

**KNOWLEDGE OF GENERAL PUBLIC AND DIABETIC
PATIENTS ABOUT DIABETES AND THE IMPORTANCE OF
TAKING MEDICATION AMONG ADULTS AGED
30 TO 60 YEARS IN HA. FILLADHOO**

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June, 2014

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A Project submitted in partial fulfilment of the requirements for the degree
of Bachelors in Primary Health Care

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June, 2014

DECLARATION

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I hereby declare that this project is the result of my own work, except for quotations and summaries which have been duly acknowledged.

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KNOWLEDGE OF GENERAL PUBLIC AND DIABETIC PATIENTS
ABOUT DIABETES AND THE IMPORTANCE OF TAKING
MEDICATION. IN HAA ALIF FILLADHOO

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ABSTRACT

To assess the knowledge of diabetes among the general community and diabetes patients in Haa Alif Filladhoo, the survey was carried out among a total of 100 respondents of the ages between 30 and 60 years. It used a cross-sectional descriptive study design. Data was collected from the randomly selected participants by self-completed structured questionnaire. 100% of the response rate was obtained as everyone selected agreed and participated. The highest numbers of respondents were from the age group 55 and above which is 21%. Total of 100% of diabetic patients undergo medication. Nearly 50% of participants believe that they cannot get diabetes, which indicates no actions were taken for the prevention. Total 100% of people are aware that it is important to exercise regularly to control the diabetes however, 80% of them do not exercise regularly. Education levels of the respondents were satisfactory, but the best means were not practiced for the prevention and control. Diabetes can be most effectively addressed when preventive measures are considered. Proper medication and practicing a healthy life can control diabetes and will result a healthy community as a whole.

Keywords: knowledge of diabetes, prevention, treatment.

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Abbreviations

DM	Diabetes Mellitus
NCD	Non Communicable diseases
BMI	Body Mass Index
WHO	World Health Organization
MOHG	Ministry of Health and Gender
MOH	Ministry of Health
HPA	Health protection Agency
FHC	Filladhoo Health Centre
DSM	Diabetes Society of Maldives
IDF	International Diabetes Federation
H.A	Haa Alif
MDHS	Maldivian Demographic Health survey
NGO's	Non-Government Organizations

CHAPTER 1

INTRODUCTION

1.1 Background to the Study

The Republic of Maldives is a group of atolls located in the Indian Ocean. Maldives is a long and narrow country formed by 26 natural atolls. The total land area of these atolls covers approximately 90,000 square kilometers, which makes it one of the world's most geographically dispersed countries. (Visit Maldives, 2014) Total population of Maldives is 298,968 according to the 2006 census. (Ministry of Planning and National Development, 2008) The population growth rate of Maldives is 1.69% with nearly 50% of the population is under the age of 15 years. The crude death rate is 3 per 1,000 population and under-5 mortality rate is 11 per 1,000 live births in the Vital Statistics System, Ministry of Health 2012. (Ministry of Health, 2012) According to The World Bank 2011, the average life expectancy is 78 years and the gender ratio is 1.03: 1.00, male and female respectively. According to the census of 2006 Maldives have reached a stage of rapid population aging. The population proportion of the 65 years and older will double, from 3.5% in 2000 to 6.3% in 2025.

Haa Alif (H.A) is one of the Atolls in Maldives. It is located at Northern part of Thiladhunmathi atoll, containing of 43 islands. 14 of them are inhabited and are also classified as administrative islands constituencies. Haa Alif Atoll is considered as the third-largest atoll in the Maldives. . (Visit Maldives, 2014) Dhidhdhoo is the capital island of Haa Alif Atoll. Filladhoo is one island in this atoll. The population of Filladhoo is 1051, and about 80% of them live in the island. Diabetes is second most

common Non Communicable Disease in the island. Total of 9 patients are formerly registered in H.A Filladhoo Health Centre (FHC), and this is 4.08% of the population.

Health Protection Agency (HPA) of Ministry of Health and Gender (MOHG), is mainly focused in preventing diseases. Non Communicable Disease (NCD) has been the biggest issue in the country. According to the MOH, Maldives Health Statistics in 2012, 71.1% deaths occur from NCDs. NCD death rates are the highest death rates out of all the deaths, including diabetes. (Ministry of Health, 2012) Health protection Agency (HPA) is mainly accountable for NCD prevention and control. International Diabetes Federation (IDF) shows that Maldives reported prevalence of diabetes at 4.0 per 1000 population in 2010. However, the estimate of International Diabetes Federation (IDF) showed the prevalence at 7.4 per 1000 population. This Federation has also specified 12.7%, a relatively high prevalence of reduced glucose tolerance in the country. Similarly Age-standardized adjusted estimates of WHO in 2008 estimated prevalence of blood glucose level raised both male and female, 7.8% and 7.5 % respectively. (WHO, 2014) Consequently, to reduce the additional power of the problems, accurate information and knowledge plays a vital role.

1.1.1 Diabetes

Diabetes is a chronic disease which ensues any of the pancreas are not producing adequate insulin in the body or the producing insulin which cannot be used successfully in the body. There are two types of diabetes, Type 1 diabetes and Type 2 diabetes. Type 1 diabetes causes are not identified and the present facts cannot escapable from the diseases. Most of the symptoms which are rapidly visible like thirsty (polydipsia), weight decreasing, tiredness (lethargy), frequency of urine vision changes and appetite. Type 2 diabetes is once called non-insulin-dependent or adult-onset, causes of extra body weight and physical inactivity. Newly this type is arising

in children, but previously it has been seen in only adults. Most of the symptoms are equivalent as type 1 diabetes. The reason why it is less noticeable is because all the symptoms are repeated. As a result, the disease may be diagnosed several years after onset, once complications have already been arisen. Primary identification of the disease and proper management is the most effective way to reduce the complications to the diabetes patient. It should be supported by a healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use. (WHO, 2013).

1.2 Problem Statement

1.2.1 Situation of diabetes in Maldives

Results of Maldives demographic health survey 2011, findings the republic of Maldives within the last couple of decades has seen rapid morbidity transition from communicable diseases to Non communicable diseases. Risk factors for NCDs and cardiovascular diseases are the highest killer in Maldives, and it has been the biggest challenge according to the step survey 2004. (Ministry of Health, 2004) Diabetes is one of the diseases from this group. It was found that 3% of the respondents had been identified with diabetes according to Maldivian Demographic Health survey in 2009. Those who have been diagnosed with diabetes 45% were at the age of 30 to 39 when primarily diagnosed with diabetes, and that 28% were diagnosed when they are age of 40 or far ahead, and 21% diagnosed at the age of 20 to 29. In the MDHS, women's who had been diagnosed with diabetes were asked whether they were taking any medication as a management of the illness. The results showed that 10.1 % of them were taking insulin and 47% of them took tablets to reduce their blood sugar, 2% of them reported that a clinician, identified them as a myocardial infarction (heart attack) at some point, and 2% of them have stated that they have had a stroke. Actions

were taken to reduce to reduce blood sugar of married women aged of 15 to 49, of those who are taking insulin and pills. As a result in 2009, the percentage of taking insulin resulted to 10.1% and taking pills to 46.6%. (Ministry of Health and Family, 2010)

1.3 Objectives of the Study

Objective of the study is to develop information for awareness about diabetes among the general public and the patients of this disease, also to assess the knowledge on the importance of taking medication for management and control of diabetes.

1.4 Research Questions and Hypotheses

Knowledge of general public and diabetic patients about diabetes and the importance of taking medication among adults aged 30 to 60 years old in H.A Filladhoo. Having good knowledge of the risk factors and the importance of proper medication and its knowledge helps prevent incidence of diabetes and management of complications faced by patients.

1.5 Significance of the Study

At present, there is inadequate data available in Maldives to find out the knowledge of general public about diabetics and diabetes patients in the importance of taking medication. However they are some surveys done which partly mentioned about the respondents of MDHS diagnosed with diabetes and actions taken to reduce the diabetes, these data's are included in Maldives Demographic Health survey 2009 and Step survey 2004. As diabetes patients should be aware and informed about the

disease, in order to take regular medications and Insulin for life long, this study is very important, as it will help them to reduce the complications of the disease. In addition, to strengthen the NCD programme, this research will be very helpful for the NCD clinics and for the diabetes patient under the treatment. In 2009, Demographic Health survey done in Maldives had a limited data available about diabetes. Also in 2004, the STEP Survey was done on Non Communicable Disease Risk Factors in Maldives.

1.6 Scope of the Study

To identify the knowledge of general public and diabetic patients about diabetes and the importance of taking medication for the disease aimed for effective treatment. Moreover study the situation of diabetic between 30 to 60 years of age group in HA. Filladhoo.

Based on this research of H.A Filladhoo, the information can also be applied to other islanders of those who are having diabetes as well as the people under the treatment. Moreover, it would be beneficial for preventing and raising awareness about diabetics in Maldives.

1.7 Definitions of Terms

Type 1 diabetes

Type 1 diabetes (Insulin-dependent diabetes) is described as lack of insulin production in body.

Type 2 diabetes

Type 2 diabetes (non-insulin-dependent diabetes) is caused by the body's ineffective use of insulin. It regularly results from excess body weight and physical inactivity.

Gestational diabetes

Gestational diabetes is hyperglycemia which is first known as diabetes during pregnancy.

Insulin

Insulin is a hormone which regulates blood sugar. Hyperglycemia, or high blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body systems, especially the nerves and blood vessels.

