EFFECTIVE COMMUNICATION AND APPROPRIATE LIFESTYLE BEHAVIOR. EXPERIENCES OF TYPE 2 DIABETIC PATIENTS ATTENDING HEALTH WORKER CONSULTATIONS AT INTERNATIONAL HOSPITAL KAMPALA.

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2012 – MFM – DR – 001

A Graduate research thesis submitted to the Faculty of Medicine, department of Family Medicine in partial fulfillment of the requirements for the award of a Masters of Medicine in Family Medicine of International Health Sciences University.

November, 2015

DECLARATION

I hereby declare that this research was done by myself, Dr. Musisi Theresa Frances, under the supervision of my supervisor, Dr. Andrew Ssekitooleko.

Signed:

……..... ……

Dr. Musisi Theresa Frances Date

MASTERS THESIS APPROVAL

Name of student: Theresa Frances Musisi,

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As research supervisor for the above named student, I certify that I have read Dr. Theresa Musisi's thesis, titled above, and have approved of the changes required by her examiners. I hereby recommend the thesis to the Faculty of Medicine for acceptance.

Signed: ……..…..... ……..

Name of supervisor **Signature of supervisor**

……

Date dd/mm/yy

DEDICATION

I dedicate this work to my late mother and my family. I thank you for all the support.

ACKNOWLEDGEMENT

I would like to recognize and appreciate the enormous support and prayers that I received from my husband, Mr. Eric Kigozi and our children.

I would like to thank in a special way the management of International Hospital Kampala for facilitating me to carry out this research at their organization and Ms. Teddy Nagaddya, the head of the research department at IHSU.

I am also ever grateful to all the patients and health workers of International Hospital Kampala for their patience, advice and co-operation as I collected the data for this research paper.

May God bless you all.

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Operational definitions

1. Appropriate behavior: for this study will mean a patient fulfilling the recommended medical advice in the practice of a healthy diet and exercise routine.

2. Effective communication: for this study effective communication will mean sharing information in such a manner that the recipient is able to understand the message and make it applicable to their own situation.

3. Health worker consultation: a formal meeting between a patient and a health professional for which there is a purpose of coming up with a diagnosis, gaining a better understanding of causes of illness and how to best manage and prevent progression of the condition.

4. Lifestyle modification: a habit or way of life that an individual or group usually practice e.g. diet and exercise habits.

5. Non-pharmacological: the clinical management of an individual without medication or surgical interventions.

List of Abbreviations and Acronyms

ADA:	American Diabetes Association
BMI:	Body mass index
HBA1C:	Glycated haemoglobin
IDF:	International Diabetic Federation
IHK:	International Hospital Kampala
IHSU:	International Health Sciences University
JEMSDA:	Journal of Endocrinology, Metabolism and Diabetes of South Africa
MoH:	Ministry of Health
NCDs:	Non – communicable diseases
NICE:	National Institute for Health and Care Excellence
T2DM:	Type 2 Diabetes Mellitus
UCG:	Uganda Clinical Guidelines
WHO:	World Health Organization

Abstract

Background

Current Ugandan health policy guidelines have incorporated non-pharmacological lifestyle interventions such as healthy diet and physical exercise as an effective way both clinically and economically for preventing and slowing progression of Type 2 diabetes. This can significantly reduce costs of clinical care and limit new incidences of type 2 diabetes complications by more than 50%.

Despite adoption of the current Ugandan diabetic care guidelines, it is not clear to what extent adherence to the effective lifestyle interventions is being advised and adopted for such patients. Globally patient centered approaches are recognized as an ideal way of effectively influencing behavior change in patients. Appropriate use of such skills can significantly empower patients to learn to modify their lifestyle behaviors in a practical manner and eventually change their health seeking patterns towards more inexpensive supportive services as opposed to clinical crises care.

Objectives: The study sought to determine the sources of information for diet and exercise advice, whether diet and exercise advice is being delivered in an effective manner to Type 2 diabetic patients during health worker consultations at IHK and the current diet and exercise behavior of the same Type 2 diabetic patients. The findings of the study will contribute to clinical knowledge and practice in terms of designing appropriate communication approaches in supporting Type 2 diabetic patients in Uganda.

Methodology: The researcher used a mixed methods cross sectional design among Type 2 diabetic patients attending care at International Hospital Kampala. Dependent variable: Effective communication between the heath worker and the patient. Independent variable: Diet and physical exercise behavior of Type 2 diabetic patients at IHK. A validated interviewer guided semi structured questionnaire was used to capture quantitative data from 154 patients. A focus group discussion and one key informant interview were held to capture qualitative data from health workers. Quantitative data analysis was done using SPSS version 16 for Windows and manual thematic methods were used for the qualitative data. Qualitative data was categorized and graded according to strength of evidence and usability of sources of information. Quantitative data was categorized and grading according to degree of communication

experienced, diet and exercise behavior. These results were presented in form of figures and tables. An overall assessment of proportion of patients who practiced appropriate lifestyle was stated as well.

Results: Strong sources of information included in house training sessions, lifestyle guidelines, lifestyle seminars and the internet. Effective communication was experienced by 58.4% of the Type 2 diabetic patients attending IHK. Of these same patients 7.1% of them practiced healthy diets, 50% practiced recommended exercises and 49% had an overall appropriate lifestyle behavior.

Conclusion:

The study has highlighted insights into sources of information used during health worker consultations, effective communication and practice of appropriate lifestyle behavior of type 2 diabetic patients which have not been documented in these recent years. The most preferred choice was the use of updated international guidelines and evidence based research. According to the strength of evidence the use of reputable websites and international guidelines, peer reviewed continuous medical education and lifestyle seminars are the ideal sources to provide these health workers with the correct information.

Generally more than 50% of type 2 diabetic patients attending IHK experienced effective communication meaning that the communication style used by the health workers is above average. However 41.5% of patients are not getting the right message from the health workers at IHK meaning that the communication gap is still big. If the goals of non- pharmacological management are to be realized the average score for effective communication should be above 90%. Therefore there is much to be done to improve this situation.

Appropriate diet modification is generally very poor at 7.1% and practice of recommended exercise is average at 50%. If health worker communication can be improved to above 90% it would create an opportunity for such patients to be better empowered to self manage their lifestyle practice.

It is recommended that the use of reputable international guidelines tailored to the Ugandan context, CMEs and lifestyle seminars be the preferred and easily accessible sources of

information on lifestyle modification. Any new sources of information should be evidence based and peer reviewed by an in house clinical committee at IHK. It is urgent that the health workers of IHK receive this feedback about how their patients rate the quality of their communication. This will prepare the foundation for in- house trainings on how to improve and maintain effective communication to above 90%. Future studies should do a prospective study looking at the direct relationship between effective communication and appropriate lifestyle behavior.

1.0 CHAPTER ONE: INTRODUCTION

1.1 Introduction

Diabetes, a chronic and highly preventable disease, poses a global threat to all economies in terms of significantly high costs of care, loss of productivity through debilitation and premature death due to diabetic sequelae[1]. Globally the diabetic prevalence is estimated at 8.3%, 77% of whom live in middle and low income countries[2]. The African prevalence is 5.1%[2]. The estimated Ugandan diabetic prevalence in 2014 was 4.4% [2] and 8.1% in Kampala the capital city and Mukono[3] representing a fifteen fold increment as compared to figures in 2000 with a peak age of diagnosis at 40 years and above[4 and 5]. This prevalence is estimated to increase by a further 69% between 2010 and 2030 as compared to a projection of 20% increment in western countries within the same time frame[6 and 7]. Government efforts to mitigate the potentially epidemic situation has so far realized 0.01% of its health budget towards non-communicable diseases, NCDs, of which diabetic programs partake[8]. This leaves donors and patients to bear most of the costs of care estimated at $84.9 per person per year[2], a big challenge given that in 2014 62.9% of Ugandans were living on less than $2 a day, $ 60 in a month[9].

Diabetes is now a condition that can potentially affect anyone in Uganda irrespective of social status and age if exposed to behavioral risk factors such as prolonged unhealthy diets, insufficient exercise and being overweight[10] which if left unchecked would be a missed opportunity to slow down diabetic incidence and progression[11]. Ugandan researchers have over the last 19 years documented that diabetic associated sequelae are significantly prevalent[4, 12 and 13] despite adoption of evidenced based interventions in pharmacological interventions for the condition within the medical curriculum and practice guidelines[14].

Meta analysis reviews conclude that pharmacological treatments of diabetes such as oral hypo-glycaemic agents and insulin are clinically effective in the short term and costly in the long term especially in low and middle income countries; so long as the patient is adherent to therapy[15]. 83% of rural Ugandans have self reported to adhere to such treatment despite their low social economic status so long as the treatment is free and diabetic education is well delivered[16]. However when the patient pays out of pocket for care, has insufficient diabetic knowledge or

suffers undesirable drug side effects the adherence to pharmacological treatments has been found to fall to as low as 28.9% in Uganda[17], 59% in Nigeria[18] and 41.8% in Ethiopia[19].

The use of non- pharmacological interventions have been proven as effective in diabetic management the world over if communicated well by the health worker and put into practice by the patient[8]. According to the WHO Global Strategy on Diet, Physical Activity and Health, 2004, non-pharmacological lifestyle interventions include activities such as smoking cessation, healthy diet, reduced alcohol intake and sufficient physical exercise[20]. These behaviors, if practiced consistently, have proven to be effective at preventing and slowing progression of T2DM and resulted in use of lifestyle behavior modification as part of diabetic care[21 to 23]. The non pharmacological behavior modification interventions are not documented in the current Ugandan Clinical Guidelines for 2012[14].

The clinical and economic burden of diabetes in the Ugandan setting warrants effective communication of behavior change methods for managing diabetes during health worker-patient consultations to make acceptance of the method popular. However we don't have documentation on how behavior modification is being communicated to patients and the subsequent outcomes. A comparative cross sectional study between diabetics and non diabetics in Southwestern Uganda done by Neilsen et al. in 2012[24] concluded that diabetic patients were significantly less likely to smoke than non diabetics and that respondents who had sufficient knowledge about diabetes and were surrounded by socially acceptable diet and exercise habits were more likely to sustain appropriate health behavior.

As a starting point the researcher chose diet and physical exercise as two aspects of non-pharmacological interventions that were most likely to be applicable to all diabetics. In this study the researcher wanted to find out which guidance health workers are following about lifestyle behavior interventions and whether effective communication played a significant role in behavior change as perceived by diabetic patients. Findings of this study will impact on reviewing these already existing diabetic guidelines.

1.2 Research problem

The documented prevalence of diabetic complications is significantly high[4, 12 and 13] despite the condition being highly preventable and evidence of interventions to mitigate this using simple but effective healthy behavior practices. It is known that for a patient to adopt healthy lifestyles it would be dependent on effective communication of appropriate diet and exercise and patient participation[21 to 23]. In Uganda, a low income country, health workers have the double burden of providing care in both communicable and non-communicable diseases. In resource limited settings promoting healthy lifestyles is an economically viable solution given the high costs of formal health care and prevailing constraints of insufficient numbers of skilled health workers[25]. Furthermore there are no national standardized practice guidelines that educate Ugandan health workers on how to appropriately deliver this information[14]. Availability of clear guidelines on how one should promote appropriate diet and physical exercise to patients will support health workers to provide appropriate information to patients in the self management of their health and also make health workers accountable for their clinical actions. However there exists a knowledge gap on whether the advice given to modify their lifestyle is actually being delivered in an effective manner.

