

# T2DM Patients With Different Ethnic Backgrounds' Perspective On Adhering To The Lifestyle Changes.

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## Abstract

The increasing number of diabetes is preventable by intensive lifestyle changes and proper self-management. It seems very difficult for diabetic patients to adopt lifestyle changes for various reasons, including low self-efficacy, lack of motivation, lack of support, limited knowledge, established habits, and poor time management. Current study intended to scrutinize the barriers, motivators, and practices in implementing lifestyle changes among the different ethnic groups (Malay, Chinese, and Indian) with type 2 diabetes mellitus (T2DM). Face to face in-depth individual audio-recorded interview was conducted with the selected type 2 diabetes patients. Interview sessions with 30 participants were conducted in various places, including in the clinic or at the workplace upon participants' requests. Adults, including males and females with confirmed type 2 diagnosis, recruited purposively. Thematic analysis, combined with the inductive and deductive approaches, was used to create the categories and themes. Four main themes were discovered: the obstacle, self-care practice, preventative measure, and empowering ability. The overall finding shows that apart from the different ethnicities, most respondents experience more barriers than motivation to make lifestyle changes. However, the Chinese respondent attained a higher motivation level to engage in lifestyle changes than Malay and Indian patients. The strong self-efficacy, motivation, and belief help the respondents to adhere to lifestyle changes even with no support. Hence, it is important to incorporate behavioural elements such as belief, self-efficacy, motivation, and social support to improve adherence.

**Keywords:** Lifestyle, barrier, motivation, type 2 diabetes mellitus, ethnic

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## 1. INTRODUCTION

The increasing number of diabetes is preventable by intensive lifestyle changes and proper self-management. Extensive evidence indicates that making overall behaviour changes, including healthy eating, doing regular exercise, and achieving weight loss, can prevent or delay diabetes complications (ADA 2013; Norris et al. 2005). Even though the benefits are known, most diabetic patients still have difficulties adhering to the recommendations to make an overall change (Johansson et al. 2015). The recommended lifestyle changes seem to be very difficult for diabetic patients to adopt for various reasons, including low self-efficacy, no motivation, lack of support, limited knowledge, established habits, and poor time management (Mohamed Nor et al. 2019).

As a growth cycle, ethnic identity differs both internally and socially through a community's lifestyle and practices. The complex characteristic, including spoken language, religious views, and shared heritage, determines an ethnic (Patel et al., 2017). Also, it is notable that health-related belief and awareness are differences between

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ethnic/racial, which arise from the working environment of individuals' ethnicity (Institute of Medicine 2009, 2012). However, our knowledge about how this happens appears insufficient. The ethnic identity might help interpret correlations between health habits and disease outcomes depending on their routine (Brown et al. 2016). Therefore, it is essential to take contextual and cultural barriers into account when making observations, and caution must be used to conclude that our findings are transferable. Hence a culturally directed recommendation is appropriate in lifestyle interventions.

Once a patient is diagnosed with Type 2 Diabetes Mellitus (T2DM), healthcare providers should be a part of the patient's journey to initiate intensive lifestyle changes. Controlling food intake and engaging in physical activity is as important as taking medication (Knowler et al. 2002). Individualized and patient-centered management should be initiated as early as possible, especially for diet, weight reduction, and physical activity for better adherence (Kamaruddin et al. 2015; National Institute For Health and Care Excellence (NICE) 2019). An intervention study conducted by Singh, Kumar-Jhingan, & Dahiya (2018) showed that lifestyle intervention resulted in reasonable glycemic control among the intervention group compared to the control group. Intensive lifestyle changes helped in proper blood sugar control (Singh, Kumar Jhingan, and Dahiya 2018). However, most diabetic patients were having difficulties following lifestyle recommendations as part of their self-care management.

Most of the studies conducted focus on seven components in self-care management, which are diet, physical activity, blood sugar monitoring, medication compliance, problem-solving skills, coping skills, and risk-reduction behaviours (Rahimian Boogar et al. 2013; Shakibazadeh et al. 2011; Simmons et al. 1998). However, studies focus on the low adherence to lifestyle changes recommendation, which is adhering to the diet, and physical activity recommendations among different ethnic background are not well studied. Thus, this study focuses on healthy eating and physical activity to determine the Malaysian's different ethnicity's adherence problems.

Knowledge about these factors is useful in designing future tailored intervention or educational programs for transcultural diabetes patients. Thus, the present study aimed to articulate qualitatively the experience, barriers, and motivating factors of transcultural diabetic patients in implementing the recommended self-care management, particularly dietary and physical activity.