CHAPTER 2

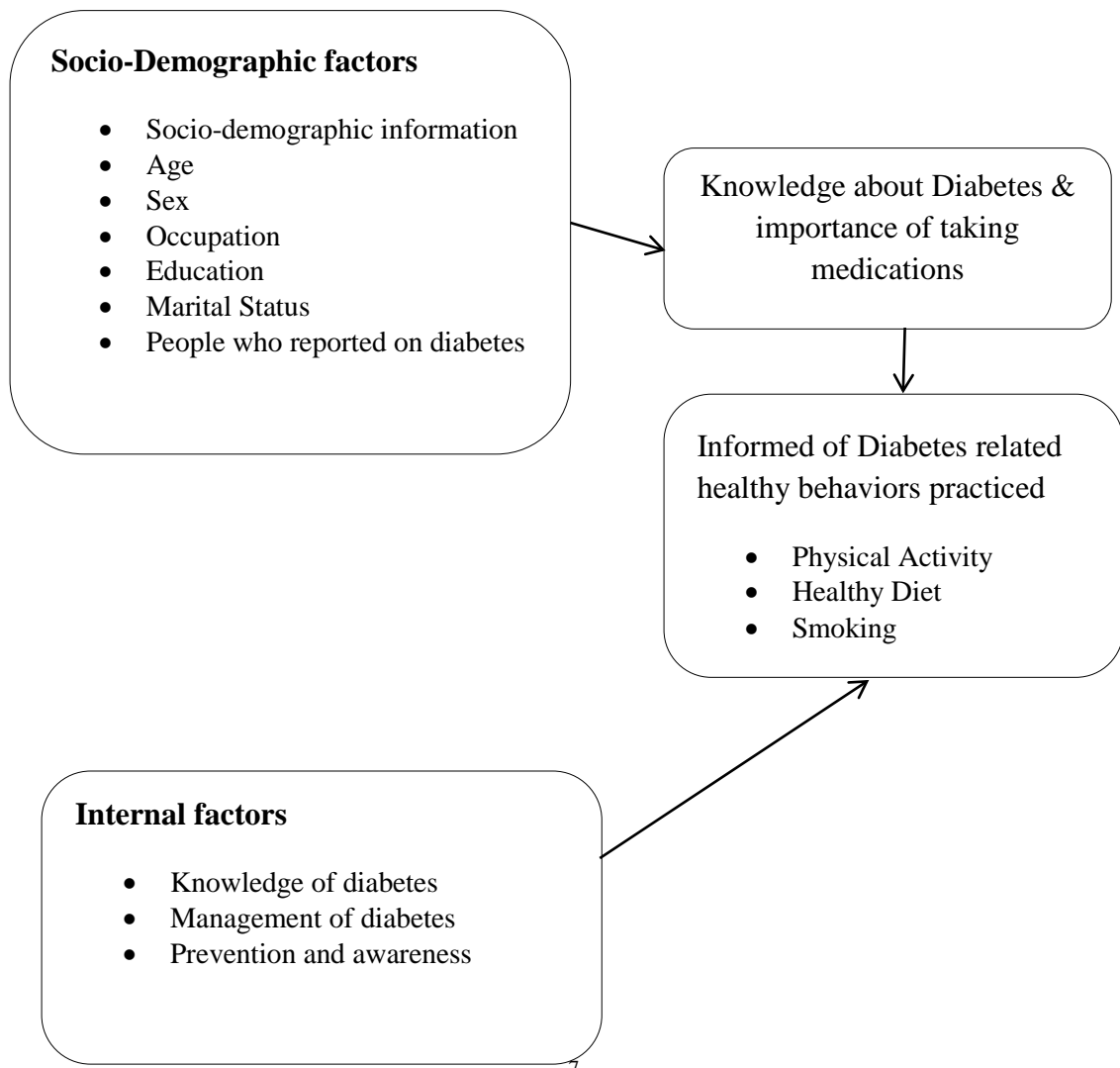
REVIEW OF LITERATURE

2.1 Theoretical Framework

Conceptual framework of diabetes patient and general public knowledge about Diabetes

Independent Variables

Dependent variables



Variables of the study

2.1.1 Dependent variables

In the Conceptual framework as mentioned above, the dependent variable is diabetes patient's knowledge and general public knowledge about diabetes. It includes the patient's knowledge about the disease, risk factors, diabetic's prevention methods and the treatment.

- **Physical Activity:** Amount of knowledge respondents have regarding physical activity and also the amount of knowledge respondents have on risk factors related to obesity.
- **Healthy Diet:** Amount of knowledge respondents have regarding unhealthy diet and preventive eating foods.
- **Smoking:** Amount of knowledge respondents have regarding the danger of smoking, and how it related to diabetes.

2.1.2 Independent Variables

Definition of Terms

Socio-Demographic factors

- **Age:** Diabetes patient and general public knowledge about diabetes who are 30 to 60 years of age.
- **Sex:** Including both male and female patients and general public.
- **Marital Status:** Respondents marital status both male and female.
- **Education:** it describes the respondent's educational qualifications especially at a school or university or information about or grade specific level of studying.
- **Occupation:** it defined as designation of employed or self employed by persons.
- **Socio-demographic information:** This comprises the patients and general public educational level about diabetes, educational background and occupational history.

Internal factors: Under internal factors of diabetes stated as the other elements which mentioned including social demographic information.

Knowledge of diabetes: it includes the respondents' basic knowledge of diabetes, including the type of diabetes they have, the importance of the treatment, and the view of general public about diabetes.

Management of diabetes: this contains the respondent's knowledge on medication, such as insulin, tablets and the side effects of all the medications.

Knowledge of Prevention and awareness: this includes the respondent's knowledge of how diabetes occurs, the risk factors of diabetes, diabetes preventive methods to control the disease and the knowledge of its relation with people's life style.

2.2 Previous Studies

2.2.1 Studies on cognition

The Health Belief Model

The Health Belief Model is a psychological model that tries to explain and predict health behaviors. It takes into consideration the attitudes and beliefs of individuals. This model tries to explain why some people fail to employ disease prevention strategies in order to detect diseases early. This model was initially developed in the 1950s by Hochbaum, Rosenstock, and Kegels who are social psychologists working in the US Public Health Services.

This model takes into consideration six factors that are believed to determine behavior. They are perception of severity, perception of sustainability, perception of benefits, perception of barriers, cues to action and one's self efficiency. (Boston University School of Public Health, 2014).

Diabetes or more technically, Diabetes Mellitus (DM) is one of the most common diseases that healthcare professionals come across from patients around the

world. Research tells us that it accounted for around 4 percent of the world population in 1995, but this figure is estimated to increase by 1.4 percent, that would account for around 5.4 percent diabetic patients worldwide by 2025. World Health Organization's (2006) statistics show that at least 171 million people suffer from diabetes throughout the world out of which a majority of diabetic population belongs to developed nations. (Okolie, V. Uchenna, Ehiemere, O ljeoma, Lheanacho, N. peace, Kalu-Igwe I. Ngozi, 2009) This is a worrying figure, since diabetes is one of the leading causes of mortality in various parts of the world.

“Diabetes does not come alone. It brings with it several other major illnesses such as diabetic retinopathy, neuropathy and cardiovascular diseases”. (H L Wee, H K Ho, S C Li, 2002) This disease, along with the heavy financial burden on society also creates various indirect costs that are associated with disability and mortality caused as a result of diabetes and diabetic-related illnesses.

For diabetic patients to have control over their illness, it is important for them to be fully aware of what they are dealing with. This starts with the knowledge of being able to identify that one has got diabetes. Researchers agree on the fact that diabetes is a silent disease. Diabetic patients usually discover that they have diabetes only when they encounter one of the life-threatening complications of the disease. It is thus vital to make people aware about its symptoms and later consequences to avoid any complications. (H L Wee, H K Ho, S C Li, 2002)

To learn about the knowledge of general public and diabetic patients about diabetes, several researches have been conducted in various parts of the world. A lot of these researches show the current situation of the literacy levels of people with and without diabetes in different countries. One such research was conducted in India and

their research report's title was 'Awareness about diabetes and its complications in the general and diabetic population in a city in southern India'. This research was conducted in Chennai, one of the main reasons being the numerous numbers of people with diabetes in that city. The results of this research about public awareness with regard to diabetes showed that 41% of participants in the study group were unaware about complications to health due to diabetes, and that only less than 30% were aware about the complications related to eyes, nerves and kidneys. (N. Murugesan, C. Snehalatha, R. Shobhana, G. Roglic, A. Ramachandran, 2007) This study alone is enough to determine the extent to which awareness needs to be raised regarding the health hazards of diabetes.

Risk factors of diabetes

This part includes the risk factors which causes diabetes. The International Diabetes Federation (IDF) has stated that smoking, high blood pressure, unhealthy diet, physical inactivity and family history of diabetes are the major cause of diabetes. (International Diabetes Federation, 2014)

Smoking

There are numerous risk factors that lead to diabetes. One of the prominent factors is smoking. Recent research shows that smoking could be a leading factor for type II diabetes. These studies show that smoking causes insulin resistance that leads to obesity. There is also evidence that smoking deteriorates glucose metabolism which gives way for the origination of type 2 diabetes. Furthermore, there is considerable evidence that shows that smoking is the leading cause for 12% of type 2 diabetes in

the United States. (ash.factsheet, 2012) In a study conducted to determine the knowledge, attitudes and practices among patients with type 2 diabetes by Gul (2010) in Shifa College at Islamabad, they found out that 70% of the participants believed cigarette smoking as a risk factor to their health. In another study conducted among urban African Americans, majority of the participants reported being moderately concerned about the effects of smoking on diabetes and they were reported to be planning to quit smoking. (Kansas Journal of Medicine, 2009)

Hypertension

Hypertension, also called high blood pressure is a factor that causes diabetes in people as well as worsens the complications of diabetes that include diabetic eye disease. It is seen frequently that many people who have diabetes develop high blood pressure at some point in their lives. Diabetes leads to the hardening of the arteries by damaging them, and thus, leads to high blood pressure. This, if not treated could eventually lead to heart failure or heart attack, leading to death. (WebMD, 2013)

Among the studies conducted about how much knowledge diabetic patients and the general population possess about the risk factors, a study conducted in Chennai about 'Awareness and Knowledge of Diabetes in Chennai' in 2005 showed that 9.2% of the sample population identified hypertension as something that could cause diabetic complications. (Deepa Mohan, Deepa Raj, CS Shanthirani, Manjula Datta, NC Unwin, A Kapur, V Mohan, 2005)

Unhealthy Diet

Another risk factor to be taken into consideration is dietary intake. It is evident from many researches that majority of diabetic patients are not very concerned about their dietary requirements. In fact, they do not even possess correct knowledge of the appropriate dietary components needed for them. To gain more insight into Patients' knowledge of diabetes Mellitus in a Nigerian city, Odili, Isiboge, and Eregie (2011) conducted a research and found out that the respondents had a very low level of diabetic knowledge. The respondents also did not know what diabetic free food is. (Valentine U Odili, Paul D Isiboge, Aihanuwa Eregie, 2014) This implied that a lot of education was needed in terms of diabetic diet. In the aforementioned research by Gul (2010), 18% of the participants agreed about taking a diabetic diet, while the remaining 82% said that they do not follow a diabetic diet. This study further specifies that only few people were able to answer questions correctly with regard to dietary requirements for diabetes patients. A lot of other studies have also shown that people know very little about nutrition and healthy diets. (Naheed Gul, 2010)

Physical activity

A life style with no physical activity is one leading cause of diabetes Mellitus (DM). The National health survey conducted by Singapore shows that there was an increase in the prevalence of obesity. The survey also revealed that only 16.8% of the population exercise regularly. While more than half did not exercise at all. So it is very important to educate and awareness to the community about the fearful consequences of obesity. By educating people about the level of risk, it is assumed that high-risk individuals would be motivated to live a healthy life style. For the

prevention of diabetes routine, medical check-ups plays a vital role. (H L Wee, H K Ho, S C Li, 2002)

