

Living with the Unwelcome Guest: Thai Muslims Living with Type 2 Diabetes Mellitus

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Abstract

OBJECTIVES: To examine life experiences of Thai Muslims living with Type 2 diabetes (T2DM).

MATERIALS AND METHODS: A qualitative study was conducted with Thai Muslims in the South of Thailand. The research used purposive sampling to select participants for in-depth interviews. Thirteen participants who were diagnosed at least one year and able to communicate verbally in Thai were recruited. Data were analyzed by content analysis.

RESULTS: Three themes emerged from life experiences of Thai Muslims with T2DM: “Before diagnosis”, “When facing the diagnosis” and “Living with the unwelcome guest (diabetes)”. During “Before diagnosis”, the participants reflected the primary sign with major symptoms. For “When facing the diagnosis”, the participants reflected their feeling as “unwelcome guest” which referred to undesirable visitors who intrude into their home unexpectedly. It can be categorized in 3 sub-themes which were “unexpected”, “annoying” and “God sent”. In “Living with the unwelcome guest (diabetes)”; there were 3 sub-themes: “finding ways to get rid of the unwelcome guest” (various self-care behaviors in controlling blood sugar level), “discouraged by the disease” (lost their hope in fighting against their uncontrolled blood sugar levels) or feeling tired in taking control of food (when all the things that were done did not work), and “To bear it” (a feeling after being discouraged after unsuccessfully controlling the disease and deciding to ignore it or let it be).

CONCLUSION: These findings reflected that Thai Muslims with T2DM struggled with the disease, could not manage their life with it, and got less support from both family and the community. Thus, health care professionals need to provide cultural sensitive care specific for Thai Muslims.

Keywords: Thai Muslim, life experience, type 2 diabetes mellitus

Diabetes Mellitus (DM) is a chronic disease that has become a major global public health problem. The crucial goals for diabetic patient care are to prolong life with a better quality of life¹ and to control blood sugar level at an optimal level or close to normal level.² Controllable blood sugar levels relate to behavioral changes³ and this included appropriate meals, medication adherence, exercising and maintaining robust mental health⁴. Hence, the most crucial issue of diabetic care is to ensure that diabetic patients can take care of themselves in order to change their health behaviors.⁵

There are several influent factors for self-care of diabetic patients including internal and external factors such as individual relationship,⁶ support resources or information source,⁶ occupations, health condition, habitat,⁷ economic, social, culture and religion related to self-care.⁸ Cultural and religious beliefs can influence our way of thinking and our way of living. Therefore, these beliefs are closely linked to health and sickness. Islam is a religion that contains the concept, belief and practices that affect everyday life in all aspects and entirely relates to Muslim’s self-care attitude and health behaviors. Islam is the second largest religious practice in Thailand⁹ especially in the Southern border provinces. Their health problems and health

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care also differ from other parts of the country. The way of living and life of Muslims is closely linked to religion from birth to death.¹⁰ Many health care services are inaccessible to Muslim, so their healthcare overlaps with religious dictates especially Islamic food traditions and religious customs. Thus Muslims' belief, customs, and traditions have a great influence on the way of life either normal life or in sickness especially when having diabetes.¹²

In Thailand, there are several studies about Muslim diabetic patients which mostly focused on Ramadan period such as: self-care focused on eating behaviors, and medication adherence behaviors during Ramadan Fasting period;¹³ Treatment and medication adjustments including perceptions during Ramadan Fasting period;¹⁴ and self-care behaviors and prevention of complications during Ramadan Fasting period compared to other periods.¹⁵ There were two studies about Muslim diabetic patients: medication administration and adherence during Ramadan Fasting period of a diabetic patient with kidney disease¹⁶ and the study of diabetic Muslim patients' quality of life in Satun province.¹⁷ Even though these studies covered the self-care behaviors of the diabetic patient, most self-care studies also focus on the Ramadan Fasting period and patients hospitalized at tertiary healthcare, living in towns¹⁸ and unable to control diabetes.¹⁹

An extensive literature review has revealed that most of the studies were conducted as a quantitative study about how to decrease diabetes physical complications and these did not clearly explain how people responded to diabetes in a specific context. The aim of this qualitative study would be to identify the appropriate method to understand people's lives. This is considered from what the patients feel to be their own experiences and the responses of diagnosed Thai Muslim pre-and post-diabetic patients and their attitude, and to share data that covers both physical and mental aspects. Nurses will thus understand Thai diabetic Muslim patients better and will use the data to plan and provide nursing activities according to their specific needs and context.