1.3 Objectives

1.3.1 General Objective.

1. To determine whether lifestyle modification advice is being delivered in an effective manner to Type 2 diabetic patients during health worker consultations at IHK.

1.3.2 Specific objectives

1. To establish the sources of information used by doctors at IHK for non-pharmacological management of Type 2 diabetics through appropriate diet and physical exercise.

2. To determine the extent to which effective communication practices are used in Type 2 diabetic consultations based on patient experiences.

3. To determine the percentage of Type 2 diabetic patients attending IHK who practice appropriate diet and sufficient exercise.

1.4 Research Questions

1. What are the sources of information used by health workers at IHK for non-pharmacological management of Type 2 Diabetics through appropriate diet and physical exercise?

2. To what extent do health workers at IHK use effective communication practices during Type 2 diabetic consultations based on patient experiences?

3. What is the percentage of Type 2 diabetic patients attending IHK practice appropriate diet and sufficient physical exercise?

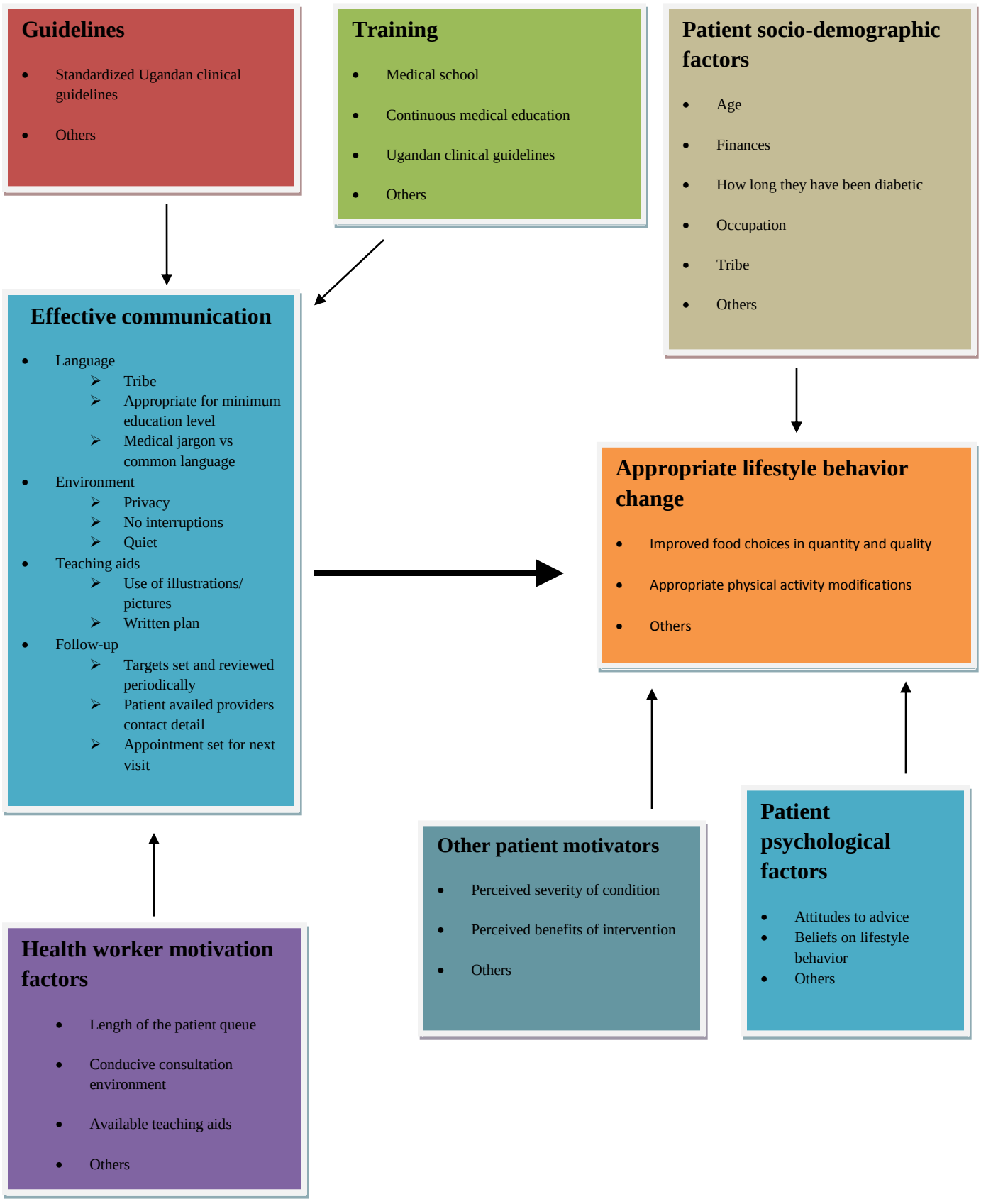
1.5 Hypothesis

The alternate hypothesis states that there is a relationship between effective communication and appropriate lifestyle behavior.

1.6 Justification

A refined understanding of how to effectively communicate such information to patients stimulates meaningful dialogue amongst policy makers, the general public and health providers in ways to mitigate adverse health. This study will help unravel the perceived gap between medical knowledge, ethics and clinical practice based on actual patient consultation experiences. The patients attending IHK will benefit indirectly from this study because the study will inform IHK health workers on aspects of the consultation process that influence uptake of medical advice in diet and physical exercise. Therefore the study seeks to understand what references health workers are using to advise patients on lifestyle behavior change and the role that effective communication plays during such consultations.

1.7 Conceptual framework



1.7.1 Conceptual framework

Appropriate lifestyle behavior change is dependent on multiple factors. The major influence is how the effective communication was done. This is measured using 4 sub- categories: Language, environment, use of teaching aids and follow up by the health workers. Other contributing factors include patient socio-demographic factors (age, finance, duration of being diabetic, occupation, tribe and others), psychological factors (attitudes and beliefs) and other patient motivators (perceived severity and benefits of the intervention). Health worker factors that affect communication include the influence from training (medical school, CMEs, Ugandan clinical guidelines and others), use of available standardized guidelines and other health worker motivators (length of patient queue, conducive consultation environment, availability of teaching aids and others).

2.0 CHAPTER TWO: LITERATURE REVIEW

2.1 Current public health concerns of Type 2 Diabetes Mellitus.

Diabetes is defined as having a fasting plasma glucose value ≥ 7.0 mmol/L (126 mg/dl), HBA1C of >6.5% or being on medication for raised blood glucose[26]. Diabetes is a chronic and progressively debilitating disease which can be propagated by persistently high blood glucose levels that result in damages to the eyes, kidneys, heart and nerves. Fortunately the progress of this condition can be slowed down using multidisciplinary evidenced based management guidelines which include varied interventions to help control blood sugar levels[27]. The estimated Ugandan diabetic prevalence is 4.4% of the population in 2013, 92% of whom are Type 2 diabetics, T2DM, a fifteen fold increment as compared to figures in the year 2000[28]. It is estimated that 75% of diabetics in low income countries like Uganda remain undiagnosed[28 and 29]. T2DM in Uganda affects individuals from their youth with the peak age of morbidity and mortality at 40 years and above[10 and 12] and has significant cost implications to individuals, family, nation and the region at large[30].

In Uganda, there is evidence that hypertension, obesity and being overweight are the common pre-disposing factors[31 and 32] for diabetes but this varies regionally as concluded from meta-analysis studies in several Sub-Saharan countries[33] where diabetic prevalence was predominant in men. The study included screening 36 cross sectional studies conducted between 1983 and 2009 with 75 928 subjects and it concluded that urban men had a higher risk of being diabetic because of higher central obesity as compared to women in the same region[34]. Consequently studies done in 2002[3] and 2011[35] in Uganda contradicted the sex prevalence of diabetes by concluding that a Ugandan female who is overweight and hypertensive is more likely to be diabetic as compared to men whose risk increase when they smoke or take alcohol. The females were also 31 times more likely to have central obesity using waist circumference as compared to men. Global meta-analysis studies estimate that even if the obesity prevalence does not increase the diabetic prevalence will progressively increase due to an older population and urbanization[7]. The association between hypertension and diabetes has been investigated in Ghana by Danquah et al[32] in which they concluded that the diabetic patho-physiology increased risk of hyperlipidemia amongst diabetics more so if they had additional social risk factors such as another family member with primary hypertension and unhealthy diets.

It is known that the quality of life of diabetic patients remains low irrespective of age[4] due to co-morbidities and complications of the condition. Documented diabetic co-morbidities in Uganda between 1996 and 2013 have been seen to significantly increase especially for hypertension (from 27.3% to 76.4%) and amongst diabetic complications of diabetic foot (4.0% to 6.4%)[12 and 13]. Efforts to reinforce diabetes awareness at the national level have resulted in partnerships with the International Diabetes Federation and drafting standardized diabetic education guidelines[36]. These recommendations have not yet been incorporated in the Ugandan clinical guidelines[14].

2.2 Lifestyle behavior modifications for diabetic patients

T2DM patients have been found more likely to have a history of poor nutrition and insufficient physical activity[20] and evidence supports patient education on modifiable risk factors in order to achieve better glycaemic control and prevent diabetic sequelae[37 and 38]. In 2010 83% of 340 T2DM patients sampled from Kampala outpatient clinics recall having had previous diabetic education during health worker consultations[39] this is a significant improvement when compared to previous findings from a qualitative study done in a Ugandan university hospital by Hjelm K et al. in 2008 that concluded that diabetics had insufficient knowledge and false beliefs about their condition[40]. This is comparable with those in the rural settings where a sample population of 160 in southwestern Uganda had a high level of knowledge of diabetes $P < 0.001$ but the study was limited in that it could not establish an association between diabetic knowledge and incorporation of healthy lifestyles into diabetics' daily domestic routine[24]. A qualitative study done by Mayega et al. in Eastern Uganda in 2014 discovered that people were aware of modifiable pro-diabetic factors and that they found it difficult to avoid because they perceived that it involved forgoing tasty foods, needing a lot of self drive and involved making significant adjustments in their daily domestic routine[41].

Meta analysis studies support healthy diets for improved glycaemic and blood pressure control in T2DM globally[42 to 44]. Relaying this information to patients in an effective manner and eliciting patient cooperation in the long term can be considerably difficult to maintain in resource limited settings like Uganda that currently face a health worker shortfall of 44% unmet need since 2010[45]. Mixed methods studies in South Africa documented that patients often received incorrect and inappropriate diet advice from health workers[46 and 47] resulting in poor glycaemic control. Another qualitative study done in South Africa noted that T2DM patients that had insufficient

knowledge about modifiable nutritional modification could be helped using family support and educational leaflets as teaching aids during diabetic consultations[48].