Family history

Having a parent or sibling with diabetes could increase the risk of pre-diabetes. A research published in the journal of the European Association for the study of diabetes shows that with a total of 8000 people the risk of getting diabetes increase to 26%. (Diabetes Care.net, 2013) In 2006 the research, “psychological stress measure in type2 diabetes” done by university of catena (Italy) has mentioned that hypertensive patients with family history diabetes have low level of propensity score match. (G.M. TROVATO, D. CATALANO, G.F. MARTINES, D. SPADARO, D. DI CORRADO, V. CRISPI, G. GARUFI, S. DI NUOVO, 2006) So that the researches tell us that family history is one of the reasons which cause diabetes. Research carried out about the ‘Family History, Diabetes, and Other Demographic and Risk Factors Among Participants of the National Health and Nutrition Examination Survey 1999–2002’ also shows similar results. The findings showed that the possibility of having diabetes for people with a family history was four times higher than for those without any family history of diabetes. (Ann M. Annis, RN, MPH, Mark S. Caulder, MS, MPH, Michelle L. Cook, MPH, Debra Duquette, MS, CGC, 2005)

Education

Being unaware of the risk of developing complications of diabetes could increase the number of people with diabetes. Lately, a survey done in Nigeria showed that Nigerian diabetics had poor knowledge of diabetes. According to the research,

total of 56.5% had a satisfactory knowledge. However it clearly shown that overall mean score was very poor. The majority did not have the knowledge of "diabetes diet", "fatty food", "free food", effect of unsweetened fruit juice on blood glucose, treatment of hypoglycemia and the average duration glycosylated hemoglobin test measures blood glucose. The result of this study therefore portrays that a majority of Nigerian diabetics are unaware of their risk of developing complications. Knowledge of diabetes of Nigerian diabetics was poor related to age, level of education, satisfaction with education received. (Unyime Sunday Jasper, Babatunde Gbolahan Ogundunmade, Macmillian Chinonso Opara, Olayinka Akinrolie, Edna Bawa Pyiki, Aishatu Umar, 2014)

Mental Stress

Stress level, be it physical or psychological stress, first changes in blood sugar levels, which effects the diabetic patients. Being diabetic also contributes to a person getting stressed as the psychological pressures could also be a cause of stress. Stress makes it difficult to keep the blood sugar level steady. Researches indicate that mental or psychological stress could lead to increase in glucose levels for people with Type 2 as well as type 1 diabetes. Physical stress in particular is seen to rise the glucose levels, especially in people with diabetes. In a study conducted in Chennai in the year 2005 about 'Awareness and Knowledge of Diabetes in Chennai', mental stress is stated by 4% of the total participants as one of the main causes of diabetes as believed by them. (Deepa Mohan, Deepa Raj, CS Shanthirani, Manjula Datta, NC Unwin, A Kapur, V Mohan, 2005)

To combat the negative effects of stress in diabetic patients, it is important to do things whether it be exercises or any kind of activities that would help to relieve stress. Some of these activities include exercising regularly, listening to music, holidaying, practicing yoga, or any kind of activities such as reading a book that would help the mind to relax, and to be free of tension.

Symptoms

There are various symptoms of diabetes. Symptoms occur mainly due to the fact that some or all the glucose stays in the blood and are not used as fuel for energy. The major symptoms of diabetes include frequent passing of urine, increased thirst, extreme tiredness, weight loss for no major reason, genital itching, slow healing of cuts and wounds, blurred vision and many more.

The signs and symptoms develop quite early in type 1 diabetes and symptoms are relieved faster once it is treated. In contrast, the signs and symptoms are usually not so obvious in type 2 diabetes as the condition grows over a period of years. But, even in type 2 diabetes, symptoms are relieved once treatment starts. This being so, it is necessary to take the symptoms into consideration once they are noticed as ignoring them could lead to serious health hazards such as diabetic ketoacidosis in type 1 and negative effect on many organs in type 2 diabetes. To avoid these complications, it is necessary to get diagnosed early and to control one's blood glucose levels. (Diabetes UK, 2012)

According to a research conducted in Singapore about 'Public Awareness of Diabetes Mellitus in Singapore' in 2002, majority of the participants (above 55%)

identified the symptoms of diabetes correctly. This shows that majority of those who suffer from diabetes are aware about the symptoms and this could help them to deal with the complications better, and before they actually emerge as a result of the diabetic condition. (H L Wee, H K Ho, S C Li, 2002)

Medication

Diabetes is a non-communicable disease. Once diagnosed, patients are advised to keep taking the prescribed medications for the rest of their lives. When we talk about medications for diabetes, it is important to consider the basic knowledge of the diabetic patients about diabetes and their adherence to treatments that are prescribed by healthcare professionals. It is significant for diabetic patients to have received sufficient instruction about their disease so that they would be better able to make informed judgments about their treatment. (G. H. Murata, J. H. Shah, K. D. Adam, C. S. Wendel, S. U. Bokhari, P. A. Solvas, R. M. Hoffman, W. C. Duckworth, 2003)

People with diabetes need on-going medication to stabilize their conditions to live a normal life. Their diabetes, blood pressure and blood fats need to be stabilized to help them cope better with diabetes. Maintaining a healthy diet and taking regular physical activity is essential in addition to taking medications such as diabetes medication, insulin, and Islet cell transplants.

Diabetes medication is basically needed to lower blood glucose. However, this medication cannot cure diabetes and the patients will have to take it for the rest of their lives. Insulin helps our bodies use glucose for energy. Taking insulin will help diabetic patients control their blood sugar levels. Islet transplants help to reduce the

risk of severe hypos, better knowledge of hypoglycemia, less variability in blood glucose levels and better average blood glucose. (Diabetes Uk, 2012)

While the importance of taking medication for diabetic patients are discussed, it is also important to consider the fact that some of the diabetic patients do not adhere properly to taking medicines on a regular basis to help them cope better with diabetes. This poor adherence is believed to be one of the main causes of poor therapeutic outcomes. (Mohamed E.E. Shams, Enaase A.M.E. Barakat, 2010) There are many factors that might affect therapeutic adherence that includes the marital status, support from family, socio-economic level, the side effects associated with medications, age progression and patients' knowledge, beliefs and understanding of the medications that are being used to treat diabetic patients. (I. Patel, Chang, R.A. Shenolikar, R. Balkrishnan, 2010) and (Mohamed E.E. Shams, Enaase A.M.E. Barakat, 2010) One prominent reason for a powerful barrier to successful adherence is negative beliefs about medications, according to a research done in Palestine about 'Influence of patients' disease knowledge and beliefs about medicines on medication' Another reason, in light of this study is the concerns of diabetic patients about the health hazards of taking anti-diabetic medications on a regular basis. According to Kurtz (1990), cited in majority of diabetic patients are non-adherent and only a small number of patients are found adherent when taking diabetic treatments. (Mohamed E.E. Shams, Enaase A.M.E. Barakat, 2010) In a study conducted in Palestine, it was found out that only 38.9% of all patients belonged to the category that actually adhered to taking drugs appropriately. Similar results are shown in other researches in other places as well, and these statistics indicate the extent to which adherence needs to be stressed upon among diabetic patients.

Since adherence is strongly influenced by one's beliefs in his medications and diabetes related knowledge, it is vital for healthcare workers to assess and educate diabetes patients about diabetes to make the level of medication better and to improve the therapeutic outcome. Healthcare professionals have a huge role in educating diabetic patients and informing them regarding the fact that their medications are not addictive, and are safe to be used for a long term. It is beyond doubt that the more knowledge diabetic patients have about diabetes, the more positively it will influence their adherence to medications and the therapeutic outcome. (Diabetes Uk, 2012)

Prevention

Prevention of diabetes is a big challenge, as it gives more priority to the life style behaviors of individuals like bringing changes to the diet and being physically active. (Mayo Clinic, 2014) Being physically active helps the cells become more sensitive to insulin and to remove glucose from blood, which in turn helps to lower blood glucose. This will help the patient to manage with a few diabetes pills or fewer intake of insulin. (Diabetes Uk, 2012) Diabetic patients can bring about positive changes to their diet as a measure of keeping their diabetes controlled. By bringing changes such as taking regular meals, eating a variety of foods that include less fatty foods, and taking less sugar in their meals would surely help diabetic patients to stabilize their blood glucose levels. (G. H. Murata, G. H. Murata, J. H. Shah, K. D. Adam, C. S. Wendel, S. U. Bokhari⁵, P. A. Solvas, R. M. Hoffman, 2003)

The diabetic prevention programme or the Finnish diabetes prevention study and the Da Qing study indicate that diabetes is a disease which can be prevented. Less than 60% of the high standard professionals agree that diabetes is preventable and less

than 50% of diabetic known persons agree that it's preventable. To prevent diabetes, it is necessary to spread public health messages through different media so that people have relevant knowledge about the causes and preventive measures of diabetes.

2.2.2 Studies on metacognition

Lack of knowledge about diabetes could create a lot of hurdles for diabetic patients. Patients with low functional health literacy levels are faced with obstacles such as reading labels on a pill bottle, interpreting blood glucose values or dosing schedules, comprehending appointment slips and educational brochures, and conceptualizing risk. (Jama Internal Medicine, 2003) Furthermore, patients who are low on literacy with regard to health information are also less likely to be able to name their medications and describing their indications. Consequently, these patients may end up holding health beliefs that may prevent them from following the actual prescriptions that would actually benefit them and communication could be made difficult between healthcare professionals and such patients.

CHAPTER 3

METHODOLOGY

This part comprises of the research design, population and sample, instrumentation, data collection procedures and the framework for data analysis. The methods that are used for analyzing the data and reason for the data chosen are included in this part.

In data collection, to obtain a valid and reliable data is to be ensured, in order to analyze it for effective use. The information which is being designated was to attain the knowledge of general public and diabetic patients about diabetes and the importance of taking medication. Total of 100 samples are selected, of them 91 are randomly selected and 9 patients were of diabetic.

3.1 Research Design

In this Research quantitative research method were used to assess the knowledge of general public and diabetic patients about diabetes and the importance of taking medication, among people aged 30 to 60 years in H.A Filladhoo, a cross-sectional descriptive study design was used. The data analysis outputs and statistics generated was used to measure the intended knowledge and awareness among the target population. A cross sectional study was considered the most appropriate in determining if an exposure is associated with an outcome. The community based, descriptive study was carried in March 2014 to June 2014.

3.2 Population and Sample

This study was carried out in H.A Filladhoo. The reason behind focusing on a specific island rather than the whole country was the limited time and resources available for the researcher. This island was mainly selected due to familiarity of the community for the researcher and administrative facilitation and the assistance that is ensured for the researcher. Like in many other islands, there is limited data available regarding the knowledge and awareness about diabetes among the island community. The target population for the survey is men and women aged between 30 and 60 years as this is at risk of acquiring diabetes. Survey sample was drawn from this group (age of 30 – 60 years) adequate enough to administer the survey procedure to get the knowledge of general public about diabetics and the importance of taking medication by diabetes patients. A total sample size of 100 in the age group between 30 to 60 years would be taken for cross sectional study.

