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AWARENESS, TREATMENT AND CONTROL OF TYPE II DIABETES IN MAURITIUS: A QUALITATIVE STUDY

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Abstract

The study focuses on examining the prevalence, treatment preferences and knowledge about Type II diabetes in Mauritius. Despite the fact that the rate of Type II diabetes has been stabilized for the past 30 years, Mauritius is still one among the countries which has a very high rate of diabetes. Poor eating habits and adopting an unhealthy lifestyle are two of the major reasons for this increased rate of Type II diabetes. The objectives of this study is to find out the level of awareness of Type II diabetes in Mauritius, to understand the variations of treatment preferences among social groups and to find out whether diabetes campaigns are effective in the prevention of this illness. In order to obtain data from Type II diabetes patients on their treatment preferences and their level of awareness, in-depth face to face interviews were conducted with 15 participants in a public hospital, a local health Centre and a private clinic of the Island. Findings show that nutritional knowledge concerning food and a healthy lifestyle was

low among the participants, which caused them to suffer from Type II diabetes. In addition to that, some of the informants claimed that they are not able to consume a healthy diet on a daily basis due to the lack of money. However, with strategies implemented by the health care systems such as educational talks on Type II diabetes, campaigns and distribution of pamphlets and brochures, diabetic people are able to control their illnesses by adopting a healthy lifestyle.

Keywords

Diabetes, Sedentary Lifestyle, Treatment Preferences, Control, Diabetes Campaigns

1. Introduction

Mauritius has a multi-ethnic population around 1.2 Million (*Statistics Mauritius, 2017*), which consists of various ethnic groups. The ancestors of the various ethnic groups in Mauritius come from various parts of the world as Mauritius does not have a native population. The adult population of the island of Mauritius has one of the highest prevalence of Type II diabetes (Hemraj, 2003). According to the Mauritius NCD Survey of 2015 (p.5), there is an estimation of 257,442 people between the ages of 25 and 74 years with diabetes in Mauritius. The population of Mauritius has undergone rapid industrialisation and economic growth over the past several decades, and this has brought in its wake a shift in the disease pattern (MRC, 2013).

Mauritius has also experienced improvements in living standards over the past five decades. However, through previous surveys in 1987, 1992, 1998, 2004 and 2009 conducted by the Ministry of Health and Quality of Life (MoH&QL), in collaboration with the World Health Organization, Baker IDI Heart and Diabetes Institute (formerly the International Diabetes Institute) and partners, studies shown that the prevalence of diabetes mellitus was very high.

There are many factors which have contributed to the increasing rate of Type II diabetes in Mauritius namely:

1.1 Bad Eating habits

Mauritius has a population consisting of Hindus, Muslims, Sino-Mauritians, Franco-Mauritians and Creoles. The population of Mauritians has transmitted a variety of cultures, traditions and customs from generations to generations. As Mauritians are mainly from the Asian culture, most of the festivals celebrated in Mauritius include lots of sweets and sweet dishes originating from India. *“Sugar and sweet consumption have been popular and intrinsic to Indian culture, traditions, and religion from ancient times.”* (Gulati and Misra 2014, p.5955)

For years and years, most of the Mauritians have been heavy consumers of rice and home-made bread (pharatas), which is the staple food of the Asian community. For instance, the Hindus living in Mauritius are well-known for their home made “Ti-puri”- which is made with flour and fried in oil, and the Muslims of Mauritius are well-known for their delicious “Biryani”- which is made with rice, potatoes, meat and clarified butter. However these eating habits are not restricted only to the Hindu and the Muslim community of Mauritius. All Mauritians enjoy different cuisines from different ethnic groups. Biryani and other fatty foods are very common in Mauritian houses. Mauritians, therefore, tend to have heavy meals which include white rice and white flour bread. The elevated intake of white rice is associated with an increased risk of Type II diabetes (Nanri *et al*, 2010.)

1.2 Genes and Family History

Epidemiological studies have reported that migrant Asian Indians living in different parts of the world show a much higher prevalence of diabetes (Mohan, 2004). The latter stated that studies have revealed that migrant Indian populations irrespective of differences in anthropometry, dietary and socio-economic factors and migratory patterns, had a higher prevalence of Type II diabetes than Europeans. Another author articulates that: “*Indian immigrants may be more likely to have diabetes than other U.S. ethnic groups...*” (Kanaya *et al*, 2010)

1.3 A Sedentary Lifestyle

Another factor which contributes to the increasing rate of Type II diabetes in Mauritius is a sedentary lifestyle. A sedentary lifestyle is a type of lifestyle where an individual does not receive regular amounts of physical activities. Having a sedentary or inactive lifestyle can be one of the causes of Type II diabetes in Mauritius. According to the World Health Organization, physical inactivity is estimated to be responsible for some 1.9 million deaths each year as a result of diseases such as health ailments, cancer and diabetes. (WHO, 2017)

Being a small island, Mauritius has many public hospitals across the island that provides free health care to all inhabitants. Along with the public hospitals, there are also some private clinics (City Clinic, Clinique de Lorette etc...) and NGOs which help in educating the public about the management of Diabetes Type II. One example of a private NGO in Mauritius is the APSA (Association pour la **P**romotion de la **S**anté) Diabetes Care Centre.

