagnosed. When diabetes is not detected or not treated properly it can lead to life-threatening and serious complications like stroke, blindness, heart attack, lower-limb amputation and kidney failure, with these complications people's quality of life reduce or suffer and their healthcare expenditure also rise leading financial crunch (International Diabetes Federation, 2021).

Prevalence of diabetes in Pakistan increasing rapidly and poses a serious threat to the health and wellbeing of families and individuals in the country. Additionally, around the world it is estimated that one in every two diabetic patients need insulin but they don't have access to it or they can't afford it (Associated Press of Pakistan, 2021).

Objectives of the Study

1. To study the relationship of treatment cost with household budget
2. To explore the cultural myths regarding managing diabetes at household level.

Research Questions

1. How household budget is related to the management of diabetes?
2. How cultural myths are used to manage the diabetes?

Review of Literature

Cost of illness approach was used for this study to evaluate and analyze direct (medical) and indirect cost associated with diabetes management. Further the research study was carried out in 4 provinces of Pakistan. Therefore Findings of the study revealed that direct costs contributed significantly to the overall cost of diabetes in Pakistan estimated 1.67% (USD 24.42 billion). Hence the direct cost was primarily driven by the cost of medications and hospitalization. Furthermore, patients' productivity loss added significantly to the indirect cost which includes the productive time of patients and their caretakers lose during hospital visit (Butt, et al., 2022).

Micro-costing or bottom-up approach was used for this study to assess the financial burden of diabetes on patients and their families with the estimates of direct (medical or non-medical) and indirect costs associated with diabetes management. So the findings of the study revealed socio demographic measure such as education had considerably correlations with direct and indirect cost. This is because educated people earn more money than non-educated person and they are more aware of their health status. So those individuals who had low-income face difficulties in managing diabetes medical expenses (Ogayse, et al., 2020).

According to Siddiqui, et al. (2021) some common myths and misconceptions among diabetics related to diabetes treatment are take honey instead of medicine, stop using the insulin as it is poison and whoever used this are near to die, so as per study findings most of the Patients were uneducated and belonged to poor class. Further people believe in herbal practitioners as they completely cure diabetes. The most surprising myths were noted about insulin that it is bad for human health and the person who used insulin is near to dying'.

Sari, et al. (2022) explored cultural beliefs and practices of diabetic patients regarding diabetes self-management. Hence findings of the study revealed that misconception and belief about diabetes and management such as diabetes are of two type's dry sugar or wet sugar; eating cold rice does not increase glucose level. Use of insulin can damage body organs, walking barefoot is good for diabetic patient. Further belief regarding use of home remedies and medicinal plants reduces the blood glucose. Moreover, cultural events influence on diet management as patients facing difficulties in managing the habit of sweet-tasting food. Another study revealed that belief and misconception about the disease can be generated or linked through the educational status of people. As one of the common myths is eat more sugar can leads to diabetes. Most of the people had this misconception that diabetes can only happen in old age. Further people believe spiritual treatment is very helpful in curing diabetes Myths about diabetes treatment are common in females. With the higher prevalence of myths in females may contribute to the fact that female education is extremely low. (Vijaya, Rankhambe, & Kumar, 2022).

The study focused to explore how Nigeria's socio-cultural factors influence the diabetes self-management support. The study was carried out in two diabetic clinics in southeastern part of Nigeria. Hence for this study sample size was 19 and purposive sampling was used. Findings of the study revealed that cultural beliefs and myths are very popular among Nigerian people. Moreover poverty, lack of health insurance, limited knowledge about diabetes and family interdependence are the main factors which influencing diabetes self-management support (Iregbu, Duggleby, Spiers, & Salami, 2022)

Materials and Method

Research Design

Proposed research study was qualitative in nature with a case study approach used to explore how diabetic patients managing diabetes at home in terms of how much cost they spent on treatment of diabetes and its impact on household budget. Further, how cultural belief and myths are helpful in management of diabetes.

Universe of the Study

The research study was carried out in Rawalpindi cantonment area. The respondents of the study were interviewed in their houses. In addition, only the respondent and the researcher were present during the interview process. Further for this study the inclusion conditions were, the respondents had diagnosis of type 1 and type 2 diabetes. Secondly respondents had been suffering from type 1 and type 2 diabetes for minimum 2 years. Thirdly respondents (male and female) were middle-aged from 43-75 years old. Basic purpose of research is in-depth study of the problem under investigation and easy access to respondents for the collection of data. Due to financial and time constraint study was

delimited to Rawalpindi cantonment area only so researcher can easily access to targeted population for data collection. Moreover, there is not any detail study is available in Rawalpindi city especially on research topic under investigation.

