# EYE CARE SERVICES FOR DIABETIC PATIENTS AT DR GEORGE MUKHARI HOSPITAL, GAUTENG PROVINCE

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Submitted in partial fulfillment of the requirements for the degree of Masters of Public Health (MPH) of the School of Health Care Sciences, University of Limpopo, Medunsa Campus.

# DECLARATION

I, ……., the undersigned hereby declare that the work that is contained in this dissertation is my own original work and all sources used have been fully acknowledged, and that neither the whole work or any part of it has been, is being, or is to be submitted for another degree at this or any university of tertiary institution or examining body.

……. …day of …….2010

Signature of candidate

# ACKNOWLEDGEMENTS

I would like to thank the following people for supporting me during my work and believing that with God I will make it. They were patient enough especially, believed in me and gave me the unconditional support.

**Lucy Fernandes** (Supervisor)-She always had encouraging words even if it was tough she used to show me that I can still make it. Without her I wouldn't have pulled through.

**My family:** My husband, my daughter (Onkgopotse), my Son (Thato), my mother and Nkele and who were always there on my side giving me all the support I needed.

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# ABBREVIATIONS

| | |
|---|---|
| **ADA** | American Diabetes Association |
| **CEO** | Chief Executive Officer |
| **DGM** | Dr George Mukhari |
| **DR** | Diabetic retinopathy |
| **DM** | Diabetes mellitus |
| **MREC** | Medunsa Research & Ethics Committee |
| **WHO** | World Health Organization |

# ABSTRACT

**Introduction:** Diabetes, also known as diabetes mellitus characterized by hyperglycemia is a global health problem. The World Health Organization (WHO) reports an estimated 177 million diabetics worldwide and this number is expected to double by the year 2030 mainly because of the unhealthy life styles of not doing physical exercises and eating unhealthy food. The resultant obesity is putting people at risk of developing diabetes and micro vascular complications like diabetic retinopathy that can affect a person's eyesight.

**Aims and Objectives:** The aim and objectives of this study were to determine the socio-economic characteristics and the level of awareness regarding the eye care services offered by the diabetic clinic at Dr George Mukhari Hospital as well as to identify the referral patterns and possible factors that may influence diabetic patients to utilize these offered services.

**Study methodology:** Data was collected from adult diabetic patients attending the diabetic clinic at Dr George Mukhari Hospital by making use of an anonymous researcher assisted structured questionnaire. The questionnaire had sections covering the socio demographic and epidemiological information of the respondent; awareness about diabetic complications with emphasis on routine eye care; referral patterns of health professionals to the eye specialist and other barriers that the respondents experienced in attending the available eye care services.

**Results:** Data was collected from a total of 175 respondents. The majority of the respondents were African (98%) females (75%) and older than 56 years of age (82%). Basically all the respondents (98%) did not have a medical aid and 50.3% of them were unemployed and had to make use of public transport to visit the clinic. Ninety six percent of the respondents were aware of the fact that diabetes can cause eye complications and that a routine eye test is important to prevent blindness. In this group of participants there was a referral rate of 95% which proved to be very successful because only 18% of the respondents were in need of an eye operation while the rests were treated for minor problems and then discharged.

**Conclusions:**

Based on the findings of this study all indications are that the referral patterns for diabetic patients from the diabetic clinic at the Dr George Mukhari hospital for eye testing is effective. All efforts should be made to ensure that diabetic patients go for a yearly routine eye test.

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# CHAPTER 1

# INTRODUCTION AND BACKGROUND

In this chapter, discussions will be about the study introduction and background, problem statement, research questions, objectives, aim and objectives of the study.

## 1.1 INTRODUCTION AND BACKGROUND OF THE STUDY

Globally diabetes, also known as diabetes mellitus (DM) is a health problem characterized by hyperglycemia that affects many people. According to the World Health Organization (WHO) report, it is estimated that there are 177 millions diabetics worldwide (Wild *et al*, 2004). This number is expected to double by the year 2030 mainly because of the population's life style by not doing physical exercises and eating unhealthy food. A result of this unhealthy life style is obesity and this put people at risk of developing DM and they may also develop micro vascular complications like diabetic retinopathy (DR) (Shaik *et al*, 2008, Javadi *et al*, 2009).

### 1.1.1 DIABETES MELLITUS (DM)

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycemia and can be classified into mainly two types namely Type 1 DM and Type 2 DM. There are also other types of diabetes, but common types of diabetes seen in Sub-Saharan countries are Type 1 DM and Type 2 DM (Rheeder, 2006).

#### *Type 1 DM*

Type 1 DM, results from the autoimmune destruction of the pancreatic beta cells, causing the loss of insulin production (WHO, 2005). Children are usually more affected by this type of diabetes, although it can occur at all ages. The clinical presentation can also vary with age (WHO, 2005). Patients with this type of diabetes require insulin for survival

***Type 2 DM***

Type 2 DM is the most common type of diabetes and is characterized by insulin resistance and abnormal insulin secretion, either of which may predominate but both of which are usually present (WHO, 2005). The specific reasons for the development of these abnormalities are largely unknown. Type 2 DM can remain asymptomatic for many years, and the diagnosis is often made from associated complications or incidentally through an abnormal blood or urine glucose test (WHO, 2005).

Even though Type 2 DM is caused by adverse effects of lifestyle choices, both types of diabetes predisposes one to visual complications like diabetic retinopathy. The early detection and effective management of Type 2 DM can result in normal quality of life. According to the National Guideline (2002), ±90% of people with diabetes has got Type 2 DM. This high prevalence of Type 2 DM also increases the risk of diabetic retinopathy in the population.

Results from the study done in South Africa by Rheeder in 2006, showed that about 3.4% of the 24 million of people between the ages of 20-79 are diabetic. He also predicted that the prevalence will increase to 3.9% by the year 2025 due to the increase in obesity (Rheeder, 2006). The WHO reported that currently about 1 billion adults are clinically overweight and this will contribute to the global burden of diabetes complications (WHO, 2010).

**1. 1.2. DIABETIC RETINOPATHY (DR)**

Diabetic retinopathy (DR) is the micro vascular complication which may lead to blindness if not detected early and affects mostly Type 2 DM; those who have been living with diabetes for a longer time, and those with uncontrolled blood glucose (Argawal *et al*, 2003). DR is caused by microangiopathy that affects retinal capillaries which leads to micro-vascular leakage from breaking down of inner blood retinal barriers and micro-vascular occlusion, causing visual damage (Linfield, 2009).

Early detection of DR by a routine eye examination (Raymond, *et al*, 2008) and control of blood glucose level will therefore be able to reduce the number of blind people as a consequence of DR (Mabarley *et al*, 2003).

### 1.1.2.1 Classification of diabetic retinopathy

Diabetic retinopathy can be classified into the following categories:

- ***Background retinopathy:*** Characterized by the presence of micro-aneurysms and occasional retinal hemorrhage.
- ***Non-Proliferative DR:*** Characterized by the presence of background retinopathy in addition to cotton wool spots and severe hemorrhage.
- ***Proliferative DR***: Characterized by the presence of neo-vascularization and vitreous/ retinal hemorrhage.

(Omolase *et al*, 2010, National Guideline, 2002)

### 1.1.2.2 Epidemiology of diabetic retinopathy

It is reported that ±5% of all diabetic patients will develop proliferative DR (Omolase *et al*, 2010, Saaddine *et al*, 2008). The duration of DM also affects the onset of diabetic retinopathy where those who are diagnosed as diabetic for a longer time are at a greater risk of DR (Omolase *et al*, 2010, Saadine *et al*, 2008).

It is estimated that DR is the most frequent cause of blindness among diabetic patients between the ages of 20-60years (Zeimer *et al*, 2002) and that in South Africa diabetic retinopathy accounts for 8% of blindness (National Guideline, 2002; Read, 2007). As there are factors that predispose diabetics to development of diabetic retinopathy, those risk factors can be prevented to reduce blindness.

### 1.1.2.3 Prevention of diabetic retinopathy

- ***Primary prevention:*** Primary prevention of DR is the management of blood glucose levels (keeping it within normal level). This can be achieved by taking treatment as prescribed for Type 1 diabetics and lifestyle modification by Type 2 diabetics (Trento *et al*, 2002; National Guideline, 2002).
- ***Secondary Prevention:*** Retinal photography or fundoscopy, done by a trained health professional to evaluate the state of the retina, is the recommended annual screening test

for early detection of DR (Harvey *et al*, 2006; Raymond *et al*, 2008) and prevention of further damage to the eyes (Zeimer *et al*, 2002; National Guideline, 2002).

- ***Tertiary prevention:*** The best eye screening method that will promote adherence of diabetic patients for routine eye screening is the technological advanced teleretinal imaging, which by means of a retinal photography machine it is used to view the retina. (Anthony *et al*, 2008). The advantages are that this procedure doesn't require pupil dilatation by means of mydriatic drops making it less uncomfortable for the patients during the screening and there is no waiting period for the mydriacil to be effective before screening can be done (less waste of time) (Anthony *et al*, 2008).

## 1.2. PROBLEM STATEMENT

The researcher has observed that most diabetic patients that attend the eye clinic at Dr George Mukhari Hospital (DGM) do not adhere to the yearly recommended eye screening according to the Department of Health's National Guidelines, (2002) and that most patients only come to the eye clinic when they are already experiencing visual problems. Early diabetic retinopathy is asymptomatic, and by the time the patients consult the eye specialist about visual changes it is too late and vision cannot be preserved, although blindness can be prevented if they go for routine eye screening yearly (Keeffee *et al*, 2002).

It was also noted that even if eye care services are available, diabetic patients do not utilize them optimally and many are not aware that they must go for routine screening (Dervan *et al*, 2007). The problem is further exaggerated by the fact that many diabetic patients are not referred by health professional for routine eye screening (Brown *et al*, 2005); Molleutze and Levitte, (2005) reported that adequate routine screening for diabetic retinopathy in South Africa is still a challenge at all levels of health care.

There is thus a need to do this study because no information is available on the factors that influence the patient uptake of diabetic retinopathy screening in South Africa.