Specific targets must be attained to effectively minimize diabetic sequelae[49] which involves selecting wisely from locally available foods and physical activities. The emphasis is to increase physical exercise to at least 30 minutes per day to maintain a healthy body mass index. Domestic chores as a form of exercise were graded as being low intensity (walking, cooking, cycling and washing), moderately intense (herding animals, carrying water for domestic use, collecting wood for fuel, and brief domestic gardening) and high intensity (prolonged domestic gardening and brick making). In western countries exercise intensity is graded as low (leisure walks, domestic chores, dancing and home exercises), moderate (pacing and aerobics on most days of the week) and high intensity (running and lifting weights at least twice a week)[50 to 52]. One is also encouraged to limit total and saturated fats to less than 30% and 10% respectively; limit alcohol and salt in food and to eat more of fiber rich foods (whole grains, cereals, beans, fruits, vegetables) and low fat proteins (skimmed milk, low fat yogurt, lean meat and fish)[53]. Available data shows that 38.8% of 340 outpatients T2DM in Kampala have a regular exercise program and majority limit fatty food and sweets at 88% and 91% respectively[39].

Financial limitations and cultural norms in Uganda have been identified as major influencers of lifestyle behavior change[39, 40 and 55]. Family influence is a repeated theme in several studies whereby they are viewed as a positive influence on lifestyle modification both emotionally and financially[56] but those who lack support from the immediate family have been found prone to pro-diabetic diets and insufficient exercise habits from a young age[57 to 59]. Appropriate uptake of various available forms of exercise such as walking and manual daily chores have been seen as applicable in developing countries but uptake can be limited by the dynamic nature of decision making in individuals, lack of prioritization of lifestyle behavior, social acceptability and existing co-morbidities[4].

2.3 Effective communication during diabetic consultations

Presenting behavior advice with use of culturally and contextually appropriate illustrations, diagrams and educational leaflets favors acceptability of the new information and fosters

meaningful dialogue during consultations[60]. It is not clear whether diabetics in Uganda have sufficient knowledge about effectively adopting healthy practices in their daily routine. Several studies have shown association between diabetes knowledge and adherence. In Nigeria a cross sectional quantitative study done on 152 diabetics found that the more knowledgeable the patient the lower the adherence to medical advice [61] however in a comparable study done in Ethiopia on 425 diabetics motivational factors such as perceived severity of their condition and perceived benefits of the assigned intervention were found to augment uptake of appropriate lifestyle practices[62].

In Uganda diabetes knowledge in the general population is multifaceted with many patients turning to herbs for long term clinical management and little attention being given to lifestyle modification interventions[63]. Diabetics in Eastern Uganda are aware that it is a severe debilitating disease that can be controlled using lifestyle modification[54] and that with self discipline it is possible for an adult to maintain sufficient levels of physical activity through daily chores which could be gradually increased over time. Being active is beneficial for health but locally some patients view losing weight as being stigmatizing since they believe that society would label them as poor or having HIV/ AIDS[63]. Other misconceptions amongst diabetic patients include witchcraft and contagion as predisposing and propagating their condition which are consistent with comparable studies in Sub-Saharan Africa[54, 64 to 66].

3.0 CHAPTER THREE: STUDY METHOD.

3.1 Introduction

This chapter discusses the study design, setting, study population, sampling methods used, method for data quality control, study outcomes, data collection tools and techniques, data analysis, data management, ethical considerations, study strengths and limitations.

3.2 Study design:

This was a cross sectional study that used a mixed methods approach for collecting qualitative and quantitative data. Patients and health workers were interviewed only once using a semi-structured questionnaire for the patients and a focus group discussion and key informant interview for the health workers to obtain primary data.

3.2 Study setting:

IHK is a private hospital in Namuwongo, Makindye division that allows easy access to general and specialist care on a 24 hour basis under out of pocket payment, medical aid or other facilitation. A diabetic register exists and clinical care is offered by nurses, general practitioners and physicians. Consultations are usually done on an individual basis in a consultation room and there is a possibility for follow up either through face to face consultations, email and on phone. Patients can easily be offered educational information from the consultation using illustrations, diagrams and educational leaflets or using the hospital webpage. The health worker then documents the encounter using manual and electronic records. Patients are offered continuous and comprehensive care using a multidisciplinary team of health workers and review appointments.

During the three month study period patients were interviewed after the triage process with the nurse and before seeing the next health worker. After the triage nurse had identified and consented the patient they would administer the questionnaire to the patient in a separate consultation room available at the study site.

The health workers who work with diabetic patients were identified and invited to attend the focus group discussion after random selection. A total of 7 out of 9 health workers came for the focus group discussion and the diabetic physician was invited for a key informant interview on the same

topic. The group session was done in one of the training rooms available at the hospital while the key informant interview was done in the physician's consultation room.

3.4 Study Population

3.4.1 Inclusion criteria for patients

The respondent had to be a Type 2 diabetic patient or a patient on oral medication for raised blood glucose for at least six months prior to the study. Patients were aged 18 years and had to consent in written form prior to enrollment in the study.

3.4.2 Exclusion criteria for patients

I excluded all Type 1 diabetics, pregnant diabetic ladies, those with mental, visual and hearing impairments, and those with life threatening conditions.

3.4.3 Inclusion criteria for health workers

The health workers included randomly selected nurses, general practitioners and physicians who have ever consulted with diabetic patients at IHK within the last 6 months and had written consent to participate.

3.4.4 Exclusion criteria for the health workers

Any health worker who had not consulted with a diabetic patient within the last 6 months and declined to participate in the study.

The interviews were done in English and Luganda only.

3.5 Sampling technique

3.5.1 Sampling units:

All T2DM patients and health workers who fulfilled the inclusion criteria and had no exclusion criteria were consecutively enrolled into the study until the sample size was attained.

3.5.2 Sample Size

All type 2 diabetic patients who attended medical services at IHK within a three month period (July to September 2015) and met the inclusion criteria were enrolled into the study. The principle investigator chose not to estimate a sample size because there was no register and because of the unpredictable turn-up of type 2 diabetic patients that had been noted to increase in the preceding months prior to data collection. Hence there was an evolving sample which resulted in the principle investigator screening all type 2 diabetic patients visiting IHK within the three month period. These patients were identified and consented to be enrolled in the study at triage.

3.6 Data quality control

Data was collected by the principle investigator and trained 50 research assistants (registered nurses working day and night shifts) this was because the patients are not restricted to the time or day in which they can access care. The research assistants had to sign a data confidentiality form and be trained by the principle investigator before working in the study. They were supervised by the principle investigator throughout the study. Completed questionnaires and focus group notes were sealed in envelopes after completion of a session to ensure confidentiality from other participants and health workers. These envelopes were then collected by the principle investigator, recorded, given patient ID numbers and stored in a safe place. The tape recording was saved in audio and transcribed text form under a password both on the computer and an external hard disk belonging to the principle investigator. All primary data was then kept in a safety locker belonging to the principle investigator.

3.7 Study Outcomes

1. The primary outcome was to find out which reference guidance health workers were following about diet and exercise behavior advice and to determine whether effective communication was being experienced by patients during health worker consultations. The dependent variable is effective communication and the independent variable is the consultation on diet and exercise advice.
2. The secondary outcome will be to determine the percentage of diabetic patients attending IHK who practice appropriate diet and sufficient exercise.

3.8 Data collection tools and techniques

I used a pre tested interview guide designed specifically for this study (Please see appendix II and III) for the patients both in English and Luganda versions and a focus group discussion guide for the health workers in English. The focus group discussion took place in a training room and included seven health workers. The key informant interview with the diabetic physician took place in his consultation office. Answers were recorded in written form using a flip chart by the chairperson, and an audio recording was done using a digital tape recorder after obtaining verbal and written consent from the participants (Please refer to Appendix VIII). Appendix IV shows the questions that were asked to explore information related to objective one. The principle investigator transcribed the recordings verbatim after the sessions and the findings labeled and categorized into themes manually.

All patient respondents completed the questionnaire before they saw the next health worker because the information being sought concerned the previous diabetic consultation they had at IHK and not the consult they had come for on that specific day. This was done to mask and minimize bias of the health workers behavior changing during the current consultation.

After the interview the patients were given a diabetic educational leaflet on how to improve their lifestyle behavior using diet and physical exercise as a token of appreciation and for their learning needs. The completed questionnaire was double checked by the research assistant and then put in a sealed envelope, labeled and sent to the principle investigator for safe keeping. The received sealed envelopes were stored in a safe belonging to the principle investigator. The principle investigator then opened the envelopes and screened the questionnaires for errors such as missing consent signatures and incorrectly filled forms; these were discarded from the data analysis stage. The valid forms that were used in analysis were 154 which were then coded and data entered into SPSS 16 for the quantitative data and the qualitative data was transcribed and kept for manual thematic processing.

The random selection for the focus group participants involved writing eligible names on folded pieces of paper and separating them in different cups labeled as nurses, general doctors, physician. The principle investigator would blindly pick a fold paper from each cup and note down the selected name the focus group invitation list. This process was repeated until I had 10 names on my guest list. I invited 9 health workers to the focus group discussion and one

specialist to the key informant interview. Two specialists failed to make it to the focus group discussion due to unavoidable circumstances. I had to book and reserve a training room for the group session. Participants were offered refreshments during the discussion which lasted one hour only.

3.9 Data analysis

The study data analysis carried out to answer the research questions and objectives.

Qualitative data was analyzed using a manual thematic process. I documented and categorized the answers and used this to build themes. These themes were then further categorized according to strength of evidence and then discussed in relation to usability of the information in clinical practice.

SPSS version 16 statistical package was employed in data analysis for quantitative data. At uni-variate level, frequency distributions and percentages were presented so as to show the distributions of general characteristics of the study population and their available resources for diabetic care. I then looked at the frequency reported per effective communication criterion and compared this with the sources of evidence. This was followed by the categorization of the 11 point criteria of effective communication into 3 categories. Diet and exercise behavior was categorized according to criteria developed by the principle investigator and each behavior graded into three levels. At multi-variate level I found out the proportion of patients who actually practice appropriate lifestyle in their usual domestic routine.

3.10 Data management

Study documents and consents were kept under key and lock. Data was accessed through invitation by the principle investigator. My research supervisor, the research body at IHSU and the clinical director at IHK were allowed access to the data. I was advised accordingly by the

above if any other party should have access to this data. Data was double entered as a labeled data set in SPSS 16 and backed up daily. The original raw data was kept locked in the principle investigator locker. The research body will advise on how long the raw data should be stored. The research assistants were trained on how to obtain, access, use and store the data before the study begun. All persons involved in the study had to sign a form of non-disclosure of confidential data obtained in this study (Please refer to Appendix X).

In case of a security breach of the data the research supervisor and research board would be notified in writing and the case reported to police. In case the raw data questionnaires appeared to be tampered with the principle researcher would disqualify such data from the analysis stage. Electronic data will be stored on the principle investigator's computer which has a password. Editing of the data set will similarly have a password to allow changes. Changes to this protocol were advised by the research body and documented for future reference. All versions of the research findings were documented and submitted to the research supervisor and research body for comments and approval. The final book was submitted to IHSU research office as a requirement for completion of the course. The university will advise whether I can apply for publishing this study to external bodies and the general public including the patients involved in the study.

3.11 Ethical Considerations

I got my proposal approved by the IHSU research committee board. I got permission from IHK research and ethics offices to allow me collect my data. Consent forms were signed, coded and kept in a sealed envelope by the research assistant. The filled in questionnaires were also sealed after completion and only the principle researcher could open to read the contents. Patients were asked to fill in the forms only once during the whole research period and this did not affect their access to other clinical services thereafter. Patients were interviewed in a private room on site separate from other onlookers. Patients were informed of the indirect benefits they would receive from this study which included better quality of services though their feedback and the study findings would add to an increasing body of knowledge that guide clinical practice. The only risk foreseen was the patient being asked personal questions about their financial resources and their usual domestic routines. This was explained to the patient prior to consent. All filled in

questionnaires that meet the eligibility criteria were included in the analysis. Research assistants, after ascertaining that no conflict of interest existed, had to sign a non disclosure of confidential data form. They were also trained by the principle researcher on how to conduct themselves during the study.