Filladhoo has a small population and diabetes patients in Filladhoo are very few. So the target respondents are chosen up to 100 peoples in the community (53 males and 48 females) including the 9 diabetes patients currently living the island. The patients were the registered patients in the FHC in the island, and the other respondents (91) were chosen randomly from the population of Filladoo age between 30 to 60.

The sampling size was taken from the age group of 30 to 60, from a total number of 346 people. 50% of the total number of 346 people is 183 people. This number was deduced using 5% of margin of error and 95% of confidence level and 50% of the response distribution by using Raosoft software for sample size calculation. However 10% of the total number was targeted due to the limited time

availability and inconvenience. Thus the response distribution then resulted to 100 participants.

Inclusion criteria

The Included respondents in this research is all the diabetics patients who are registered in FHC (Filladhoo Health Centre) and patients who are attending on NCD clinics in FHC, both male and female patients within the age group of 30-60 years, and general public who are agreeable to answer the research questionnaire for the sample population.

Exclusion criteria

Due to several reasons, the people who were rejected from the research include both male and female below the age of 30 years and above the age of 60 years. Also the people who are not registered in NCD clinic as well as people are not living in the island during the data collection period.

3.3 Instrumentation

Study was conducted through a self-administered questionnaire. The questionnaire was pretested to and some changes were brought to the questions based on the feedback received. The pretesting was done with the help of Diabetes Society of Maldives (DSM) and FHC. The questions were constructed to align with the objectives of the study. This questionnaire contains both open-ended and close ended-

questions. Furthermore, it contains Socio-demographic characteristics, diabetes characteristics, knowledge of diabetes, knowledge of medications, knowledge of diet physical activities and prevention. For an easier and reliable data collection purpose, this questionnaire was created in Dhivehi Language. However the English version and the Dhivehi translation of the questionnaire were attached in the annex.

3.4 Data Collection Procedures

This survey was conducted with the help of FHC, DSM and HPA of Maldives. Family health worker in Filladhoo health center was a helping hand in collecting data. Before collecting data, the research objective and methods were explained to the respondents, and written consent was obtained from the respondents. Questionnaires were given to the selected respondents to be completed by themselves. The family health worker assisted the in the completion of the questionnaires for those who are unable to fill the questionnaire. It was only one respondent, who were unable to read because of the vision problems. Set limit of 110 questionnaires is printed and handed over to the officers including 10 extra copies. The officer obtained the list of 9 diabetes patients from the FHC. The other 91 respondents were obtained from a list of island population by the help of the Secretariat of Filladhoo Council. This survey was conducted from 1st may 2014 to 5th may 2014. The questionnaires were then sent to the researcher from Filladhoo for data processing and analysis.

3.5 Framework for Data Analysis

Once the collected data sheets were brought back from the FHC, the analysis work began. The officers helped to the researcher in bringing back of the surveyed forms from Filladhoo to male' after the data collection. The collected data was first entered in Epi Info™ 7 software and then re-checked for further errors. The entered data was then analyzed for producing the descriptive statistics mainly presented using tables and diagrams within a period of 6 days. Data was also analyzed using Epi Info™ 7 software and Microsoft excel by the help of a biostatistician in order to make statistical inferences. A detailed report was compiled based on the findings of the analysis.

CHAPTER 4

DATA ANALYSIS AND RESULTS

During the study period, a total of 100 participants are recruited in this survey. This was 50% of the target population. A total of 9 diabetes patients and 91 individuals were included in this survey and 100% of responses are achieved from diabetes patient in this survey.

Table 4.1 Social demographic characteristics of participants

Social Demographic Characteristics	Frequency (N=100)	(%)
Age		
30-34	17	17
35-39	12	12
40-44	14	14
45-49	18	18
50-54	18	18
55 and Above	21	21
Minimum 30	Maximum 60	Standard deviation:1.8
Sex		
Male	52	52
Female	48	48
Marital Status		
Single	5	5
Married	84	84
Divorced	4	4
Widowed	7	7

Table 4.1 Continued**Educational Background**

Literate	69	69
Primary	26	26
Secondary	2	2
Higher Secondary	1	1
College	2	2

Occupation

Government job	19	19
Private job	13	13
Not in a paid job	37	37
Other works	31	31

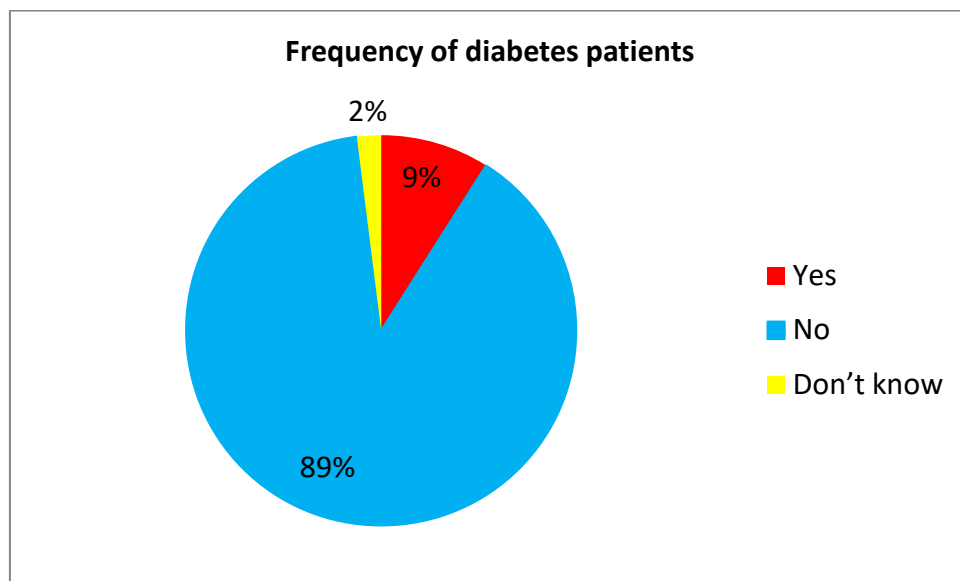
Family Income

Less than 4000	6	6
Between 4000-6000	19	19
Between 6000 to 8000	31	31
Between 8000 to 10000	24	24
More than 10000	20	20

The above table shows the social demographic characteristics of the participants surveyed. The result shows the least number of respondents are in age group between 35 and 39 which is 12% (n=12) of the respondents surveyed. The highest number are from the age group 55 and above which is 21% (n=21) of the number of people who took part in the survey. The minimum age surveyed was 30 and the maximum age surveyed was 60. More than half of the participants were male in this survey, which is 52% (n=52) of the participants surveyed, and 48% (n=48) of the surveyed were female. In addition, 84% (n=84) of those surveyed were married and 4% (n=4) were divorced, 7% (n=7) of people are widowed and 5% (n=5) people are single. Looking at their educational background, 69% (n=69) of participants were literate, 26% (n=26) are in primary education, 2% (n=2) are in secondary education, 1% (n=1) has had their higher secondary education and 2% (n=2) of people are going through the college days. Highlighting their occupation, most number of participants

surveyed were not in a paid job, which is 37% (n=37) of those surveyed. 19% (n=19) of people are in government jobs, 13% (n=13) of people work in private job and 31% (n=31) of people do other work. Result of family income shows that 6% (n=6) of people get less than MVR4000 and 19% (n=19) of people are getting in between of MVR4000 to MVR6000 and 31% (n=31) of people are getting in between of MVR6000 to MVR8000 and 20% (n=20) of people are receiving more than MVR10000 as their family income.

Figure 4.1 Frequency of diabetes patients



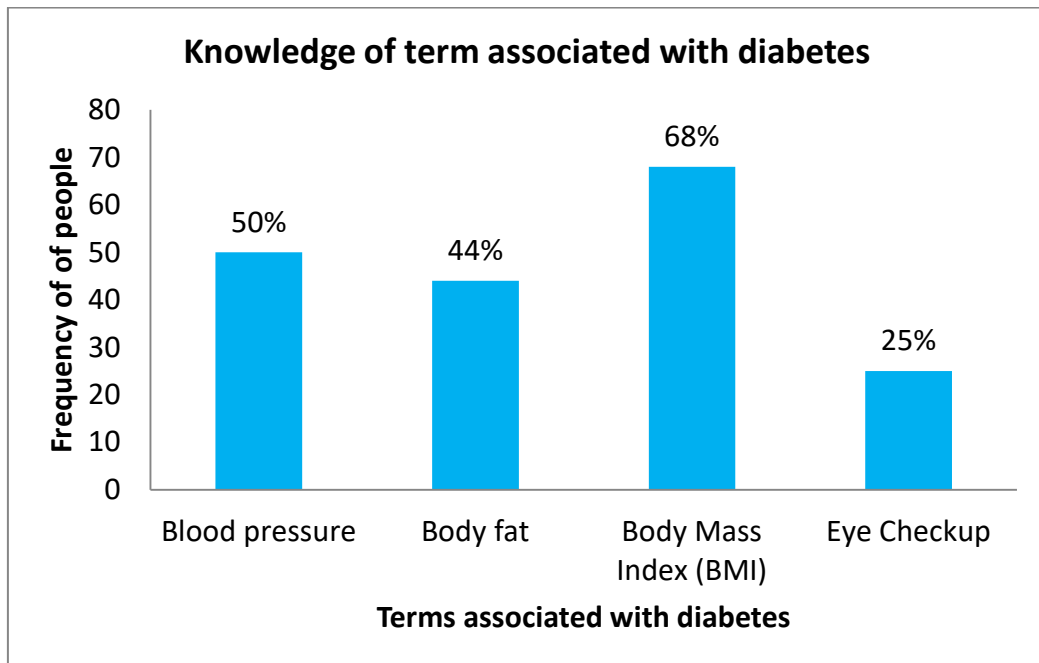
The pie chart above shows the result of the survey which clearly shows 9% (n=9) of people are diagnosed with diabetes and 89% (n=89) of them are non-diabetic patients. However 2% (n=2) of them do not know whether they have diabetes or not.