## 1.3. RESEACH QUESTIONS

The following questions were asked:

1. Are the diabetic patients aware about the need to utilize eye care services at Dr George Mukhari Hospital?
2. What influence the utilization of eye care services by diabetic patients at Dr George Mukhari Hospital?
3. Are diabetic patients referred by health care professional for eye screening at the eye clinic at Dr George Mukhari Hospital?

## 1.4. AIM

The aim of this study was to determine the socio-economic characteristics and the level of awareness regarding the eye care services offered by the diabetic clinic at Dr George Mukhari Hospital as well as to identify the referral patterns and possible factors that may influence diabetic patients to utilize these offered services.

## 1.5. OBJECTIVES

The objectives of this study were:

- To determine the socio-economic characteristics of diabetic patients attending the diabetic clinic at Dr George Mukhari Hospital.
- To assess if diabetic patients attending the diabetic clinic at Dr George Mukhari Hospital are aware about the need to utilize the eye care services for routine testing.
- To determine the extent of utilization of eye care services that is offered by the diabetic clinic at Dr George Mukhari Hospital.
- To determine if the diabetic patients attending the diabetic clinic at Dr George Mukhari Hospital are referred for routine eye screening at the eye clinic by health professionals.

# CHAPTER 2

# LITERATURE REVIEW

This chapter outlines the literature review about the utilization of eye care services by diabetic patients.

According a study done by Taylor *et al* (2007) in the United States, diabetic retinopathy has been reported as the leading cause of blindness irrespective of the availability of the treatment to prevent visual loss. In the published literature various reasons are given as to why patients with diabetes are not going for routine eye checkups for early detection and prevention of progression of diabetic retinopathy in order to prevent blindness.

Some of those reasons are:

## 2.1 LACK OF AWARENESS AND KNOWLEDGE

Some diabetics are not going for routine eye screening tests because they are not aware of the fact that diabetes can damage their eye sight (Palagyi, *et al,* 2007). The studies of Lewis and Patel (2007) and Trento *et al* (2002) reported that on investigation they found that many diabetic patients reported that they have never been told about routine eye screening test. Although some patients were aware of the fact that diabetes can affect their eyes they were not aware that it could lead to blindness or to the fact that diabetic retinopathy can be asymptomatic (Lewis and Patel, 2007; Trento *et al*, 2002). According to the study done by Munoz *et al*, (2008) on Hispanic individuals in Baltimore Maryland, newly diagnosed diabetics and those without family members with diabetes have lack of knowledge of diabetic eye disease and low rate of ever having an eye examination done. Researchers like Palagyi *et al*, (2007) and Brown *et al* (2005) have reported that due to a lack of knowledge and information about the need for routine eye screening and the consequences of diabetes, eye care services are not effectively utilized by diabetic patients.

## 2.2 CHALLENGES OF BEING DIABETIC

Hartnett *et al*, (2005) stated that for some diabetic patients, especially those using insulin, the fact that they have to self medicate is a big enough burden and for them to go for a routine eye screening test seems unimportant. Difficulty to walk due to diabetic complications and other medical conditions are also challenges for diabetics to go for routine eye screening. Due to the fact that diabetic patients have to go to clinics monthly for treatment additional visit for routine eye screening becomes a burden (Zeng and Adelam, 2010; Taylor *et al*, 2007).

## 2.3 AGE OF THE PATIENT

As diabetes affect mostly elderly people (Gregg *et al*, 2002) many of them have other medical conditions like hypertension for which they have to queue for long hours to see the doctor. They feel that it is placing too much strain on them to queue again for a routine eye screening test (Owsley *et al*, 2006).

## 2.4 REFERRAL FOR ROUTINE EYE CHECKUP

According to Owsley *et al*, (2006);;Zheng and Adelam, (2010) and Nemperumalsamy *et al* (2003) most health care professionals do not routinely refer diabetics for routine eye screening tests, but only when there is an onset of disrupted visual symptoms and complains about eye sight (Melese *et al*, 2004).

## 2.5 COMMUNICATION BARRIERS

According to Ellish, *et al* (2007), communication is one of the reasons for poor utilization of eye care services by diabetic patients. Inability of most of the doctors to speak African languages and the use of unfamiliar medical terms (Sinclair and Delvecchio, 2004) are causing communication barriers.

Elderly people have additional medical conditions, like hearing problems, which make it even more difficult for them to follow whatever an ophthalmologist is explaining to them. This breakdown in communication can make them reluctant or unable to comply with information given by health care workers (Nkumbe, 2008).

## 2.6 FAMILY STRUCTURE

The study done by Nkumbe (2008) has indicated that older diabetic women and those without children or widowed are less likely to seek eye care because of a lack of social support where there is no one to accompany them or remind them of their follow up dates. From the study done by Zeng and Adelman, (2010) it was found that diabetics who had family members that were blind because of diabetic retinopathy were more aware of diabetic retinopathy and more likely to adhere to the screening every year.

## 2.7 MONETARY CONSTRAINS/ SOCIOECONOMIC STATUS

Few studies (Brown, *et al*, 2005; Owsley, *et al*, 2006; Nirmalan, *et al*, 2004) have reported that amongst diabetic patients with a lower socioeconomic status there was a poor utilization of eye care services due to the lack of money for transport and not being able to afford medical insurance. Low family annual income has also been associated with poor management and control of blood glucose by diabetic patients (Zgibor and Songer, 2002). Low socioeconomic status is associated with lower level of diabetes knowledge including lower use of preventive services which should include a yearly routine eye examination. High health care cost which is associated with the new technologies is also reported as one of the reasons for poor utilizatition of eye care services (Zgibor and Songer, 2002).

McKee *et al* (2009) reported that results of studies have shown that the indigenous population in the rural areas have high rates of communicable diseases like Type 2 DM and obesity and are smoking. All of these are risk factors for the development of eye complications, substantiated by the fact that diabetics at the rural areas are mostly the once experiencing this micro vascular complications (McKee *et al*, 2009). The problem is compounded by the fact that most of the people in the rural areas are uninsured and are dependent on the public sectors for their health (National Guidelines, 2002).

## 2.8 EDUCATION

The education level has an impact on the utilization of eye care services as Nirmalan, *et al*, (2004) has reported that those with a higher educational level did visit the eye specialist more regularly. The same study found that amongst people with chronic conditions like Type 2 DM, generally those with a low educational level also had a low level of health literacy (Nirmalan *et al*, 2004). The low health literacy could be a reason for diabetic patients not to adhere to the preventive healthcare services because they do not understand the importance of routine eye testing. The low literacy rate also contribute to the poor glycemic control which put the diabetics at an increased risk of developing DR. Schilinger *et al*, (2002) found that there is a low level of health literacy amongst elderly people regarding diabetes which make them only to seek medical intervention at a later stage of the disease when they already have irreversible visual complications.

## 2.9 AVAILABILITY OF SERVICES AND PERSONNEL

In South Africa, eye care services are being provided by private optometrists and ophthalmologists at the public hospitals (National Guidelines, 2002). This is leading to a large difference in availability of eye care services for patients residing in rural and urban areas. As mentioned previously, the problem is compounded by the fact that a high proportion of elderly mainly reside in the rural areas (Nkumbe, 2008). Irrespective of health care disparities, those people residing in the rural areas have additional barriers to access to health care services. Rural areas have few specialists like ophthalmologists who can perform dilated eye examination for early detection and prevention of complications of diabetic retinopathy (Zgibor and Songer, 2002). There is also lack of preventive care in the rural areas because of a low physician –patient ratio (McKee *et al*, 2009).

## 2.10 SCREENING PROCEDURE FOR DIABETIC RETINOPATHY

According to a study done in Italy (Trento et al, 2002) it was reported that most of the diabetics under study did not adhere to the routine eye screening. Reasons given for this non-adherence were that the testing procedure was found to be time consuming and uncomfortable. This has led to unwillingness of diabetic patients to have their eye checked and defaulting on scheduled appointments after being referred for routine screening tests.

## 2.11 OTHER REASONS

Ellish *et al* (2007) reported that African Americans are less likely to seek eye care because of (1) denial that they have a change in vision; (2) pride; (3) lack of self respect where they just believed in suffering in silence.

Except these reasons, others find it easier just to buy reading glasses at the retail shop rather than going to be seen by an ophthalmologist (Ellish *et al*, 2007).

**Recommendations for prevention of diabetic complication**

The American Diabetes Association (ADA) recommends that regular screening and regular education of diabetics about treatment and prevention of development of complications are important in visual loss prevention. It is proven that laser treatment can reduce the risk of visual loss but that will depend on the timely detection of retinopathy (Zeimer *et al*, 2002).

# CHAPTER 3

# METHODOLOGY

This chapter discusses the research design and the methodology that was used to conduct the study. It includes a description of the study setting, study population, sampling technique, inclusion and exclusion criteria, data collection method , data analysis and ethical considerations

## 3.1 SETTING OF THE STUDY

The study was undertaken in Dr George Mukhari (DGM) Hospital, previously called Ga-Rankuwa Hospital, which is situated in the Gauteng Province in the area called Ga-Rankuwa. There is a diabetic clinic situated in the DGM Hospital that opens twice a week on Tuesdays and Thursdays. The clinic caters only for adult diabetic patients, with an average of about ±350 patients seen in a month (clinic records).

## 3.2 STUDY DESIGN

This descriptive quantitative study was done in order to determine the utilization of eye care services by diabetic patients at Dr George Mukhari Hospital.

## 3.3 STUDY POPULATION

The study population consisted of adult diabetic patients (18 years and older) attending the diabetic clinic at Dr George Mukhari Hospital.

## 3.4 SAMPLING TECHNIQUE

A purposive sampling method was used, where every patient attending the Dr George Mukhari Hospital diabetic clinic were asked to voluntarily participate until the sample size was reached. For those who refused to participate, the immediate next patient was approached to ask for voluntary participation.