Materials and Methods

A qualitative research approach was used to explore the in-depth, rich experiences of Thai Muslims living with diabetes in Satun Province, Thailand. This approach was chosen to enable the researcher to gather, analyze and interpret the experiences, realities and meanings from the participants in this research in a way that is culturally appropriate and uses subjective experiences of participants' lives to harness knowledge and to build understanding.

Participants: Participants were Thai Muslims with T2DM receiving services from Baan Pung 50 Sub-district Health Promoting Hospital, Satun province, from May to December 2017. Participants were purposively selected if they met the following inclusion criteria: Thai Muslim diagnosed with

T2DM for at least a year and able to communicate verbally in Thai. If the participant was aged 60 or above, they needed to be assessed with a brief SPMQ before collecting data.

Settings Interviews were conducted at the participant's home or at a place chosen by the participant such as a mosque or community hall.

Ethical consideration

This study was approved by the Human Research Ethics Committee of the Faculty of Medicine Ramathibodi Hospital, Mahidol University approval number 2560/346 prior to data collection. Information about the study was read out to all participants, and each participant provided verbal and written consent to participate in the study.

Data Collection and Analysis

Interviews were conducted in Thai using semi-structured questions with a question guide developed from a systematic literature review and confirmed by three experts. A trial of the interview questions was conducted with two people with T2DM living in the same area. After a minor revision, the following open-ended questions were developed to include: "How did you feel after you were informed by the doctor that you had diabetes" and "Please tell me your experiences, your personal feelings and thoughts about life with diabetes". The interviews began with general questions to build rapport and confidence between interviewer and the interviewee. Permission to tape the conversation was requested, confidentiality of all data was assured. Each interview took between 45 and 60 minutes to conduct and were recorded and transcribed verbatim.

Quantitative data were analyzed by using the descriptive statistic. Qualitative data were analyzed by content verification²⁰ as follows: The first author read and re-read the transcripts of extracted conversations of Thai Muslims living with T2DM from the interviews, and reviewed the extracts once again. The researcher listened to the recording once again along with the extracted text, to capture the feeling, understanding, and meaning and to find the hidden meaning in order to verify the data. Each co-author identified categories to ensure trustworthiness by peer debriefing and member checking. Grouping homogeneous and differentiating heterogeneous content by meaning was performed and checked back to the transcribed text to confirm the meaning of the categories chosen. Finally, the categories were structured into themes and sub-themes with the collaboration of all authors through several discussions and revisions.

Results

There were 13 participants in this study (11 females, 2 males). They were aged was between 30 and 75 years (mean

52.77). Most of the participants were married. Their education level was mostly at primary school and they worked as rubber farmers. Participants were treated for diabetes for 2-15 years (average 6.38 years).

The three major themes experienced by Thai Muslims living with T2DM are discussed below.

Theme 1: Before diagnosis

The study found that most participants perceived that before being diagnosed with diabetes, there would be signs of “laziness” (feelings of fatigue and tiredness). Most participants worked in a rubber plantation, and when performing daily activities, they felt these became increasingly difficult. Symptoms of pre-diabetes were also found, according to the pathophysiological changes of diabetes: frequent hunger, dry mouth, dry throat, drinking plenty of water, frequent urination, dizziness, ulcers, slow wound healing, and blurred vision. Before being diagnosed with diabetes, most participants had never had a health check. They relied solely on the observation of unusual things that were happening to their bodies, when they would seek information on their own to find the cause of the abnormalities. In order to decide on a course of treatment, they initially inquired from people around them and consulted with community health officials.

Theme 2: When facing the diagnostic of diabetes

When the participants were diagnosed for the first time, they explained their own experience of being diagnosed describing diabetes as “the unwelcome guest”. Diabetes is something that happens unexpectedly and is not desirable to live with. However, what happens is not only causing distress but also causing a lot of damage to the body. Diabetes is represented as a guest that is not invited to an event, creating a nuisance to the host, and also causing damage to the event in unexpected ways. Hosts often have to prepare to anticipate, handle and accept anything unexpected to happen. Furthermore, the guest refuses to leave and stubbornly stays in the house. There are three sub-themes detailed below:

- **Unexpected** was the feeling after having been informed of the unexpected diagnosis of diabetes. It was felt that it was a disease normally associated with an older age group and at that it was not likely to happen to him/her at a younger age. Some participants defined these feelings as “It is not-me”, “It belongs to others”. (Participant No.2).
- **Annoying** was the feeling when diagnosed with diabetes even though the diagnosis had been made a long time ago (>5 years), but the patients still had negative perceptions about the disease due to external and internal experiences. External experiences include acknowledgment and contact with others in the community directly or with people who have diabetes with complications. These

experiences could cause anxiety and stress. Internal experience is the experience of the patients themselves. How did they feel? How did they suffer? These experiences caused stress, frustration, and annoyance.