Sampling

All the diabetic patients male and female residing within the Rawalpindi cantonment area was constituted the population of research study. Further for this study purposive sampling technique of non-probability sampling type was used. This sampling technique helps in recruitment of patients who are voluntarily participated in semi structured in-depth interview. So, through purposive sampling 20 diabetic patients, 10 male and 10 female were selected for this study. According to Palinkas et al. (2013) ‘Purposive sampling was one of the best and very popular method of sampling among qualitative researchers and fulfill the purpose of the researcher in obtaining enrich and detailed information regarding the phenomena under investigation’ which was the managing diabetes at household level in this study. Therefore, 20 respondents are sufficient in obtaining a saturated data. A sample size (n=20 type 1 and 2 diabetic patients) permitted an in-depth investigation regarding management of diabetes at household level. In other qualitative case study design exploring management of diabetes among adults Kusnanto et al. (2020) selected a sample size of 15 diabetic patients as respondents for qualitative analysis.

Methodology

For this study the research methodology was exploratory in **nature**. **Exploratory** research methodology was used when enough is not known about a phenomenon and a problem that has not been clearly defined” (Saunders, Lewis , & Thornhil, 2007). Exploratory research never provides the conclusive or final answers of research questions but purely explore the research topic in depth. Further, exploratory methodology was used when there is a variation among the thoughts of individuals on the same phenomena or occurrence. Researcher intends to know through the study under investigation, views of various patients regarding the diabetes control treatment and its impact on household budget. Further, there are different beliefs about the origin and transfer of diabetes, and masses have their own views regarding this. Additionally, there are so many myths regarding diabetes cure, management, and its transfer or spreading. Hence researcher wants to explore all these beliefs and myths in detail, that’s why the most suitable designed for this study was supposed to be exploratory methodology.

Method

Researcher used interview method to collect data or detail information regarding the problem under investigation. In this study interviews were conducted face to face and involved one interviewer and one respondent. Further due to qualitative type of data semi-structured interviews have been conducted. In depth interview is a strategy want to get a crystal clear picture of the respondent’s or participant perception on the exploration subject or the phenomena and problem under investigation.

Tool

For this study researcher used interview guide for the purpose of data collection. Questions were open-ended in this interview guide so that the respondent were not allowed to simple answer yes or no but must have to expound on the topic in detail. The questionnaire consist of the components like management of diabates in relation to medication, cost of treatment, and cultural belief and myths in practive to managing diabates at household level. Further, each patient’s interview lasted for 30 to 50 minnutes.

Table: 1 An overview of the Qualitative Research Study Design

Design	Goal	Sample Size (N)	Sampling & Location	Material & Method	& Analysis
Qualitative Research Case Study Approach	Study the relationship of treatment cost with household budget Explore the cultural myths regarding managing diabetes at household level	N = 20 patients	Purposive Rawalpindi Cantt area	Exploratory Interview method Interview guide	Thematic analysis

Data Analysis

In this study thematic analysis approach was adopted for analyzing the data. Further thematic analysis is an analytical tool which is widely used in qualitative research to identify, analyze and generate

themes in data. Hence thematic analysis process is consist of six stages i)Familiarization with data, ii) Generating codes, iii) Searching for themes across data, iv) Reviewing the themes, v) Define and name themes then vi) producing report (Braun & Clarke, 2006).

Results

There were total 20 participants, 10 men and10 women with an average age of 59, range 43-76 years. Further the mean duration of time since diagnosis of diabetes was 10 years. The respondents demographics summary is provided in the following table.

Table 2: Demographics Summary of the Participants (n=20)

	Total=20	Male 10	Female 10
Age (Average)	59	63	55
Marital Status			
Married	10	5	5
Widow/Widower	10	5	5
Education			
Illiterate	2	0	2
Primary	3	1	2
Middle	4	1	3
Matric	2	1	1
Intermediate	8	6	2
Diploma	1	1	0
Employment			
Full/part time, self employed	6	6	0
Stay at Home	10	1	9
Retired	4	3	1
Family Type			
Nuclear Family	7	3	4
Joint Family	13	7	6
Home Ownership			
Owned	14	8	6
Rented	6	1	5
Family Income			
20,000-35,000	7	2	5
35,001-50,000	3	2	1
50,001-65,000	5	3	2
65,001-100000	5	3	2
Duration since diagnose			
0 to 5	3	0	3
6 to 10	4	1	3
11 to 15	8	7	1
> 16	5	2	3

The data was transcribed and coded. On analysis of data 6 major themes emerged. These themes are, mode of treatment, affordability of treatment, bearing of expenditure, budget disturbance, Cultural belief and practices regarding management of diabetes, and Cultural myths used in management of diabetes. These major themes are further divided in sub themes as shown in the following table.

