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**THE INFLUENCE OF DIABETES KNOWLEDGE, ATTITUDE AND BELIEFS ABOUT
SELFCARE PRACTICES AMONG PERSONS LIVING WITH DIABETES IN THE
TAMALE METROPOLIS**

BY

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DECLARATION

I, Sulemana Tikumah Umar, hereby declare that, this is as a result of my own hard work and other resources that have been used as reference have been duly acknowledged. This work has not been previously submitted in this university or elsewhere.

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DEDICATION

This research work is dedicated to my late mother (Hajia Salmata Mahama) and father (Chief Umar Sulemana) and my siblings for their unconditional love, encouragement, prayers and support before, during and after my masters' program.

AKNOWLEDGEMENT

All praise, thanks and gratitude are due Almighty Allah, for the guidance, protection and blessings He bestowed on me before, during and after my one-year masters' program. I am forever grateful to Him. Undoubtedly, He is worthy of praise.

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ABSTRACT

INTRODUCTION

The prevalence of diabetes and its complications are major public health issues globally, regionally and locally. Notable complications and consequences of diabetes are stroke, blindness, amputation, death etc. Inadequate knowledge of diabetes, negative attitude and perception about diabetes are usually the root causes of diabetes complications and consequences. The objective of this study was to examine the influence of diabetes knowledge, attitude and beliefs about selfcare practices among persons living with diabetes in the Tamale Metropolis.

METHODOLOGY

A cross-sectional research design was adopted for this study and questionnaire was employed in the data collection. A sample size of 150 diabetes patients comprising of 117 females and 33 males, with age range of 35-75, were selected using systematic random sampling. The study was conducted in the Tamale Central Hospital in the Tamale Metropolis. Pearson correlation was used to determine the association between diabetes patients' knowledge and selfcare practice and between attitude of diabetes patients and selfcare practice. A Linear Regression analysis was used to determine how diabetes selfcare practice is influenced by belief of diabetes patients.

RESULTS

The results showed that majority of the participants were females (78%).

Also, more than half of the respondents were married (71.3%) and 82% of the respondents had never had formal education. About 85.3% subscribed to the Islamic faith. In addition, there was a negative significant association between diabetes patients' knowledge and selfcare practice, $r(148) = -0.25, p < 0.01$.

Furthermore, there was a positive statistically significant association between attitude of diabetes patients and Selfcare Practice, $r(148) = 0.27, p < 0.01$. Finally, the findings indicated that, the outcome of the linear regression model was not significant, $F(1, 148) = 0.13, p > 0.05$, selfcare practice = $43.82 + 0.04(\text{belief})$, this means, for any change in diabetes belief will results in 0.04 change in selfcare practice.

CONCLUSION

Adherence to Selfcare Practice is influenced by diabetes patients' knowledge about diabetes and their attitudes towards the diabetes disease. However, diabetes patients' belief about diabetes did not predict Selfcare Practice adherence. It is therefore recommended that, health professionals including nurses, dieticians, doctors etc. should adapt more counseling skills and also, should adapt awareness creation and behavior change communication to impact diabetes knowledge, positive perception and attitude towards diabetes.

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Figure 1 Health Belief Model (HBM). Adapted from (Janz & Becker, 1984) 9

LIST OF ABBREVIATIONS

| | |
|---------|--|
| CHPS | COMMUNITY HEALTH PLANNING SERVICES |
| DM | DIABETES MELLITUS |
| GD | GESTATIONAL DIABETES |
| GHS-ERC | GHANA HEALTH SERVICES-ETHICAL REVIEW COMMITTEE |
| HBM | HEALTH BELIEF MODEL |
| IDF | INTERNATIONAL DIABETES FEDERATION |
| IPD | INPATIENT DEPARTMENT |
| OPD | OUTPATIENT DEPARTMENT |
| TCH | TAMALE CENTRAL HOSPITAL |
| TTH | TAMALE TEACHING HOSPITAL |
| WHO | WORLD HEALTH ORGANIZATION |