- **God (Allah)** sent was the feeling the diabetes patients felt when they were told about the diagnosis. Whether the disease affected themselves or complications occurred, the patient could accept those because they perceived that diabetes was a test set by God. No matter what, due to religious teaching, bad feelings faded and their belief made them accept whatever happened.

Theme 3: Living with the unwelcome guest

They explained about how they lived and used various self-care methods to push diabetes aside, and defined their experiences into three issues which were: recruiting every method to control the unwelcome guest/intruder (diabetes), be discouraged and feeling unbearable as detailed below.

- **Finding ways to get rid of the unwelcome guest (diabetes)** from their life. Trying every method to get rid of the uninvited guest included behaviors such as seeking various methods to do whatever it takes for people with diabetes to self-manage their control of blood sugar levels according to advice from health officials, advice from people who have diabetes in the community, and to seek alternative methods. From the study, we can categorize the experiences into: do whatever it takes to expel/control it; get frustrated when all methods do not work, and do not understand it at all.
- **Do whatever it takes to expel/control** was the behavior of self-care to search for an appropriate diabetes treatment which can be sub-categorized as follows:
 1. Follow up appointment with physician/ provider: Changing their behaviors after being diagnosed with diabetes included changing their healthcare behaviors with the aim of decreasing blood sugar levels or to control it at an optimum level as suggested by healthcare providers. This behavior led to good control of blood sugar levels. The study found that when participants followed the instructions in the early period but these did not work as expected they would feel discouraged, stressed and would end up not following the suggestions. Afterwards, they would return to the same behaviors as before diagnosis.
 2. Take care of themselves and their diabetes: This was the behavior to take care of themselves to keep their blood sugar levels at an optimum level such as controlling their diet and exercising.
 3. Find other options: This was the behavior to discover how to take care of themselves by asking and by being told by other diabetic patients how to decrease their blood sugar levels. The study found that some of the patients used local herbs such as the pandan tree, MacArthur’s palm or weed.

Furthermore, it was found that some of them used supplements to decrease their blood sugar levels. The supplements were sent by some suppliers who presented the products at the patient's home and arranged some fairs to present their products, and this caused patients to cease their current care provisions.

Discouraged by the disease. The patients felt discouraged physically and mentally and choose not to fight halfway through. They felt sick and exhausted and did not want to do anything, or they lost interest and focused on the disease. They felt discouraged and bored to be repeating behaviors that are not effective. Participants who followed every instruction to achieve better blood sugar level would feel discouraged if they could not achieve the results they expected. They may either go back to their normal way of living, or seek alternative treatment. Hence, discouragement can be sub-categorized into 2 points:

1. being despondent.
2. feeling they've wasted time doing it.

Being despondent was an emotion and feeling of diabetic patients who followed suggestions but did not achieve an optimum blood sugar level. They felt discouraged, felt unable to control it, and it was all too complicated.

Feeling like they've wasted their time, meant they comforted themselves when they could not control their disease and felt tired of it so they ate everything or self-spoiled themselves and failed to be self-reliant. This study found that some patients had to eat the same dishes as other members of the family so that they could not control their blood sugar level because of this.

Patients have to tolerate diabetes, and bear it, whether things were good or bad. Often they kept their struggles to themselves. They could not do what they needed to do because of circumstances. When time passes, patients may not be able to take it anymore, which can also adversely affect their blood sugar level. The significant issue was that they had to tolerate the disease themselves in the same environment and community as everyone else without anyone understanding what they were going through.

The context of community is the environment in which patients live, including the village, weather, local tradition, and culture. While the patients were affected by these factors, it caused them to change their behavior and to accommodate their actions to control blood sugar control. The patients are a part of their community and they struggled when they faced lack of support from the community, barriers from their occupation and their families, religious or cultural barriers, and not being able to attend or enjoy ceremonies and parties, or when fruits were in season, not being able to eat them.