However, not all diabetic people have the same opportunity to get the same diabetes awareness as people with lower income do not have enough money to get desired treatment in private health clinics or from private contributory NGOs. Thus they get access only to the public health care services. According to Hawthorne *et al* (2008, p.CD006424): *“People from lower socio-economic backgrounds have difficulties in obtaining a good quality diabetes health education which is a vital aspect contributing towards patients’ understanding, use of services, empowerment and a change of behavior towards a healthier lifestyle.”*

The aim of this study is to look into the awareness, treatment, control rate of Type II diabetes and its risk factors among middle-aged Mauritian adults and the objectives of this study are:

1. To know the level of awareness of diabetes Type II among patients in Mauritius;
2. To understand the variations of treatment preferences among social groups;
3. To find out whether campaigns are effective in the prevention of diabetes in Mauritius;

Diabetes Mellitus is defined as *“a metabolic disorder that is characterized by high blood glucose level, and body cannot produce enough insulin, or does not respond to the produced insulin.”* Nazar *et al* (2016, p.110)

According to the World Health Organization (2017), Mauritius is at an advanced stage in its epidemiological transition. Despite considerable investment and sustained efforts from the Ministry of Health and Quality of Life (MOHQL) and the National Non-communicable Disease Prevention and Control Programme, the incidence of diabetes in Mauritius remains one of the highest in the world. (Kassean, 2005)

2. Treatment preferences of diabetic people

Diabetes Mellitus has become a global concern as many people have adopted an unhealthy lifestyle. Hence controlling one’s blood sugar is the main goal of diabetes treatment. A treatment preference of diabetes among social groups is one of the most important issues faced by diabetics when they have to undergo a treatment. *“When asked about setting limits on medical treatment in the face of severe illness, patients and their families often respond that they want everything”*(Quill *et al*, 2009,p.345-349).

Patients’ preferences for care reflect their values, their understanding of their illness, and their understanding of their risks and benefits associated with treatment choices (Weeks *et al*, 1998). However, the lower-socioeconomic classes do not usually get their desired treatment of

diabetes type II because of the lack of money. Getting access to contributory NGOs and private clinics can be really costly for the lower socio-economic classes, thus leaving them with only the public health care facilities.

2.1 Ayurvedic treatment for Type II Diabetes in Mauritius:

Recently, the ayurvedic treatment of illnesses especially chronic illnesses such as diabetes, cholesterol, hypertension and obesity has been very much popularised in Mauritius. There are many people who have undergone ayurvedic treatments only to control and even cure their chronic illnesses. According to Sridharan *et al* (2010): “*Ayurvedic treatment aims to restore the equilibrium through various techniques, procedures, regimens, diet and medicines.*” Ayurvedic treatment is considered to be a system of natural healing and which does not have any dangerous side-effects on the health of people. The *ayurvedic Universe Wellness Center* in Mauritius is such an organization which aims at delivering authentic ayurvedic treatment to people. However, the cost of ayurvedic medicines and treatment is quite expensive as it is not offered in clinics or private hospitals.

2.2 Effectiveness on diabetic campaigns

Diabetic campaigns are very important as they are used to interact with the public and send a strong message about the importance of one’s health. Nowadays diabetes campaigns are presented to people by various means, such as; the internet, television, posters, billboards, newspapers, books, magazines, cinema, and even on radio among others. According to Browne (2011, p.289) mass media plays a very important role in communicating with a large mass audience without any face-to-face personal contact. Another author who writes about the use of mass media campaigns to change health behaviours says that mass media campaigns can produce positive changes or prevent negative changes in health-related behaviours across large populations.” (Wakefield *et al*, 2010, p.1261)

2.3 Actions being taken in Mauritius to raise awareness on Type II Diabetes

On 15 November 2013, the Minister of Health and Quality of Life in Mauritius announced the introduction of a National Diabetes Management System, an epidemiological tool which has been useful for medical audit till now. The system was designed for hospitals and healthcare providers who are better equipped to follow patients’ control and compliance. Due to the high prevalence of diabetes in Mauritius, the Government has been taking bold and innovative measures to address the problems associated with diabetes. Besides this, every year

promotional campaigns are launched by the Ministry of Health and Quality of Life which involves the distribution of posters, leaflets and brochures in primary and secondary schools, health centres, dispensaries, public hospitals, social centres and other public buildings. The aim of distributing these brochures, leaflets and posters to the Mauritian population is to educate and sensitise people about the alarming rate of diabetes in Mauritius and the need to control and prevent this illness.