## **2. METHODS**

### **2.1. Study Design**

This study adopts the descriptive phenomenology qualitative method. The descriptive phenomenology is a suitable design as it is widely used to understand human experiences by seeing the general patterns of the studied phenomenon (Wojnar & Swanson, 2007; Saldana, 2011). It also emphasizes human experience in reality with full awareness about current action (Koopman 2015). Based on this explanation, the present study used this approach to understand the principle of diabetic patients' experience, barriers, and motivating factors to sustain their lifestyle changes.

### **2.2. Participants And Data Collection**

Adult participants with confirmed type 2 diabetes were purposively recruited from three community clinics in Pahang, Malaysia. These clinics are visited by a consistent number of diabetic patients daily. Patients aged 18 to 65, not pregnant, could understand English or Malay language and provided verbal consent and were invited to participate in the study.

The in-depth interview session was conducted at the participant's convenience and preferable places and lasted between 30 to 60 minutes. The interviews were audio-recorded and transcribed verbatim. The recruitment of informants was ceased when saturation was met. A total of 30 subjects was recruited, with the confirmation of no new themes were found after the 30<sup>th</sup> subjects.

A semi-structured interview guide was used for the interview session. The semi-structured questionnaire was developed from a conceptual framework developed from a thorough systematic review regarding the motivation and barriers to change among T2DM patients (Mohamed Nor et al. 2019). The conceptual framework covered the internal and external factors for a patient to make lifestyle changes. The framework did not directly involve the behaviours theories, as discussed by (Buchanan 1998) in his paper, to discover the meaning, principle, and

enthusiasm in any individual practice; it required a unique approach rather than the natural process explained in the behavioural theories.

The interview sessions were conducted in a conversational mode, and participants were prompted with follow-up questions based on the answers given, for example, “Can you explain more?”, “What did you mean by that?” “When did you start to do that?” “How you manage to do that,” and “Why you do not do it?” to understand participants’ experience more comprehensively. The interview started with general questions regarding patients’ background, knowledge, and experience living with diabetes. The follow-up questions explored barriers, facilitators, and motivation. Field notes were also taken during the interview session as part of data triangulation. Data collection is ceased when data saturation is achieved.

Validation is an essential aspect of a qualitative study. After the transcription process, the individually transcribed data were given to the study participants to confirm its accuracy. They were given two weeks to provide any feedback. If no response were presented within the duration, the participants would be personally contacted for confirmation. Each participant was assigned a unique code number (P1 to P30) to ensure their anonymity.

### **3. DATA ANALYSIS**

The interview sessions were audio-recorded and transcribed verbatim on the same day to identify the saturation level, in a way to stop the data collection. Demographic data were collected in the first section of the interview. Then the descriptive analysis was conducted using IBM SPSS® software Version 23, whereas Atlas. Ti was used to analyze the qualitative data. This study used the combination of the deductive and inductive thematic analysis approach (Braun and Clarke 2006). The coding was done flexibly to allow personal context to be included in the final themes to create refined and comprehensive themes for lifestyle adherence.

The coding process was initiated by first and second authors, where both began with coding the same transcripts. After the fourth transcripts, the coding was continued by the first author. The first four transcripts were interpreted into initial codes by both authors through discussion for any deletion or addition of new codes. The same coding table was then used to finish the rest of the transcripts until the point of data saturation, where no new themes emerged or identified

The codes were then sorted according to the relevant themes. The final steps involved all authors in reviewing, defining, and concisely naming the generated themes. The authors discussed themes to refine, reduce biases, and create an overall theme. Validity was conducted by referring back to the transcription to confirm the quotes representing the themes. The quotes used were from the participants’ point of view, and those in the Malay language were translated into English.

### **4. ETHICAL CONSIDERATION**

Approval for this study was granted by the University Research Ethics Committee and the National Malaysian Medical Research (NMMR) ethics. All participants received oral and written information regarding the survey concerning the privacy and secrecy of the data. Participants who agree to participate in the study need to complete the consent form before the interviewing sessions begin.

### **5. RESULTS**

A total of 30 participants (16 males and 14 females) aged 26 to 65 years were recruited for this study, which comprised 17 Malays and seven Chinese, and six Indians patients, respectively. Even though the sample size was not equally distributed between the races, each race's saturation level was beheld separately. Hence, the data for each race was sufficient to be used to deduce the results.