Religion and Culture: Religion is defined as teaching and practices that the faithful must follow. However, some of the practices affect the ability to control blood sugar levels. The dominant practice that affects Muslim diabetic patients is the Ramadan fasting. Although diabetic patients may be excused from such practices, some patients still undergo it. Furthermore, this lifestyle is different from their daily routines, so they have to change their diet style; they have to fast meals, medications, and drinks from morning to sunset. The study found that fasting causes patients' lifestyles to be completely different, leading to high sugar levels or failure to control sugar levels. Reasons given included because *"I don't know how. During the fasting, sweets are plenty."*

There is also no exercising during the Ramadan period and the participants had to practice fasting and cutting rubber at night, and this required energy. So, they could not cope with doing extra exercise. Besides during the Ramadan period, people had several kinds of food together. Most of them are carbohydrates which contained more starch and sugar than usual. Furthermore, they said the Ramadan was a special occasion so that the meals must be special also. *"During Ramadan, I eat everything. Watermelon is a must. I do not eat a lot, just a piece for every day. I cannot live without it. So, it is hard to control during Ramadan. (Participant No 8).*

Seasons can affect blood sugar control. The study found that the summer and rainy seasons affected people's sugar levels. The participants often ate fruits that they grew and that *"the time of fruits gives high blood sugar every year"*.

No one understands: the study found that participants' families did not support or were not part of a support system. Often, they did not know what to do, or how to take care of the patients. Meals always contained high levels of sugar, which can affect the blood sugar levels of the patients.

Discussion

The results have shown that life experience affects patients' perceptions. Before diagnosis, patients displayed primary signs. The most common sign was laziness which has major symptoms of weakness and exhaustion. Most of the participants in this study were rubber farmers who worked at night and their lifestyle made it harder to control diabetes. The lead sign of "laziness" was very common for the patients. These primary signs are commonly found in diabetes. Previous studies found that before being diagnosed, participants sought information from healthcare providers and people in the community. The ability to access health information depended on the context of their environment. As the study by Sornsuvit et al.,²¹ about health literacy of Thai population showed, most people communicate with healthcare providers, or seek information from others such as family and people in their community when they needed to promote a healthier lifestyle. However, the participants seem to have illiterate health

knowledge from their perceptions that they had T2DM, both dry and wet diabetes. These perceptions made them unaware that they had to control their diabetes, leading to further complications.

When the patients were first diagnosed, they felt stressed, discouraged, anxious and uneasy but they could not do anything. They felt a loss of hope, lower self-esteem because they understood that diabetes is a chronic disease and they were the breadwinners for their family. Also this current study found that the patients had to work for a living and were responsible for their family, so the diagnosis lowered their self-esteem and caused stress. This complied with the study from Wongpairint et al.,¹⁷ assessing the quality of life of Muslim diabetic patients in Satun province. The study found that diabetic patients faced both anxiety about the sickness and uncertainty around how to plan their lifestyle. Patients might be angry and stressed about how to administer their medication. Chuwatthanapakorn et al.,²² studied the attitude of the senior diabetic patients, and found that being a diabetic was discouraging. The patients thought it was not severe, but it did cause uneasy feelings.

Some diabetic patients accepted their illness because they thought it was God's will. The participants were informed by strict precepts, that illness and uneasiness are Allah's intention. Disability or body malfunction is Allah's intention.²³ These are all Allah's guides to test patients' minds on how much they are committed to the Islamic way and they believed that their bodies were gifts from God, so they had to take care of their bodies.²⁴ Moreover, only Allah can cure illness. If they did not take care of themselves, it would be a sin. These are Islamic attitudes²⁵ and Islamic teachings. According to the Prophet Muhammad, "every disease has medicine, if the medicine is right to the disease, it will be cured by Allah's intention." Hence, it means that Allah causes diseases and Allah also provides medicine for humans. The treatment is to strengthen the mental wellbeing of the patient and physician. When the patients felt they could be cured, there was medication for them, and patients had more hope. It strengthened their physical, mental and natural state.²⁶ However, some participants did not integrate this belief into their health behaviors because most behavior changes were very difficult for them, and they may think that as their diabetes was sent by Allah, so he would take it back.