## 3.5 SAMPLE SIZE

Based on the fact that ±350 diabetic patient are seen in a month at Dr George Mukhari Hospital, at 95% confidence interval, and a 5% margin of error, the sample size, calculated by making use of a computer program (http://www.raosoft.com/samplesize.html) was estimated to be 184. A total of 200 questionnaires were distributed to volunteers in order to deal with the non-response factors as well as with the possibility of incompleteness of the questionnaires.

**Inclusion criteria**:

All adult diabetic patients (18years and above) attending the diabetic clinic at Dr George Mukhari Hospital that volunteered to participate in the study were included.

**Exclusion criteria**:

All patients who were not clinically diagnosed as being diabetic and less than 18 years not and those diabetic patients who decline to participate in the study were excluded.

## 3.6 DATA COLLECTION METHOD

Data was collected using an anonymous self administered semi structured questionnaire (**Appendix 1**) over a period of three months. The questionnaires were also made available in Setwana **(Appendix 2**) to those participants who wish to complete the questions in the local language. The questionnaire had sections covering the socio demographic and epidemiological information of the respondent; awareness about diabetic complications with emphasis on routine eye care; referral patterns of health professionals to the eye specialist and other barriers that the respondents experienced in attending the available eye care services.

The researcher assisted those patients wishing to participate, but who were unable to read and write.

The data that was collected was verified by the researcher for completeness and consistency.

Questionnaires that were found to be incomplete were excluded.

## 3.7 DATA ANALYSIS

The coded response data was captured on a Microsoft Excel 2007 spreadsheet and imported to the interactive data analysis statistical package STATA 10 for analysis.

The nominal data was analyzed and described using bar charts, where the height of the rectangle was equal to the number or frequency of the response. .

## 3.8 ETHICAL CONSIDERATIONS

Ethical clearance have been obtained from the Medunsa Research and Ethics Committee (MREC), University of Limpopo (Medunsa Campus), clearance certificate number: MREC/H/41/2010: PG (**Appendix 3**).

Permission to do the study at the DGM diabetic clinic was sought (**Appendix 4**) and obtained from the Chief Executive Officer (CEO) of Dr George Mukhari Hospital (**Appendix 5**).

When approaching the patients to participate the researcher had a verbal discussions with the patients as well as providing the participants with understandable information in the form of a information sheet (**Appendix 6**) which is a summary of the research project as well as an explanation regarding participation in the research project as well as the aims and objectives of this study. This information leaflet clearly stated the voluntary nature of the research indicating also that participants were free to decline to participate. All efforts were made from the side of the researcher to ensure that participants understood the information provided to them by also explaining to them at their own level of understanding and in their own common vocabulary and not in professional technical language or jargon. The questionnaire also had an opening statement to the effect that the person has read and understood the participant information leaflet, and by completing the questionnaire that they agree to participate in the study. The researcher made every effort to protect participants from any form of discomfort or harm, be it either it be physical, psychological, social, spiritual or economical. A separate private room was also made available where the participants were able to complete the questionnaires on their own, or be assisted if so chosen.

## 3.9 VALIDITY AND RELIABILITY

The validity of the questionnaire was assessed on its content by sending it to 5 professional nurses that are working at the eye clinic. Re-testing was done on a small convenience sample of 10 patients attending the diabetic clinic at Dr George Mukhari Hospital on the day of pre-testing. The objectives of this pilot test was explained to the participants and that they were meant to assist in testing the clarity of questions, the relevance of the questions, completeness, consistency and the time required necessary to complete the questionnaire. The pilot test also helped in testing the usability of the clinic as data collection point as well as help in the logistics of administration of the questionnaire so that the necessary adjustments could be done before starting with the real project.

The participants of this pilot test were excluded from the final research.

## 3.10 BIAS

Bias occurs if the sample is not representative of the study population (Katzenellenbogen *et al*, 2007).

***Volunteer bias:*** This existed since only those that agreed to participate did complete the questionnaire. Those who have chosen not to participate might have had different responses but by keeping the questionnaire anonymous attempts were made to minimize volunteer bias.

***Information bias***:

This was minimized by ensuring anonymity by asking the participants not to write their names on the questionnaire.

# CHAPTER 4

# RESULTS

## 4.1 RESPONSE RATE

Completed data was collected from a total of 175 respondents. Only one responded completed the questionnaire by him/ herself all the rest (174) ask the researcher to assist them by asking the questions and they then responded verbally.

## 4.2 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

### 4.2.1 AGE DISTRIBUTION

The ages of the respondents ranged from 21 up to 88. The majority of the respondents, 82% (143/175) were older than 56 years, with 30 % (53/175) of the respondents falling within the 66-75 year old category, followed by 25% (44/175) in the 76-85 year old category as depicted in **Figure 4.1.**

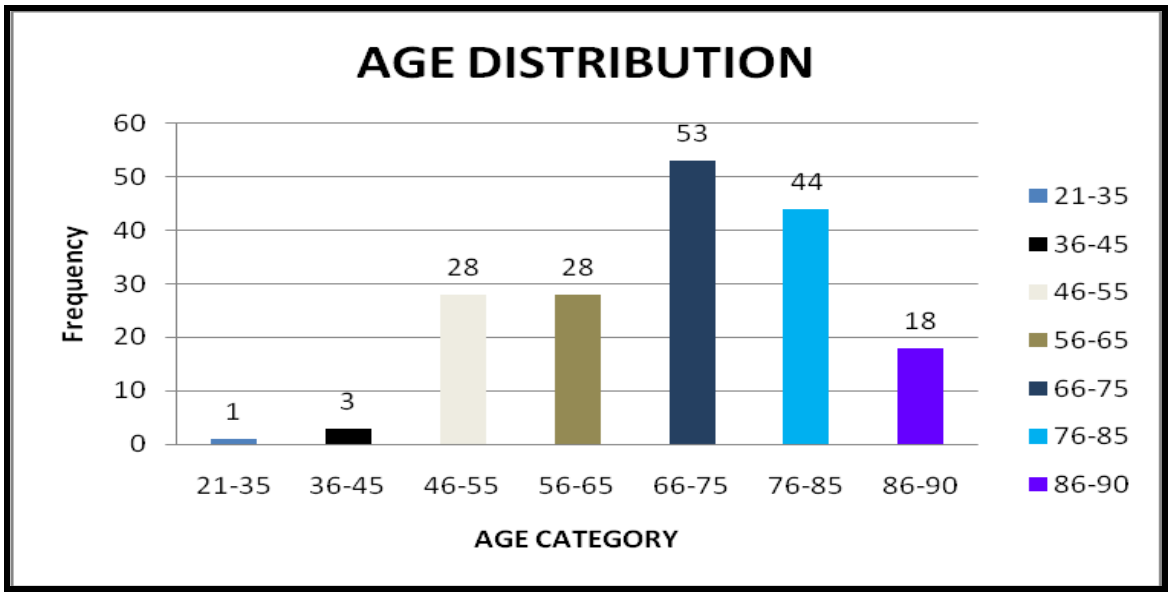


**Figure 4.1: Age distribution of respondents**

### 4.2.2 GENDER DISTRIBUTION

Out of the 175 respondents the majority 75% (137/175) were females and only25% (38/175) were males as depicted in **Figure 4.2.**

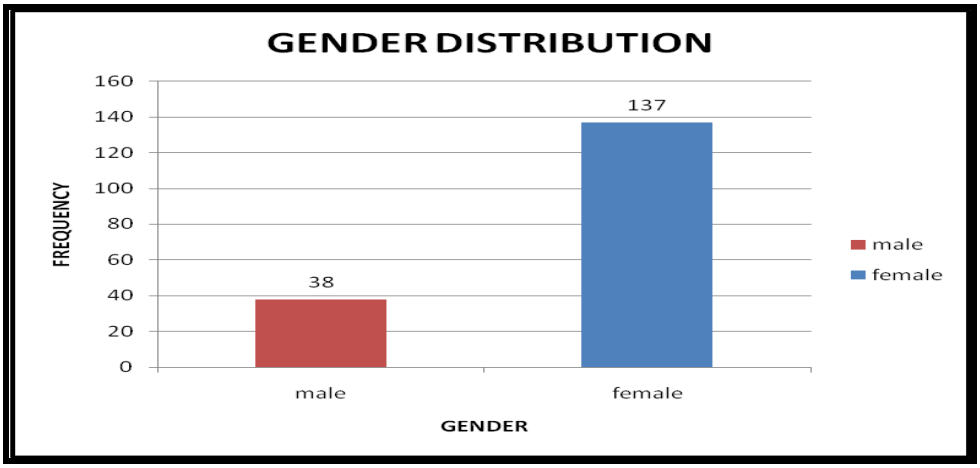


**Figure 4.2: Gender distribution of respondents**

### 4.2.3 RACE OF RESPONDENTS

The majority of the people attending the diabetic clinic at Dr George Mukhari Hospital were African 98% (172/175) with only 2.7% (2/175) Indians and 0.5% (1/175) whites (**Figure 4.3).**

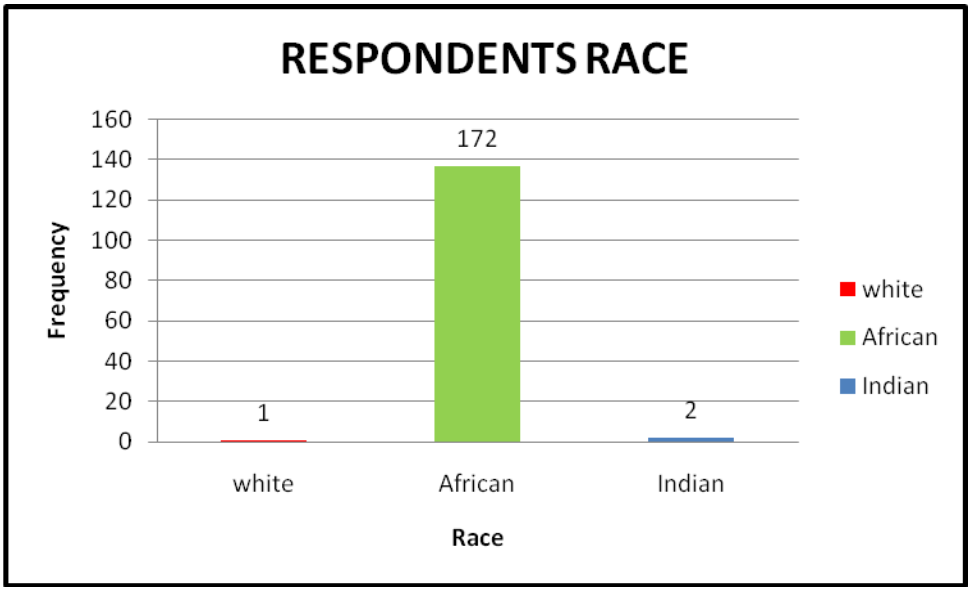


**Figure 4.3: Race of respondents**

### 4.2.4 EMPLOYMENT STATUS

As presented in **Figure 4.4** 50.3% (88/175) of the participants were unemployed, 17.2% (30/175) were employed and 30.3(53/175) were retired.