Participants were seen by a dietitian at least once; thus, all participants have basic knowledge about dietary and physical activity changes. Participants confirmed that the recorded interviews had been correctly transcribed. Making lifestyle changes in controlling food intake and doing physical activity were challenging for most diabetic patients. Four themes explaining patients’ adherence emerged from the interviews. These are the obstacle, self-care practices, preventative action, and empowering ability.

## 5.1. The Obstacle

The sub-themes emerged from this theme: food availability, accessibility, socio-cultural perspective, stigma, lack of support, food habits or preference, and no motivation. These barriers are formed either within the patient or by the surrounding external people or the environment.

As a common practice, food is a requirement for every function in every culture (Malay, Chinese, and Indian). This practice is apparent even in informal settings such as meetings and discussion sessions, where food is always available. Food served options puts informers in a dilemma either to eat healthily or to follow their food preferences. Adding to the problem is food availability and accessibility. A wide range of food options is readily available such as fast food, restaurants, hawkers, including online food delivery. This situation is very challenging for informers because food is conveniently accessible whenever they feel like eating.

*“... Our food is oily and fatty, and there are a variety of unhealthy choices, even available for 24 hours, people are pleased. This situation is very worrying, but all is due to our attitude”*

[P25, Female, Indian]

Negative social stigma towards diabetes causes some diabetic patients do not disclose their condition and eat with little control to prevent other people from discovering about their health condition. They feel ashamed and guilty of being diabetics, and these negative emotions affect the way the informers follow healthy lifestyle recommendations. One participant mentioned that there is no need to control food intake in a function:

*“No need to control all out and no need to let everyone know that you have diabetes... You will feel shameful if everyone knows”.*

[P28, Female, Chinese]

Another participant mentioned about being obese and diabetic;

*“I do not want everyone to know I am diabetic. Because I am still young and morbidly obese, people will say I got this disease because I like to overeat (sad)”*

[P15, Male, Malay]

Additionally, a few participants mentioned the difficulties of eating out with friends as they did not support healthy eating. Few Indian respondents who stay with extended families (either parent staying with children or vice versa) were having difficulties controlling their food intake due to lack of family support. The participants feel that they should follow the house owner when it comes to food intake and preparation, so they do not choose the matter.

Also, the dietitian-patient relationship is crucial for better outcomes; four informers (including all ethnics) were not happy with the dietitian due to being judgmental, lack of sensitivity, and lack of take-home information. As one patient mention,

*“..hmmm... I do not want to see dietitian again; at first, I come; she had a bad impression on me, as I'm diabetic together with fatty liver disease, so she insists like I took too much alcohol...”*

[P 18, Female Indian]

The lack of motivation pairing with food preferences and habits are among the biggest challenges for the participants to change or maintain their eating patterns. These issues occurred in all ethnic groups, which is an individual issue rather than an ethnic influence. They have difficulties controlling their intake of certain food products, albeit knowing that they are not suitable to be eaten excessively.

On top of the food intake barriers, participants also mentioned about the obstacles in performing physical activity. These include lack of time, attitude (lazy and embarrassed), weather, safety, lack of social support, commitments, ageing, and being physically unfit due to other diseases.

The barriers shared by different races/ethnicities show no differences as the barrier is mostly due to the self-internal motivation and surrounding influences. The surrounding environment is seeming to be similar even in different ethnicities.

## 5.2. Self-Care Practice

Almost all of the participants, with no racial discrimination, were taking herbal and natural remedies as culturally practice; they believed that they could help manage their blood sugar.

*“... I'm practicing traditional medicine to control my sugar levels, such as lime, lemongrass, and some celery, boil all together and drink.”*

[P19, Male, Malay]

*“... I'm taking an infused Chinese parsley drink every morning, as people said it is good for lowering your blood sugar...”*

[P18, Female, Indian]

Commercial herbal supplement for blood sugar control was not prevalent among participants. Most participants believed supplements were hazardous, bad tasting, and expensive. In contrast, two Malay participants reported favouring supplements such as herbal tea and Aloe Vera drink over their prescribed medications because they felt that synthetic drugs are harmful, with numerous side effects. Hence, they prefer to consume traditional medicines.