Apart from the Ministry of Health and Quality of Life, even some private NGOs in Mauritius aim at educating the public by launching diabetes campaigns and providing diabetes care and management. Some of the NGOs that help people to understand and control their diabetes are the APSA International (*Association pour la Promotion de la Santé*) and T1 diams. These NGOs also provide patients with diabetes management programs and regular counseling with specialized doctors and nurses in order to control their sugar levels. These health promotion actions include education for health, efforts to mobilize people's collective energy, resources, and skills towards the improvement of their health. (Nutbeam, 2000)

3. Awareness of Diabetes Type II in patients: The increasing consumption of Fast-Food among the Mauritian Population

Consumption of fast food has become very common in many countries. A study by Schlosser (2012) indicates that in the 1970's, Americans spent about \$6 billion on Fast food and in 2000, they spent more than \$11 billion. In the same line of thought, the latter claims that Americans spend more money on fast food than on higher education, books, movies, cars, newspapers and personal computers. According to Pereira *et al* (2005, p36) "*Fast-food consumption has strong positive associations with weight gain and insulin resistance, suggesting that fast food increases the risk of obesity and Type II diabetes.*"

Awareness about diabetes Type II is very important as it helps patients to control or to self-manage their diabetes through a healthy diet and increased physical activity or oral medication. Managing diabetes can be very challenging without the guidance of a doctor, a specialized nurse or a dietician. According to Bodenheimer *et al* (2002, p.2469-2475), a self-management education program of a disease may improve the patients' health. A more recent study (Kim *et al*, 2004, p.847) has stated that diabetes is a chronic disease which requires a multipronged approach for its management, wherein the patient has an important role to play. The patients have to follow certain self-care practices to achieve an optimal glycemic control and

prevent complications. These practices include regular physical activity, daily foot care, appropriate dietary practices, maintaining treatment regimen, and also tackling with complications such as hypoglycemic episodes. In order to self manage their diabetes patients need to have a “health education” because lack of adherence to diabetic self-management regimens is associated with a high risk of diabetes complications. (Ciechanowski, 2001)

Public awareness about diabetes mellitus is very low among Mauritians as the rate of diabetes has not slowed down during last few decades. The Government of Mauritius in collaboration with the Ministry of Health has been educating the public about diabetes through various forms of media and diabetic campaigns. Most of the diabetic campaigns are done by sending a strong message about the consequences of diabetes by the means of posters and billboards or advertisements in newspapers. Along with the public health care, the private health clinics or private contributory NGO’s in Mauritius also provide diabetic awareness to patients. For example, the Mauritius Diabetes Association which is found at Bel Village aims at educating people with diabetes so that they can control their condition and lead a healthy lifestyle.

However, not all diabetic patients have the opportunity to get access with the same educational awareness of the illness as many people from the lower socio-economic backgrounds who suffer from diabetes do not have enough money to be able to pay the membership fees in private diabetes management Centre. A research done by Rahman *et al* (2015) showed that participants who had a lower education and lower economic condition in Bangladesh were less likely to be aware of their diabetes. In Mauritius, the situation does not differ. Poor management of diabetes was observed among non-educated and low-income groups.

4. Methodology

This exploratory study is designed to investigate the treatment preferences of diabetes among patients between the age of 45-60 years old, their awareness of the disease and the role of diabetes campaigns in educating patients.

4.1 Interviews and Participant Observation:

Two groups of respondents were interviewed:

- 1) A total of 15 face to face interviews were conducted with middle-aged people having Type II diabetes.
- 2) 4 specialised nurses and 1 dietitian were interviewed to have a better understanding on the treatment and awareness provided to type II diabetes patients in A G Jeetoo Hospital.

The researcher also assisted an educational session conducted by the specialized diabetes nurses, in order to raise awareness of diabetes among patients in the medical OPD (Out-Patient Department) of the hospital.

In this research, purposive sampling was used. Three different health care services were selected; 1 public hospital, 1 Area Health Centre and 1 private clinic. These three places were selected as they were more accessible to the researcher. Interviews of patients were conducted in all of the three health care systems, whereas the interviews of the specialized nurses and dietitian were conducted only in the A G Jeetoo public Hospital.