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Diabetes is a disease whereby a human (or any other animal) has high sugar in the blood due to either insufficient insulin or when the produced insulin cannot be used by the body effectively (World Health Organization, 2016). Diabetes is a group of metabolic chronic diseases characterized by high sugar in the blood. There are basically three types of diabetes namely, type 1, type 2 and gestational diabetes (GD). Type 1 diabetes used to be called an insulin dependent, juvenile or childhood-onset diabetes. It is genetic in nature and it is usually diagnosed at childhood and adolescence but then it's usually noted later in life. Current knowledge shows that type 1 diabetes is unpreventable (World Health Organization, 2016). Type 1 is usually uncommon as compared to type 2 (Chouhan & Shalini, 2006).

Type 2 diabetes occurs owing to the inability or unfitness of the body to effectively use the produced insulin. Type 2 is also be called non-insulin-dependent or adult- onset diabetes (World Health Organization, 2016). This type is usually caused by living a sedentary lifestyle. This is the commonest type of diabetes among adults worldwide and can be prevented or delayed (Sakane et al., 2011). Gestational diabetes occurs during pregnancy though a temporal condition, it can lead to type 2 diabetes in the long run and can also induce pregnancy and delivery complications (World Health Organization, 2016). In the US alone, gestational reported cases range from 2% to 10% in pregnancies. There is 35% to 60% probability of getting type 2 diabetes in women living with gestational diabetes (Facts & Diabetes, 2011).

Diabetes is a major and a serious public health issue not only in Ghana but worldwide. Globally, in 2014, 422 million had diabetes and the number rose to about 425 million people in 2017.

It is projected that this will rise to about 629 million. In Africa an estimated number of over 16 million people suffer from diabetes, which is expected to increase up to around 41 million people by 2045 (International Diabetes Federation, 2017). This prevalence comes with some economic and health burden.

In 2017, 518,400 Ghanaians were estimated to have the diabetes disease which is reported to be increasing daily and the prevalence rate was estimated to be 5%. Also diabetes related deaths in Ghana (among ages 20-79 years) amounted to 9,778 (International Diabetes Federation, 2017). Diabetes is one of the major causes of heart attacks, blindness, lower limb amputation just to mention a few (Facts & Diabetes, 2011).

Persistent high blood glucose, smoking, high cholesterol and excessive alcohol intake are some of the factors that can contribute to the risk of developing complications. Through adherence to medical treatment (taking medications as prescribed, to control their cholesterol and blood sugar) and selfcare practices (regular checkup, regular exercise, healthy eating etc.), complications can be reduced drastically. Previous studies have shown that, sociodemographic and psychological factors are associated with selfcare activities (Mogre, Abanga, Tzelepis, Johnson, & Paul, 2017).

1.2 PROBLEM STATEMENT

The prevalence of diabetes and its complications are major public health issues globally, regionally and locally. According to International Diabetes Federation (2017), in 2017, 518,400 Ghanaians were estimated to have the diabetes disease and it is reported to be on the increase at 5% prevalence rate.

According to the records unit of the Tamale Central Hospital, the total number of diabetes patients who visited the hospital for the years 2016 and 2017 were 1065 and 2023 respectively. It must be noted that, the reported cases were prevalence. As a chronic condition, there were add up of new cases to the existing patients. This is very alarming.

Recently, diabetes has become one of the leading causes of deaths worldwide and Ghana is not an exception. According to the World Health Organization (2016), about 1.6 million people died due to diabetes globally in 2015 and in Ghana diabetes related deaths (among ages 20-79 years) in 2017 was 9,778 (International Diabetes Federation, 2017). Most of the people who die are the adult group and usually, those with type 2 diabetes. The adult group is the active and working class who serve as the backbone for any country's development as they are the main source of production. So, when the active group are being killed by the diabetes disease, there will be low productivity and can lead to underdevelopment (high indebted poor country). If effective measures are not put in place to reduce the complications (blindness, stroke, amputation etc.) and consequences (death, loss of job etc.), social selection can set in and its consequences may be costly. Previous studies have shown that, diabetes care providers give little support for diabetes patients' self-management and also, diabetes care are not provided close to the patients (Mwangome, Geubbels, Klatser, & Dieleman, 2017). Much concentration is given to the biomedical (much reliance on drugs/medication) aspect of diabetes healthcare services than the psychosocial factors (knowledge, attitude and belief). However, existing evidence have shown that, knowledge, attitude and belief are related to diabetes selfcare practice (Ahmed et al., 2015), (Services, 2014). Therefore, there is the need to ensure effective measures such as diabetes care education for both care providers and patients (self-care).