Table 4.2 Participants' risk factors for diabetes

Risk factors of diabetes	Frequency (N=100)	(%)
Smokers		
Yes	35	35.0
No	65	65.0
High blood pressure		
yes	25	25.0
No	75	75.0
High cholesterol level		
yes	23	23.0
No	77	77.0
Family history of diabetes		
yes	19	19.0
No	81	81.0

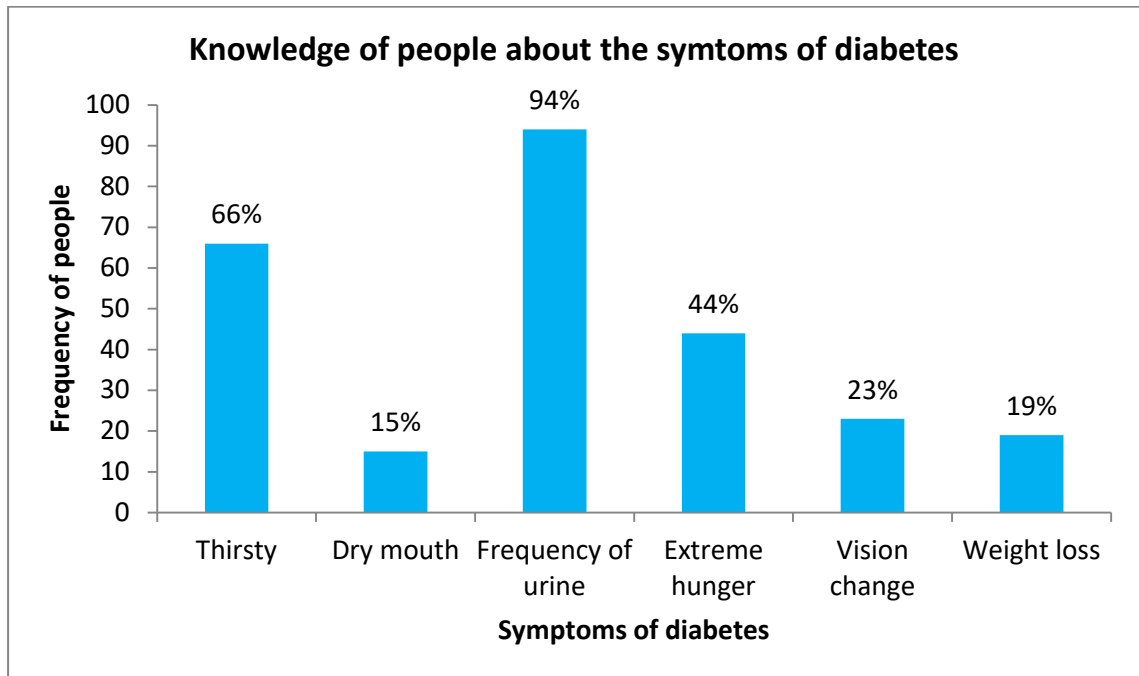
The above table shows the risk factors of diabetes. According to the result, it shows people who are at risk of diabetes, 35% (n=35) are smokers. 25% (n=25) of people are having high blood pressure. A total of 23% (n=23) people are in high cholesterol level. A total of 19% of (n=19) people surveyed have a family history of diabetes.

Figure 4.2 Participants' knowledge about terms associated with diabetes



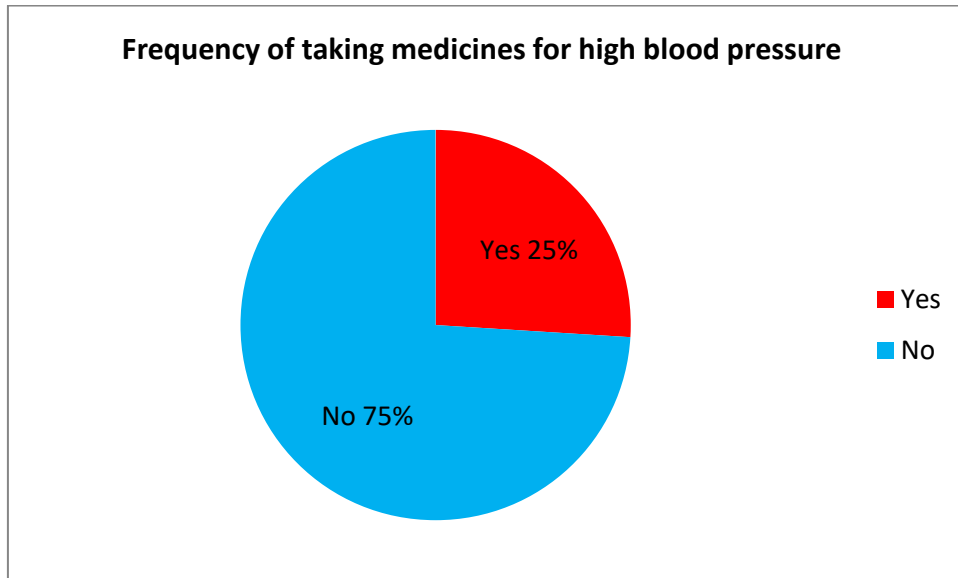
The above graph (figure 4.2) shows the surveyed participants knowledge of the terms associated with diabetes. 50% (n=50) of people are aware about knowledge of term which is associated with diabetes called blood pressure. A total of 44% (n=40) the people are aware of the term body fat, and 25% (n=25) of people are aware of eye checkup. But the most number of people are aware of Body Mass Index (BMI) which is 68% (n=68) of the people surveyed. So more than 50% (n=50) were aware of blood pressure and Body Mass Index (BMI), and the least number of people were aware of eye checkup, which is 25% (n=25).

Figure 4.3 Participants' knowledge about the symptoms of diabetes



The graph above shows the extent to which people are aware of symptoms of diabetes. A total of 94% (n=94) of the people mentioned frequent urination as a symptom of diabetes, and 15% (n=15) of people reported dry mouth. A great majority, 66% (n=66) people reported the symptom of getting thirsty, and 44% (n=44) of people are aware of extreme hunger. Twenty three percent (23%) (n=23) of people reported vision change and 19% (n=19) of people weight loss as a symptom of diabetes. More than half of the respondents are aware of the symptom, to frequency of urine and thirsty.

Figure 4.4 Participants who take treatment for high blood pressure



The respondents who said they have high blood pressure were asked if they take medication for it. The pie chart above shows that a total of 25% (n=25) of the respondents said they are using medicines for high blood pressure, and also 75% (n=75) of them said they are not having high blood pressure so they do not take medicines for high blood pressure.

Table 4.3 Participants' general knowledge of diabetes

General knowledge of diabetes	Frequency	(%)	Frequency	(%)	Frequency	(%)
	(N=100)		(N=100)		(N=100)	
	Yes		No		Somewhat	
Know how a person become diabetic	14	14.0	46	46.0	40	40.0

General knowledge of diabetes	Frequency	(%)	Frequency	(%)	Frequency	(%)
	(N=100)		(N=100)		(N=100)	
	Yes		No		May be	
Do you think you can get diabetes	31	31.0	42	42.0	18	18.0
Knows the diabetes that starts young would continue life long	86	86.0	9	9.0	5	5.0

Continuation of Table 4.3

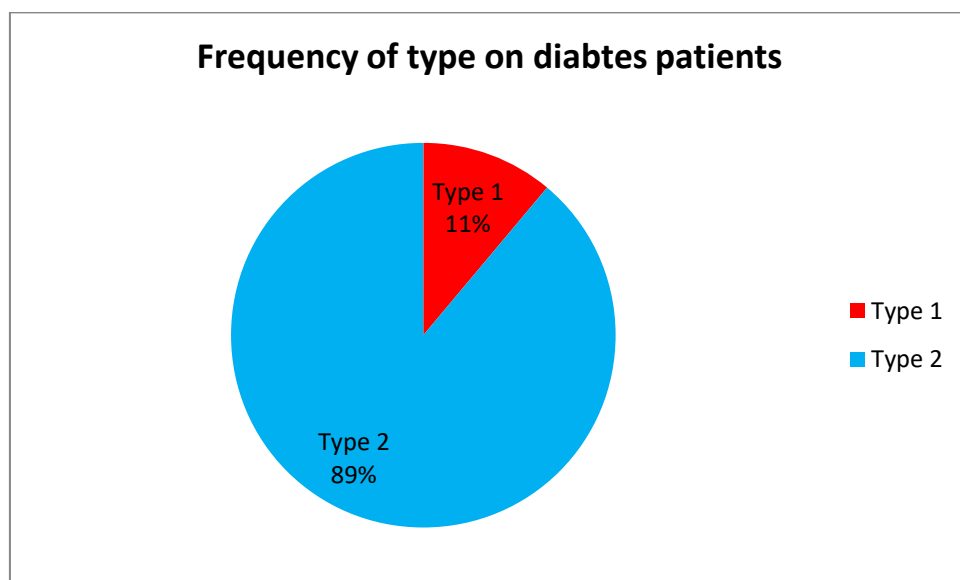
General knowledge of diabetes	Frequency	(%)	Frequency	(%)	Frequency	(%)
	(N=100)		(N=100)		(N=100)	
	Yes		No		Don't know	
Regular medication can control diabetes	96	96.0	2	2.0	2	2.0
Consulting a doctor before starting medication is important	99	99.0	0	0.0	1	1.0
regular intake of medicines to maintain blood sugar level is important	99	99.0	0	0.0	1	1.0
think it effect the Sugar level if they forget to take their medication	88	88.0	0	0.0	12	12.0

The result from the selected general knowledge questions of diabetes to a randomly selected 100 participants shows that only 14% (n=14) of people are aware that they can get diabetes and 40% (n=40) of people have some knowledge about it. This is quiet risky as nearly 50% of participants has the view that they cannot get diabetes, which indicates that they will not take any actions for prevention. Thirty one percent (31%) (n=31) of people agreed they can get diabetes. Forty-two percent (42%) (n=42) are mentioned that they will not get diabetes and Eighteen percent (18%) (n=18) of them answered they might be a diabetic victim. Despite of being diagnosed with diabetes in a younger age a total percentage of 86 (n=86) surveyed out of the 100 participants strictly agreed that they are going to live their life longer. However 9% (n=9) of participants disagreed and 5% (n=5) said that diabetes might shorten their lives. Here, out of surveyed overall number of participants had a good knowledge that even if diagnosed with diabetes at a younger age it can be controlled.

A total of 96% (n=96) participants say that the intake of regular medication can control diabetes. But 2% (n=2) of people participated said that diabetes cannot be controlled by using regular medication and 2% (n=2) of people said that they have no idea about it. Almost everyone (99%) (n=99) said that consulting a physician before starting the medication is important, remaining 1% (n=1) of the participants said that they don't know how important it is. Also no one said that it is not important. Ninety nine 99% (n=99) of the participants agreed that to maintain sugar level the regular intake of medicine is important and only 1% (n=1) said that they do not know whether it relates to it or not. Eighty-eight percent (88%) (n=88) of people think that if forget to take medication, it affects the sugar level and no one is disagree for it but 12% (n=12) of participants do not know whether it will affect their sugar level if they forget to take medication.

PART B

Figure 4.5 Type of diabetes patients



This pie chart (figure 4.5) shows the proportion of patients diagnosed with diabetes type 1 and type 2. Total 9 (n=9) diabetic patients are surveyed. Where only 11% (n=1) surveyed people were diagnosed with type 1 diabetes, remaining 89% (n=8) of diabetic patients were diagnosed with type 2 diabetes.