Before carrying out the interviews, a pre-testing was done with four diabetes type II patients admitted in A G Jeetoo hospitals. The patients suggested conducting the interviews in Creole languages so that they could understand and express themselves more easily.

After the pre-testing, the questions asked by the researcher were more clear and simple for the interviewee to understand. The problem that the researcher encountered during the interviews was that not everyone was willing to interact and participate in the interviews, especially because of time constraints and ambiguity. The researcher assured the informants that their names would be kept confidential and anonymous and also respondents were not forced to participate in the interviews conducted by the researcher.

5. Analysis

5.1 Eating habits and lifestyle

Most of the patients interviewed agreed that they did not take proper care of their nutrition in the past, which led them into having Type II diabetes. 7 respondents (Ali, Scott, Tom, Adam, Daisy, Lee and Dean) confessed that they used to consume a lot of fast food/ junk food and sweet dishes. In this interview fast food has been one of the common answers given by respondents when asked about the cause of their illness. Most respondents stated that they were consumers of fast food such as KFC (Kentucky Fried Chicken) and Mc Donalds at least 2-4 times in a week.

One of the participants stated that; ***“Fast food gagn partout et li pa cout cher.”- (Fast food is available everywhere and it is also cheap)***

Apart from the excessive consumption of fast food and sweets/sweet dishes, the data collected from another 5 participants (Alia, John, Mark, Farheen and Ashil) showed that the lack

of physical exercises and a sedentary lifestyle are also the causes of Type II diabetes in patients. These 5 patients were mostly between the age of 55-60, and they claimed that they think they have neglected their health by not doing any physical activity at all. Another reason given by these 5 respondents of leading a sedentary lifestyle was that after working hours, they preferred to go home and relax instead of engaging in doing exercises or heavy works.

Lastly, the remaining participants; Tanveer, Becca and Meera affirmed that the reason why they believe they are affected by Type II diabetes is the fact they have inherited it from their parents. These 3 respondents link their illness to family history and lineage. However they agree that they could have prevented it, if they were able to control their eating habits and lifestyle at the right time.

As we can see from the data collected, all of the respondents agree that they were not having a healthy lifestyle which led them towards Type II diabetes. Despite having a genetic lineage, type II diabetes occurs also when people have poor diets and a lack of physical activities in their lives.

5.2 Treatment preferences

The 11 respondents who were dependent on the public health care system stated that they were not happy with the only treatment they are receiving in public health centres/public hospital; while the remaining 4 respondents were happy with their treatment obtained in private clinics as they believe that they get a better treatment in private clinics/NGOs. Money is the main barrier which prevents the 12 respondents in obtaining their desired health care in private clinics.

While questioning the 11 respondents who were not satisfied with their treatment, a lot of them had the same opinion, "*service lopital pa bon*"- (*the service quality in hospitals is not good*). Data suggested that these 12 respondents believed that if they had enough money to join private NGOs such as T1 Diams or Apsa, they would have better treatment and counseling. Moreover 2 of the participants (Meera and Mark) even stated that due to the lack of money, they are not able to buy a blood glucose meter to their sugar level daily. For some of them, having a healthy diet everyday also is not easy as they have to spend a lot of money on buying proper food.

The cost of fruits and vegetables seems to be a problem for these 11 respondents who claim that they cannot afford food that are good for their health on a daily basis. In this context, the researcher strongly agrees with what Drewnowski and Eichelsdoerfer (2010, p246) stated in

their study, “...food prices pose a significant barrier for many consumers who are trying to balance good nutrition with affordability.” When the researcher asked the respondents if they could afford to eat 5 vegetables/fruits per day, all of the 12 participants stated that it was out of their budget.

Some of the reasons that were told by these participants were:

Participant 2 (Alia) stated that: *“Mo zanfan ale lekol, mo bzin depense boku kass r li. Lorla mo madame pa travay. Avec sa lapaye la, mo pa cpav manze bane plat bien equilibre tu les zour. Bizin fer sacrifice.”- (I spend a lot of money as my children are still in school. On top of that, my wife does not work. With my salary, I cannot afford to eat a balanced diet everyday. I have to compromise).*

Participant 6 (Scott) claims that: *“Mo gagn zis 6000 rs par mois. Mem si m bolom travay, kass zamais ase dan lakaz. Nou prefer manze seki ena dan lakaz, dan place ale astE boku legume pou manG tuleszour.”- (I earn only 6000 rupees monthly. Even though my husband works, money is always limited. We prefer to eat what we get instead of eating lots of vegetables everyday).*

Participant 10 (Ashil) argues that: *“docteur dir broccoli bon pu diabete, mais broccoli vend extra cher. Pa capav aste tu les zour.” – (Doctors told me that broccoli is good for diabetes, but it is very expensive. I cannot buy it on a daily basis).*

According to the data obtained from the analysis, almost all respondents want a better health service. They want to join private private NGOs or buy their own sugar glucose meter to use at home or even buy healthy food for them and their family members. However, due to the lack of money and responsibilities towards their family members, they cannot afford to spend money in buying their requirements for a better health, thus they can only rely on the public health care. One can conclude that the middle and lower classes usually face most of the financial problems when dealing with illnesses, just like Browne (2011, p393) stated, “the higher the social class of an individual, the more access he or she will have to society’s resources.”