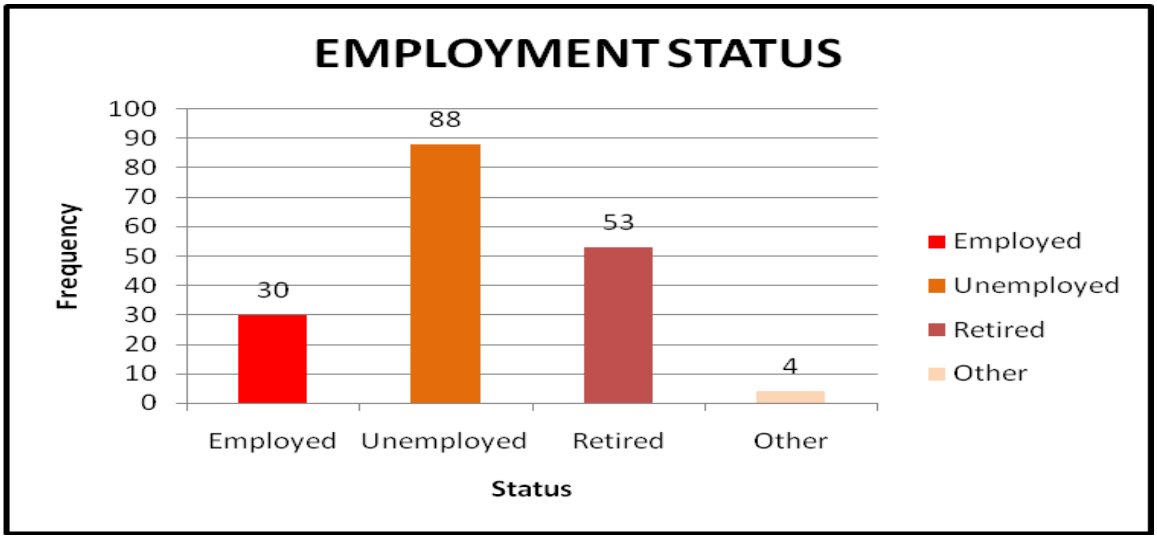


**Figure 4.4: Employment status of respondents**

### 4.2.5 RESPONDENTS HEALTH INSURANCE COVER

Most of the patients (98%) (172/175) attending diabetic clinic does not have medical aid only 2% (3/175) indicated that they do have medical aid (**Figure 4.5**).

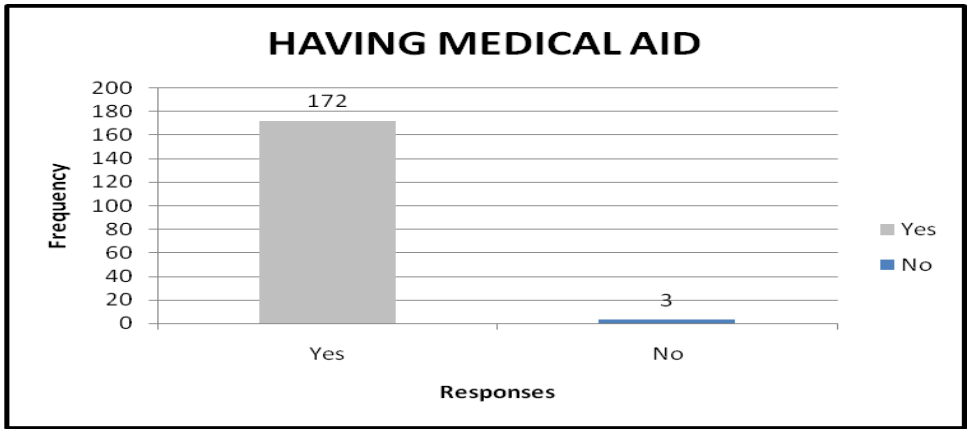


**Figure 4.5: Health insurance cover of respondents**

### 4.2.6 RESPONDENTS HOME LANGUAGE

The majority of participants, 76.6%) (134/175) attending clinic were Tswana speaking, followed by 9% (16/175) that has Zulu as their home language and 11 % (20/175) who are Tsonga speaking (**Figure 4.6**)

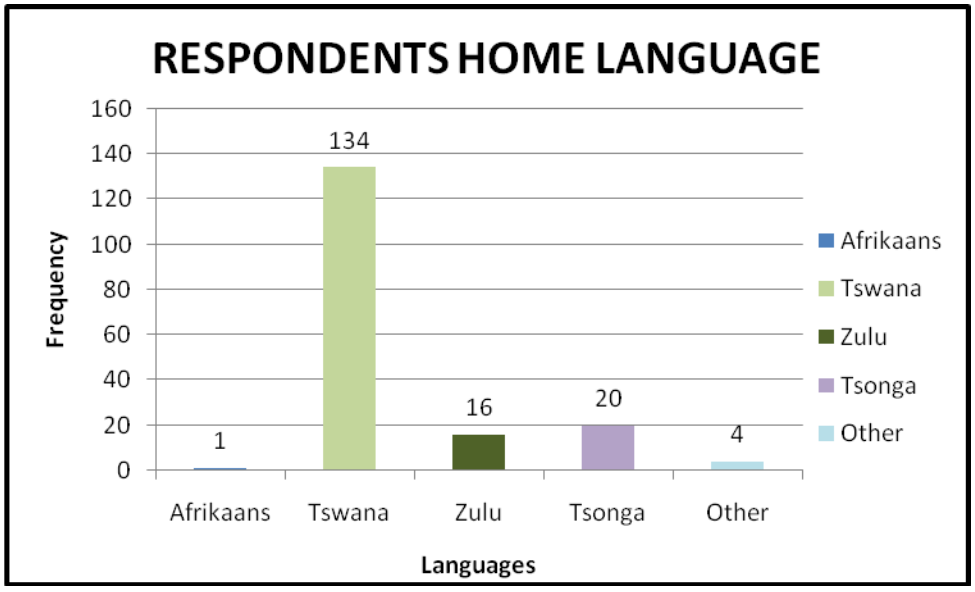


**Figure 4.6: Respondents home language**

## 4.3 EPIDEMIOLOGICAL DATA

A total of 58.6% (85/175) of the participants attending the diabetic clinic at Dr George Mukhari hospital have been diagnosed as diabetics for 8 years and longer and 50.3 % (88/175) have been diagnosed in the previous 7 years.

Almost all, 88% (154/175) of the participants have reported that they have experienced a change in vision since been diagnosed as a diabetic, and about 70% (123/175) also have reported to have uncontrolled blood glucose levels.

## 4.4 AWARENES OF THE EFFECT OF DIABETES ON EYE SIGHT

### 4.4.1 KNOWLEDGE OF RESPONDENTS ABOUT DIABETES

The majority of participants, 96% (168/175) attending diabetic clinic at Dr George Mukhari are aware that diabetes can affect their eye sight (**Fig 4.7**).

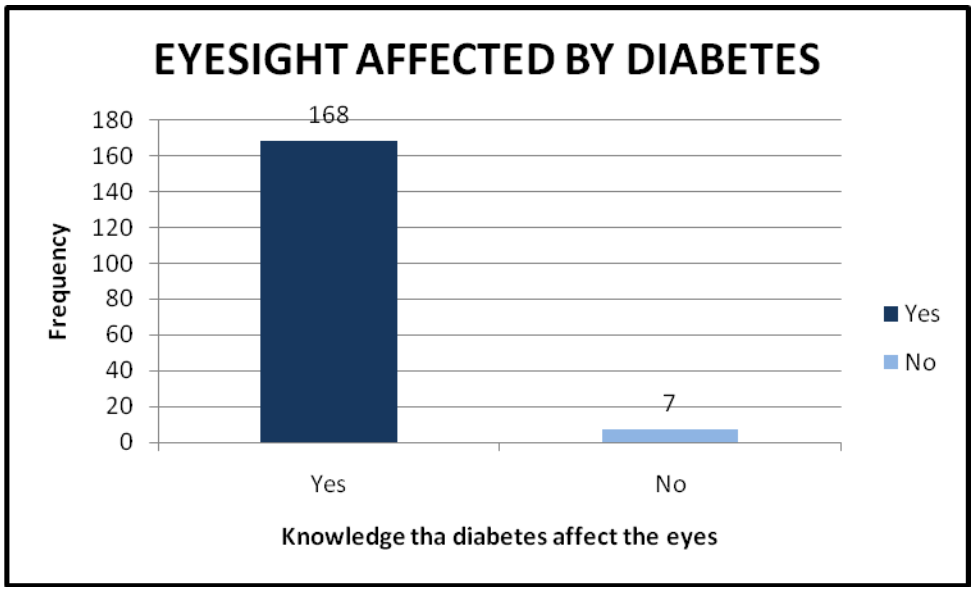


**Figure 4.7: Respondents awareness that diabetes affects the eyesight**

### 4.4.2 SOURCE OF INFORMATION ABOUT THE EFFECT OF DIABETES ON THE EYES

When asked how the participant know that diabetes can affect their eye sight 63 % (111/175) responded by indicating that they obtained the information from someone, 37% (57/175) were informed by the doctor while 7% (5/175) had a family member with diabetes and 1% (2/175) have acquired the information from the literature (**Figure 4.8**)