Existing literature has shown that diabetes-care education helps in improving health status and quality of life (Facts & Diabetes, 2011).

Existing literature have also shown that, some diabetes patients do not have accurate knowledge about diabetes (especially in Africa) and this affects their diabetes care (Mohammadi, 2015). In addition, most existing literature on diabetes do not consider the beliefs or perceptions of persons living with diabetes, though this affect their selfcare practice.

Furthermore, most of the literature give much attention to the influence of knowledge and attitude on selfcare than the influence of patients' perceptions or beliefs on selfcare practices especially in Ghana, and Northern Region precisely.

Hence, this research work seeks to determine the level of diabetes knowledge, attitudes and beliefs among persons with diabetes and to find out whether it is associated with their diabetes selfcare. The findings will add to existing literature on diabetes and to inform persons living with diabetes, public health experts, diabetes care providers and policy makers, on the development and improvement on existing policies, treatments(care/management) and interventions.

1.3 RESEARCH QUESTIONS

- 1) Does knowledge about diabetes affect selfcare practices among persons living with diabetes in the Tamale Central Hospital?
- 2) Do the attitudes of persons living with diabetes affect diabetes selfcare in the Tamale Central Hospital?
- 3) Do diabetes patients' beliefs affect diabetes selfcare practices among persons living with diabetes?

1.4 OBJECTIVES OF THE STUDY

1.4.1 GENERAL OBJECTIVE

To examine the influence of diabetes knowledge, attitude and belief about selfcare practices among persons living with diabetes in the Tamale Metropolis.

1.4.2 SPECIFIC OBJECTIVES

- 1) To determine diabetes patients' knowledge about diabetes and how it affects their diabetes self-care.
- 2) To examine the attitudes of persons with diabetes and how it affects diabetes selfcare.
- 3) To determine how the beliefs of persons living with diabetes affects diabetes selfcare

1.5 HYPOTHESIS:

H₁: Diabetes patients' knowledge on diabetes will significantly affect their diabetes selfcare.

H₂: There will be positive relationship between attitudes of diabetes patients and diabetes selfcare

H₃: Diabetes patients' belief will positively affect their diabetes selfcare.

1.6 DEFINITION OF TERMS:

Diabetes: Diabetes is a group of metabolic diseases or a chronic disease characterized by high sugar in the blood.

Knowledge: a factual information that a person knows or skills required to perform an act acquired through education, training or via experience.

Attitude: a settled way of thinking or feeling about something.

Belief: a mental acceptance or cognitive assertion or perceptions held by an individual.

Diabetes Selfcare: the daily plans and practices that the individual performs in managing his/her diabetes.

1.7 SIGNIFICANCE OF THE STUDY:

There is no much research on assessing patient's knowledge, attitude and belief about diabetes and its association with diabetes selfcare. As such, this study seeks to examine the knowledge, attitude and belief of persons living with diabetes and selfcare among Tamale Central Hospital diabetes patients.

Health is holistic and as such the psychosocial and demographic determinants needs to be ensured. knowing diabetes patients' knowledge, belief and attitude towards diabetes and diabetes care will help in reducing the prevalence, complications and burden of diabetes globally and locally.

The finding of this study will not only add to knowledge on existing literature on diabetes but will assist healthcare professionals, policy makers and diabetes patients in making informed decisions.