4.0 CHAPTER FOUR: RESULTS AND FINDINGS

This chapter deals with the results and findings of the research both from the qualitative and quantitative data respectively. Descriptions of the outcomes will be derived from descriptive analysis, thematic analysis, uni-variate, bi-variate and multivariate analysis. The chapter is organized in accordance with the objectives of the study.

4.1 THE SOURCES OF INFORMATION USED BY HEALTH WORKERS AT IHK DURING DIABETIC CONSULTATIONS FOR DIET AND EXERCISE ADVICE.

Qualitative results

4.1.1 Description of health worker respondents and procedure of data collection

A total of 7 health workers participated in a focus group discussion using an interview guide and the discussion recorded on tape recorder after respondent consent was got. After the focus group discussion a key informant interview was done with a physician. The working experience with diabetic patients ranged from 1 to 6 years, with an average of 3.9years working experience (See table 1).

TABLE 1: DESCRIPTION OF THE HEALTH WORKERS WHO WERE INTERVIEWED BY INITIALS, POSITION AND WORKING EXPERIENCE.

INITIALS	POSITION	WORK EXPERIENCE WITH DIABETIC PATIENTS.
GA	Physician	5 years
F1	Medical officer	3 years
F2	Medical officer	2.5 years
F3	Medical officer	1 year
F4	Drug dispensor	5 years
F5	Nursing assistant	6 years
F6	Registered nurse	5 years
F7	Drug dispensor	4 years

The health workers had a rich experience in treating diabetic patients and represented a wide spectrum of health workers who usually give lifestyle advice to type 2 diabetic patients.

Focus group discussion raw data:

MOD: Ok, so where do health workers get this information from?

F6: Some of it we studied (*Theme 1)*….other information is from the few years we have been in the field. You just gain that experience.(*Theme 2)*

F3: Yes, sometimes you get it from a patient (*Theme 3)*…Sometimes you get it from your colleagues, what they are practicing (*Theme 2),* continuous medical education (*Theme 4*), reading and equipping yourself (*Theme 5*).

F6: Some of us have those patients home (*Theme 3*)... They have sessions for diabetic patients (*Theme 6)*…

MOD: So when we are at school and we are getting this information, where are the lecturers getting the information from?

ALL: From books where it is written (*Theme 1).*

F2: I think the lecturers get it from researches done, so based on a research they have come to a conclusion that exercise does help (*Theme 6)*...

F1: They also gain it from their colleagues and also from their predecessors…. It's almost like its carried on from generation to generation (*Theme 2)*….

F6: … when we are on those ward placements in the diabetic clinics you find that that is what is done by them… By the clients then by what the physician says (*Theme 2*)….

F1: You can actually show them the clinical guidelines but you also have to alert them that this clinical guidelines are subject to change based on the researches that are continuously being done (*Theme 7)*….

F2: … some of us use different websites which we have studied with and they are constantly updating up to the latest research. So it's for us to keep up to date (*Theme 7)*….

MOD: Any examples?

F1: There is Uptodate(*Theme 7)*….

F6: There is PubMed (*Theme 7)*….

F2: There is NICE guidelines(*Theme 7)*….

MOD: How many people would say that in the last 6 months you have looked at the Ugandan clinical guideline?

Only one raised their hand.

F3: We feel like it's always the same. When they change something they just change the front page or reviewed by so and so but the information is almost the same (*Theme 7)*….

F2: I think why we don't use those guidelines, in my opinion, is because I don't think the research is adequate to make a definite guideline or up to date guideline probably(*Theme 7)*….

F7: These guidelines, I think its meant for a quick view, its not detailed. Its just for if you want to quickly look at something you will definitely find it in a small line…something short, too short(*Theme 7)*….

F1: Because they (UCG) are meant to give a base.. there are not meant to take over our clinical knowledge or the other guidelines that we may pick from in the internet. There are meant for even the person in the village, deep in the village who has no access to the internet. At least they should be able to know how to manage diabetes (*Theme 7)*….

F7: It has mentions if I may say. Headlines with the one statement, two statement. Advise like for a diabetic patient. Management. Clinical management, non clinical management. They put bullets, exercise, diet…..those things. It is simply summarized (*Theme 7)*….

Key informant interview raw data:

MOD: Ok the third question. Where do health workers get this information from? This information we are giving the patients.

GA: … research has been done. There is a lot of research about what is good for patients (*Theme 6)* And then through education, there are those who are more experienced than the others so they teach the others (*Theme 2)*…..but there is a lot of research which has been done. These are evidence based practice.

GA: …The challenge is that we don't have specifics (*Theme 7)* … But we have general things but we need to do more to determine what is like in these foods… So we need to do more (research) in studies which we don't have.

GA: So usually guidelines we usually follow international guidelines, World Health Organization and International Diabetes Federation, IDF, they have guidelines on all these things…exercise, diet, treatment. Those are the guidelines we follow (*Theme 7)*

4.1.2 Data analysis

Data information was categorized manually according to emerging themes and significant comments stated along with the corresponding strength of evidence.

TABLE 2: SOURCES OF INFORMATION ON DIET AND EXERCISE ADVICE USED BY HEALTH WORKERS AT IHK

	SOURCE OF INFORMATION	REMARKS	STRENGTH OF EVIDENCE
1.	**Knowledge gained during pre qualification training.**	Lecturers as specialists in lifestyle management of diabetics	Good; but easily prone to subjectivity
		Knowledge learned from science textbooks acts as a foundation for new knowledge	Good; subject to be outdated, more factual than practical
		The information passed on was enhanced by current evidence gleaned from published research papers on the topic. *"I think the lecturers get it from researches done, so based on a research they have come to a conclusion that exercise does help. And so basic biochemistry and anatomy and how carbohydrates affect glucose… that knowledge as well…." Medical officer 2*	Strong; evidence based
2.	**Mentorship through practical work experiences**	Mentorship from senior colleagues who have a lot of experience with diabetic management has also influenced their knowledge on diabetic lifestyle education. *"They also gain it from their colleagues and also from their predecessors…. It's almost like it's carried on from generation to generation." Medical officer 1*	Good; but easily prone to subjectivity
3.	**In house training on lifestyle advice**	Attending continuous medical education sessions. *"Sometimes you get it from your colleagues, what they are practicing, continuous medical education, reading and equipping yourself." Medical officer 3*	Strong; if latest evidence discussed
4.	**Guidelines on lifestyle advice**	Departmental protocols / guidelines on lifestyle management are found on the computer and in patient leaflets in the consultation room. "*You can actually show them (the patients) the clinical guidelines but you also have to alert them that these clinical guidelines are*	Strong; but needs regular reviews by protocol committee and

		subject to change based on the researches that are continuously being done." Medical officer 1	use of clinical judgement
		National guidelines such as the Uganda Clinical Guidelines largely lack specifics details on how to deliver the message in the Ugandan context. *"These guidelines, I think it's meant for a quick view, it's not detailed. It's just for if you want to quickly look at something you will definitely find it in a small line…something short, too short." Medical dispenser 2*	Weak; not detailed to practical level
		It was difficult to find detailed information on the nutritional value of the local foods leading to estimations being made during diet education sessions *"…We haven't done research on our local foods so that we tell them "Look, take two fingers of banana", we don't know. But we have general things but we need to do more to determine what is like in these foods…" Physician.*	Weak; information not adapted to local context
5.	**Patient experience as a source of knowledge for health worker practice**	When a patient experiences a positive outcome, through appropriate behavior, such information is shared with other patients as a good example. *"Yes, sometimes you get it from a patient and you realize yes this works and you sell it off to the next patient." Medical officer 3*	Good; prone to conflict of interest
6.	**Lifestyle seminars.**	A health worker can learn from the experiences of existing patients for a more realistic impression on lifestyle practices amongst patients. IHK is yet to adopt this method. *"…They do sit, they discuss, and then they share then they get their outcomes and it really works…" Registered nurse*	Strong; group education recommended in NICE guidelines
7.	**The internet**	There are known evidence based search engines or websites that guide the universal clinical approach to lifestyle management. This included websites like Patient.co.uk, Uptodate, PubMed, NICE guidelines, WHO, IDF and the American Diabetes Assosiation. *"…There is a lot of research about what is good for patients…" Physician.*	Strong; only if reputable website is accessed

4.1.3 Data summary

This table shows the rich variety of sources of information for heath workers some of which are easily available to health workers working within limited resource settings. It is evident that information on lifestyle advice is continuously evolving; the latest evidence can be obtained from internationally recognized websites. A lot has to be done to upgrade local guidelines to fit the expected level of evidence based practice.

4.2 TO DETERMINE THE EXTENT TO WHICH EFFECTIVE COMMUNICATION PRACTICES ARE USED IN TYPE 2 DIABETIC CONSULTATIONS BASED ON PATIENT EXPERIENCES.

Quantitative findings

4.2.1 Description of patient respondents

4.2.1.1 Procedure for data collection and analysis

All type 2 diabetic patients who attended IHK services were recruited at triage and consented before the interview. 154 patients were interviewed. Semi structured interview questionnaires were used to obtain information about the patients' consultation experience. An 11 point score criteria was used to categorize the quality of the health workers communication skills. The first criteria was that the patient was given health education on diet and exercise. This was mandatory and if the answer was negative the communication evaluation was scored as 0 out of 11. Please see the appendix for the 11 point score criteria on effective communication.

4.2.1.2 Analysis of specific characteristics of patient respondents

TABLE 3:

SHOWS THE GENERAL CHARACTERISTICS OF THE RESPONDENTS

Total number of respondents: 154

CHARACTERISTIC	NUMBER (%)
Sex	
Male	78 (49.4)
Female	76 (50.6)
Age	
21-40	30 (19.4)
41-60	98 (63.6)
>60	24 (15.6)
Undisclosed	2 (1.3)
Level of education	
No formal education	1 (0.7)
Primary	6 (3.9)
Secondary	34 (22.1)
Tertiary	90 (58.4)
Undisclosed	23 (14.9)
Occupation	
Desk Bound >5 Hours	84 (54.6)
Field >5 Hours	45 (29.2)
Other	19 (12.3)
Undisclosed	6 (3.9)
Nationality	
Ugandan	100 (64.9)
Kenyan	5 (3.2)
Indian	9 (5.8)
Others	35 (22.7)
Undisclosed	5 (3.2)
Duration of being diabetic, months	
6 – 12	13 (8.4)
12.1 - 36	48 (31.2)
36.1 - 60	22 (14.3)
>60	71 (46.1)

Continuation of table 3

CHARACTERISTIC	NUMBER (%)
Duration since the last diabetic visit	
1 month or less	100 (64.9)
2 months ago	26 (16.8)
3 months ago	14 (9.1)
More than 3 months ago	14 (9.1)

TABLE 4:
AVAILABLE RESOURCES FOR DIABETES CARE FOR PATIENTS ATTENDING IHK.