5.3 Awareness

Awareness of the type II diabetes plays a very important role in managing the illness. In this section, awareness has been linked with the education level of the respondents. According to the data obtained during the interviews, 6 respondents had stopped their education after primary

level, 8 respondents were able to get access to secondary education and only 1 respondent had reported to have attained a tertiary education level.

When the respondents were asked if they knew about diabetes and its complications, all of them stated that they knew about the illness. However, 5 respondents (primary level) reported that there are certain things that they do not understand regarding the way doctors or nurses have advised him to eat. For example, according to Tom (respondent 5), he knows that vegetables are good for health, but doctors/nurses have prevented him from eating potatoes and sweet potatoes (roots) and so on, as these vegetables are high in carbohydrates. This respondent obeys his doctor and nurses but he does not know which food contains a high amount of carbohydrates and cannot decide which food to good for him to consume. The lack of awareness is explained by Rahman *et al* (2015) in the literature review of this study, where he explains how low education can prevent people from getting awareness on diabetes.

The analysis shows that respondents who have higher education level tend to be more aware of their illness and also manage it effectively. Whereas respondents with lower education level had difficulty to manage their illness as they were less aware of a balanced diet and couldn't fully manage their illness as they expected. Education seems to be a very big issue when it comes to understanding Type II diabetes. Self-management of the illness is also affected due to the lack of awareness. Ciechanowski, (2001) suggested in his study that in order to self manage their diabetes, patients need to have a "health education" because lack of adherence to diabetic self-management regimens is associated with a high risk of diabetes complications.

In addition, many participants pointed out that technology plays a very important role in educating them about their illnesses. For example; Participant 13 (Lee) states that whenever he is in doubt about the food he needs to consume, he just search for it on internet instead of worrying how to balance his diet on a daily basis. Apart from the use of internet, the patients also receive counseling from doctors and specialized nurses in public hospitals, dispensaries, and local health centres, private clinics or NGOs which provides them with type II diabetes treatment. The respondents strongly agreed that these counseling sessions help them to understand and cope with their illness in their everyday life, especially those who are not highly literate.

5.4 Effectiveness of campaigns

From the analysis, it can be seen that 13 respondents did not pay too much attention to diabetes campaigns as when these participants were asked to name a few campaigns, they either

replied that they don't know or they don't remember the name of any diabetes campaigns. They even claimed that diabetes campaigns are difficult to understand. On the other hand, the remaining 2 respondents; Adam and Farheen (Participant 9 and participant 14) were aware of some diabetes campaigns which were launched in 2016 and 2017.

However all of the participants strongly agreed that diabetes campaigns were designed to educate the public about the causes and consequences of diabetes on the health of people. Despite the fact that the respondents were not aware of the names of diabetic campaigns, they reported that they have seen advertisements of diabetes on TV, newspaper, magazines, billboards and posters. According to Browne (2011, p.289) mass media plays a very important role in communicating with a large mass audience without any face-to-face personal contact. As the majority of the respondents were not highly literate, they admit that they find the advertisements published in English or French difficult to read and understand. In Mauritius, a large number of Mauritians are still living with Type II diabetes. One of the reasons for the alarming rate of diabetes Type II in Mauritius is the lack of health literacy among people.

Here also, education plays a very important role in making people understand the importance of diabetes campaigns. Still, even if on one hand the majority of the respondents claim that most of the time, they do not understand the message given by diabetes campaigns, on the other hand they affirm that they understand campaigns/Shows on type II diabetes presented on TV in Creol and Bhojpuri languages. As Kreol and Bhojpuri language are the main languages spoken in Mauritius, most of the respondents, especially those who have studies until Form 3, stated that they prefer to watch and listen to health related programs in their mother tongue instead of reading and understand posters or advertisements of diabetes campaigns in newspapers which are generally in English or French.