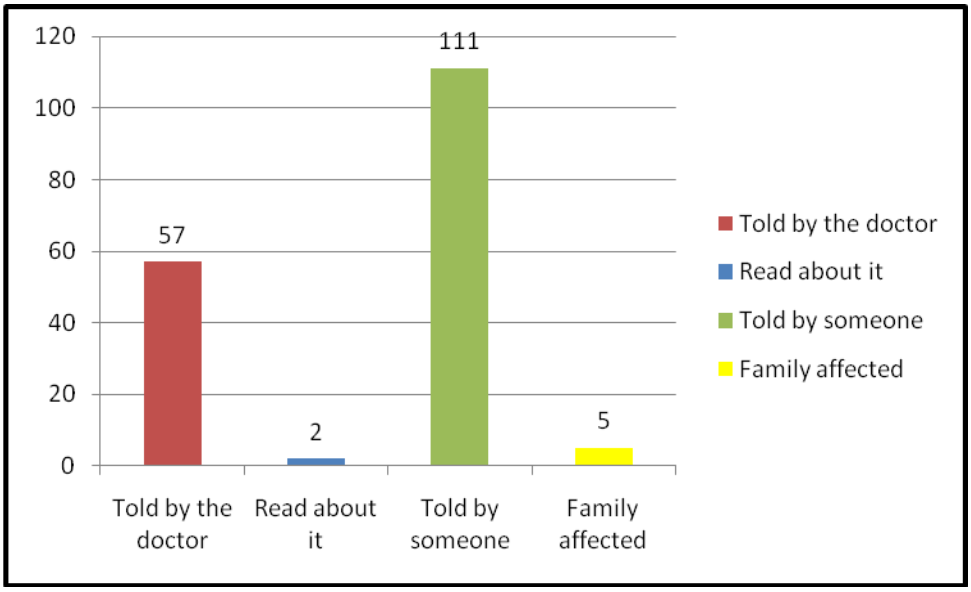


**Figure 4.8: Source of information for diabetics about diabetes and the eyes**

### 4.4.3 KNOWLEDGE OF RESPONDENTS ABOUT THE IMPORTANCE OF EYE TESTING

A total of 97% (170/175) of respondents indicated that they know that testing of the eyes is important for a diabetic person in order to prevent complications (**Figure 4.9**)

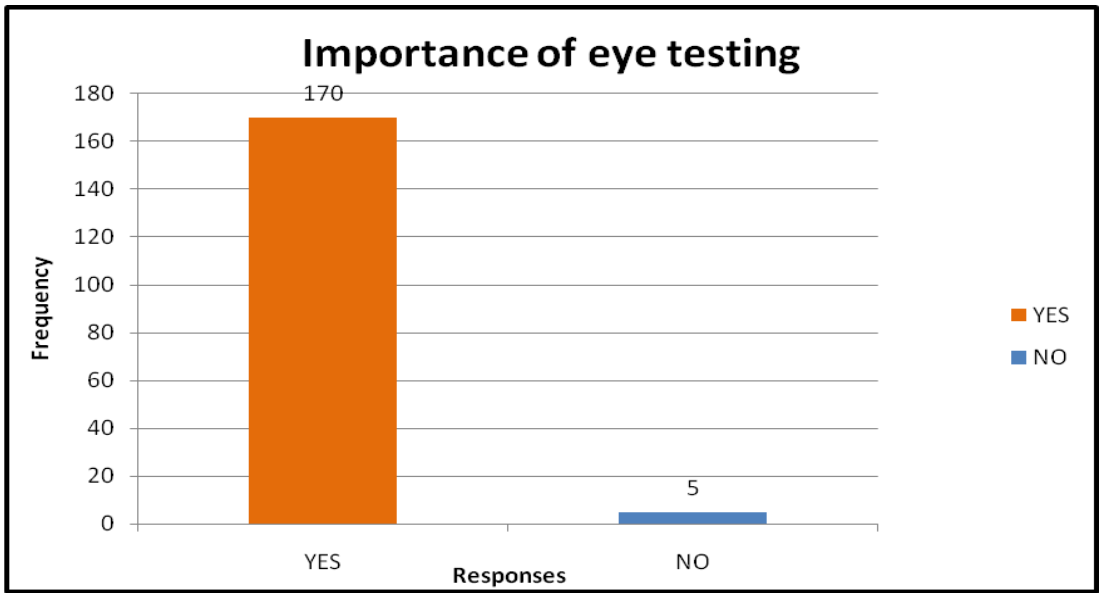


**Figure 4.9: Respondents knowledge about the importance of eye testing**

### 4.4.4. REASONS FOR GOING FOR EYE TESTING

The majority of participants 79% (139/175) answered that they go for eye testing for the prevention of blindness while 9% (16/175) do so in order to get treatment while 11% (20/175) just want to get spectacles (**Fig 4.10**)

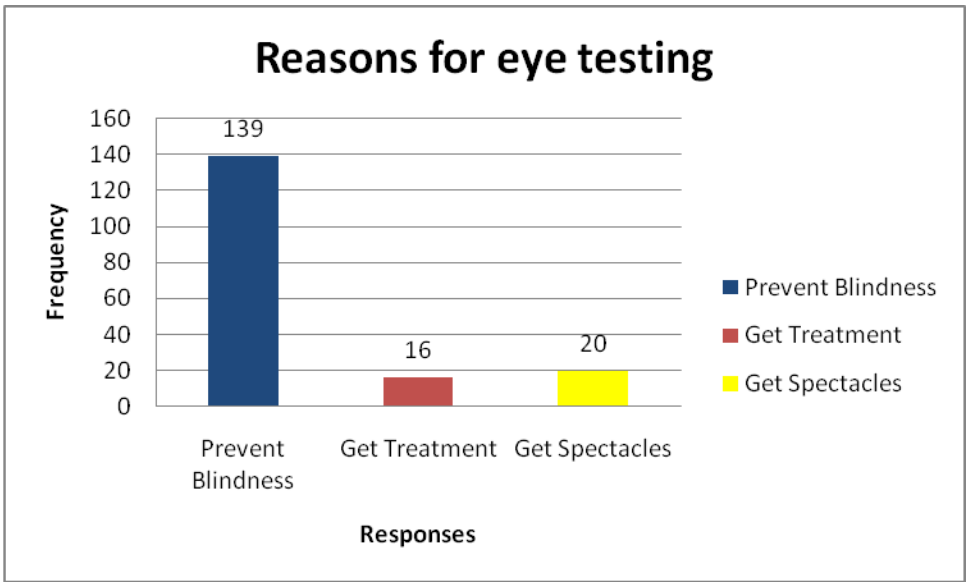


**Figure 4.10: Respondents reasons for eye testing**

### 4.4.5 INFORMATION ON EYE TESTING

Almost all the respondents, 92% (161/175) acknowledged that they have received information about the importance of eye testing for a diabetic patient (**Fig 4.11**).

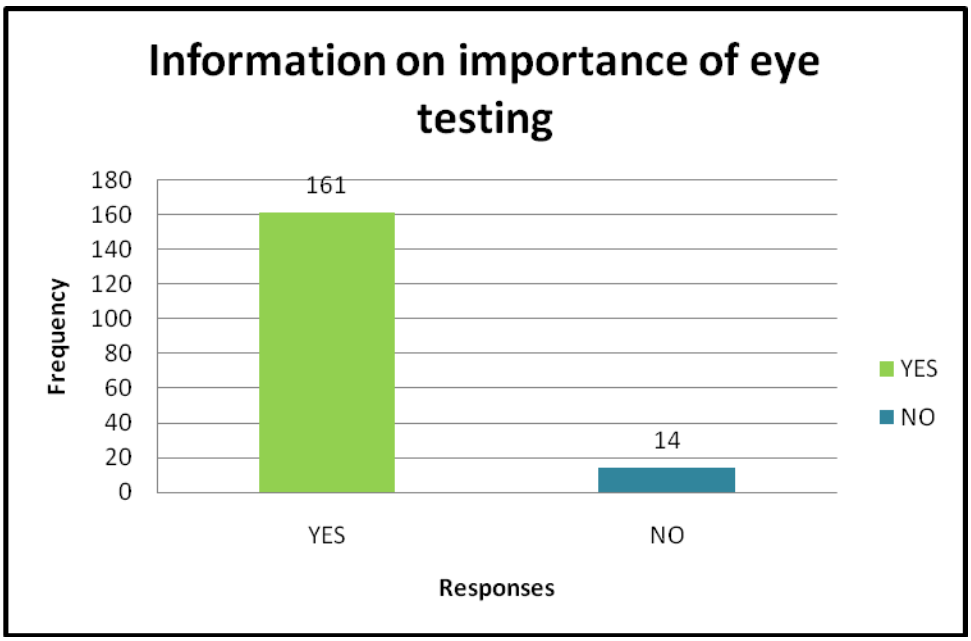


**Figure 4.11: Respondents received information**

### 4.4.6 HEALTH PROFESSIONALS GIVING INFORMATION ABOUT EYE TESTING

A total of 92% (161/175) of the respondents have received information from a doctor about the importance of eye testing as a diabetic while 8% (14/175) got the information from a nurse (**Fig. 4.12**).