Table 3 Themes and Sub Themes Emerged from the Data

Themes	Sub-themes
Mode of treatment	Use of Allopathic Mode
Affordability of treatment	Use of Allopathic mode along with Homeopathic and Herbal Herbal Mode is cheap & Effective Allopathic affordable mode Nothing is affordable
Bearing of expenditure	Panel Non-panel (Own-self)
Budget disturbance	Letting medication Let off test & Doctor Visit Poverty

	Irregularity in conducting HbA1c test	
	Abnormality in checking glucose level	
Cultural belief and practices regarding management of diabetes	Managing diabetes through divine knowledge (HIJAMA)	Cupping therapy
	Use of herbal Medicinal Plants	
Cultural myths in management of diabetes	Avoid fruits and use of honey	
	Use of dry bread (Roti)	
	Not wearing plastic/vinyl softy	
	Drinking Spring (CHASHMA) Water	
	Using home remedies to control sugar	
	Eat bitter food	
	Reduce sugar level by oiling feet message	
	Soaking feet in water	
	Walking barefoot	

Theme 1: Mode of Treatment

Allopathic

Majority of respondents are using and preferring allopathic mode of treatment as they believe allopathic treatment is effective and they are comfortable in using allopathic medicines. Further respondents are curing their diabetes with help of either insulin or tablets or both. They are opined that this mode is most effective and sole way or mode of managing the diabetes.

"I use allopathic mode₇ of treatment in the form of tablets and I always prefer it. The reason for using this mode is that it is beneficial for managing sugar and for me". (R₇)

"I think diabetes can be cured by using allopathic medicines₈ or insulin properly prescribed by the doctor that's why I prefer allopathic mode". (R₈)

Allopathic, along with Homeopathic and Herbal

Interestingly one of the respondents is using all modes i.e. allopathic, homeopathic and herbal mode. He narrated the basic reason behind this is poverty and lack of financial resources. That's why which ever and whoever suggest me I start and adopt that mode. Although not a single one proved to be helpful in managing the diabetes. Now a days I am using herbal medicine given by a HAKEEM(Herbalist)

I used almost all modes of treatment like allopathic, herbal and homeopathic₁ and spiritual etc. currently I am using herbal treatment (R₁₅)

One of the respondent using allopathic mode along with herbal medicines. He opined that these both modes are beneficial, although he was unable to explain it, which suggested it or prescribed it. One respondent is using the allopathic mode along with homeopathic. He narrated that allopathic medicine have a lot of side effects and to reduce these effects I used homeopathic medicines.

I always used allopathic & herbal mode of treatment₁ for sugar control. In allopathic, I always take tablets (R₁₇)

I am using allopathic and homeopathic mode of treatment in form of drops and tablets further I use homeopathic medicines because it reduces the side effect of allopathic medicines. (R₁₉)

Theme 2: Affordability of treatment

Herbal Mode is cheap & Effective

In Pakistan most of the people prefer cheap medicines or free medicines instead of taking expensive medicines. Regarding cheapness and affordability of medicines most of respondents narrated that herbal medicines is cheapest one and within the reach of ordinary person and can be used in regulation of blood glucose. Further herbal treatment is only treatment which has no side effects as these medicines are made up of natural herbs without adding other type of chemicals.

In terms of cost effectiveness herbal mode is bit cheap as compare to other mode because herbalist never charged his consultancy fees, only received the payment of medicines. (R₄)

Allopathic Affordable mode

Certain respondents said regarding affordability of medicines allopathic mode is somewhat extent cheap and can be affordable. Even one narrated that in the market various tablets of the same formula and composition are available of various medicines company and can be used for regulation the blood glucose. Further allopathic mode in this sense that if Public or Govt, hospital are visited in this regard, there medicines are provided free. Now critical question here arises that, is medicines are abundantly

available in all Govt. hospitals? In real sense keeping in view the ground realities and high density of population such opinion can be generalized. Perhaps the answer is negative.