1.8 CONCEPTUAL FRAMEWORK

The conceptual framework in Figure 1.1 is based on the Health Belief Model (HBM). The Health Belief Model (HBM) was adapted from (Janz & Becker, 1984). This is adapted to examine modifying variables such as, knowledge, attitude and belief of persons living with diabetes on diabetes selfcare. The Health Belief Model (HBM) suggests that an individual's action or behavior is influenced by perceived susceptibility, perceived seriousness, perceived benefits and perceived barriers and these influences self-efficacy.

To explain diabetes patients' knowledge, attitude and belief on diabetes selfcare among patients of Tamale Central Hospital, the Health Belief Model can be of help. The perceived susceptibility entails that an individual's subjective perception of the likelihood of getting a particular disease or illness. Also, the perceived seriousness entails that, an individual's feeling on the severity of acquiring a disease or an illness. In addition, the perceived benefits refer to an individual's perception of the efficacious nature of an action available to make less the threat of a disease or an illness. In a nutshell, the benefits an individual perceive to get by taking a particular action(s). Furthermore, the perceived barriers are the perceptions of an individual that a particular factor can hinder him/her from taking an action. Last but not the least, the self-efficacy refers to the individual's belief in his/her ability to take an action successfully (Janz & Becker, 1984).

By the Model (conceptual framework), if persons living with diabetes perceive diabetes as a serious health issue and also perceive that they are at risk, they will make efforts and engage in actions to prevent the health problem such as amputation, blindness, heart attack etc. or to reduce the susceptibility of getting the health problem (e.g. death).

The perceived susceptibility and perceived seriousness depend on the individual demographic which serves as the modifying variables (knowledge, attitude, belief, gender etc.).

In addition, the HBM suggests that, diabetes patients may perceive some benefits and barriers which will influence their diabetes care.

For instance, if a person living with diabetes has knowledge about social selection or knows that, his condition can cause him to lose his job, the cost of healthcare etc. can influence his diabetes care and knowing that regular exercise, regular checkup just to mention but a few, can help

reduce susceptibility to perceived threats such as death, amputation can also influence diabetes selfcare of persons living with diabetes.

Furthermore, the model suggests that, cues to actions such as death of a family member with diabetes, awareness creation or mass media campaign can influence diabetes care (regular exercise, regular checkup, healthy eating, health education etc.) of patients living with diabetes.