According to living with an unwelcome guest, participants explained that they tried finding every single way to expel the invader in order to keep blood sugar at an optimum level. Information was from healthcare providers, other patients previously diagnosed with diabetes in their community and searching by themselves on how best to control their blood sugar levels or to lower their blood sugar levels. Participants changed eating behaviors by reducing or ceasing to eat sweets, creamy dishes, desserts and foods containing coconut milk and to control the amount of food consumed. They also

changed their exercising regime. Every time they received a suggestion from a healthcare provider which did not comply with their lifestyle, they were unable to control the blood sugar level. Thus there was less behavior change after receiving a suggestion from a healthcare provider. The study complied with the study of Kongsomkan et al.,²⁷ which found that proper compliance did not relate to blood sugar control behavior in diabetes patients because they saw healthcare visits solely for receiving suggestions to control their behavior in patients with good blood sugar levels. However, patient with uncontrollable sugar levels had proper compliance, but patients thought that the visit was for receiving medications only. Without healthy behaviors, patients cannot achieve control over their blood sugar.

The study took place in a community situated in a rural area. Participants' self-care was through the use of local herbs based on their social context. Information usually came from relatives, neighbors, or other diabetes patients. The study found that the behavior of using herbal remedies for diabetes treatment complied with the study of Khema,²⁸ which found that the source of diabetic patients' herbal remedy use was from patients' friends telling them and talking about herbs during waiting times at the clinic and knowledge exchange between each other. This also complied with the study about factors relating to the consumption of herbal remedies to control blood sugar level in type-2 diabetic patients of Kengkarnpanich et al.²⁹ It found that there were factors including duration of illness, economic status, local herbal remedy availability and support from patients' friends.

The study found that the patients had an attitude to diabetes as a regular event because there were many patients. They also thought that dieting was only required for self-care for diabetes. Having diabetes made them hungry and wanting to eat everything. Besides, diabetics were always concerned about the limitations of diets because their acknowledgment was about stopping or decreasing their favorite or usual meals before they had diabetes. This could cause frustration to the patients due to restrictions, and when their blood sugar levels got even higher, they were advised to limit or decrease the amount of meals consumed. It caused a feeling of fasting their favorite or normal meals. This was frustrating because they could not do what they wanted. Diabetic patients acknowledged the causes and conditions of the disease from their experiences. This complied with the study of Chuwatthanapakorn et al.²² that diabetic patients are always concerned about the restrictions of self-control and they had to stop eating their favorite fruits. This also complied with the study of Hu J, et al.,⁶ who studied the boundaries in diabetes management in Hispanic diabetic patients' and their families' attitude, which found that the quality of life of diabetics suffered. The physical suffering, when they considered self-care through diet limitation was difficult. They felt lost and at odds with themselves. The patients found that they lost their control and also became obsessed and addicted to food. It was difficult to change behaviors and to eat a healthy and proper diet.

This study found that the participants acknowledged that when they were diagnosed with diabetes, they needed to change their eating behaviors by limiting and decreasing rich sweets or food containing coconut milk. They also had to control the amount of food they ate to be at an appropriate level according to suggestions from healthcare providers. However, in practice and in real life, the diabetic patient could not follow the suggestions because they felt a loss of energy to work. The suggestions contradicted their routine that they would have dessert after a main dish. They believed this would make them feel energetic and vigorous after their meals. These behaviors can be explained because the suggestions from the healthcare providers introduced a brand new routine, including typical foods that were not local foods familiar to the patients.

Feeling discouraged is being dispirited or in low spirits. The patients might feel exhausted physically and mentally. They felt low and despondent, unwilling to do anything. There were not interested in anything nor were they focused on the target because they felt it was exhausting and annoying to do the same thing without seeing any good results. Hence, as they did everything to achieve better blood sugar level but the results were not as they expected, they got discouraged and, and they turned to their previous way of living or alternative treatments. This complied with the study of Chuwatthanapakorn et al.,²² which studied the attitude of the senior diabetic population and found that diabetes could cause discouragement because patients felt did not want to do what they had to do. Diabetes was seen as a discouragement.