In terms of cost effectiveness allopathic mode is more cost effective as compared to other, because tablets of same formula or composition have different prices that are from low to high. Hence, using tablets of low prices and walk regularly help in maintaining the blood glucose that is my personal experience. (R₁₇)

In terms of cost effective allopathic mode is cheapest if medicines are obtained from those hospitals which provide free medicines like public hospital. (R₈)

Some patients opined that in current scenario of high inflation not a single mode of treatment is affordable except walk. However, homeopathic medicines are some extent affordable and without any side effects.

In case of cost effectiveness of various modes homeopathic is most cost-effective treatment and according to my opinion there is no side effect by using these medicines. (R₃)

Nothing is affordable

In Pakistan current health care system is very expensive and access to any treatment is very difficult as two respondents elaborated that only walk and prayers (self-spiritual healing) is free not even a single mode is cost effective or affordable like treatment of allopathic tablets and insulin, homeopathic medicines and even herbals medicine are not within the reach of common and poor patients.

In terms of cost effectiveness none of these treatments are affordable, all types of treatments like allopathic homeopathic, herbal are expensive and poor people cannot afford them. (R₂₀)

Theme 3. Bearing of expenditure

On Panel

There are two sub categories of the sampled patients that is Panel mean those who are on the panel of certain hospitals with reference to their organization and their all medical expenses are managed by their parents department like PTV or Armed forces or Pakistan International Airline. All the patients or respondents who are on panel have an average expenditure of Rs.3000/- on drugs and investigative or diagnostic tests even if it exceeds there is no problem for such patients. Further, they never feel any financial burden or problem in household budget. They all thanked to their department to give this facility because in this inflation era it is very difficult to manage with own pocket.

My all-medical expenses are borne by my department that is PTV Corporation. (R₁)

My medication expenditures are covered by PIA because my son is a PIA employee and on panel of various hospital. (R₄)

Non-panel (Own/ Self)

In case of respondents who manage the expenditures by self are 15 in numbers and made all expenses from their own pocket. Their estimated average per month expenses is about Rs. 6000/- excluding tests which is difficult to take out the of the income. Even whenever they have to conduct investigative test then in that month their expenditures exceed from the above-mentioned amount. Hence, the patients who are not any panel of any organization are facing a lot of problems.

As far as concern the expenses of medications and tests, all are managed by myself out of household budget. (R₃)

One of the respondent was in very critical situation and even his leg was cut down due to worse diabetes. His indoor medical expenses were bore by his organization in the form of reimbursement. However initial arrangement is made by own, which itself is a huge and hard task.

All the medicines and test expenditure are managed by myself however in case of indoor treatment actual amount is reimbursed by my department that is Cant. Board. (R₁₈)

Theme 4 Budget Disturbance

Letting medication

In Pakistan diabetes management program is not working effectively in clinics and hospitals private doctors charge huge consultation fees as well cost of medicine is expensive. All the patients who manage their expenditures of drugs and diagnostic test, their household budget are badly affected and face a lot of financial hardship. Due to worse financial position, even sometime they skip the medicines and abstain from visiting to doctor for proper advice. Certain patients are in such miserable conditions, that to pass the whole month either they take the medicines one time, instead of twice in a

day as prescribed by the doctor, or let and skip the medicine. Although, they know the adverse effects but due to scarcity of resource, they do this practice.

Even sometime I skip the medicine and take only once in a day to manage the expenditures although it is very harmful for the health further, I never visit the doctor in time due to insufficient resources (R₁)

Household budget is badly disturbed and difficult to manage the medication with meager financial resources. Although, I just use one tablet in whole day and even some time I use half tablet due to scarcity of money. (R₁₀)

Let off test and Doctor Visit

Due to inflation and financial crises medicines are so costly and are out of reach. This affects the household vigorously that certain patients give up the medicines and also let the all kinds of tests and visit to doctor also. Further most of respondents are so fed up due to financial crisis that in routine budget it is not possible to bear the medicines expenditure and always the tablets etc. in less amount in spite of know the fact that it is meaningless, but just to satisfy themselves psychologically. One of the respondent said sometime thought to let all this medication and spend these finances on purchasing household commodities so other family members may not suffer due to my medication expenditures.

Cost of medication badly disturbs my household budget and it is too hard to manage with meager financial resources. For this reason, I just use one tablet in whole day due to scarcity of money. Sometimes I thought that I should not spend money on buying medicine and spend this money at home so that my household budget is not disturbed. (R₂₀)

One patient narrated that since last three year I have not been visited to doctor and have not conducted any test. In a meager amount taken out for the ordinary household budget I bought medicines and try to use in intervals to pass the whole month knowing the fact that it is very harmful.