Table 4.4 Participants' age of started to have complication of diabetes

Age of started to have complications of diabetes	Frequency (N=9)	(%)
Below 15	0	0.0
Between 15 to 19 years	0	0.0
Between 20 to 24 years	1	11.1
Between 25 to 29 years	1	11.1
Between 30 to 34 years	1	11.1
Between 35 to 39 years	1	11.1
Between 40 to 44 years	0	0.0
Between 45 to 49 years	1	11.1
Between 50 to 54 years	1	11.1
Between 55 to 59 years	3	33.3
60 and Above	0	0.0

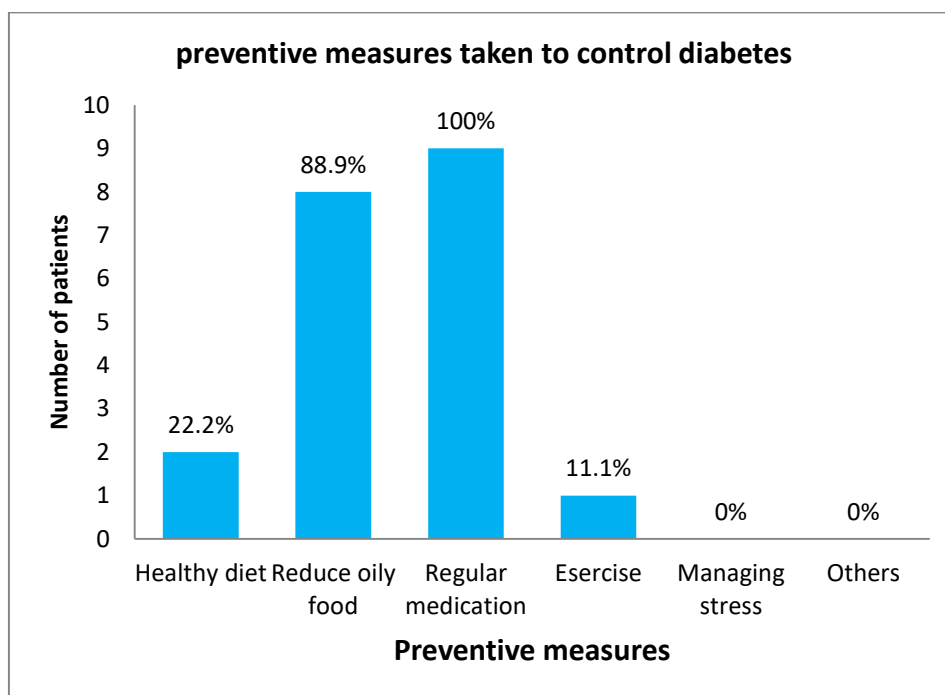
The above result describes the age where complications of diabetes started at some point of surveyed participant's life. A total of 33.3% (n=3) people are in range of 55 and 59, as it is the highest percentage of surveyed people. And the age groups 20 to 24, 25 to 29, 30 to 34, 35 to 39, 45 to 49 and 50 to 54 has only 11.1% (n=1) where complications started. There is no one who started to have any complications below the age of 19 years and the above the age of 60. Also there is no who developed in between 40 to 44 years.

Table 4.5: Treatment of diabetes patient

Treatment of diabetes patients	Frequency (%)		Frequency (%)		Frequency (%)	
	(N=9)		(N=9)		(N=9)	
	Yes		No		Don't know	
Patients take treatment	9	100	0	0.0	0	0.0
Patients take regular medication	9	100	0	0.0	0	0.0
Patients take insulin injection	1	11.1	8	88.9	0	0.0
Insulin methods use						
Syringe	1	11.1	0	0.0	-	-
Prefilled pen	0	0.0	0	0.0	-	-
Insulin pump	0	0.0	0	0.0	-	-
Other methods	0	0.0	0	0.0	-	-

Patient's treatments of diabetes shows that the total 100% (n=9) are taking treatment and 100% (n=1) are taking regular medication, and this is the total number of diabetes patients who are been surveyed. In Addition, only 100% (n=1) is take insulin injection. Moreover the result also shows the method by which the patients take insulin is only by syringe. No one who was surveyed used prefilled pen, insulin pump or any other method.

Figure 4.6: Preventive measures taken to control diabetes by diabetes patients



The graph above shows the preventive measures taken to control diabetes among the surveyed people. It shows that regular intake of medication has been chosen by most number of people to control diabetes, which is 100% (n=9). And 88.9% (n=8) of people agreed that they reduced consuming oily food to control diabetes, in contrast to the 22.2% (n=2) and 11.1% (n=1) of people surveyed, who mention of taking a healthy diet and doing exercise. No one surveyed said that they are managing stress level to control diabetes, and there is no other preventive measures they have mentioned to control the disease.

Knowledge about diet and physical activity

Table 4.6: Participants' knowledge and practice about diet and physical activity of diabetes

Knowledge of diet and physical activity	Frequency (%)		Frequency (%)		Frequency (%)	
	(N=100)		(N=100)		(N=100)	
	Yes		No		Don't know	
Diet						
People use vegetables	57	57.0	43	43.0	0	0.0
Aware of taking special diet to maintain the sugar level	98	98.0	0	0.0	2	2.0
Aware of regular meal to control diabetes	94	94.0	0	0.0	6	6.0
People have confident take about meals 4 - 5 hours every day	75	75.0	25	25.0	0	0.0
Physical Activity						
People who are doing regular exercise	20	20.0	80	80.0	.	.
Weight control is important to keep sugar level normal	95	95.0	2	2.0	3	3.0
Aware of how important it is to exercise regularly to control diabetes	100	100.0	0	0.0	0	0.0
If weight is not control, sugar level will increase	96	96.0	0	0.0	4	4.0
Confident about can exercise 15-30 minutes, 4 to 5 times a week	79	79.0	21	21.0	0	0.0

When participants were asked about their diet, 57 % (n=57) of people said that they are taking vegetables regularly and the rest of 43 % (n=43) of the people said that they are not using vegetables regularly. 98% (n=98) of the people aware of taking special diet to maintain the sugar level and 2% (n=2) of people don't have the idea that how important it is to take special diet. A total of 94% (n=94) of the people are aware of taking regular meals to control the diabetes and 6% (n=6) of people said that they don't know whether the regular meal is important to control the diabetes. Total 75% (n=75) People who said that they have confident to take their meals about 4 to 5 times a day and remaining 25% (n=25) of people said that they don't have that much confident to take their meals about 4 to 5 times a day.

The Results from the physical Activity of the people shows that only 20% (n=20) of the respondent are doing regular exercise, another 80% (n=80) of them said they do not exercise regularly. Total 95% (n=95) of people agreed that weight control is important to keep the sugar level normal, and 2% (n=2) of people said that weight control is not important to keep the sugar level normal. Three percent 3% (n=3) of people said that they don't know about the importance of weight control to keep the sugar level normal. Total 100% (n=100) of people are aware of how important it is to exercise regularly to control the diabetes. In this survey 96% (n=96) of the respondents agreed that sugar level will increase, if weight is not control, and 4% (n=4) of the respondent don't know about it. There are a total 96% (n=96) of the people who have confidence that they can exercise 15 to 30 minutes for 4 to 5 weeks a week

Table 4.7: Participants' view about prevention action

View of prevention action	Frequency (N=100)	(%)	Frequency (N=100)	(%)	Frequency (N=100)	(%)
	Yes		No		May be	
People believe about the participation of Anti-Diabetes campaign	99	99.0	0	0.0	1	1.0
Campaign of diabetes, increase the awareness of people	100	100.0	0	0.0	0	0.0

The table above (table 4.7) shows answers for questions designed to know about the knowledge and views of people for the preventive strategies of diabetes. A total of 99% (n=99) people believes that the participation in Anti-diabetes campaign is important for them and said that they will participate in such programs. Only 1% (n=1) of people said that she may be participate for the campaign. Fortunately 100% (n=100) of them agreed that the campaign of diabetes will increase the awareness of the people.

CHAPTER 5

DISCUSSION AND CONCLUSION

Discussion

A total number of 100 eligible people participated in the survey on the knowledge of general public and diabetes patients about diabetes and the importance of taking medication. This is a interviewed based survey, where questions were directly asked to the participants. Many of the participants to whom questions were targeted about diabetes only knew the name of the disease 'hakuru bali' as is called locally. It is really essential for the diabetic patients to be aware of their illness, so that they can develop their self-management abilities and there by avoid obstacles. The absence of knowledge of the risk factors of diabetes may hinder protective measures.

Of the 100 participants 52 were male 48 were female. The majority of diabetes participants were from the age group 55 and above. The least number of people were from the age group between 35 and 39 years. The majority of people participated in this survey were above 45 years. Most of respondents were married and that is 84% of people, and the least number was divorced, and that is 4%. Sixty nine percent (69%) of participants were literate, 26% were in primary education, 1% was in higher secondary education and 2% were in both secondary education and college studies. Among the participants most of them were employed, which was 63% of people. From them 19% are working in the government sector, 13% are working in the private sector and 31% do other kinds of works as occupation. The rest of the 37% of the participants were not in paid job. The monthly family income of those who participated in this survey showed that the most number of people gets a salary

between MVR6000 and MVR8000 that is 31%. The least number of people receives a salary less than MVR4000 that is 6%. Most number of participant's family receives a satisfied income, which shows that they enjoy a good standard of living. The literacy level and income levels can be considered reasons for having a good knowledge of diabetes.

Researchers agree that cigarette smoking is a modifiable risk factor of diabetes as smoking is related to weight gain and increase the risk of diabetes. According to the research, the result shows that among people who are at the risk of diabetes, 35% are smokers and 65% are non-smokers. This notifies that more than 50% do not smoke and people are aware that smoking is an unhealthy habit. In 2010 a study done by Gul in Shifa College at Islamabad, they found out 70% of the participants are non-smokers and believed cigarette smoking is a risk factor to their health. The results from the present study also shows that most participants had adequate knowledge about the consequences of cigarette smoking and people are aware of it.

High blood pressure is a risk factor for many diseases including diabetes. Research has shown high blood pressure is one of the risk factor for diabetes. High blood pressure is also a modifiable risk factor for diabetes. In the present study, 25% people are with high blood pressure and 75% are with normal blood pressure. A study regarding awareness and knowledge of diabetes in Chennai conducted in Chennai in 2005 showed that 9.2% of the participants have high blood pressure or hypertension as a diabetic risk factor.

Cholesterol is another controllable risk factor of diabetes. There are many things that can affect the cholesterol levels. In the study, 77% of the total participants

are having a normal cholesterol level and 23% people are having a high cholesterol level.

Family history is a non-modifiable risk factor for diabetes. The American Diabetes Association mentions that siblings or parents with type 1 diabetes should get screened for diabetes. However, having a family history on diabetes does not mean that each and every other member of the family has diabetes. It occurs when a family member is obese, smoked or had any other risk factors that were not cured. In this survey, the total of 19% of people agreed that they had one of the family member diagnosed with diabetes, and 81% mentioned that they did not have a family member who has diagnosed with diabetes.

The knowledge to the terms associated with diabetes includes blood pressure, body fat, eye checkup and Body Mass Index (BMI). Majority of people were aware of Body Mass Index (BMI) which is 68% of total participants and the least number of people aware were about eye checkup, which is 25%.