Most of the participants with high blood sugar levels lacked the encouragement to take care of themselves. They found that when their condition did not change, they no longer recognized the importance of controlling blood sugar levels and did not accept the disease prognosis; they also did not follow a strict diet control nor did they take their medications. This was especially true when it came to diet, they ended up eating because they could not bear not eating. This is expressed both by their words and actions. "I eat what I want and how much I want." Looking at the big picture, patients felt they should have the free will to choose what to do because they are hard-working, they are night shift workers and they finish work by noon. These behaviors cause dehydration and loss of energy so that they compensated by eating larger meals. Some of them skipped breakfast; they only drank coffee, and this meant they could not maintain their blood sugar levels at an optimum level. This behavior caused uncontrollable blood sugar levels and complications, both physical and mental, and it complied with the study of Keeratiyuthawong et al.,³⁰ which found that continuous self-control depended on whether the patients would take care of themselves or not, it depended on whether they would take action. This finding complied with the study of Juntaveemueng et al.,³¹ which studied mixed self-care of diabetic patients in the context of southern culture and found that patients who could control themselves and maintain optimum blood sugar levels would experience fewer complications.

Furthermore, the current study found that diabetic patients were mostly rubber farmers, and usually forgot to take their medication, especially in the morning. They often compensated by adding their medication to the next meal, meaning the interval between each intake was no longer than 1 hour. This causes exhaustion and weakness. The patient would take a nap in the afternoon and this led to poor blood control. This complied with a study of Jaam, et al.,³² which studied the incidents and barriers to diabetic patients taking medication regularly who had poor blood sugar control in primary healthcare in Karta. It found that among these diabetic patients, there was a 73% poor compliance rate in medication adherence, and this was higher than in the average population. The analysis has shown that age, education level, income level, and cumulative sugar levels forecast the levels of consistency of medication adherence.

In addition, the religious practice that most affected the control of blood sugar levels was fasting for Ramadan, which is a major practice by Thai Muslims. Although there is an option to waive Ramadan for medical reasons, diabetic patients still observed Ramadan. Furthermore, lifestyle changes during the Ramadan period differ from usual daily routines. Muslims have to adapt their appetite by fasting their food, medication, and drinks from sunrise to sunset. This changed the patient's lifestyle and it was found that hyperglycemic patients or reduced blood sugar patients would use excuses such as: "I don't know what to do because, during this time, there are plenty of sweets." The study found that during the Ramadan period, participants had breakfast every day from 3 am to 4 am, and then they went back to sleep.

Environmental factors can cause tension, and a brain that has to focus on work or a problem it is facing cannot relax in these circumstances. Tension can cause emotions or feelings to arise when patients are faced with problems that cause uneasiness, pressure, and anxiety, they feel sad, frustrated, angry and depressed. For minor issues that cause low levels of tension, being motivated is one answer to counteract problems. However, for some who have a great deal of responsibilities, they cannot escape the tension. The study found that patients with high blood sugar levels were also stressed and they mentioned that "when I am stressed, my blood sugar will run up." The main factor causing tension was the pressure of family responsibility (income and debt), family disagreements, not being able to adapt effectively and how neighbors emphasized the problems.

This finding complied with the study from Chanapah et al.,³³ which studied metabolic symptoms and found that stress caused depression disorders exacerbated by the environment or by work, and these were linked to corticosterone hormone release. This activates neurons and other hormones and this leads to abdomen fat accumulation and insulin resistance. This complied with the study of Gutch M et al.,³⁴ on stress levels in diabetic patients in northern India. It found that daily stress

triggered diabetes, and it was a barrier to manage diabetes. Furthermore, it found that the incidence of depression disorders was higher in diabetic patients especially in poor populations who had to live with diabetes. This was true regardless of each patient's circumstances. Some of them thought that they had to live with it, so they accepted their diagnosis to free themselves from sadness. Some depended on religion. In Islamic teaching, praying for calm is a way to relieve stress. Praying is accessing Allah, to understand that pain, sadness, discouragement is part of Allah's plan and Allah loves and cherishes you and this gives patients hope. Praying calms, the mind and allows patients to accept circumstances that happens to them.³⁵

It was found in the study that patients were tolerant knowing that nobody understands diabetes and that when someone in a family got sick, they had to take care of each other. This finding contrasted with the study from Juntaveemueng et al.,³¹ which found that the level of success in diabetic patient care was determined by two factors: the patient's self-control and the willingness to prepare separate meals for patients. This finding complied with the study from Chongcharoen et al.,³⁶ which found that eating the same meal, and not separating dishes for diabetic patients or a family member encouraging the patients to have regular meals was beneficial. This is because the extended Thai traditional family system promotes love and sharing.