Even often, I skip the medicines so that whole month passed. I visit doctor rarely because my household budget is badly disturbed and even since last 3 years I have not visited to doctor or have done any diagnostic test. (R₁₇)

Poverty

Another patient said that I am always in search of such hospitals or charitable home which provide free medicines or visit to such doctors who have not consultancy fee. Again, to purchase the suggested medicines is a gigantic task.

I don't have money to spent on diabetes treatment I always in search of such hospital or doctors who advise free but again financial problems are main hurdle in purchasing medicines. (R₁₅)

Irregularity in conducting HbA1c test

Regarding conduction of HbA1c test financial constraints and crisis is the main hurdle for the patients; it is not possible to conduct this test regularly. However, mostly patients have not do this test at all since diagnose with diabetes or even they can't think about such test due to insufficient resources. Further there are certain cases have done this test once in a year and reason for not conducting in every three month is non-affordability in terms of finances.

Regarding regular test of HbA1c is out of question or even cannot think about such testing. (R₆)

Since I diagnosed diabetes, I never conducted HbA1c test because i don't have enough money to spend on such test however doctor advise me but i never considered this. (R₁₇)

Abnormality in checking glucose level

Most of the respondents never check their glucose level by self or by doctor regularly whenever they feel their sugar level is high then they checked from doctor or self by glucometer at home.

There are enormous reasons due which most of the diabetic patients often never check their glucose level self of by the doctor. There are two main reasons behind this. Firstly, if they check the glucose level by self, need and glucometer which is costly. If by hook or crook if someone arranged then again, its strips are expensive and cannot be afforded by majority of patients. Secondly if the patients visit to doctor for this purpose, he also would charge the fee which is again a financial burden.

I have glucometer but its strips are so costly and unaffordable, hence I have never checked my glucose level on daily basis. (R₁₅)

I check my glucose level from doctor whenever I feel my sugar level is high. (R₁₀)

Theme 5: Cultural belief and Practices

Managing diabetes through Divine knowledge

Being Muslim, it is the faith of every Muslim that all types of suffering in the form disease are actually the test or exam by the All-Mighty Allah. All the true followers or Pious men of Allah always attracted towards Allah for help in the shape of Prayers and recitation from Quran or a Particular part or Surah RAHMAN, Yasin or DROOD SHARIF and various verses of the Quran in the form WAZEEFA for the cure of any disease like diabetes etc. As He Who is the creator of this whole universe and governing it according to set procedure can cure His creature from all disease with the help of his divine and supernatural power. Majority of respondents strongly believe that all disease is from Allah and cure is also by Allah and again have a firm belief on spiritual healing for the treatment of various diseases including diabetes. It depends on the Will Power of the individual and on his/her firm belief or faith that such kinds of acts like recitation various Surahs, like KAUSAR, QADAR and Saurah RAHMAN are helpful for the curing of different diseases including diabetes.

I heard surah RAHMAN and feel stability and relief in my glycaemia when I test it. Further it is my strong belief that spiritual healing is very effective in treating any kind of disease specially diabetes. I also practice a WAZIFA that is "DAROOD SHARIF, Surah KUSAR, and Surah QADAR, for this purpose. (R₁).

One patient often visits to different shrines and PIR BABAS for this purpose and wears TAWEEZ of KALMA TAYABBA for the lowering and controlling of sugar level. Again it is matter of belief of any one but with DUA, there is necessary DWA (Medicine) also for curing any disease.

I follow cultural belief like spiritual healing like visiting shrines for the purpose of managing sugar in the blood I often visit to many spiritual healers for this purpose and he gave me a TAWEEZ for drinking at fastening (bearing the writing (LAELAHA ELALLAH) and wearing amulets. (R₁₅)

Cupping therapy

Another traditional way of treating used by diabetic patient is Cupping therapy (HIJAMA) This process is considered to be the best way of purification of blood. Certain respondents have a belief that usually diabetes is result increase of some impurities with the blood and its consequences appeared in the form of rise of blood glucose. This practice of controlling and managing diabetes has been used in many Islamic countries, like Saudi Arabia, and properly regulated and run by the National Center for Complementary and Alternative Medicines under the umbrella of the Ministry of Health. In Pakistan cupping is also a popular way of curing various diseases including diabetes. One patient has done HIJAMA for three times for the purpose of lowering blood glucose. Another, respondent also has a firm belief on HIJAMA and of the do this practice of traditional way of curing blood glucose and trusted this way of sugar control and feel better.