CHARACTERISTIC	NUMBER (%)
Financial sponsor for consultation and drug management	
Out of pocket	19 (12.3)
Insurance	131 (85.1)
Employer	4 (2.6)
Estimated cost of diet and exercise modification per patient per month	
None	19 (12.34)
Less than 50,000	16 (10.39)
50,000 - 100,000	26 (16.88)
More than 100,000	82 (53.25)
Undisclosed	11 (7.14)
Support from housemate	
Financial support from housemate	45 (19.3)
Diet support	94 (40.3)
Exercise support	27 (11.6)
Counseling support	35 (15.00
No support	22 (9.4)
Other support	10 (6.5)

4.2.1.3 Data summary

The above tables indicate that the patients represented a wide variety of backgrounds and characteristics that were appropriate for the study. In table 3 there were comparable numbers of men and women, most of the patients were aged above 41 years old and 64.9% were Ugandan making the study relevant to the local setting. 81% of the patients had seen their IHK health worker within the last 2 months and 90% within the last 3 months which is a good sign that there would be minimum recall bias during their narration of their last consultation experience for this study. Most of the patients were educated, had desk bound jobs and majority had been diabetic for more than a year.

In table 4 majority of patients relied on medical aid for accessing consultations and drug treatments, more than 50% spent more than Ugshs100,000 ($27) per month on diet and exercise fees and yet they received very little support from their housemates especially in the areas of finance, diet and exercise.

4.2.2 The 11 point criteria for effective communication.

4.2.2.1 Procedure and analysis for the 11 point criteria for effective communication of diet and exercise advice

This was developed by the principle researcher from a broad study of various characteristics that are documented as conducive to communicating effectively in diet and exercise. The recommendations included the following:

TABLE 5: SHOWS THE FREQUENCY REPORTED PER EFFECTIVE COMMUNICATION CRITERION AND THE SOURCES OF EVIDENCE

	COMMUNICATION CRITERIA	NUMBER (%)		SOURCES OF EVIDENCE *
		Yes	**No**	
1	Patient was given health education on healthy diet & physical exercise	108 (70.1)	46 (29.9)	68, 69
2	Patient found the language used comfortable	106 (68.8)	48 (31.2)	70 , 71
3	The patient said the health worker's words did not need further explanation	85 (55.2)	69 (44.8)	72
4	The patient was alone with the health worker	98 (63.6)	56 (36.4)	73, 74, 75
5	The patient found the consultation room calm and quiet	108 (70.1)	46 (29.9)	76
6	The patient was shown at least one teaching aid	78 (50.6)	76 (49.4)	48, 60, 74, 77
	Shown any pictures	*38 (24.7)*	*116 (75.3)*	
	Clinical guideline or website	*28 (18.2)*	*126 (81.8)*	
	Dummies or demonstration	*32 (20.8)*	*122 (79.2)*	
	Real life examples/ scenarios	*64 (41.6)*	*90 (58.4)*	
7	Patient was given a chance to ask all the questions	90 (58.4)	64 (41.6)	78, 79
8	Patient was given specific targets to achieve	51 (33.1)	103 (66.9)	49, 80, 81, 82, 83
9	Patient had a review date planned for them	87 (56.5)	67 (43.5)	82, 84, 85
10	Patient had a written down plan given to them	76 (49.4)	78 (50.6)	86
11	Patient believes that this health education works	102 (66.2)	52 (33.8)	87

*Modified from UCG, JEMSDA, ADA and NICE guidelines

4.2.2.2 Data summary

Table 5 above shows that there is a broad evidence base for selection of the 11 point criteria for effective communication in diet and exercise. Given the known modifiable risk factors for type 2 diabetes it is expected that all patients should receive diet and exercise advice during every consultation and yet 29.9% did not get this service at their last visit. There is a reason for concern if 31.2% of patients were not comfortable with the language used; this significantly undermines all other criteria if the patient cannot understand the health worker. Only half of the patients were

given/ shown teaching aids which is very disconcerting given that more than 75% were not shown any picture or demonstration and more than 50% were not even given a real life example that they could relate to. Half of the patients were not given a written plan to take home and majority of patients were not given any specific target to achieve for diet and exercise.

4.2.3 Grading effective communication

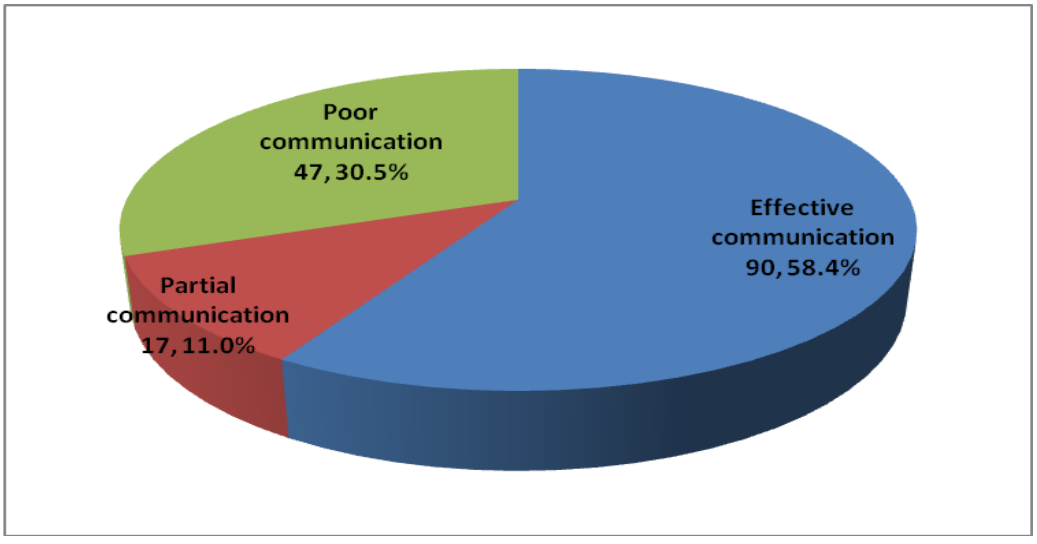
4.2.3.1 Procedure for grading for effective communication using the 11 point criteria

All patient data for the 11 point criteria was graded on the basis of each criteria being identified as experienced during their last diabetic consultation.

4.2.3.2 Analysis of grading for effective communication using the 11 point criteria

Effective communication categorized as a score of 8 and above out of the 11 communication criteria, partial communication as a score of 5, 6 or 7 out of the 11 communication criteria and poor communication as a score of 4 or less for the 11 communication criteria. The multiple response function was used to deduct this information.

FIGURE 1: SHOWS THE QUALITY OF COMMUNICATION RECEIVED BY PATIENTS FROM THE HEALTH WORKERS



4.2.3.3 Data summary

More than half of the patients received effective communication, 11% received partial communication and 30.5% received poor or no communication. This shows that at IHK there is at least an awareness that effective communication can and should be done during diet and exercise advice of type 2 diabetic patients; a fact which has not been previously documented in Uganda.

4.3 TO DETERMINE THE PERCENTAGE OF TYPE 2 DIABETIC PATIENTS ATTENDING IHK WHO PRACTICE APPROPRIATE DIET AND SUFFICIENT EXERCISE.

4.3.1 Diet behavior reported by Type 2 diabetic patients attending IHK.

4.3.1.1 Procedure for data collection for diet behavior.

This data was collected from the question about current diet behavior within the semi structured questionnaires filled in by the patient respondents. An assessment of the variety of foods eaten or forgone by the patients was done.

4.3.1.2 Analysis for diet behavior.

The principle researcher created a 10 point criterion for assessing appropriate diet. Having an appropriate diet consisted of a patient modifying their diet to accommodate 5 – 10 criteria from the following:

TABLE 6: SHOWING THE 10 POINT CRITERIA FOR APPROPRIATE DIET AND THE STRENGTH OF EVIDENCE

	DIET CRITERIA	NUMBER (%)		ADA LEVEL OF EVIDENCE [88]
		Yes	**No**	
1	Reduced salt	9 (5.8)	145 (94.2)	B
2	Reduced fats/ oils	41 (26.6)	113 (73.4)	B
3	Reduced sugar	101 (65.6)	53 (34.4)	B
4	Reduced carbohydrates	48 (31.2)	106 (68.8)	B
5	More vegetables	46 (29.9)	108 (70.1)	B
6	More fruits	25 (16.2)	129 (83.8)	B
7	Less alcohol	8 (5.2)	146 (94.8)	E
8	Drinking a lot of water	11 (7.1)	143 (92.9)	*
9	No red meat	18 (11.7)	136 (88.3)	C
10	Reduced quantity of food	21 (13.6)	133 (86.4)	A

KEY: ADA level evidence (Please see appendix XI)

A means high level of evidence

B means moderate level of evidence

C means low level of evidence

E means expert consensus or clinical experience

*No recommendation given

This information was further categorized into 3 categories to grade the quality of diet. A patient who fulfilled 5 – 10 of the criteria was categorized as having an appropriate diet. Patients who scored 2 – 4 of the criteria were categorized as having a partially healthy diet. Patients who scored 0 – 1 of the criteria were categorized as having a poor diet.

TABLE 7: GRADING DIET INTO 3 CATEGORIES

	DIET GRADING	NUMBER (%)
		Yes
1	Healthy diet (5-9)	11 (7.1)
2	Partially healthy (2-4)	124 (80.5)
3	Poor (0-1)	19 (12.3)

4.3.1.3 Data summary

12.3% of the diabetic patients consumed a poor diet, 80.5% consumed a partially healthy diet and only 7.1% exercised a healthy diet.

4.3.2 Exercise behavior reported by Type 2 diabetic patients attending IHK.

4.3.2.1 Procedure for data collection for exercise behavior.

This data was collected from the semi structured questionnaires filled in by the patient respondents. An assessment of the variety of exercises done or forgone by the patients was done.

4.3.2.2 Analysis for exercise behavior

The principle researcher created a 4 point criterion for assessing exercise behavior. The quality of exercise was assessed by the patient describing their physical activity to one of the following categories. The definition of each category is found in the list of definitions.

TABLE 8: SHOWING THE 4 POINT CRITERIA FOR EXERCISE AND THE STRENGTH OF EVIDENCE

	EXERCISE CRITERIA	NUMBER (%)	ADA LEVEL OF EVIDENCE[89]
		Yes	
1	High intensity	25 (16.2)	B
2	Moderate intensity	52 (33.8)	B
3	Low intensity	38 (23.4)	C
4	No exercise at all	36 (23.4)	*

KEY: ADA level evidence (Please see appendix 11)

B means moderate level of evidence

C means low level of evidence

*No recommendation given

Note: 3 patients (1.9%) never responded to this question.

This information was further categorized into 3 categories to grade the quality of exercise.
A patient who fulfilled either a moderate or high intensity criteria was categorized as having recommended exercise. Patients who fulfilled the low intensity exercise were categorized as having a partially exercise. Patients who didn't exercise at all were categorized as having a never exercise.