From this analysis, one can see that the majority of participants had difficulty in understanding diabetes campaigns and remembering the names of campaigns. One possible reason which justifies why most of the respondents were not able to remember the names of diabetes campaigns launched in Mauritius, is that they do not give importance to the things that you don't understand. Health literacy is a major problem among the Mauritian population. Nutbeam (2000, p.259) stated that improving health literacy would help in transmitting information, and developing skills to be able to read pamphlets among diabetics.

5.5 Ayurvedic Treatment

Type II diabetes is a completely preventable and reversible condition, and with diet and lifestyle changes, people can greatly reduce the chances of getting the illness or reverse the condition if they have already been diagnosed with type II diabetes.

When the respondents were interviewed, 5 of them pointed out that they use herbs and spices to control their blood sugar levels. As herbal treatment or Ayurvedic treatment is a common healing practice in Mauritius, 5 of our respondents claim that they have been controlling their diabetes by using natural homemade remedies which has basically no side effects on their health. However, these 5 respondents also clearly specified that along with these home-made remedies to control their diabetes, they also take their medicines prescribed by their doctors.

Below are the statements of the respondents who have been using herbs and spices to control their sugar level:

- i. Participant 3 (John) stated that he regularly soaks 2 tablespoons of fenugreek seeds in a glass of water overnight and then the next morning, he boils the water along with the seeds, and drinks the water. He believes that fenugreek seeds are a good remedy to fight against type II diabetes.**
- ii. Participant 11(Daisy) stated that the root of the “corosol” fruit, also known as the custard apple in English, is a very good remedy to control Type II diabetes. She explained how she boils the roots of this fruit and drinks it twice a week to control her blood sugar levels. She believes that this remedy works wonders.**

5.6 Family Support

The majority of respondents agreed that their family life have been affected in one way or the other because of their illness. 2 participants (Scott and Daisy) felt that they have become a burden on their family members as they cannot work like they used to. Moreover Daisy even stated that she has the impression of looking less attractive now as she has lost weight drastically and fears that her husband does not find her beautiful anymore.

Living with diabetes is not easy, one can experience stress and depression because of this illness. For this reason, people having diabetes may need the help and support of their family. All of the respondents who were interviewed, showed concern for their illness and were on a regular

treatment. Analysis of data reveals that all respondents rely on their family for mental support as they feel sad and depressed when they knew they had Type II diabetes.

Participant 2 (Alia) stated that along with her, even her family members have changed their eating habits to able eat the same healthy food that he is consuming.

Participant 10 (Ashil) stated that his wife does not let him buy fast food, instead she packs a healthy lunch for him every day when he goes to work.

According to the analysis, all participants agree that they have been receiving support in dealing with their illness from their families which have helped them a lot and encouraged them for leading a healthy lifestyle. After being diagnosed with Type II diabetes, along with the patients, even their families tend to follow a healthy lifestyle.

Interview of Nurses:

Nurses at A G Jeetoo public Hospital were also interviewed to collect more data about patients and their treatment of type II diabetes. The researcher interviewed 3 specialized diabetes nurses, a dietitian and a nurse working in the retinal screening unit of the hospital.

5.7 Eating Habits and Lifestyle

The dietitian explained that most of the patients that she encounters complain that they do not get enough time to do physical exercises because of their busy working schedules. Thus, all the unhealthy food that they consume impacts directly on their health because of the lack of sports or physical exercises. The dietitian also explained the researcher about some of the eating habits of people which cause them to have Type II diabetes. She put emphasis on Fast-Food consumption in the Mauritian society. The dietitian stated that fast-food has become very common in almost every household and as it is very cheap, people can easily afford to buy almost every day.

The four nurses strongly agreed that a sedentary lifestyle is one of the major causes of type II diabetes among patients. They furthermore added that nowadays most people are working in offices, where they lead an inactive lifestyle, because of the fact that they do not have to work hard compared to a few decades ago, when most people used to work in sugarcane fields to earn a living. The nurses also claim that travelling by car also leads to a sedentary lifestyle, as most people who have a car, are actually dependent on their cars. They prefer to travel by car

everyday to facilitate their lives, which leads to avoiding walking from the nearby bus top to their walk place.

5.8 Awareness

The dietitian states that as a medical practitioner, it is her duty to advice and raise awareness of type II diabetes among people. She claims that every day she meets people who have doubts on food that they should consume to control their diabetes, and she explains to them what they should consume and also about the right amount of nutrition they should consume. However, she stated that, old and uneducated people are the most “difficult” patients to deal with as they tend to forget what they should eat and how they should balance their meal every day. Thus the dietitian writes down the different meals that they can consume on a paper and gives it to them.