I believe in HIJAMA (cupping) which is thought to be helpful in curing diabetes and I have done this three times to purify my blood as my HAJIMA specialist told me that repeating it three time your blood will be purified and diabetes will be vanished. (R₃)

Use of Herbal Medicinal Plants

Herbal medicines or TIB E YAUNANI is very famous and ancient way of treating various diseases since ancient time including diabetes. Majority of respondents in this study used herbal medicine to reduce the sugar level along with allopathic medicines as they believe modern medicines alone did not work effectively. Respondents believe that used of medicinal plant such as leaves of VERBENA, NEEM (Azadirachta indica), CURY, BEERI (Zizyphus jujuba), MINT, and TUMBA SEEDS (Citrullus colocynthis) helpful to reduce the blood sugar and they believe that it is very effective as well as without any side effect. If the herbal medicine may be ineffective, but will not harmful to body in another way like allopathic medicines. Usually, the people use these herbs either as mixture of two or more than two or making a juice of these medicines to make a drink, which often thy use in fastening for lowering blood glucose.

Herbal medicine, like TUMBA SEEDS (Citrullus colocynthis) is helpful in controlling the glucose level. Hence, I take 5 TUMBA seeds in fasting. In my opinion, it is magical seed and it helps me in lowering the glucose level. Moreover, I always suggest TUMBA seeds to other diabetic patient, use these seeds before checking the glucose level then you observe how much your sugar level goes down. (R₁₄)

Theme 6 Cultural myths in management of diabetes

Avoid fruits and use of honey

There is a misconception in people that use sugar in abundance especially white sugar is the major cause of diabetes, seem not logical and true. Hence for this they mostly even avoid to take all types of fruits for the managing of glucose level. Further, for sweetening the tea or other food use honey for this purpose and think that is helpful in lowering the glucose level within their blood. In this way use of honey along with milk is another cultural myths which is observed by the patients to lowering the blood sugar at house hold level

I like to avoid taking all types of fruits for reduction of my sugar level and using honey instead of white sugar. (R₁)

Use of dry bread (Roti)

Although the wheat bread is an enrich food in starch and on digestion produce a lot of glucose in within the blood. However, certain patients believe that if the bread is totally dried in sun and it will be used in fastening as a breakfast then the blood sugar is managed.

In my opinion in breakfast if we use dry bread (SOKHI ROTI) with tea, sugar level may lower in the blood. (R₆)

Not wearing plastic/vinyl softy

There is another common thinking in the people that wearing the PLASTIC SOFTY or Vinyl sleeper increase the sugar level. Actually, the foot burning is one of the prominent symptoms of sugar and plastic softy absorbs the heat and as a result feet temperature increase. When the heat is lowered down and feels better and diabetic patients feel that his/ her sugar level is lowered down. Hence such people always avoid wearing such plastic softy for this purpose.

Using plastic softy increase the glucose level and feet burning also that's why I avoid wearing it. (R₆)

Drinking Spring Water

Another, myth which is common among people that drinking water of certain area (CHASHMA) or springs lower the blood glucose and helpful in managing diabetes. Springs water supposed to contain certain minerals which are helpful for the purpose of lowering glucose level.

I usually drinking Spring (CHASHMA) water for the purpose of managing sugar in the blood and by drinking this, my sugar level is normal. (R₁₅)

Use of Home remedies to control sugar

There are a lot household myths or TOTAKY which are very common among the respondents for curing diabetes. Majority of patients thought that these are natural substances and are very helpful in managing the sugar level. There natural ingredients like KALY CHANNY, BADAM, KALY JAU and Rock sugar mixture have been used for the lowering blood glucose. In the same way one respondent narrated SAUCE or CHATNI of ANAR DANA, Ginger, Garlic PUDINA (mint) is very helpful in the treatment of diabetes at household level.

I use the mixture of KALLAY JAU (Black barley), BUNAY CHANAY (Roasted grams), BADAM GIRI (Almond), MISRI (Rock sugar) once in a day which is really helpful in lessening the glucose level in the blood. (R₄)

In home remedy I make a mixture and paste of ANAR DANA (pomegranate seeds), PUDINA (Mint), Ginger, and Garlic and take one spoon daily, this really help me to control my glucose level. (R₁₈)

Further certain patients used juice instead of Sauce or mixture. They use the juice of lemon, ginger and vinegar to reduce the blood glucose. Even some people use olive oil in fastening for the purpose of controlling sugar level in the blood.