TABLE 9: GRADING EXERCISE INTO 3 CATEGORIES

	EXERCISE GRADING	NUMBER (%)
		Yes
1	Recommended exercise	77 (50)
2	Partial exercise	38 (24.7)
3	Never exercise	36 (23.4)

4.3.2.3 Data summary

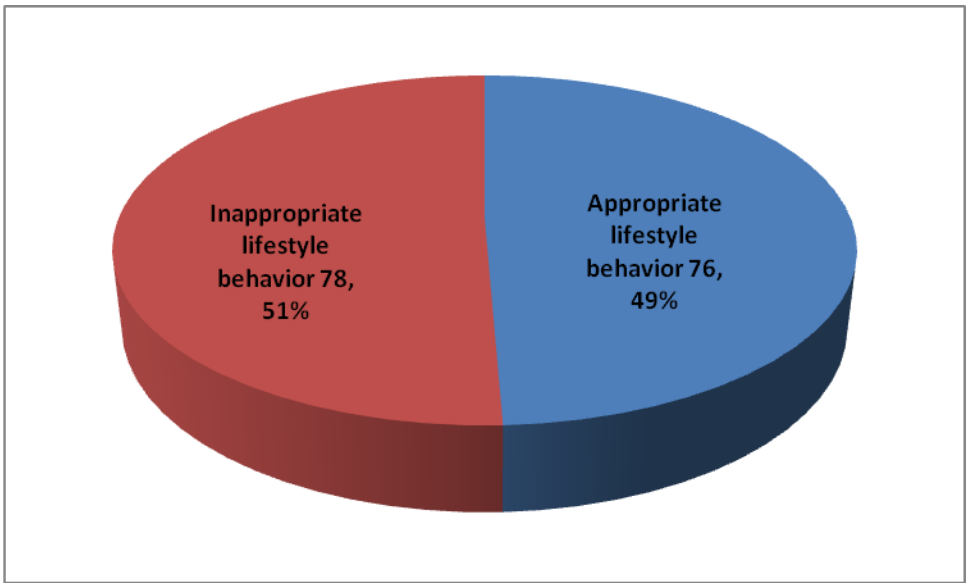
Half of the patients practiced the recommended exercise, 24.7% practiced partial exercises and 23.4% never exercised at all.

4.3.3 Measuring appropriate lifestyle as reported by Type 2 diabetic patients attending IHK

4.3.3.1 Procedure and analysis of appropriate lifestyle in diet and exercise for patients attending IHK

The final assessment of appropriate lifestyle was derived by the principal researcher to include those who had a combination of recommended exercise routine together with either a partially healthy or healthy diet. This assessment scale was derived from scales used in similar studies and documented in international guidelines[49 – 53].

FIGURE 2: GRAPHIC REPRESENTATION OF PERCENTAGE OF TYPE 2 DIABETIC PATIENTS ATTENDING IHK WHO PRACTICE APPROPRIATE LIFESTYLE.



4.3.3.2 Data summary

49% of the patients were concluded to have a lifestyle behavior according to the set criteria of appropriate diet and exercise, 51% are yet to modify their lifestyle appropriately.

5.0 CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

This chapter includes discussion, limitations, recommendations and conclusions derived from the research data presented in chapter four in comparison to already known information on the same topics as presented in the literature review. The arguments are presented in order of the objectives already stated.

5.1 Discussion.

5.1.1 Sources of information

According to the research findings there is evidence that the current sources of information used by health workers at IHK for diet and exercise advice are varied, universal and mostly accessible to all even in limited resource settings. There were three categories of sources of data; weak, good and strong.

The weak category included the Ugandan National Guidelines which has very brief information about lifestyle advice and information is not updated quickly enough. It was generally accepted that information given to diabetic patients based on diabetic lifestyle advice should be evidence based and practical to our setting. This has been echoed repeatedly by the International Diabetes Federation and consolidation of such information into standardized Ugandan diabetic education guidelines has reached the draft stage [27 and 36] Such information could be shared through in house protocols, educational leaflets, diabetic training sessions and seminars.

The good category included knowledge gained from lecturers, textbooks, mentors and patients. Such information can be positive but is prone to subjectivity depending on the individual context of the person; the full benefit derived depends a lot on a case by case investigation. The message being delivered would have to be tailored in a non judgmental manner and discussed by a panel of experts before being publically promoted. This however does not undermine the use of clinical judgment when promoting such references.

The strong sources of information included published research papers, CMEs, departmental guidelines, lifestyle seminars and the internet. These sources require one to have knowledge on reputable websites where the best information can be accessed; this can be difficult in resource

limited settings where internet and computers are not easily available. Forums for discussion on lifestyle advice are a quick method to get a lot of information to many patients in a short period of time. It also promotes discussion on practical ways in which the new information can be practiced.

It is now urgent that a national consensus is reached, documented and taught on how the approved knowledge on diet and exercise advice should be packaged and presented in a script that is an orderly, graded and concise manner according the common Ugandan patients level of understanding. This is in line with results from similar studies that document that insufficient information available to health workers about proper diet and exercise in an African setting can easily lead to poor implementation by the patients especially if the ideal model being presented to them is from abroad[46 and 47].

5.1.2 Extent of effective communication

According to the study findings 70.1% of the patients recalled having been given healthy diet and appropriate exercise advice during their last consultation; this is comparable to the 2010 Kampala study [39] which noted that in diabetic outpatient clinics 83% of patients recalled having ever had diabetic education during previous consultations though it was not specific to their most recent visit. The communication criteria which most patients experienced as done well included good use of common language, avoiding medical jargon, privacy, a calm and quiet environment, being allowed to ask questions and having a review date planned for them. These criteria have been recognized in various studies and guidelines exploring factors that augment patient adherence to lifestyle modification [60]. Only half of the patients were shown a teaching aid despite the availability of various resources available in the consultation room like diabetic leaflets and computers and recent advice in similar studies [48]. Apparently the use of real life examples was missed in more than half of the consultations; a gap which should be urgently addressed during in house training sessions at IHK.

The criteria which were underused included patients not being given specific targets and not having a written down plan for their lifestyle advice. This greatly compromises the transition process of the patient towards a better lifestyle behavior especially if they fail to recall specifics of what was discussed or are lost to follow up. 33.8% of the patients didn't believe that the health

education on diet and exercise would work; a significant gap that needs to be addressed as soon as possible given the overwhelming evidence that reflects the contrary [42 - 44].

The grading of the 11 point communication criteria into 3 categories offers an overview of how effective the communication on diet and exercise behavior was. The 58.4% of patients who experienced effective communication reflects that there is at least an awareness amongst the health workers at IHK that the quality of patient service can be highly improved through effective communication. However there is a concern to quickly address the learning needs of those health workers who deliver poor communication, 30.5%, because it compromises the consistency of services offered at IHK, discourages patients from self managing their condition and indirectly leads to progression of diabetic complications [37 and 38].

5.1.3 Percentage of patients practicing appropriate diet and lifestyle.

Table 7 and 9 show that only 7.1% of patients were practicing the ideal healthy diet while 50% were practicing recommended exercise levels. This is comparable to Baumann's study in 2012 [39] which showed that patients were less likely to exercise, 38.8% and more likely to have appropriate diet by eating less fats (88%) and less sweets (91%). This shows that there is a lot to be done to better inform patients on appropriate lifestyle [49].

Patients were also noted as receiving little support from their housemates concerning finances, exercise and diet which can negatively affect lifestyle behavior as documented in earlier studies [39, 54, 55, 57 - 59]. Patients and their families need to appreciate that diet and exercise behavior modification is done continuously even if their original targets have been achieved and these ideas should be emphasized during health worker consultations. Overall only 49% of patients were counted as having appropriate lifestyle behavior modification; a proportion which can be positively influenced by health workers adopting better techniques of communication effectively.

5.2 Limitations

The study was based on consultations as experienced by the patient and not through a personal observation of the principle investigator. Recall bias was overcome by screening the patients for the duration since the last consultation and patients were interviewed before the next consultation but there is still a risk of subjective bias on the answers given by the patients. The second

limitation was that respondents were not assessed to see if they had had a physical improvement in their BMIs and fasting blood sugar levels since they were diagnosed as being diabetic. This will be a good area to study in future. A third limitation was the inevitable influence of third parties who would have to interpret the questions into a language other than English or Luganda. This introduced bias because they were relatives or friends who did not have prior understanding on how to relay such information. A fourth limitation is that at least 35 of these patients, 22.7%, had consulted with the principal researcher on their previous visit. Future studies should be done in environments where the principal researcher has no prior contact with the respondents.

5.3 Conclusions

The study has highlighted insights into sources of information used during health worker consultations, effective communication and practice of appropriate lifestyle behavior of type 2 diabetic patients which have not been documented in these recent years. This study has highlighted the common sources of information used by health workers at IHK as the first hand patient experiences, internet, continuous medical education and mentoring from experienced colleagues. The most preferred choice was the use of updated international guidelines and evidence based research. According to the strength of evidence use from reputable websites and international guidelines, peer reviewed continuous medical education and lifestyle seminars are the ideal sources to provide these health workers with the correct information.

Generally more than 50% of type 2 diabetic patients attending IHK experienced effective communication meaning that the communication style used by the health workers is above average. However 41.5% of patients are not getting the right message from the health workers at IHK meaning that the communication gap is still big. Right now it is very likely that some of these health workers may have the knowledge about communication effectively but are not able to fully employ such skills in their clinical routine. Hence the consequences of not meeting the required standard result in a significant number of patients who get the wrong message. If the goals of non-pharmacological management are to be realized the average score for effective communication should be above 90%. Therefore there is much to be done to improve this situation.

Appropriate diet modification was found to be generally very poor at 7.1% and practice of recommended exercise is average at 50%. Overall only 49% of patients are doing the right thing.

There may be other factors that can influence patients' lifestyle practice but there is an opportunity for such behavior to be positively influenced through effective communication by health workers. If health worker communication can be improved to above 90% it would create an opportunity for such patients to be better empowered to self manage their lifestyle practice. Although it was not the purpose of this study to test the alternate hypothesis the findings lead to the suggestion that there is a link between effective communication and appropriate lifestyle practice.

Effective communication involves the use soft skills such as presenting yourself in a respectable manner, developing rapport with the patient and being able to negotiate and follow up with a patient professionally. The communication approaches used by health workers should be influenced by reputable guidelines that are easily accessible and user friendly.

Communication skills vary over time and can continuously be improved. The responsibility of the health worker then would be to re-assess, document and address the various stages of behavior change the patient may be at and to facilitate for the consultation experience to be as effective as possible. If the communication acumen of the health worker of knowing themselves and their patient is high then they will be in a better position to unravel underlying meanings during patient feedback and act as mentors for the full course of the patients' illness.

5.4 Recommendations

It is recommended that the use of reputable international guidelines tailored to the Ugandan context, CMEs and lifestyle seminars be the preferred and easily accessible sources of information on lifestyle modification. Any new sources of information should be evidence based and peer reviewed by an in house clinical committee at IHK.

It is urgent that the health workers of IHK receive this feedback about how their patients rate the quality of their communication. This will prepare the foundation for in- house trainings on how to improve and maintain effective communication to above 90%.

Future studies should do a prospective study looking at the direct relationship between effective communication and appropriate lifestyle behavior.

Lastly we urgently need to explore alternative solutions to address effective communication in busy settings such as IHK.