However, when the understanding of family members on how to control diabetes is inadequate, it can affect patient care. This complied with the study of Dechma et al.,³⁷ which found that the acknowledgment of family members was crucial. It could positively influence patients to take care of themselves and to manage the disease effectively. However, if patients' motivation is poor, this causes complications. Furthermore, the study from Mayberry et al.,³⁸ on family support in caring and controlling blood sugar in T2DM patients found that any unsupportive behavior of family members or a lack of care from family members was linked to poor blood sugar control.

References

1. Wan Farzana Fasya WH, Juni MH, Salmiah MS, et al. Factors associated with glycemic control among Type 2 diabetes mellitus patients. *Intl J Public Health Clin Scie* 2016;3(3):89-102.
2. Amklang W, Muangsom I. Effectiveness of an Empowerment and Social Support Program on Self-Care of Diabetes Type II Patients in Nong Rua District, Khon Kaen Province. *KKU Research J (Graduate Studies)* 2010;10(4):87-96.
3. Piromchom A, Hansakul A. Factors Influenced with Self-care Behaviors in Type II Diabetes Mellitus Patients in Nongbuarawae District, Chaiyaphum Province. *J Off DPC 7 Khon Kaen* 2012;19(1):1-10.
4. Chumnui S. Factor of Blood Sugar Level Control in Diabetic Patient Type 2 Rongkam Hospital Rongkam District Kalasin Province. *J Health Sys Res (Thai)* 2008;1 (3):60-9.
5. Office of Community Based Health Care Research and Development. Chronic disease management in the community: Findings from a discussion forum 'Together We Build a Better Community Health System'. Bangkok: TQP printing, 2012.
6. Hu J, Amirehsani K, Wallace DC, et al. Perceptions of barriers in managing diabetes: perspectives of Hispanic immigrant patients and family members. *Diabetes Educ* 2013;39(4):494-503.
7. Huangtong S, Piaseu N, Kaveevivithchai C. Case study, Persons with Severe Hypertension, Blood Pressure Control, Problems, Barriers to Blood Pressure Control. *Rama Nurs J* 2013;19 (1):129-42.
8. Abdulrehman MS, Woith W, Jenkins S, et al. Exploring Cultural Influences of Self-Management of Diabetes in Coastal Kenya: An Ethnography. *Globl Qual Nurs Res* 2016;3:1-13.

Conclusion

In summary, studies have shown that diabetic Muslims struggle to consistently control blood sugar levels, despite doing everything possible. They face many obstacles, from people with diabetes themselves, their families, community ways, and religious traditions. Diabetic Muslims had to fight their diabetes on their own. Although there was intervention from health care practitioners, the recommendations given were not suitable for Muslims' lifestyle and culture. Furthermore, in the community context, when giving merit, or at a party held at work, it was found that the dishes focused on flour, fat, and sugar, making it impossible to control sugar levels. There was no hope of controlling or living with the disease normally. Therefore, health practitioners who provide care for these diabetes groups should focus on the specific context of communities. They should consider a patient with diabetes in all respects and understand similarities and differences, as this will affect the overall health care system for Muslim patients in the future.