I use to drink the juice of Garlic, Ginger, Apple cider Vinegar and lemon. (R₁₁)

I take two spoons of olive oil in whole day for controlling sugar and this is really effective and helpful to reduce sugar level. (R₁₂)

Use of Bitter Food

Another very popular myth used in controlling sugar is using bitter foods. Majority of patients use bitter food to control the sugar level and opine that any type of bitter food is helpful in controlling sugar. Hence, they often use before or after meal such as AJWAIN Seeds (*Trachyspermum ammi*), KOLONJI seeds, TUMBA, METHRY, of METHI DANA etc. either take separately or use in the form of mixture and said it is very helpful in lowering the blood glucose level. Further some respondents

use *KARELLA* (Bitter Gourd) twice in a month and *CHONGA* (*Carallumafimbriata*) twice in a week for controlling sugar.

I am using bitter food, TUMBA (Bitter Apple), AJWAIN (Carom seeds), HAREER (Black Myrobalan) and METHRAY (Fenugreek Seed), mixture of all these used for sugar control and really help me to maintain the blood glucose level. (R₅)

I use bitter food like KARELLA (Bitter Gourd) CHONGA vegetable (Carallumafimbriata) twice in a week, it is very effective and helpful in controlling sugar. (R₁₃)

Reduce sugar level by oiling feet message

There are many home therapies used at household level used to control sugar level. Most common is massaging feet with oil to reduce burning or piercing in feet, which in turn the sugar level in the blood. Most of the respondent do this therapy and opined whenever we do this our sugar level goes down and we feel some kind of comfort and relaxation. Further, one of the respondents used sunshine heated oil for the purpose of massaging foot and lowering sugar and opined that it is really very effective in decreasing the glucose level in the blood.

I warm the oil in sunshine and then cool it for one day and on second day I dip my foot in that oil and this help in controlling burning of foot and also helpful in reducing my sugar level. (R₁₈)

Soaking feet in water

Majority of respondent said soaking feet in water helps them to control sugar level as whenever they feel their sugar level goes up they dip their feet in water and feel relief in this way.

I also do home therapy like soaking my feet in cold water with oil, this really helps me in lowering glucose level. (R₁₀)

Beside this some people used the *TUMBA* water for this purpose, mix *TUMBA* (Bitter Apple) in water and then dip feet in this water to cure the blood sugar.

I also do home therapy which is TUMBA (Bitter Apple) soaked in water and rubbed on the feet, this is very beneficial and helps in lowering sugar level. (R₂₀)

Walking barefoot

Again, there is another very common myth of walking barefoot on grass or on floor is helpful for lowering the sugar level and cooling the feet. Mostly people think that early in the morning to walk on grassy area is very helpful in reducing feet burning.

I prefer to walk barefoot on grass and it is very helpful in lowering sugar level. (R₉)

Discussion

Diabetes is one of acute non-communicable disease which is spreading day by day and engulfing all age group members of society especially in less develop and poor countries like Pakistan. These countries have poor infrastructure in all sectors and especially in health sector is more deprived and in miserable condition. The study under consideration was an attempt to how people cure the diabetes by using various modes of treatment along with using different cultural belief and myths to maintain the blood glucose level. Detailed thematic analysis of different respondent's thoughts revealed that allopathic mode of treatment is widely used by the people for the treatment of diabetes. However, due to financial problem and insecurity they are facing a lot of problems in maintaining the consistency of taking the medicine. In this way patients often skip the medicines like only take dose once a day instead of twice as prescribed by the endocrinologist or doctor and even sometime discontinue the medicine for two or three days. It's all due to shortage of financial resources. Further skipping and discontinuity of medication is for the purpose of passing the whole month with these medicines and to avoid the extra cost spent on diabetes treatment (Iregbu, Duggleby, Spiers, & Salami, 2022). Patients in such cases are unaware of consequences of discontinuity of medicines. As a result, they indulge into so many other diseases, co-morbidities increased and more complications occurred with the passage of time (Bukhsh, et al., 2020). There is no proper devised mechanism of health care system for diabetic patients and to approach specialist doctor, and proper prescription of medicines for diabetes is a big hurdle in treating diabetes. Personal income of diabetic patients is very low and they are unable to bear the extra burden of medication and proper test of diabetes. Ansari, et al., opined that poor health care infrastructure in Pakistan is the main hurdle of treating diabetes. (Ansari, Hosseinzadeh, Harris, & Zwar, 2019). In the same way there is no proper financial support to diabetic patients at government level except, those individuals who are employee of certain organization and are using the panel facilities for treatment and diagnostic tests etc. In this regard there is proper need of health insurance or expenditure coverage at State or government level to avoid the stoppage of

medication to the diabetic patients. This idea is coincided with Pervaiz, et al., who narrated that countries with inadequate resources for health suffer a lot and their societal members are deprived of the proper medication, far so many diseases including diabetes (Pervaiz, et al., 2022). Further those patients who are on panel and their expenditures are bore by their organization and they always used allopathic medications without any interruption and never depend upon on traditional herbal medicines like HAKIM etc. Only those patients who are insecure financially or less financial resources move towards traditional and herbal medicines (Arsela, Fadillah, Wulandar, & Utami, 2021).