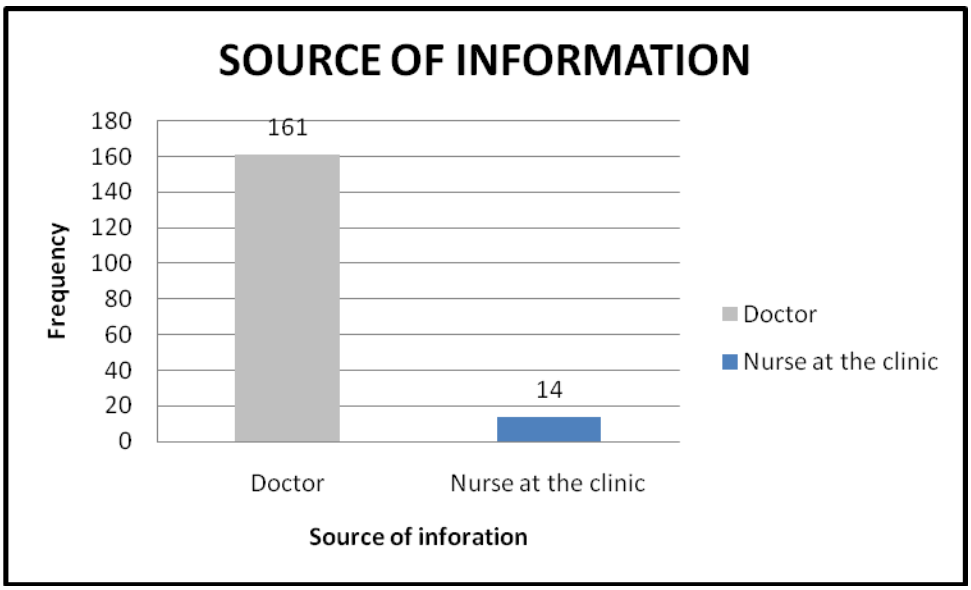


**Figure 4.12 Information about eye testing**

### 4.4.7 TRANSPORT TO ATTEND DIABETIC CLINIC

From the **Figure 4.13** it can be seen that 99% (173/175) of respondents are making use of public transport to get to the clinic while only 1% (2/175) make use of their own transport.

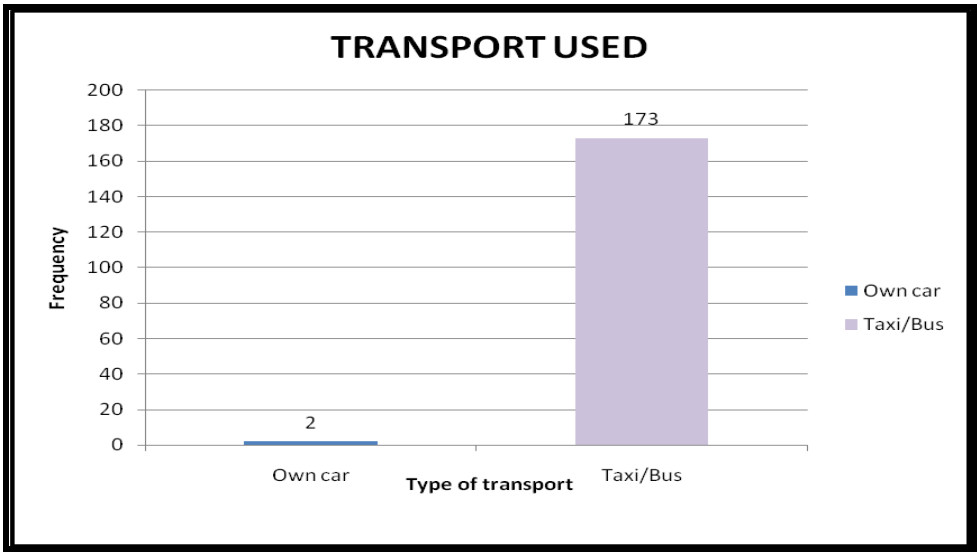


**Figure 4.13 Transport used by respondents**

### 4.4.8 FREQUENCY OF VISITS TO THE EYE CLINIC

From **Figure 4.14** it can be seen that about 54% (95/175) of respondents has visited the eye clinic less than 3 times, while only 3% (6/175) of those diagnosed as being a diabetic patient has never been to the eye clinic for a routine eye test while only 3% (6/175) never visited the clinic

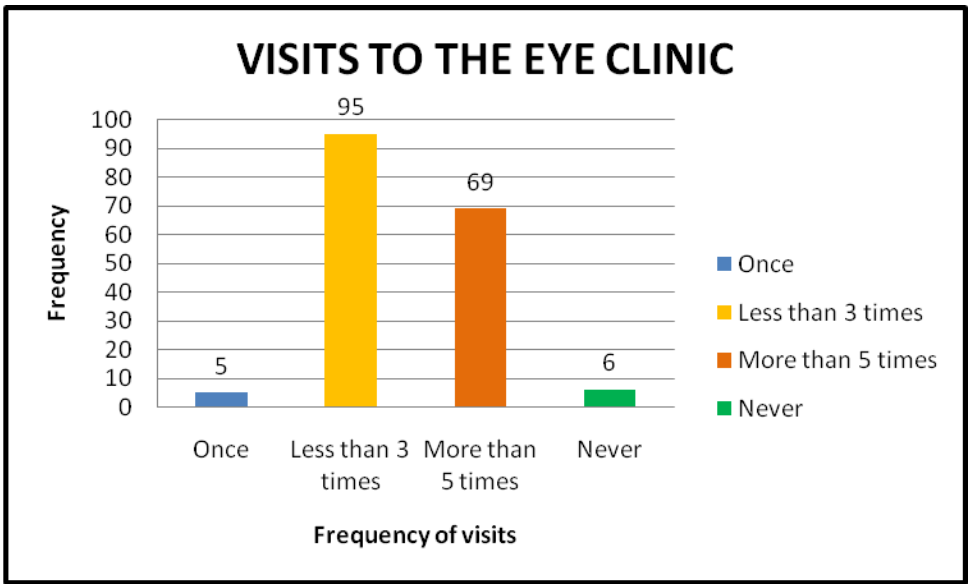


**Figure 4.14: Visits to the eye clinic**

### 4.4.9 REFERRAL OF DIABETIC PATIENTS TO THE EYE CLINIC

Out of the total of 175 diabetic patients that responded to this questionnaire only 5% (9/175) indicated that they were not referred for eye testing at the Dr George Mukhari Hospital eye clinic by a health care worker (**Figure 4.15**).

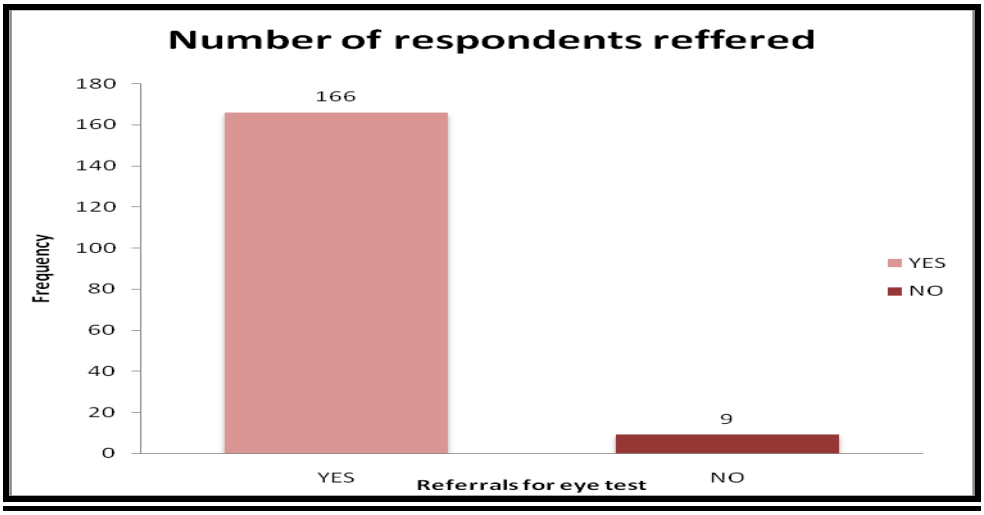


**Figure 4.15 Referrals of respondents to the eye clinic**

### 4.4.10 RESPONDENT'S EYE CLINIC VISIT OUTCOME

**Figure 4.16** below indicate that 35% (61/175) of respondents were treated, 37% (65/175) were referred for spectacles, 12% (22/175) were operated on and only 12% (22/175) were seen and discharged at their last visit to the eye clinic.

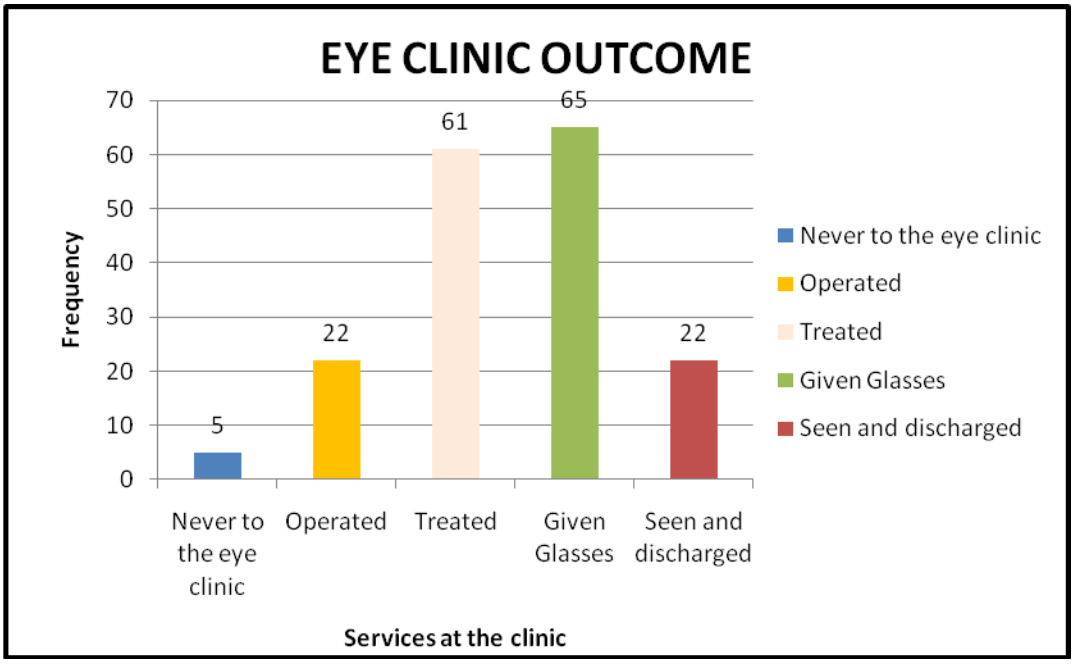


**Figure 4.16: Patients outcome from the eye clinic**

# CHAPTER 5

# DISCUSSION

## 5.1 INTRODUCTION

In this chapter the result of the study will be discussed. The goal of the study was to determine the utilization of eye care services by diabetic patients attending diabetic clinic at Dr George Mukhari Hospital. The study was descriptive in nature and it focused on determining awareness among diabetic patients about the need for routine eye testing. The referral patterns of diabetic patients by health professionals for yearly routine eye testing were also studied.