In order to prevent or control diabetes, people should be aware of the symptoms of diabetes. Urine, dry mouth, thirsty, hunger, vision and weight loss are some of the symptoms of diabetes. In this study, 94% of participants were aware of the frequency of urine, and 66% were aware of thirsty. Frequency of urine and thirsty are the symptoms which more than 50% of respondents were aware, which that people had a good knowledge about the symptoms of diabetes. Nevertheless, people were not very familiar with the symptom of changes in vision, weight loss and dry mouth. In contrast with this, the survey on “Public Awareness of Diabetes Mellitus in Singapore” in 2002 showed the majority of the participants (above 55%) recognized the symptoms of diabetes acceptably. This means that the diabetic patients are aware

of the symptoms and could help to combat with the complications much better. Also another research specified that it is vital to make people aware about the symptoms and later consequences to avoid any complications. (H L Wee, H K Ho, S C Li, 2002)

All the patients who have high blood pressure are taking medication for diabetes which is a good sign and shows that people give importance to taking treatment

This survey includes a questionnaire (table 4.3) which shows the general knowledge of the people about diabetes. The selected general knowledge questions includes the basic knowledge of how, why or when a person can get diabetes. According to the research, nearly 50% of people don't know how a person becomes diabetic and 40% of people know of how a person would become diabetic to some extent. As the survey results shows that 50% of the respondents are not aware of the causes and how one gets diabetes, this means that many people will not be able to take good preventive measures. As we all know 'prevention is better than cure'. When respondents were asked whether they think they would become diabetic, 31% replied yes they might, and 42% replied they do not think they will become diabetic. Also 18% of them answered that they might become diabetic. In all cases, diabetes starts at a very young age and the complications worsens if no precautions were taken to control it. Eighty-six percent (86%) of the people also agreed on that. To control diabetes regular medication is compulsory and 96% of the respondents agreed while 2% disagreed and the other 2% had no knowledge about this. Ninety-nine (99%) of the people surveyed also know the importance of consulting a doctor before starting medication and the same percentage of people also knew the importance of regular intake of medication to maintain blood sugar level. A total of 88% agreed that it affects the blood sugar level if medications are being forgotten and 12% of people had no knowledge about this. So overall, people had a good knowledge of diabetes.

Researchers agree on the fact that diabetes is a silent disease. Diabetic patients usually discover that they have diabetes only when they encounter one of the life-threatening complications of the disease (H L Wee, H K Ho, S C Li, 2002). For diabetic patients to have control over their illness, it is important for them to be fully aware of what they are being dealt with. Therefore the knowledge of being able to identify that whether one has got diabetes is a very first step for the control of diabetes.

Research tells us that it accounted for around 4 percent of the world population for diabetes in 1995, but this figure is estimated to increase by 1.4 percent, that would account for around 5.4 percent diabetic patients worldwide by 2025. World Health Organization's (2006) statistics shows that at least 171 million people suffer from diabetes throughout the world out of which a majority of diabetic population belongs to developed nations. This finding is very much similar as it matches in this local survey results. The types of diabetes are of two, type 1 diabetes and type 2 diabetes. Out of the 9 surveyed diabetic patients 8 patients were diagnosed with type 2 diabetes and 1 patient were diagnosed with type 1 diabetes. Mostly type 1 diabetes was found in adolescent. So this indicated that people with diabetes below the age of 20 have a less chance of getting diabetes. Figure 4.4 shows the ages where the complications of diabetes have started. It informs that no one below the age of 20 had complications of diabetes. Age groups between 20 to 24, 25 to 29, 30 to 34, 35 to 39, 45 to 49 and 50 to 54 had one person with complications of diabetes in each group. 3 people had complications of diabetes in the age group between 55 and 59.

Patient with diabetes gives a good attention when it comes to taking medications regularly. Taking medication regularly controls diabetes. There are many ways of taking medication for diabetic patients like intake of medicines, insulin and injection. The result of the survey shows that all the 9 diabetic patients take

medications accordingly. One of the surveyed participants was taking insulin while no one takes injection. The result also showed that the method by which patients take insulin is by syringe.

Certain preventive measures must be taken in order to control diabetes. Prevention is a big encounter when it comes to a harmful disease like Diabetes. Being healthy, exercise, reduce consuming oily food and taking medication regularly are some of preventive measures taken to control diabetes. All the 9 diabetic patients, is 100% of them agreed that the regular intake of medication is the most important preventive measure taken to control diabetes. Eighty nine percent (8 patients) agreed that reducing oily food is also an important preventive measure. However the participants had inadequate knowledge about healthy diet, exercise and managing stress level.

Knowledge of participants about dietary measures is vital in order to control the disease. The result of the survey shows that a massive number of participants are aware of taking special diet to maintain sugar level and taking regular meal to control diabetes. Also more than 50% of the surveyed participants said that they consume vegetables and 75% of people were confident that they take meals 4 to 5 times every day. There have been other researches that highlight the importance of healthy diet. In the aforementioned research by Gul (2010), 18% of the participants agreed about taking a diabetic diet, while the remaining 82% said that they do not follow a diabetic diet. This study further specifies that only few people were able to answer questions correctly with regard to dietary requirements for diabetes patients. A lot of other studies have also shown that people know very little about nutrition and healthy diets. (Naheed Gul, 2010)

Being physically active is also as important as dietary measures. An immense number of participants were aware of the fact that to keep normal sugar level, weight control is essential, and how important it is to exercise regularly to keep diabetes under control. If the weight is not under control the sugar level will increase. Seventy nine (79%) of the respondents were confident that they can exercise 15 to 30 minutes in 4 to 5 times a week. But it is saddened that only 20% of the surveyed participants agreed that they do regular exercise and the rest does not do exercise. Regular exercise is one major action to stay fit and healthy; it is also one of the preventive measures taken to control diabetes. Less number of people being unaware of this healthy act could lead a lot of people to diabetes. The National health survey conducted by Singapore shows that there was an increase in the prevalence of obesity. The survey also revealed that only 16.8% of the population exercise regularly. While more than half did not exercise at all. So it is very important to educate and increase awareness to the community about the fearful consequences of obesity. By educating people about the level of risk, it is assumed that high-risk individuals would be motivated to live a healthy life style. For the prevention of diabetes routine, medical check-ups plays a vital role. (H L Wee, H K Ho, S C Li, 2002)

Campaign is one major essential tool to improve public awareness about diabetes. The diabetic prevention programme or the Finnish diabetes prevention study and the Da Qing study indicate that diabetes is a disease which can be prevented. Less than 60% of the high standard professionals agree that diabetes is preventable and less than 50% of diabetic known personals agree that it's preventable. To prevent diabetes, it is necessary to spread public health messages through different media so that people have relevant knowledge about the causes and preventive measures of diabetes. Similarity all the participants surveyed agreed that campaigns would make people

more aware and except one all the participants agreed that anti-diabetes campaigns would also increase public awareness. So almost all the people surveyed agreed on that anti-diabetic campaigns are important to increase public awareness.

Conclusion

Diabetes is a very common Non communicable Disease worldwide. The study results show that the diabetic patients were not few compared in the targeted community. The knowledge of general public was satisfactory in preventing and controlling diabetes. It was quite positive that the majority of the participants do not have the risk factors of diabetes. The diabetes patients were under a fair medication but needed improvement. Although the knowledge of the people was adequate, the best means of controlling diabetes were not practiced.

Raising awareness among people was a preventative view of all the respondents. So through awareness programs, diabetes can be reduced as the preventive measures are best when comparing the cure methods.

Limitations of the Study

This survey was conducted among 100 randomly selected participants from the small island in H.A Atoll with a population of 1051 people. Having had to carry out the survey in only one island is a big limitation that it cannot be generalized to the larger population. This limitation however, is not avoidable due to the time constraints and available resources for the researcher.

The researcher himself was not able to participate in the actual data collection work. Data was collected with the help of the family health worker who had been guided remotely as much as possible. For this reason, proper quality assurance is not ensured in the data collection.

The results of the survey would have been statistically stronger if more participants were recruited for the survey. The limited time available for the researcher also prevented a bigger sample to be researched.

Recommendation

To reduce incidence of diabetes among people the preventive means should be implemented. Awareness programs should be conducted among regions and cities frequently in order make people more knowledgeable and to preventive more effectively. Awareness programs should not be targeted for a specific age group, instead it should be targeted to all age levels including adolescents, adults and old ages for a better awareness in the community. If the overall population is aware about the disease then, practicing the effective methods for prevention and controlling will bring a positive long term effect.

Moreover, having a healthy diet, exercising and avoiding risk factors lead to an effective prevention. Schools can help in modeling students in a healthy life style, thus it will help in reducing diabetes patients. Awareness programs will be a waste, if the attitudes of the people are not changed accordingly, therefore it should be practiced in the everyday life.

In addition diabetics can be controlled if the medications are taken at an earlier stage, before the consequences gets worsens. Early Medication, proper self-monitoring and self-consciousness by patients is important prevention of complications. Awareness and guidance for the patients as well as family members is essential for leading a normal life by the patients.

The number of researches that take place makes a difference too. The higher the number of surveys did, the better it gets to know the situation of the community.

The researches which consist of knowledge, attitudes and practice, are highly recommended to conduct as it is the most effective type of researches. Government and NGO's (Non-Government Organizations) can conduct surveys regionally and nationally and can work together to find better means of services and solutions to the society regarding diabetes using the research results.

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APPENDIX

Appendix-B (English version of the Questionnaire)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Diabetes Survey Questionnaire

PART A

Form no: DSQ / HA- 00

Survey Date:

Personal Information

Age:

Gender: Female Male

Resident:

Occupation:

- Government job
- Not in a job
- Other works
- Private job

Educational background:

- Literate
- Primary
- Secondary
- Higher Secondary
- College

Marital status:

- Single
- Married
- Divorced
- Widowed

Income:

- Less than 4000
- Between 4000 and 6000
- Between 6000 and 8000
- Between 8000 and 10000
- More than 10000

General knowledge questions of Diabetes

1. Are you a diabetes patient?

- Yes
- No
- Don't know

2. Tick ✓ appropriately

	Yes	No
Are you a smoker?	<input type="checkbox"/>	<input type="checkbox"/>
Are you having high blood pressure?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have high cholesterol level?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have family history of diabetes?	<input type="checkbox"/>	<input type="checkbox"/>

3. Did you take medicines for high blood pressure?

- No
- Yes

4. Do you know how you get diabetes?

- Yes
- No
- Somewhat

5. Do you think you can get diabetes? (if diabetes skip the question)

- Yes
- No
- Maybe

6. Have you ever heard any of these terms associated with diabetes? (Tick if yes ✓)

- Increased Blood pressure
- Body fat
- Body Mass Index (BMI)
- Eye Checkup

7. What will be the symptoms of diabetes? (Tick if any of the following is given as an answer ✓)

- Increased thirst?
- Dry mouth?
- Frequency of urine?
- Extreme hunger?
- Vision change?
- Weight loss?