There are a lot of cultural beliefs which diabetic patients follow in management of diabetes. The most common used cultural belief is curing diabetes through divine knowledge, as patients believe that all the diseases are originated by the will of (God) Allah and He also helps in curing and vanishing of any disease (Vijaya, et al., 2022; Sari, et al., 2022). Another belief of reducing blood glucose is cupping or HAJIMA which help in purification of blood and reduction of glucose in the blood. The same idea was given by (Alsanad, Aboushanab, Khalil, & Alkhamees, 2018). Most patients have belief that herbal medicinal are helpful in controlling their sugar level and they are using herbal medicines in the form of herbal medicinal plants in single form or along with the mixture of three or two plant in addition to allopathic treatment (Sari, et al., 2022).

There are certain myths exist in our society related to management of diabetes among which the most commonly used is bitter food like *AJWAIN* Seeds (*Trachyspermum ammi*), *KOLONJI* seeds, *TUMBA*, *METHRY*, of *METHI DANA*, *KARELLA* (Bitter Gourd) and *CHONGA* *Carallumafimbriata*) (Michael, Gbadebo, & AT, 2018). Honey was used by the diabetic patients for lowering and managing the blood glucose and it is considered to be a natural sweetener and less dangerous as compared to white or refined sugars. (Alsanad, et al., 2018; Siddiqui, et al., 2021). Another very common misconception is use of natural spring or *CHASMA* water which is named as "Miracle" water, has been used by diabetic patients for lowering glucose and by drinking this water diabetes will be vanished. Although they are certain harmful substances found in such waters, which is injurious to health (Dawn, 2010).

Many participants narrated their feet burn when sugar is high and they treated this burning by soaking feet in cold water. They believe it is helpful in lowering the sugar level and burning of feet however, according to (Vijaya, Rankhambe, & Kumar, 2022) it is totally misconception and has nothing with reality. Further patients prefer to walk barefooted because this is helpful in controlling sugar level. They believe whenever we have walked barefooted, we feel our sugar level goes down (Sari, et al., 2022).

All the respondents have different background and have their own experiences and beliefs regarding managing of diabetes. No one can be termed wrong. A perception regarding the diabetes management among all patients is same to some extent, although the root cause of frequent skipping from one mode to another mode of treatment basic is meagre and insufficient financial resources. Further being follower of Islamic philosophy there is a firm belief on divine knowledge, for the healing and curing of any disease including diabetes. Although with prayers there is a need of medicines for curing disease and along with prayers proper medication is necessary.

Conclusion

The current study provides in-depth information and data pertaining to management of diabetes with reference to treatment cost with household budget. Further it also highlights the role of cultural belief and myths in managing diabetes. Findings of the study showed that the patients, who are financially supported by other organizations are feeling easiness in managing the diabetes. They didn't feel any kind of issue related to household budget in managing diabetes. While those patients who have fixed budget or income and manage their diabetes out of that income are facing a lot of hardship and moving towards myths and various cultural belief due to high cost of medication and lack of government kinship regarding health policy of the patients. When a patient has insufficient resources, he used so many myths to mentally satisfy self. Although the myths like using bitter food or treatment with diet have very little effect on maintaining of glucose level but psychologically, they feel it is helpful. However, in the light of Islamic philosophy (Quran & Sunnah) all ups and downs in the form of various diseases are connected with the Will of Allah Who is the creator of the whole universe. Moreover, beside spiritual and dietary treatment for diabetes proper medication is necessary for treatment of all kinds of diseases including diabetes.

Recommendations

- i. It is suggested that there is a need of proper social welfare institutions at community level to support the diabetic patients in the sense of proper medication and diagnostic test for the proper management of diabetes and to avoid other complications, which root cause is diabetes.
- ii. It is suggested that an awareness campaign should be launch to create awareness in diabetic patients that only myths are not sufficient to maintain the glucose level within the blood, but use of proper medicines prescribe by endocrinologist are essential for the management of diabetes.
- iii. It is suggested that there should be a use of proper medicines along with use of Divine knowledge to cure the diabetes.

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