Few participants reported compensating for their overeating habits by taking an extra dose of medication, insulin, skipping one meal, and doing additional physical activity. Additionally, most participants tended to overeat after the physical activity session as they believe doing physical activity may cause them hypoglycemia. These measures indicated participants struggle with consistency in controlling their food intake. They felt that they know their body functions and followed their instincts;

*“I have an instinct that when I eat a certain food, I could feel my sugar level increases. therefore, I will take extra medication.”*

[P4, Female, Malay]

Consuming traditional herbal drinks or commercialized products was more prevalent among Malays and Indians than Chinese patients. Almost all Malays and Indian participants were consuming at least the herbal drinks as they believed it might regulate their blood sugar, whereas few Chinese participants did not believe in consuming these herbal drinks as they found no effects on their blood sugar.

## 5.3. Preventative Measure

A preventative measure is significant to make sure each patient practicing the exact lifestyle changes method. Participants reported that to adapt to the new lifestyle, they require adequate knowledge. Most of the patients could easily reduce the food portion or avoid food such as rice. However, they are still consuming other carbohydrates, such as bread and noodles. Besides sugar, most patients believed that rice could increase their blood sugar level compared to another carbohydrate-containing type of food. One patient shared;

*“Now I had reduced my rice portion, including all sweet foods...Furthermore, I'm practising a vegetarian diet, so I think I have made many changes”.*

[P27, Female, Chinese]

Reducing total calorie intake and lowering fatty food and carbohydrates were among the most popular methods of controlling food intake.

*“For me, it is better to control both total calorie intake and fat intake. Sometimes the daily calorie intake is okay, but most of the calories come from fats, which not good too.”*

[P2, Male, Malay]

Obtaining knowledge is one way of preventative measures to engage in lifestyle changes. The most popular method was searching for information on the Internet, followed by healthcare professionals' advice. However, participants were aware that not all information available on the Internet were authentic; thus, they needed to be more careful.

*“I get the information from social media, usually Facebook®. I will read everything and follow whatever I think is okay... I like to try the tips that they share, like boiled vegetables or herbal tea drinks. However, not all that they share is good, so you have to pick and choose...”*

[P10 Male, Indian]

*“I think after I see dietitian, my awareness level on food intake increase a little bit, so I started to improve my food intake and try my best to follow the calorie intake”.*

[P9, Female, Malay]

Some of the informants used role-modeling as the benchmark to make lifestyle changes. They look at the surrounding people who had succeeded in making lifestyle changes, with controlled blood sugar outcomes, giving them the courage to make changes and better blood glucose control. There is no significant difference between the preventative measure used by different ethnicities.

#### **5.4. The empowering ability**

There are three sub-sub-themes identified by all the races in empowering factors in lifestyle modification. These include high self-efficacy, family support, and motivation.

The participants believed that strong self-efficacy would help them to have better self-control.

*“...I want to make this change. My husband never cares about it, but my children remind me not to eat sweet foods and drinks. That’s all. But I think it’s essential for my health to control food intake, so I start to change everything”.*

[P25, Female, Indian]

Also, they believed that strong self-efficacy is the result of regular or consistent practice of the changes made.

*“...When we get used to the changes, it will make us realize the importance of the changes. It may also help us to be consistent with our lifestyle modification. However, we must be strong to make it long-lasting. [laughing]”*

[P11, Male, Chinese]

External motivations mentioned by participants include feeling afraid of death, self-satisfaction, and avoiding future health complications. For example, this participant said;

*“I want to live longer. We Chinese are afraid of death. Better we change all”*

[P13, Male, Chinese]

*“Whereas a Malay participant said, “I’m afraid of getting a stroke. If I were to die straight away, then it’s okay, but if I were to survive, for sure I’d be a burden to my family, so I start to live healthily...”*

[P1, Male, Malay]

On top of that, ageing is one of the motivations to change as the participants believed that increasing age benefited them in reducing their desire to eat.

Additionally, the participants gained an interest in change after seeing family members suffering from diabetes-related complications. Besides, they were feeling better with the changes made. These participants shared;

*“Ermm... with the experience looking at my late mother suffering from diabetes complications for years and lastly was amputated before she died, that situation affects me, and I think I need to change before I get all the complications”.*

[P12, Male, Malay]

*“Ever since I started doing the changes, my sugar reading has been good, and I don't feel tired all the time”.*

[P17, Male, Malay]

Having the desire not to be burdensome to others has also encouraged the participants to continue with their changes. The participants were also eager to make changes to avoid insulin treatment (injections) for their whole life;

*“The other day, the doctor was saying if the HbA1c result is high, he'll prescribe me insulin. I don't like this injection thing, very tedious. I prefer taking medications... that is why I'm doing my best to change my food intake, (although) exercise not yet...hahaha”.*

[P9, Female, Malay]

Most female participants were trying hard to change their food intake and perform physical activities to look beautiful by losing extra weight.