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APPENDIXES

Appendix I: Budget

Item	Justification	Unit cost	Frequency	Amount
University fees		**1,500,000**	**1**	**1,500,000**
Assistants				
Study assistants	Enrolment assistants	100,000	20	1,000,000
Stationary				
Paper Reams	Print data tools	20,000	8	160,000
Printing	Print study documents.	300,000	1	300,000
Box files	Filing	15000	4	60,000
Pens	Data collection	500	12	6,000
Flip chart	Data collection during FGD			10,000
Printing and binding of the report	4 books	50,000	4	**200,000**
Patient lifestyle leaflet/ booklet	As a token of appreciation	From IHK		
Refreshments	For focus group discussion	10,000	12	**120,000**
Total				**3,356,000**

Appendix II: Patients interview guide

Participant Initials: |___|___| **Study ID:** |___|___|___| **Today's Date:** |___|___|/|___|___|/|___|___|

DEMOGRAPHICS

Age: ……

Sex: Male □ **Female** □

Tribe …….

Formal Education level……..

Religious Faith □ Christian □ Moslem □ Traditional
□ Hindu □No faith □ Other…….

Occupation:
□ Desk-bound (> 5hours a day)
□ Field or other (> 5hours a day)
□ Other ……..

Marital Status:
□ Single, never married
□ Married
□ Widowed
□ Separated
□ Divorced

How do you pay for diabetic care at IHK?
□ Out of pocket
□ Insurance
□ Employer
□ Other facilitation ……

On average how much of your personal money do you spend on diabetic care (includes diet and exercise fees) in a month in Ugandan shillings?
……..

Do you live alone or with someone? □ Alone □ Someone (Specify)……

What kind of support do you get from the other person?
□ Financial support □ Appropriate domestic diet □ Facilitate for physical exercise
□ Counseling □ None □ Other **……**

DIABETIC HISTORY

1. When were you diagnosed with diabetes? ……..

2. In which year did you start diabetic treatment ……

3. What therapy are you using to control your DM? (Please tick all that apply)

□ Oral drugs □ Insulin □ Diet □Exercise □ None

4. What in your opinion were/are your risk factors for diabetes?

5. What kinds of things make your sugar levels go up?

6. What kinds of things make your sugar levels go down?

7. What are you afraid of the most, high sugar levels or low sugar levels?

8. Why does this (your answer in question 7.) make you afraid?

9. Do you have problems with (please tick all that apply)

□Eyes □Nerves □ Kidneys □Heart □ Feet

10. On a scale of 1 to 5, what risk does diabetes pose to your life? (where 1 = no risk at all, 2 = low risk, 3 = moderate risk, 4 = high risk and 5 = severe risk).

……..

PATIENT CONSULTATION EXPERIENCE

11. When was your last diabetic visit to IHK? ……

12. Were you given any health education on healthy diet and physical exercise? □ Yes □ No

If the answer is no please move to question 31 and 32 on the last page.

LANGUAGE

13. What language was used? □ English □Luganda □ Other……

14. Are you comfortable with this language? □ Yes □ No

15. Where there any words that the health worker used that needed further explanation?

□ Yes □ No

ENVIRONMENT

16. Where did the consultation take place? □ consultation room □ Other……..

17. Where you alone with the health worker? □ Yes □ No

18. Describe the room you were in; it was….

□ calm and quiet

or

□ there interruptions such as phone calls and people entering the room

TEACHING AIDS

19. During the discussion were you shown any pictures? □ Yes □ No

20. Did the health worker refer to any reference such as a clinical guideline or website? □ Yes □ No

21. Did the doctor use any dummies or demonstration?. □ Yes □No

22. Did the doctor use any real life examples/ scenarios? □ Yes □ No

23. Did the health worker write down a written plan for you? □ Yes □ No

24. Were you given a chance to ask all the questions you had? □ Yes □ No

FOLLOW UP

25. Were you given specific targets to achieve? □ Yes □ No

26. Was a review date planned for? □ Yes □ No

27. Were you availed contact details for further follow up? □ Yes □ No

ATTITUDES AND BELIEFS

28. Did you feel that the health worker was knowledgeable in what they were saying? □ Yes □ No

29. Would you be comfortable going back to the same health worker? □ Yes □ No

30. Do you think that this health education on healthy diet and physical exercise works? □ Yes □ No

Why?

LIFESTYLE BEHAVIOR

31. What in your diet do you do differently from other people who are not diabetic?

32. What in your physical exercise do you do differently from other people who are not diabetic?

RA's Signature: _____Date:_____

Data entry by_____

Appendix III: TRANSLATED PATIENT INTERVIEW GUIDE (LUGANDA VERSION)

Omulamwa gwa pulojekiti: ENGERI EMPULIZIGANYA ENNUNGI GYE KYUSAAMU ENNEYIISA YABANTU OKUYITA MUKWEBUUZAKO. ESSOMO KUBALWADDE ABE'NDWADDE EYASSUKAALI EY'EKIKA EKYOKUBIRI, ABAJJA KU INTERNATIONAL HOSPITAL KAMPALA.

Okunonyereza kukoleddwa wansi wa International Health Sciences University

Okunonyereza kukoleddwa: International Hospital Kampala

Akulira okunonyereza: Dr Musisi Theresa Frances

Ennukuta ze'rinya lye' yetaabye mu mussomo: |___|___| **Enamba ya ID eyomusomo:** |___|___|___| **Ennaku z'omweezi:** |___|___|/|___|___|/|___|___|	
EBIKWATAKO	
Obukulu: ……	**Ekyikula:** □ Musajja □ Mukazi
Eggwanga lyo …….	**Wassoma okutusa ekibina ki?**……..
Eddini yo □ Mukulistayo □ Musilaamu □ Ekinaansi □ Hindu □Tolina nzikiriza □ Ebilaala ……..	
Omulimu gwo'kola: □ Wofiisi (okusukka saawa 5 olunaku) □ Bweeru wa wofiisi obafuludi (okusukka saawa 5 olunaku) □ Ebilaala ……..	**Osasula otya ebisale byo bujjanjjabi byo'bulwadde bwa sukali ku IHK?** □ Okuva mu nsawo yo □ Ensuwalensi □ Gyokolera □ Ebilaala ……

Embeera yobufumbo:	
□ Sifumbirwangako □ Mufumbo □ Namwandu or Ssemwandu □ Twayawukana □ Kwawukana mumateeka	**Okutwaliza awamu sente meka eza'Uganda zosasaanya kubujjanjjabi (ng'ogasseeko ediisa nebisale bya dduyiro) mu mwezi ogumu?** **……..**

Obeera wekka oba olina gwobeera naye? □ Nzekka □ Nina gwembera naye

(omuyita otya?)……

Buyambi ki bwofuna okuva ewomuntu omulala?

□ Sente ez'obuyambi □ Endiisa entuufu awaka □ Okubulirirwa

□ Okubulirirwa □ Tewali □ Ebirala **……**

EBIKWATA KU BULWADDE BWO OBWA SUKAALI

3. Bakuzuulamu ddi obulwadde bwa Sukaali? ……..

4. Mwaka ki gwewatandikiramu obujjanjjabi bwa Sukaali? ……

3. Okozesaaki okukkakkanya obulwaddebwo obwa'sukaali?

□ Kumira makerenda □ Nsuliini □ Endya □Dduyiro □ Tewali

9. Mundowooza yo kiki ekyaakuteeka oba ekikuteeka mu katyaabaga k'obulwadde bwa sukaali?

10. Bintu ki oba biki ebireetera sukaali wo okulinya?

11. Bintu ki ebireetera sukaali wo okukka?

12. Kiki ekikweeraliikiriza okusinga, sukaali okulinya oba okukka?

13. Lwaki kikweeraliikiriza?

9. Olina obuzibu ne……..

□Amaaso □Obusime □ Ensigo □Omutima □ Ebigere

33. Kukipimo okuva ku 1(emu) paka ku 5(taano), katyaabaga ki sukaali kayinza okuleeta ku bulamu bwo?

……..

(nga 1 = tewali katyaabaga kona, 2 = katyaabaga kali wansi, 3 = akatyaabaga kakipimo, 4 = akatyaabaga kali waggulu , 5 = akatyaabaga kali waggulu ddala nnyo)

OKWEBUUZA KUBUMANYIRIVU W'OMULWADDE

34. Wakoma ddi okugenda ku IHK olwasukaali? ……

35. Wasomesebwako ku ndya n'o kukola dduyiro? □ Yee □ Nedda

Bwekiba nedda genda kukibuuzo namba 31 ne 32 ku lupapula olusembayo.

OLULIMI

36. Okozesa olulimi ki? □ Luzungu □Luganda □ Olulimi olulaala……

37. Owulira bulungi nolulimi luno? □ Yee □ Nedda

38. Waaliwo ebigambo omusawo byeyakozesa nga byali byetaaga okwongera okunnyonnyola?

□ Yee □ Nedda

EMBEERA Y'EKIFO

39. Okwebuuzako kwakolebwa wa? □ Akasenge mwe bebuuliza ku musawo

□ Ekirala……..

40. Waliweka no'musawo? □ Yee □ Nedda

41. Nnyonnyola akasenge ke mwaalimu nga bwekaali; kaali….

□ kakakaamu era nga kasirifu

oba

□ waliwo okutaataaganyizibwa nga amasimu okuvuga n'abantu okuyingira mu kasenge

EBYEYAMBISIBWA MU KUSOMESA

42. Mukusomesebwa walagibwako ku bifaananyi byona? □ Yee □ Nedda

43. Omusawo yali alina kwalabira oba kyeyali alabirako kyona nga ekitabo oba kompyuta? □ Yee □ Nedda

44. Omusawo yakozesaako ku ddole oba okugezesa?. □ Yee □ Nedda

45. Omusawo yakozesaako ekyokulabilako nga kyabuliwo oba ekyaali kibaddewo? □ Yee □ Nedda

46. Omusawo yakuwandiikira oba yakukolera enteeka teeka mubiwandike? □ Yee □ Nedda

47. Waweebwa omukisa okubuuza ebibuuzo byoona byewalina? □ Yee □ Nedda

ENONDOOLA

48. Waweebwa ebiruubirirwa ebyokutuukiriza? □ Yee □ Nedda

49. Ennaku z'omwezi ezokuddamu okulaba omusawo baazikuwa? □ Yee □ Nedda

50. Waweebwa empuliziganya yo musawo okwongera okumanya nga bwoli? □ Yee □ Nedda

ENZIKIRIZA NE NNEYISA

51. Olowooza omusawo yali amanyi byeyali ayogera? □ Yee □ Nedda

52. Okiwuliriramu emirembe okuddayo ewomusawo oyo yenyini? □ Yee □ Nedda

53. Olowooza omusawo omusomo gw'endya ennungi n'okukola dduyiro gukola? □ Yee □ Nedda

Lwaaki ?

ENNEYISA MUBULAMU O'BWABULIJJO

54. Kiki mundyaayo kyokola ekyenjawulo kubalala abatalina bulwadde bwa sukaali?

55. Kiki eky'enjawulo kyokola ku dduyiro abalala abatayina bulwadde bwa sukaali kyebatakola?

Omukono gwo'muyambi mukunonyereza mu musomo: _____

Ennaku z'omweezi:_____

Akoze kukunoonyereza:_____

Appendix IV: HEALTH WORKERS FOCUS GROUP DISCUSSION GUIDE

INTRODUCTION:

1. Welcome

   Chairperson introduces self and the note taker, and sends the registration form around to the group. Discussion on what information we want and what it will be used for. Discuss the role of each participant.

2. Explain to the group that this forum is to exchange ideas on how we can communicate better to diabetic patients about improving their lifestyle behavior in favor of their condition. The small group consultation will enable us better understand answers given by the patients through the questionnaires.