She claims that: ***“With the right guidance and awareness, Type II diabetes can definitely be controlled.”***

On the other hand, the nurses claim that, their role is only to advice patients on their health but it is the patient’s duty to take proper care of his/her health. In order to see how the nurses raise awareness of diabetes among patients, the nurses invited me to attend an educational session at A G Jeetoo Hospital. During this awareness session, the nurses advised those patients to cook food at home instead of buying fast food every day. They even told the patients to eat more green vegetables as they don’t have calories and use less salt and oil while cooking their food at home. Moreover in order to help the patients in memorizing about the food they should be eating, the nurses wrote down different meal plans on a whiteboard for the patients to read or copy.

5.9 Awareness Campaigns

They stated that although diabetic campaigns have been designed to fight against diabetes, there are many people; especially old people who do not understand the messages behind diabetic campaigns unless explained to them. One possible reason which indicates why many old people do not get the messages delivered by diabetic campaigns is because most of the time campaigns are designed in English and French which illiterate or less-educated people do not understand.

Furthermore, they also told the researcher about the use of technology in promoting diabetes campaigns, as they state that people who use internet on their smart phones or laptops

are now more aware of the campaigns launched in Mauritius as they can see advertisements of those campaigns on their Facebook pages or while surfing on the internet, thus making them more aware of Type II diabetes.

5.10 Treatment preferences

According to the respondents, treatment preferences depend on the patient's choice and ability to afford their desired treatment. They strongly agree that people who contribute in health insurances prefer to get their treatment in public clinics rather than in public hospitals.

When the respondents were asked if only low income people would visit the hospital more often, they denied this statement by saying that even high income people come for their checkups and appointments in public hospitals, which proves that treatment preferences depends not on the income of the patient but infact of the patient's choice.

Ayurvedic treatment:

When the 5 participants were asked about their opinions on ayurvedic treatment to control diabetes, they strongly agreed that diabetes can be controlled by using some medicinal plants but they also claimed that one cannot rely entirely on medicinal plants to cure or control diabetes.

The dietitian shared her opinion by stating that; *“medicinal plants have always worked but it cannot get rid of the illness completely. People should also be relying on their treatment that they obtain in hospitals.”*

6. Conclusion and Recommendations

To conclude, one can say that despite the rate of diabetes Type II is high in Mauritius, the Government of Mauritius has been constantly working in providing free awareness sessions through campaigns and print media in public hospitals, Area Health Centres, Community Health Centres, dispensaries, and social welfare Centres. Along with the Government of Mauritius, even the private Diabetes NGOs such as APSA and T1 Diams have contributed in distributing pamphlets, posters and brochures in order to increase awareness on the illness itself, on the signs, causes and prevention of the illness and on the medication regime of Type II Diabetes patients.

It is important to note that for the first time in 30 years diabetes prevalence has been stabilized due to the increasing efforts of the public and private health sectors in educating the

public of Mauritius on Type II Diabetes. The NCD survey report of 2015 shows that the prevalence of diabetes in Mauritius has stabilized with figures standing at 22.8% in 2015, compared to 23.6% in 2009, while the prevalence of pre-diabetes, for the same period, has declined from 24.4% to 19.4%. Recent years have seen an increase in the awareness of the illness among the public and also in the lifestyle of diabetes patients who are able to control and cope with their condition on a daily basis.

From the study carried out, the following recommendations can be drawn out for the prevention of Type II Diabetes in Mauritius:

6.1 Campaigns in Creole/Bhojpuri Language

. The researcher emphasizes on the need to make campaigns in the native languages of the patients in order for diabetes campaigns to convey the right information to these patients. The researcher suggests that diabetes campaigns should be done in Creole and Bhojpuri language in order to target these people and educate them.

6.2 Growing vegetables rather than buying it

People who are not able to afford certain fruits or vegetables more often should try to cultivate their own food in their garden or in small pots that they can put in their kitchen. By doing so, they would save their money and consume healthier food on a more regular basis.

6.3 Maintaining a healthy lifestyle

As the consumption of fast-food is very high in the Mauritian society, there should be more awareness sessions about healthy diets in schools, colleges, universities and workplaces. This will not only educate the younger generation about the impacts of junk food on their health, but also make them realize the importance of maintaining a healthy lifestyle with proper diets and exercises. The health care systems in Mauritius can use education as a very important tool to outreach the whole Mauritian population by helping them to lead a more active and healthy lifestyle.

References

Alaimo, K., Olson, C.M. and Frongillo, E.A., (2001). Low family income and food insufficiency in relation to overweight in US children: is there a paradox? Archives of pediatrics & adolescent medicine, 155(10), pp.1161-1167.