8. Do you think that Diabetes that starts young would continue life long?

- Yes
- No
- Don't know

9. Do you believe that regular medicine can control the diabetes?

- Yes
- No
- Don't know

10. Do you think it is important to consult doctor before you start medication?

- Yes
- No
- Don't know

11. Do you think it is important to take medicine regularly in order to maintain your sugar level?

- Yes
- No
- Don't know

12. Do you think it affect the sugar level, if you forget taking your medication?

- Yes
- No
- Don't know

PART B

Please fill this part if you are a diabetes patient

13. Please indicate below which type of diabetes you have?

Type 1

Type 2

14. How old were you when you started to have complications?

- Below 15
- Between 15 and 19
- Between 20 and 24
- Between 25 and 29
- Between 30 and 34
- Between 35 and 39
- Between 40 and 44
- Between 45 and 49
- Between 50 and 54
- Between 55 and 59
- Above 60

15. What actions do you take to control your diabetes? (Tick if yes)

- | | |
|---|--------------------------|
| Eating healthier foods (less salt food, low sugar intake) | <input type="checkbox"/> |
| Reduce oily foods | <input type="checkbox"/> |
| Exercise (Weight loose) | <input type="checkbox"/> |
| Managing stress | <input type="checkbox"/> |
| Regular medication | <input type="checkbox"/> |

Knowledge of Medications

16. Do you take treatment for diabetes?

- Yes
- No
- Don't know

17. How often do you take your medicine?

- Yes
- No
- Don't know

18. Did you take insulin injections? (* If "NO" Skip the question number 20)

- Yes
- No
- Don't know

19. Which method you are using?

- Syringe
- Prefilled pen
- Insulin pump

PART C

Knowledge of Diet

20. Do you take vegetables regularly?

- Yes
- No

21. Do you believe you should take a special diet to maintain the sugar level?

- Yes
- No
- Don't know

22. Do you think regular meal is important to control your diabetes?

- Yes
- No
- Don't know

23. Do you have confident that you can eat your meals every 4 to 5 times every day, including breakfast every day?

- Yes
- No
- Somewhat

Physical Activities

24. Are you doing regular exercise?

- Yes
- No

25. Do you think weight control is important to keep the sugar level normal?

- Yes
- No
- don't know

26. Do you think it is important it is to exercise regularly to control diabetes?

- Yes
- No
- don't know

27. Do you believe if weight is not control, your sugar level will increase?

- Yes
- No
- don't know

28. Do you have confidence that you can exercise 15 to 30 minutes, 4 to 5 times a week?

- Yes
- No
- Somewhat

Prevention

29. If you came across a campaign for Anti-Diabetes that affects you positively, would you participate in it?

- Yes
- No
- May be

30. Do you think the campaign of diabetes increase the awareness of people?

- Yes
- No
- May be

Thank you!

Appendix-B (Dhivehi version of the Questionnaire)

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

DSQ/HA-00 ފަންނަވާ ސަލާމަތުގެ ނަންބަރު:

ސަލާމަތުގެ ނަންބަރު:

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު:

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު:

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

ފަންނަވާ ސަލާމަތުގެ ނަންބަރު

לארְפּוּסֵרִי זְכָרִים דְּרֵיבֵי עֵס:

זֵה בְּרֵדֵי כְּרִיס:

דְּרַלָּ אֶרְכֵרִי שֵׁר

4000 זֵמֶר כְּרִיס

שֵׁר אֶרְכֵרִי

6000 - 4000 זְכָרִי כְּרִיס

זֵמֶר זֵמֶר

8000 - 6000 זְכָרִי כְּרִיס

זֵמֶר/אֶרֶב זְכָרִי זֵמֶר

10000 - 8000 זְכָרִי כְּרִיס

10000 זֵמֶר זְכָרִי

רֵדֵי אֶרְכֵרִי זְכָרִים דְּרֵיבֵי עֵס דְּרֵיבֵי עֵס דְּרֵיבֵי עֵס

1. רֵדֵי זְכָרִי דְּרֵיבֵי עֵס?

אֶרְכֵרִי

שֵׁר אֶרְכֵרִי

שֵׁרִי

2. אֶרְכֵרִי זְכָרִי דְּרֵיבֵי עֵס זְכָרִי דְּרֵיבֵי עֵס.

זְכָרִי אֶרְכֵרִי

אֶרְכֵרִי אֶרְכֵרִי

זְכָרִי זְכָרִי אֶרְכֵרִי זְכָרִי זְכָרִי זְכָרִי זְכָרִי?

זְכָרִי זְכָרִי זְכָרִי זְכָרִי זְכָרִי זְכָרִי?

זְכָרִי זְכָרִי זְכָרִי זְכָרִי זְכָרִי זְכָרִי?

אֶרְכֵרִי אֶרְכֵרִי זְכָרִי זְכָרִי זְכָרִי זְכָרִי?

3. ۷ دښمنان ته څه ورسره اړیکه لري؟

اړیکه

نه لري

4. زه څو ځایونه لري؟

اړیکه

نه لري

څه ځایونه لري

5. زه څو ځایونه لري؟ (زه څو ځایونه لري؟)

اړیکه

نه لري

څه ځایونه لري

6. موږ څو ځایونه لري؟ زه څو ځایونه لري؟

(زه څو ځایونه لري؟)

څه ځایونه لري

زه څو ځایونه لري

زه څو ځایونه لري

څه ځایونه لري

7. רַחֲמֵיךָ יְיָ אֱלֹהֵינוּ מֵיָמֵינוּ וְיִשְׁמַחֵנוּ בְּחַסְדֵינוּ? (אֲרָאֵנוּ שֶׁכֵּן מֵיָמֵינוּ מִיָּדְךָ יְיָ אֱלֹהֵינוּ)

לֹא מֵיָמֵינוּ

מֵיָמֵינוּ

אֲנִי מֵיָמֵינוּ

אֲנִי מֵיָמֵינוּ

כֵּן מֵיָמֵינוּ

מֵיָמֵינוּ

8. מִיָּדְךָ יְיָ אֱלֹהֵינוּ מֵיָמֵינוּ וְיִשְׁמַחֵנוּ בְּחַסְדֵינוּ? (אֲרָאֵנוּ שֶׁכֵּן מֵיָמֵינוּ מִיָּדְךָ יְיָ אֱלֹהֵינוּ)

אֲנִי

מֵיָמֵינוּ

כֵּן

9. מִיָּדְךָ יְיָ אֱלֹהֵינוּ מֵיָמֵינוּ וְיִשְׁמַחֵנוּ בְּחַסְדֵינוּ? (אֲרָאֵנוּ שֶׁכֵּן מֵיָמֵינוּ מִיָּדְךָ יְיָ אֱלֹהֵינוּ)

אֲנִי

מֵיָמֵינוּ

כֵּן

מֵיָמֵינוּ

10. מִיָּדְךָ יְיָ אֱלֹהֵינוּ מֵיָמֵינוּ וְיִשְׁמַחֵנוּ בְּחַסְדֵינוּ? (אֲרָאֵנוּ שֶׁכֵּן מֵיָמֵינוּ מִיָּדְךָ יְיָ אֱלֹהֵינוּ)

אֲנִי

מֵיָמֵינוּ

כֵּן

מֵיָמֵינוּ

11. רִנְיָהּ חֲסוּדָהּ אֶתְּחַלֵּק עִירָהּ תִּשְׁמְרֵנּוּ כִּי אֵין כְּסִיף נִמְדָהּ דְּרִירָהּ
 לֹאֲרִיבֵנּוּ?

- אֶרְאֶה
- נִרְאֶה
- נִרְיֵה

12. כִּי־יִשְׁרָאֵל כְּסִיף נִמְדָהּ אֶתְּחַלֵּק עִירָהּ תִּשְׁמְרֵנּוּ כִּי אֵין כְּסִיף נִמְדָהּ דְּרִירָהּ
 לֹאֲרִיבֵנּוּ רִנְיָהּ חֲסוּדָהּ אֶתְּחַלֵּק עִירָהּ תִּשְׁמְרֵנּוּ?

- אֶרְאֶה
- נִרְאֶה
- נִרְיֵה

תַּרְגּוּם עִיר

* דַּעַר תִּשְׁמְרֵנּוּ לֹאֲרִיבֵנּוּ כִּי אֵין כְּסִיף נִמְדָהּ דְּרִירָהּ.

13. מִי־יִשְׁרָאֵל לֹאֲרִיבֵנּוּ אֶתְּחַלֵּק עִירָהּ תִּשְׁמְרֵנּוּ כִּי אֵין כְּסִיף נִמְדָהּ דְּרִירָהּ?

- # עִיר 1
- # עִיר 2

14. רִנְיָהּ חֲסוּדָהּ אֶתְּחַלֵּק עִירָהּ תִּשְׁמְרֵנּוּ כִּי אֵין כְּסִיף נִמְדָהּ דְּרִירָהּ?

- | | |
|--|---|
| <input type="checkbox"/> 15 - רִנְיָהּ חֲסוּדָהּ | <input type="checkbox"/> 44 - 40 |
| <input type="checkbox"/> 19 - 15 | <input type="checkbox"/> 49 - 45 |
| <input type="checkbox"/> 24 - 20 | <input type="checkbox"/> 54 - 50 |
| <input type="checkbox"/> 29 - 25 | <input type="checkbox"/> 59 - 55 |
| <input type="checkbox"/> 34 - 30 | <input type="checkbox"/> 60 - אֶתְּחַלֵּק עִירָהּ |
| <input type="checkbox"/> 39 - 35 | |

19. רשומות הן רשימת מסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת?

נכון

לא נכון

לא ברור

רשומות

מטרת הרשומות המסומנות היא לספק מידע למטרה המבוקשת?

20. רשימת המסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת היא רשימת המסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת?

נכון

לא נכון

21. רשימת המסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת היא רשימת המסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת?

נכון

לא נכון

לא ברור

לא ברור

22. רשימת המסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת היא רשימת המסמכים הנמצאים בארכיון המסומנים לפי תאריך הקבלה למסמך הנדרש למטרה המבוקשת?

נכון

לא נכון

לא ברור

28. قروقرى دىمىكى 15 دىنچى 30 دىنچى كىرىش سىمىنى ئىشلىتىش ئارقىلىق ياز

ئىشلىتىشنىڭ قانچىسى؟

10%

20%

30%

ئىشلىتىش

29. زىيانچىلىق قىلغۇچى رىسكى بىخەتەرلىكىنى ئۆز ئىچىگە ئالىدىغان قىلغۇچىنىڭ قىممىتى

قانچىسى؟

10%

20%

30%

30. زىيانچىلىق قىلغۇچى رىسكى بىخەتەرلىكىنى ئۆز ئىچىگە ئالىدىغان قىلغۇچىنىڭ قىممىتى

10%

20%

30%

ئىشلىتىش