3. Ground Rules

   Ground rules should be set as a group. Everybody is expected to share in the discussion and all information will be kept confidential. All phones should be off and the discussion restricted to the agreed topic.

4. **Turn on Tape Recorder**

5. Answer any queries before starting..

6. Introductions
   - Go around table: job here, years of practice

QUESTIONS:

1. In your view what constitutes effective communication with a patient?

   (**Probes**: Language, Environment, Teaching aids, Follow up)

2. What kind of health education advice is given to diabetic patients about diet and physical exercise?

   (**Probes**: Improved food choices in quantity and quality, Appropriate physical activity modifications, Others)

3. Where do health workers get this information from?

   (**Probes:** what about medical school, CMEs, clinical guides, Uganda Clinical Guidelines) ?

4. Do patients follow our advice?

   (**Probes**: Attitudes to advice, Beliefs on lifestyle behavior, Others)

5. What factors influence your ability to deliver health education during the consultation?

   (**Probes:** Length of the patient queue, Conducive consultation environment, Available teaching aids, do they know where to get them from, Others)

We have come to the end of this discussion. I want to thank you for your patience and generosity in sharing with everyone. You will be availed feedback from the findings of this study from the principle investigator.

RA's Signature: _____Date:_____

Data entry by_____

Appendix V. PATIENT RESEARCH PARTICIPATION INFORMED CONSENT FORM

Project Title: EFFECTIVE COMMUNICATION AND APPROPRIATE LIFESTYLE BEHAVIOR. EXPERIENCES OF TYPE 2 DIABETIC PATIENTS ATTENDING HEALTH WORKER CONSULTATIONS AT IHK.

Research done under International Health Sciences University

Site of Research: International Hospital Kampala

Principal Investigator: Dr Musisi Theresa Frances

INTRODUCTION

It is thought that patient uptake of modifiable lifestyle choices are likely to occur after consultations with health workers. We hope to find out if type 2 diabetes patients who have consulted with health workers about lifestyle behavior change are influenced through this experience and what factors caused an influence on their decisions.

Your participation in this study is voluntary and will not affect any of the services you have been receiving at IHK. This study will not alter your expected treatment in any way. If you take part in this study, there may be indirect benefits to you. Your participation in this study may benefit the community, scientists and doctors who work with chronic disease patients including Type 2 diabetics by providing increased knowledge and information about the long term approach to slowing progression of the disease and preventing risk of other conditions that share the same risk factors. If you choose to participate in this study the total time needed for this session is about 10 minutes. A clinician – a doctor or nurse – will talk to you about your previous health education for diet and physical activity and how it relates to Type 2 diabetes. You will also be asked about your life outside this clinic. Feel free to stop the interview at any point if you are uncomfortable.

We will not allow people who are not working for the study to see any of your medical information. Your name will not be written in any reports based on this research. For any queries or concerns please **contact the Principal investigator Dr Musisi Theresa at 0787968096.** You can also contact the IHSU – REC chairperson (Dr. Samuel Kabwigu 0779 610100) and the UNCST contact person (Julius Ecuru; 0772 595233).

CONSENT

By putting your signature or thumbprint on this document it implies that you are aware of the nature of this study and agree to the terms of participating in this study as documented therein.
Please consent here below.

Name of Participant (printed) ……..Date

Signature or Fingerprint of Participant ……

Name of Research assistant doing the interview (printed) ……Date

Signature of Research assistant doing the interview …….

Name of Person Witnessing Consent (printed)…….

Signature of Person Witnessing Consent……Date……..

Appendix VI: PATIENT RESEARCH PARTICIPATION INFORMED CONSENT FORM (LUGANDA VERSION)

Omulamwa gwa pulojekiti: ENGERI EMPULIZIGANYA ENNUNGI GYE KYUSAAMU ENNEYIISA YABANTU OKUYITA MUKWEBUUZAKO. ESSOMO KUBALWADDE ABE'NDWADDE EYASSUKAALI EY'EKIKA EKYOKUBIRI, ABAJJA KU INTERNATIONAL HOSPITAL KAMPALA.

Okunonyereza kukoleddwa wansi wa International Health Sciences University

Okunonyereza kukoleddwa: International Hospital Kampala

Akulira okunonyereza: Dr Musisi Theresa Frances

OKWANJULA

Kisubirwa nti abalwade basobola okukyusa enneeyisa yabwe nga bamaze okwebuza kubasawo. Tusubira okunonyereza oba abalwadde ba sukaali abebuzizako ku basawo ku nneeyisa empya jebalina okukola okusobola okwongera kubulamu obwo'mumaaso oba bayambidwa nabiki ebibayambye mumusoomo guno.

Okwetaaba kwo mu lusomo luno kwanakyewa ate nga tekujja kukosa mpereza zo badde ofuna wano ku IHK. Kuno okusoma tekujja kukyuusa bujjanjabi bwosubira okufuna mu ngeri yonna. Bwe wetaba mu kusoma kuno wayinza okubaawo okufuna mu byobade tosubirwa. Okwetaba kwo mu lussomo luno kuyinza okuyamba abantu babulijjo, n'abasawo abakola ku balwade abalina obulwadde obwenkalakalila nga sukaali nga bongera okubasomesa mu ngeri gyebanasobola okwetasa obulwadde obulamu bwabwe boona. O Lusomo luno lugyakuyamba nokukendeza ku mitawana gye bandifunye egifaanana nga obulwadde bwa sukaali.

Bwosalawo okwetaba mu musoomo guno akasera aketaagibwa ka dakika nga kumi. Omusaawo agyakuba akubuuza ku byo'mmanyi ku byo bulamu bwo, ku bye ndya ne bya dduyiro ne ngeri gyebikwatagana no obulwadde bwa sukaali. Tugya kubuza ne ku ebikwata ku bulamu bwo eri gyobera. Oli wa ddembe obutadaamu bibuuzo bya musoomo guno. Tetujakukiriza bantu abataloondola mu musoomo guno okulaba byotugambye. Erinya lyo terija kulabika.

Ebisingawo tukirira akulira okunonyereza **Dr Musisi Theresa Frances** eno ye siimu ye **0787 968096.** Osoobola okutukirira ssentebe wo kunonyereza kuno owa IHSU – REC (Dr. Samuel Kabwigu, eno ye siimu ye 0779 610100) no muwaandisi mu matendekere agenjawulo eya UNCST (Omwaami Julius Ecuru, eno ye siimu ye 0772 595233).

OKUKIRIZA

Bwonotekako omukono oba ekinkumu ku kiwadiko kino kibakilaga nti olina kyomayi ku musomo guno era obera okiriza ebyetagisa mukunonyereza kuno.

Nyabbo/Ssebo tekako omukono emmanga wano.

Erinya lya yetaabye mu musomo……..Olunaku…….

(wandika mu nyukuta ennene)

Tekako omukono wano……

Erinya lya akulira okunonyereza mu musomo……..……Olunaku……...

(wandika mu nyukuta ennene)

Tekako omukono wano …….

Omujulizi abadewo ……..…….Olunaku……...

(wandika mu nyukuta ennene)

Tekako omukono wano …….

Appendix VII: HEALTH WORKER FOCUS GROUP DISCUSSION REGISTRATION FORM

Date of session ……

NO.	NAME	QUALIFICATION	SIGNATURE
1			
2			
3			
4			
5.			
6.			
7.			
8.			
9.			
10.			

RESEARCH ASSISTANTS	NAME	SIGNATURE
CHAIRPERSON		
NOTETAKER		

Appendix VIII: HEALTH WORKER FOCUS GROUP DISCUSSION CONSENT FORM

Project Title: EFFECTIVE COMMUNICATION AND APPROPRIATE LIFESTYLE BEHAVIOR. EXPERIENCES OF TYPE 2 DIABETIC PATIENTS ATTENDING HEALTH WORKER CONSULTATIONS AT IHK.

Research done under International Health Sciences University

Site of Research: International Hospital Kampala

Principal Investigator: Dr Musisi Theresa Frances

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We will not allow people who are not working for the study to see any of your personal information. Your name will not be written in any reports based on this research. For any queries or concerns please **contact the Principal investigator Dr Musisi Theresa at 0787968096.** You

can also contact the IHSU – REC chairperson (Dr. Samuel Kabwigu 0779 610100) and the UNCST contact person (Julius Ecuru; 0772 595233).

CONSENT

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Please consent here below.

Name of Participant (printed) ……..Date

Signature or Fingerprint* of Participant ……

Name of Research assistant doing the interview (printed) ……Date

Signature of Research assistant doing the interview …….

Appendix IX: KEY INFORMANT INTERVIEW CONSENT FORM

Project Title: EFFECTIVE COMMUNICATION AND APPROPRIATE LIFESTYLE BEHAVIOR. EXPERIENCES OF TYPE 2 DIABETIC PATIENTS ATTENDING HEALTH WORKER CONSULTATIONS AT IHK.

Research done under International Health Sciences University

Site of Research: International Hospital Kampala

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We will not allow people who are not working for the study to see any of your personal information. Your name will not be written in any reports based on this research. For any queries or concerns please **contact the Principal investigator Dr Musisi Theresa at 0787968096.** You can also contact the IHSU – REC chairperson (Dr. Samuel Kabwigu 0779 610100) and the UNCST contact person (Julius Ecuru; 0772 595233).

CONSENT

By putting your signature or thumbprint on this document it implies that you are aware of the nature of this study and agree to the terms of participating in this study as documented therein. Please consent here below.

Name of Participant (printed) ……..Date

Signature or Fingerprint* of Participant ……

Name of Research assistant doing the interview (printed) ……Date

Signature of Research assistant doing the interview …….

Appendix X: CONFIDENTIALITY AGGREEMENT FORM FOR RESEARCH ASSISTANTS

INTRODUCTION

The purpose of this agreement is to ensure that all information that will be collected from study participants during this research study entitled **"Effective communication and appropriate lifestyle behavior. Experiences of type 2 diabetic patients attending health worker consultations at IHK."** will be the property of Dr. Musisi Theresa Frances, IHSU and IHK. Such confidential information or material may be in written, oral or audio form.

As a research assistant you are obliged by this written agreement to refrain from disclosing any information that may be collected during this study from any study participant unless prior authorization has been attained from the above parties or other legitimate means.

Any confidential information or records (oral, written and audio) that you will obtain during this study must strictly be kept confidential and handed over to the principle researcher Dr. Musisi Theresa Frances. You will hereby agree to refrain from using this data for your own benefit. You will also agree not to copy or publish any aspect of this study.

CONSENT

By putting your signature or thumbprint on this document it implies that you are aware of the nature of the confidentiality expected of you during this study and agree to the terms of participating in this study as documented therein.
Please consent here below.

Name of Research assistant (printed) …… ……Date……

Signature of Research assistant …….

Name of principle investigator……Date……..

Signature of principle investigator ……..

Appendix XI: ADA EVIDENCE LEVEL CLASSIFICATION[88]

EVIDENCE LEVEL	DESCRIPTION
A	Clear evidence from well conducted, generalizable, randomized, controlled trials that are adequately powered, including: supportive evidence from well-conducted, randomized, controlled trials that are adequately powered
B	Supportive evidence from well – conducted cohort studies, including: supportive evidence from a well conducted case control study
C	Supportive evidence from a well – conducted case control study
E	Expert consensus or expert opinion

Appendix XII: Introductory letter