## 5.2 DEMOGRAPHIC CHARACTERISTICS

Findings from this study revealed that 30.3% (57/175) of the patients attending the diabetic clinic was within the 66 - 75age group with only one respondent within the age group 21-35 years. These findings are supported by the study done by Sinclair and Delvecchio (2004), who reported that diabetic retinopathy mostly affect diabetic people of age groups from 25 years up to 74years.

In this study the majority of the study population participants 78% (137/175) were females when comparing to the male participants that constituted only 22% (38/175) (**Figure 4.2**). This is contrary, to the findings of Rheeder (2006) who had more males than females in his study that was done in South Africa.

Since DGM is situated next to Ga-Rankuwa and Shoshanguve (which are both black townships) it was expected that the majority of the participants at 98% (173/175) would be of the African race (**Figure 4.3**) and Tswana speaking 76% (133/175) (**Fig 4.6**) as Ga-Rankuwa was under the former Bophuthatswana which was a Tswana dominated Province. Although the results of the study is in agreement with a study done in the United States (Kumi *et al*, 2009) that also showed that African Americans were are at a greater risk of developing DM, the white population were not properly represented in both these studies.

Results from this study show that only 17% (30/175) of the participants were employed and that the majority 50.3 % (88/175) were unemployed or retired 30% (53/175) (**Figure 4.4**). Because such a high number of participants are not receiving a substantial monthly income many of them cannot afford the cost of the service and may stop taking treatment as confirmed by the study of Owsley *et al* (2006). The majority, 98% (172/175) of participants also does not have medical aid and are dependent on the public health services (**Figure 4.5**). But as health care services are rendered for free to pensioners at DGM, cost was not a barrier to this group of retired people for visiting the eye clinic.

## 5.3 EPIDEMIOLOGICAL CHARACTERISTICS

The study revealed that 50 out of the 175 respondents (28.6%) has been living with diabetes for 8-12yrs and 25% (45/175) of them has been diagnosed as diabetes for 13 yrs and more which indicate that the majority of the participants are at risk of development of diabetic retinopathy. This has also been revealed in the study done by Argawal *et al*, (2003) that patients living with diabetes for 10years or more are at a greater risk of complications. Uncontrolled diabetes predisposes the respondents to diabetic retinopathy and in this study 80% of respondents blood glucose is uncontrolled and its primary prevention is by means of blood glucose control.

According to the National Guideline (2002), diabetes predisposes diabetic patients to complications like diabetic retinopathy and the symptoms are visual changes, even in this study about 88% of the respondents had experienced change in vision and only 12 % (21/175) has not reported any change in vision (**Figure 4.7)** Those who have experienced change in, vision 43% (75/175) of them have been experiencing it for a period ranging from 1month to 10yrs.

Eye screening is the best method of prevention of blindness in diabetics and from this study 95% (166/175) (**Figure 4.14**) of respondents has had their eyes tested which is the best management of diabetes for prevention of blindness due to diabetic retinopathy. On contrary, the study done by Ellish *et al*, (2007) showed that about one third of diabetic patients has never had their eyes tested the difference could be because Dr George Mukhari has a well developed eye clinic and it is easy and convenient for the doctors in the diabetic clinic to refer their patients to the eye clinic.

## 5.4 AWARENESS

The study revealed that the majority, 95% (166/175) of the respondents were aware of the fact that diabetes affect the eyes (**Figure 4.7**) and that it can lead to blindness if diabetic retinopathy is not detected early. The outcome for these respondents for the visits to the eye clinic was also good where only 19% (33/175) of them had to have an eye operation, 39% (68/175) were treated and discharged, 37% (65/175) were referred to the optometrist to get spectacles and 12% (21/175) were seen and discharged. The findings of this study is similar to the study of Khandekar and Al-Harby (2008) who reported that 70% of their respondents were aware that being diagnosed as an diabetic can affect their eyes. These findings are contradictory to a study done in Cape Town that revealed that there is lack of awareness about the impact of DM on the eyes patients living with diabetes mellitus (Read, 2007). A possible explanation for the Cape Town study is that although diabetic patients know that DM can affect their eyes they do not consider going for an eye examination as long as they do not have visual changes (Sinclair & Delvecchio, 2004).

The results of this study show that most of the respondents, 63.4% (111/175) has been informed by the sister in the diabetic clinic about the impact of diabetes on the eyes. This is proof that the health education sessions that are given in the diabetic clinic are of great importance in making diabetic patients aware of the complications as was indicated by 97% (170/175) of the participants. Similar results were published by Rani *et al*, (2008) where 90% of their participants in India knew about the importance of regular eye examination. Unlike the study done in India, 36% of participants knew about the importance of eye examination from the media and 30% learned from the general practitioners (Saikumar *et al*, 2005). With African Americans is the opposite as they do not make eye care a priority and prevention of complications is also lacking (Owsley *et al*, 2006) but only one third thought that control of blood glucose is the only important thing for prevention of complications.

## 5.5 UTILIZATION OF EYE CARE SERVICES

In this study it was found that 98% (172/175) of the respondents were making use of public transport to come to the clinic. These finding support the findings of Owsley (2006) who indicated that money for transport was a major barrier for diabetic patients to go for routine eye

screening as presently eye care services is not rendered in the primary health centers that are more accessible to the community (within walking distance).

Many of the respondents 97% (169/175) has been seen at the eye clinic at least once which is an indication that the patients are aware of the facilities that can provided regular screening.

## 5.6 REFERRAL PATTERNS

About 92% (161/175) of the respondents at the eye clinic were referral patients referred by the doctor at the diabetic clinic. This is in contrary to the studies of Zheng & Adelam (2010) and Ellish *et al* (2007) who reported that there was a lack of referral of diabetic patients and that the patients did not go for routine eye examination because they were not informed about the need. The results of this study are a clear indication that the referral patterns at the Dr George Mukhari hospital are effective.

## 5.7 LIMITATIONS

The question in the questionnaire (Section D2) about visit to the eye clinic doesn't state if it was a follow up after the first visit or if it was a yearly routine eye examination.

Almost all diabetic patients at Dr George Mukhari hospital are referred because the eye clinic is just around the corner from the diabetic clinic. Proper evaluation whether referred diabetic patients do go for routine eye test could best be assessed in the primary health care centre where the patient has to travel to the hospital for eye care as the eye care service is not presently available at the primary health care centre.

## 5.8 CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn:

● The majority of the respondents were African (98%) females (75%) and older than 56 years of age (82%).

● Basically all the respondents (98%) did not have a medical aid and 50.3% of them were unemployed and had to make use of public transport to visit the clinic.

●Ninety six percent of the respondents were aware (told by medical personnel) of the fact that diabetes can cause eye complications and that a routine eye test is important to prevent blindness.

●In this group of participants there was a referral rate of 95% which proved to be very successful because only 18% of the respondents were in need of an eye operation while the rests were treated for minor problems and then discharged.

## 5.9 RECOMMENDATION

Based on the findings of this study all indications are that the referral patterns for diabetic patients from the diabetic clinic at Dr George Mukhari Hospital is effective.

The doctors at the diabetic clinic has to find a way to ensure that they refer the diabetic patients every year for routine eye examination and not once only. When the patient is referred to the eye clinic the patients' next follow up date must be recorded on the patients' diabetic file, blue card and patient must also be advised to tell their children at home so as to remind about the yearly follow up visit.

All efforts should be made to ensure that diabetic patients go for a yearly routine eye test.

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# APPENDIX

## APPENDIX 1: QUESTIONNAIRE (ENGLISH)

**EYE CARE SERVICES FOR DIABETIC PATIENTS AT DR GEORGE MUKHARI HOSPITAL, GAUTENG PROVINCE**

General Instructions:

1. Please attempt to answer all questions as honestly and consistently as possible.
2. Your personal identity will not be disclosed in this study.
3. By completing this questionnaire you consent to participate in this study.
4. Write clearly or indicate with "✓" against appropriate response.

## SECTION A. DEMOGRAPHIC INFORMATION

**1. WHAT IS YOUR AGE IN YEARS?**

**……..**

**2. WHAT IS YOUR GENDER?**

| | | | |
|---|---|---|---|
| **Male** | | **Female** | |

**3. WHAT RACE ARE YOU?**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **White** | | **African** | | **Indian** | | **Coloured** | | **Other(specify)** |

**4. WHAT IS YOUR EMPLOYMENT STATUS?**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Employed** | | **Unemployed** | | **Retired** | | **Other** | |

**5. DO YOU HAVE MEDICAL AID?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**6. WHAT IS YOUR HOME LANGUAGE**?

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **English** | | **Afrikaans** | | **Tswana** | | **Zulu** | | **Tsonga** | | **Other** | |

## SECTION B. EPIDEMIOLOGICAL INFORMATION

**1. FOR HOW LONG HAVE YOU BEEN DIAGNOSED AS A DIABETIC**?

**……**

2. **HAVE YOU EXPERIENCED ANY CHANGE OF VISION SINCE BEEN DIAGNOSED AS A DIABETIC?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**If yes, for how long?.....**

**3. IS YOUR BLOOD (SUGAR) CONTROLLED?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**4. HAVE YOU EVER HAD YOUR EYES TESTED SINCE BEEN DIAGNOSED AS A DIABETIC?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

## SECTION C: AWARENESS

1. **DO YOU KNOW THAT DIABETES CAN AFFECT YOUR EYE SIGHT**?