*“The most important motivation is I want to look beautiful and wear fashionable clothes. If you don't take care of your weight, you might have problems to use trendy clothes”.*

[P24, Female, Indian]

In addition to motivation, social support also played a significant role in making necessary changes. In making changes to food intake, support is needed from family members, spouses, or children.

*“Usually my wife helps me in controlling my food intake, she will remind me not to overeat, and she will cook different dishes for me, like boiled or steamed dishes”.*

[P2, Male, Malay]

On the other hand, support from friends is more crucial for physical activity where it enables participants to be engaged in an active lifestyle.

The most apparent motivating factor among all Chinese participants was fear of death; thus, they tried their best to control their disease progression. As for Malay and Indian patients, since they do not want to be burdensome to others, they are motivated to change.

## 6. DISCUSSION

The findings showed that participants in all races were in the ambivalence stage to change, especially physical activity. The participants were reporting more barriers rather than motivations in engaging and maintaining lifestyle changes. Chinese informers have higher adherence to lifestyle changes as compared to Malay and Indian informers. Studies were done in the United States proof that there are differences in diabetes burden across ethnic (Spanakis and Golden 2013), and the prevalence of diabetes in Asian subgroups indicates that the Chinese were having the lowest incidence of T2DM as compare to Asian Indians and Other Asian (Lopez et al. 2014).

Specific self-care beliefs may either enhance or deter lifestyle changes. Cultural practices in taking soaked or boiled vegetable/herbs drinks may affect blood glucose control. Apart from medication intake, all races do have their practice to reduce their blood sugar, such as soaked vegetables or spices drinks. Nevertheless, the intake was more prevalent among Malay and Indian respondents compared to Chinese respondents. In a review done by Deng (2012), there are beneficial effects of lowering the fasting/random blood sugar among diabetes patients taking fenugreek, cinnamon, and gooseberry drink (Deng 2012). However, these studies had few limitations: small sample size, poor experimental design, the inconsistency of participant population, preparation format, daily dose, and treatment duration. With no awareness of the limitations, some participants reduced their medication intake as they believed that taking the herbal drink could regulate their blood sugar level. According to Gharaibeh & Tawalbeh (2017), diabetic patients continue to take herbal beverages due to their firm belief that it may regulate their blood sugar level to a level that is close to normal (Gharaibeh and Tawalbeh 2017). However, reducing the dose of medication and insulin while compensating with vegetable drinks is not acceptable as it can worsen the condition.

Serour and colleagues (2007) found that 60% of their participants were not adhering to the lifestyle intervention programs (Serour et al. 2007). This finding is consistent with the current study outcome, with about 17 (14 Malays,

2 Indians, and 1 Chinese) out of 30 respondents not adhering to the recommendations. Adopting a new lifestyle is much more complicated than the patient believed; they may encounter several problems in adhering to lifestyle changes. For example, social life needs (eating out, social events, and meetings), food habits and preferences, low self-efficacy, lack of social support, and time constraints deviate the patient's intention to make changes. Adding to that, Snoek (2000), reported the educational, psychological, and lifestyle obstacles were among the difficulties experienced during these lifestyle changes (Snoek 2000). All these difficulties left the patients with barriers to implement lifestyle modifications.

According to Tong and colleagues (2017), those with positive self-efficacy and support will integrate and sustain self-management in their daily life (Tong, Sainsbury, and Craig 2017). The provision of behavior-based intervention may help diabetic patients in making behavioural changes. Thus, determining the factors affecting a patient's adherence to making lifestyle changes is crucial in an intervention program. It is deemed necessary for a healthcare provider to identify the patient's barriers, motivation, and cultural beliefs before providing the appropriate intervention for a better outcome.

## 7. CONCLUSION

Different races/ethnicities did not much influence the lifestyle changes adherence. However, the Chinese' motivation level was slightly higher than Malay and Indian participants; thus, the Chinese have better control over T2DM. These findings affirm that education and knowledge alone might not be sufficient to increase adherence to lifestyle changes. Thus, it is essential to integrate behavioural aspects such as belief, self-efficacy, motivation, and social support during counselling sessions to increase adherence.

## ACKNOWLEDGMENTS

This research was supported by the International Islamic University Malaysia (IIUM), Research Initiative Grant Scheme (RIGS17-149-0724). We thank our colleagues from IIUM Medical Centre, Family Health Clinic of IIUM, and Poliklinik Berserah, in providing access to the patients.

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