- Bodenheimer, T., Lorig, K., Holman, H. and Grumbach, K., (2002). Patient self-management of chronic disease in primary care. *Jama*, 288(19), pp.2469-2475.
- Browne, K (2011), *An introduction to sociology*, 4th edn, Polity Press, Malden.
- Carroll, B.W. and Carroll, T., (2000). Accommodating ethnic diversity in a modernizing democratic state: theory and practice in the case of Mauritius. *Ethnic and Racial Studies*, 23(1), pp.120-142.
- Ciechanowski, P.S., Katon, W.J., Russo, J.E. and Walker, E.A., (2001). The patient-provider relationship: attachment theory and adherence to treatment in diabetes. *American Journal of Psychiatry*, 158(1), pp.29-35.
- Drewnowski, A. and Eichelsdoerfer, P., (2010). Can low-income Americans afford a healthy diet?. *Nutrition today*, 44(6), p.246.
- Gulati, S. and Misra, A., (2014). Sugar intake, obesity, and diabetes in India. *Nutrients*, 6(12), pp.5955-5974.
- Hawthorne, K., Robles, Y., Cannings-John, R. and Edwards, A.G., (2008). Culturally appropriate health education for type 2 diabetes mellitus in ethnic minority groups. *Cochrane Database Syst Rev*, 3, p.CD006424.
- Kanaya, A.M., Wassel, C.L., Mathur, D., Stewart, A., Herrington, D., Budoff, M.J., Ranpura, V. and Liu, K., (2010). Prevalence and correlates of diabetes in South Asian Indians in the United States: findings from the metabolic syndrome and atherosclerosis in South Asians living in America study and the multi-ethnic study of atherosclerosis. *Metabolic syndrome and related disorders*, 8(2), pp.157-164.
- Kassean, H.K., (2005). Nurses' perceptions of their role in caring for diabetic patients at the primary care level: A case study from Mauritius. *Journal of Health Management*, 7(2), pp.207-217.
- Kim, S., Love, F., Quistberg, D.A. and Shea, J.A., (2004). Association of health literacy with self-management behavior in patients with diabetes. *Diabetes care*, 27(12), pp.2980-2982.
- Nanri, A., Mizoue, T., Noda, M., Takahashi, Y., Kato, M., Inoue, M. and Tsugane, S., (2010). Rice intake and type 2 diabetes in Japanese men and women: the Japan Public Health Center-based Prospective Study. *The American journal of clinical nutrition*, pp.ajcn-29512.

- Nazar, C.M.J., Bojerenu, M.M., Safdar, M. and Marwat, J., (2016). Effectiveness of diabetes education and awareness of diabetes mellitus in combating diabetes in the United Kingdom; a literature review. *Journal of Nephro pharmacology*, 5(2), p.110.
- Nutbeam, D., (2000). Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health promotion international*, 15(3), pp.259-267.
- Pereira, M.A., Kartashov, A.I., Ebbeling, C.B., Van Horn, L., Slattery, M.L., Jacobs Jr, D.R. and Ludwig, D.S., (2005). Fast-food habits, weight gain, and insulin resistance (the CARDIA study): 15-year prospective analysis. *The lancet*, 365(9453), pp.36-42.
- Quill, T.E., Arnold, R. and Back, A.L., (2009). Discussing treatment preferences with patients who want “everything”. *Annals of Internal Medicine*, 151(5), pp.345-349.
- Rahman, M.S., Akter, S., Abe, S.K., Islam, M.R., Mondal, M.N.I., Rahman, J.S. and Rahman, M.M., (2015). Awareness, treatment, and control of diabetes in Bangladesh: a nationwide population-based study. *PloS one*, 10(2), p.e0118365.
- Schlosser, E., (2012). *Fast food nation: The dark side of the all-American meal*. Houghton Mifflin Harcourt.
- Sridharan, K., Mohan, R., Ramaratnam, S. and Panneerselvam, D., (2010). Ayurvedic treatments for diabetes mellitus. *Cochrane Database Syst Rev*, 12.
- Wakefield, M.A., Loken, B. and Hornik, R.C., (2010). Use of mass media campaigns to change health behaviour. *The Lancet*, 376(9748), pp.1261-1271.
- Zhang, Y.L., Gao, W.G., Pang, Z.C., Sun, J.P., Wang, S.J., Ning, F., Song, X., Kapur, A. and Qiao, Q., (2012). Diabetes self-risk assessment questionnaires coupled with a multimedia health promotion campaign are cheap and effective tools to increase public awareness of diabetes in a large Chinese population. *Diabetic Medicine*, 29(11).
- Zimmet, P., Alberti, K.G.M.M. and Shaw, J., (2001). Global and societal implications of the diabetes epidemic. *Nature*, 414(6865), pp.782-787