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**1.1 IF "YES", HOW DO YOU KNOW THAT?**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Told by a doctor** | | **Read about it** | | **Somebody told me** | | **Family member was affected** | |

**2. DO YOU THINK IS NECESSARY TO GO AND SEE AN EYE SPECIALIST?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**2.1. IF YES, WHY DO YOU THINK IS NECESSARY TO GO AND SEE AN EYE SPECIALIST?**

**----------**

**3. HAVE YOU RECEIVED ANY INFORMATION ABOUT THE IMPORTANCE OF EYE EXAMINATION FOR A DIABETIC PATIENT?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**3.1 IF YES, WHO GAVE YOU THE INFORMATION?**

| | |
|---|---|
| **Family doctor** | |
| **Private eye specialist** | |
| **Nurse at the clinic or hospital** | |

## SECTION D: UTILIZATION

**1. HOW DO YOU GET TO THE EYE CLINIC AT DR GEORGE MUKHARI HOSPITAL?**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Walk** | | **Own car** | | **Bus/taxi** | | **Lift from a friend** | |

**2. HOW MANY TIMES HAVE BEEN TO THIS EYE CLINIC?**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Once** | | **Less than 3 times** | | | **More than 5 times** | | **Never** |

## SECTION E: REFERRAL PATTERNS

1. **HAVE YOU EVER BEEN REFERRED TO AN EYE SPECIALIST?**

| | | | |
|---|---|---|---|
| **Yes** | | **No** | |

**IF "YES", WHO REFERRED YOU AND WHAT WAS THE OUTCOME? (PLEASE EXPLAIN)**

---

**APPENDIX 2 QUESTIONNAIRE (SETWSANA)**

**DIPOTSO KA SETWSANA**

**EYE CARE SERVICES FOR DIABETIC PATIENTS AT DR GEORGE MUKHARI HOSPITAL, GAUTENG PROVINCE**

Dipotso ka kakaretso:

1. Araba dipotso tsotlhe ka tatelano.
2. Leina la gago ga le ka ke le rebolwa
3. Go araba dipotso tse go raya gore o a dumela go tsaya karolo mo thutong e
4. Supa ka lotshwao"✓" fa o dumela

## KAROLO A. DIPOTSO KA BO WENA

**1. O na le dingwaga di le kae?**

**……..**

**2.Bong ba gago?**

| | | | |
|---|---|---|---|
| **Monna** | | **Mosadi** | |

**3.O motlhobo mang?**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Mosweu** | | **LeAfrikanere** | | **LeIndia** | | **Wammala** | | **Go gongwe** |

**4.Ka tiro**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **O a dira** | | **Ga ke dire** | | **Ke lebogile tiro ka botsofe** | | **Go gongwe** | |

**5.A o na le karata ya go ya kwa ngakeng?**

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

**6.Loleme la kwa gae**?

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Seisemane** | | **Seburu** | | **Tswana** | | **SeZulu** | | **SeTsonga** | | **Go gongwe** | |

## KAROLO YA B. DIPOTSO KA BOLWETSE

1. **Ke nako e kae o boleletswe go re o nale bolwetse ba sukiri**?

……

2. A o bona sentle sa le o ba le bolwetse ba sukiri?

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

**Fa o sa dumele, se tse e le sebaka se se kae?.....**

**3**. A sukiri ya gago e a laolega?

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

**4.A o ile wa tlhatlhobiwa matlho fa e sale o ba le bolwetse ba sukiri?**

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

## KAROLO C: TEMOGO

1.A o a itse gore bolwetse ba sukiri bo a foufatsa?

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

**1.1 Fa o re ee, o itse jang?----------**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Ke boleletswe ke ngaka** | | **Ke buisitse ka yona** | | **Ke boleletswe ke mongwe** | | **Wa lesika o ne a amega** | |

**2.A go botlhokwa go ya go bona ngaka ya matlho?**

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

**2.1. Fa o dumela, go reng go le botlhokwa?----------**

**3.A o ile wa bolelelwa ka botlhokwa ba go bonwa ke ngaka ya matlho jaaka o na le bolwetse ba sukiri?**

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

**3.1Fa o dumela, o boleletswe ke mang?**

| | |
|---|---|
| **Ngaka ya lolapa** | |
| **Ngaka ya matlho** | |
| **Mooki kwa kliniking kgotsa sepetlele** | |

## KAROLO YA D: TIRISO

**1. O tla jang mo kliniking mo sepetleleng sa DR GEORGE MUKHARI?**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Ke tla ka maoto** | | **K a sejanaga sa me** | | **Bese/tekisi** | | **K e nametwa ke tsala** | |

**2. Se tse o tlile mo kliniking ya matlho ga kae?**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Gngwe** | | **Ka tlase ga tharo** | | **Kwa tlase ga thlano** | | **Ga ke is eke tle mo kliniking** | | |

## KAROLO YA E: MOKGWA WA GO ROMELWA NGAKENG

1.A o ile wa romelwa go ya go bona ngaka ya matlho**?**

| | | | |
|---|---|---|---|
| **Ee** | | **Nyaa** | |

Fa o dumelwa, o ne wa romelwa ke mang , morago ga moo go ne ga diragal eng**? (Tlhalosa**)

---

**APPENDIX 3: CLEARANCE CERTIFICATE FORM UNIVERSITY OF LIMPOPO**

UNIVERSITY OF LIMPOPO
Medunsa Campus

*MEDUNSA RESEARCH & ETHICS COMMITTEE*

*CLEARANCE CERTIFICATE*

P O Medunsa
Medunsa
0204
SOUTH AFRICA

Tel: 012 - 521 4000
Fax: 012 - 560 0086

**MEETING:** 03/2010

**PROJECT NUMBER:** MREC/H/41/2010: PG

**PROJECT :**

**Title:** Eye care services for diabetic patients at Dr George Mukhari Hospital, Gauteng Province

**Researcher:** Ms J Molapo
**Supervisor:** Mrs L Fernandes
**Department:** Public Health
**School:** Health Care Sciences
**Degree:** MPH

**DECISION OF THE COMMITTEE:**

MREC approved the project.

**DATE:** 09 April 2010

RESEARCH & PARTNERSHIP
2010 -04- 09
MEDUNSA CAMPUS

PROF GA OGUNBANJO
**CHAIRPERSON MREC**

**Note:**
i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
ii) The budget for the research will be considered separately from the protocol.
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

## APPENDIX 4: ASKING FOR PERMISSION FROM DGM

## LETTER TO ASK FOR PERMISSION

Date: _____

To the Chief Executive Officer

Dr George Mukhari Hospital

Dear Dr Fisher

My name is Johanna Molapo. I am a student at the University of Limpopo studying Masters of Public Health. As part of the course, I am expected to do a research project. My research topic is about the utilization of eye care services by diabetic patients. I am asking to conduct this study at the diabetic clinic at Dr George Mukhari Hospital. The purpose of my study is to assess the level of awareness and utilization rate of eye care services by diabetic patients attending diabetic clinic, and to determine whether the health care professionals refer diabetic patients for routine eye screening. The diabetic patients who volunteer to participate in this study will be asked to complete a questionnaire which will not take more than 15 minutes. The process will not interfere with the patient care in the clinic.

I would appreciate it very much if you could allow me to conduct this study in your clinic. Please feel free to contact me in case of any questions.

Yours sincerely

Johanna Molapo

## APPENDIX 5: PERMISSION OBTAINED FROM DGM


Umnyango wezempilo no Kuthuthukiswa Komphakathi
Lefapha la Maphelo le Tshebeletso le Ntshetsopele ya Sechaba
Department of Health and Social Development
Departement van Gesondheid en Maatskaplike Ontwikkeling

**DEPARTMENT OF HEALTH**
**OFFICE OF THE CLINICAL DIRECTOR**

**Tel:** +27 12 529 3880
**Fax:** +27 12 529 3851
**Enq:** Dr. P Shembe


To : Ms. Johanna Molapo
Department of Diabetic

Date : 18th March 2010

**RE : PERMISSION TO CONDUCT RESEARCH.**

The Dr. George Mukhari Hospital hereby grants you permission to conduct research on "Eye care services for diabetic patients at Dr. George Mukhari Hospital.

This permission is granted subject to the following conditions:

- [x] That you obtain Ethical Clearance from the Human Research Ethics Committee of the relevant University.
- [x] That the Hospital incurs no cost in the course of your research.
- [x] That access to the staff and patients at the Dr George Mukhari Hospital will not interrupt the daily provision of services.
- [x] That prior to conducting the research you will liaise with the supervisors of the relevant sections to introduce yourself (with this letter) and to make arrangements with them in a manner that is convenient to the sections.

Yours sincerely

2010-03-18

**DR. P SHEMBE**
**ACTING DIRECTOR: CLINICAL SERVICES**


**DR. GEORGE MUKHARI HOSPITAL**

**Dr. George Mukhari Hospital**
MEDUNSA Drive
**PRETORIA**

Private Bag X422
**PRETORIA**
0001

Tel (012) 529 3880
Fax (02) 529 3851

**<u>APPENDIX 6</u>: PARTICIPANTS INFORMATION LEAFLET**

Researchers Name : Johanna Molapo

Contact Details : 083 5695 834

Name of School : University of Limpopo

(School of Health Care Sciences)

Research Title : **EYE CARE SERVICES FOR DIABETIC PATIENTS AT DR GEORGE MUKHARI HOSPITAL, GAUTENG PROVINCE**

.

As part of the course assessment and training of Masters of public Health, I am requested to conduct a research about the above title. Your participation in this research by completing the questionnaire will be appreciated. Some of the questions are sensitive and you may not answer them if you feel uncomfortable but I will appreciate it if you answer all questions. You will be asked to answer the questions about your demographic, diabetes and your eye check up information. By completing this questionnaire you consent to participate in this study. The information will be kept confidential. You are at liberty to discontinue with the study at any time and there is no penalty for doing that. The results of the study will be made available at your request

083 569 5835

johanna.ditsela@yahoo.com