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9. National Statistical Office. Major findings from a survey of social and cultural situations 2011. Bangkok: Cabinet and Royal Gazette Publishing Office, 2012.
10. Kanokwong O, Viriyapongsukit S, Lojanapiwat S, et al. The synthesis of Health system under The Violence Crisis in Southern Border Provinces Area. Bangkok: Health Systems Research Institute, 2010.
11. Tocharoenvanich P. Primary care services management for diabetes in special areas (Pattani Yala Narathiwat Songkhla and Satun province). Songkla: Songkla Health System Management Institute, Prince of Songkla University, 2008.
12. Nima Y, Hasuwannakit S. Medicine and health care consistent with Muslim ways of life. Songkla: Health System Management Institute, Prince of Songkla University, 2008.
13. Sawatsri P. Dietary Behavior and Oral Hypoglycemic Drugs Administration among Thai Muslim with Type 2 Diabetes Mellitus during Ramadan in Diabetes Mellitus Clinic, Nakhonayok Province. *J Phrakokkiao Nurs Coll* 2013;24(2):60-73.
14. Tangsangwornthamma C, Hathirat S, Leelapattana W. Lifestyle modification and drug administration among Thai Muslim patients with diabetes mellitus type 2 during Ramadan. *J Med Health Scie* 2011:70-86.
15. Mansakul T, Chansawang W, Petchruschatachart U. Health Behaviors and Fasting Blood Sugar Levels of Muslims with Type 2 Diabetes. *J Health Scie* 2018;19(5):775-83.
16. Cheyoe N. Drug use among diabetic patients with chronic renal failure during the month of Ramadan : Case study of Nongjik Hospital, Pattani Province. *J Health Sys Res* 2011;5:506-12.
17. Wongpairin A, Suggaravetsiri P. Assessment of Quality of Life among Islamic Diabetes Mellitus Patients in Satun Province, Thailand. *KKU Res J (Graduate Studies)* 2014:1686-91.
18. Aschner P. New IDF clinical practice recommendations for managing type 2 diabetes in primary care. *Elsevier*; 2017.
19. O'brien T, Denham SA. Diabetes care and education in rural regions. *Diabetes Educ* 2008;34(2):334-47.
20. Chantavanich S. Data analysis of qualitative research. Bangkok Chulalongkorn University, 2006.
21. Sornsuvit C, Phosuya C, Jaronwanichkul D, et al. The Use of Herbal and Dietary Supplements and Potential Interactions with Drugs in Patients with Chronic Diseases. *Thai Pharmaceu Health Scie J* 2012;7(4):149-54.
22. Chuwattanapakorn T, Suriyawong S. The View of Illness among Older Persons with Diabetes Mellitus. *Thai J Nurs Council* 2012; 26(4):96-107.
23. Idris U. Issues related to Muslim principles, beliefs and values 2012. (Accessed November 18, 2018 at <https://islamhouse.com/th/books/426424/>).
24. Wehbe-Alamah H. Bridging generic and professional care practices for Muslim patients through use of Leininger's culture care modes. *Contemp Nurs* 2008;28(1-2):83-97.
25. Boonchom A. Knowledge base for Muslim health and well-being. Bangkok: Faculty of Economics, Chulalongkorn University, 2006.
26. Srisanga K. Healing with the Medicine of the Prophet Faculty of Economics. Bangkok: Chulalongkorn University, 2005.
27. Kongsomgan A, Therawiwat M. Factors Affecting Blood Sugar Control Behavior Among Type 2 Diabetic Patients in Ramathibodi Hospital. *J Health Educ* 2012;35(1):62-73.
28. Khema M. Medicinal Plants Usage of Diabetic patients in Pra-ajarn Subdistrict, Ongkharak District, Nakhon Nayok Province (Master's Independent Study). Chaing Mai University, 2008.
29. Kengganpanich T, Leerapan P, Kengganpanich M, Nunthasen K, Lattanand K. Factors related to herbal consumption for controlling blood sugar of patients with type 2 diabetes mellitus. *J Boromarajonani Coll Nurs* 2015;31(1):13-25.
30. Keeratiyutawong P, Hanucharurnkul S. A Long Term Follow-Up of the Effectiveness of a Self Management Program in Persons with Type 2 Diabetes. *Rama Nurs J* 2010 16(2):293-308.
31. Juntaveemueng V, Sungkhachat B. Integrated Self-care, Southern Socio-cultural Context, Alternative Medicine, Diabetes Patients. *Sout Coll Net J Nurs Pub Health* 2014;1(3):15-35.
32. Jaam M, Ibrahim MIM, Kheir N, et al. Assessing prevalence of and barriers to medication adherence in patients with uncontrolled diabetes attending primary healthcare clinics in Qatar. *Prima Care Diabetes* 2018;12(2):116-25.
33. Chanapa P, Kijkuokool P. Stress and the Metabolic Syndrome. *Songkla Med J* 013;3(5):253-60.
34. Gutch M, Razi SM, Kumar S, et al. Diabetes mellitus: trends in northern India. *Indian J Endocri Metab* 2014;18(5):731.
35. Vanaleesin S, Mamah P. Self-care of nurses based on Islamic scripture. *J Psychia Nurs Mental Health* 2015;29(2):1-11.
36. Chongchareon W, Kahawong W, Apichato A, et al. A self-care promotion model for controlling blood sugar in type 2 diabetes. *Songkla Med J* 2008;26(1):71-84.
37. Dechma J, Durongrattichai V, Kijtorntam W. A study of predictable factors of diabetes mellitus complication in the community under King's Nursing theory. *J Pub Health Nurs* 2013; 27(2):63-80
38. Mayberry LS, Osborn CY. Family support, medication adherence, and glycemic control among adults with type 2 diabetes. *Diabetes Care* 2012;35(6):1239-45.