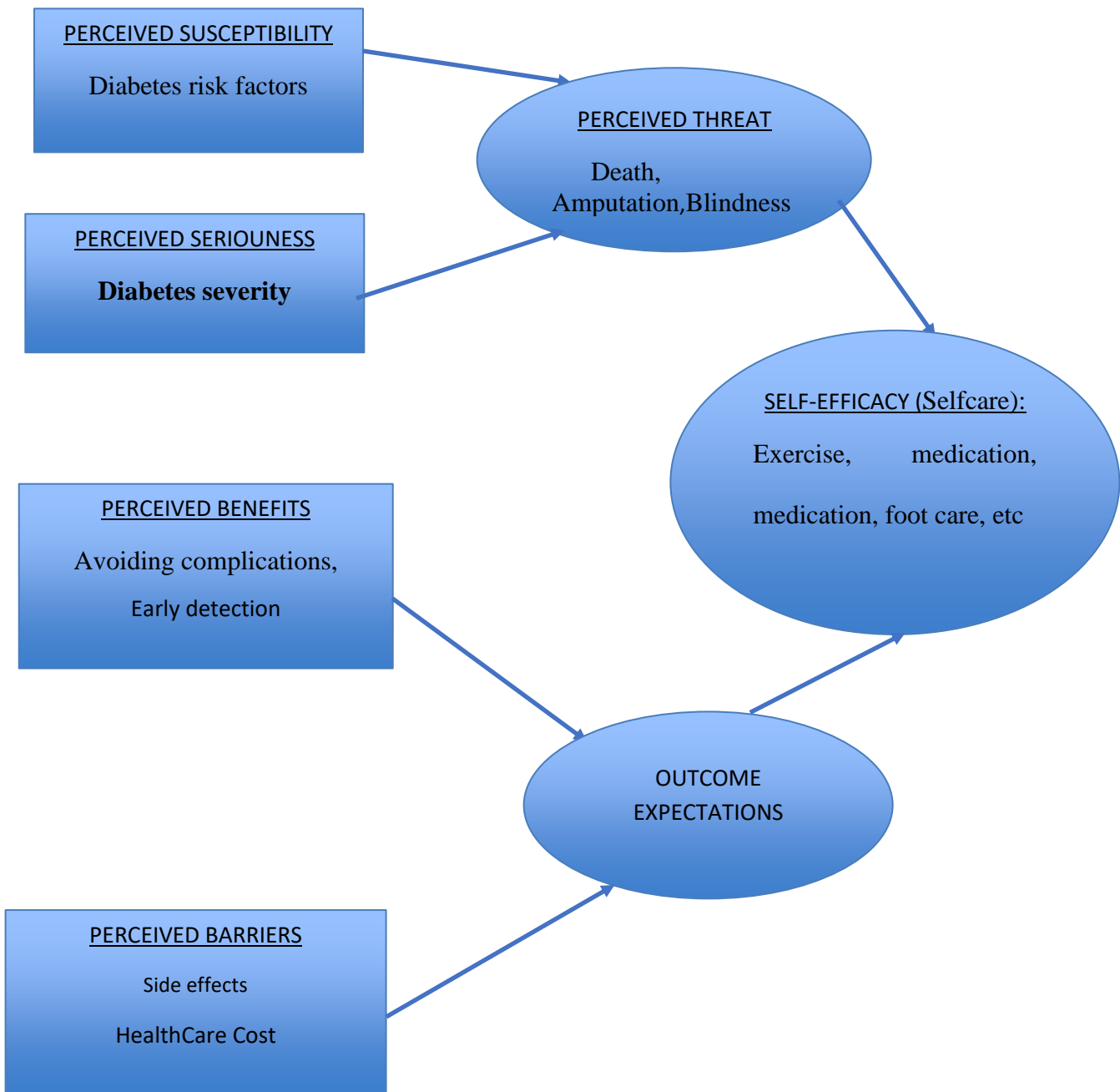


Figure 1 Health Belief Model (HBM). Adapted from Janz and Becker, 1984 (Janz & Becker, 1984)

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents the review of existing literature about diabetes and will be categorized based on the various variables of this study. The variables to be discussed include Knowledge, attitude, belief on diabetes and selfcare.

2.2 DIABETES AND SELFCARE PRACTICES

Diabetes is a global public health issue. Diabetes is a chronic disease whereby a human (or any other animal) has high sugar in the blood due to either insufficient insulin or when the insulin produced cannot be used by the body effectively (World Health Organization, 2016). Some of the factors that make one susceptible to diabetes include but not limited to old age (aging), excessive alcohol intake, family history, pregnancy, stress etc. Also, some common features or symptoms of diabetes include frequent urination, increased thirst and hunger, increased fatigue, blurred vision etc (William K. maina, Eva njenga, Acharya Kirtida, Gaman mohamed, 2010).

Globally, in 2014, 422 million were reported to be living with diabetes and the number increased to 425 million people in 2017. It has been projected that this figure will increase to about 629 million. In Africa an estimated number of over 16 million people suffers from diabetes, which is expected to increase up to around 41 million people in 2045 (International Diabetes Federation, 2017). The prevalence of diabetes and its complications are major public health issues globally, regionally and locally. According to International Diabetes Federation (2017), in 2017, 518,400 Ghanaians were estimated to have the diabetes disease and with 5% prevalence rate, this is reported to be on the increase.

This prevalence comes with some economic and health burden. Some of the factors that may contribute to the risk of developing complications are persistent high blood glucose, smoking, high cholesterol and inactiveness (not exercising).

Adherence to medical treatment (taking medications as prescribed, to control their cholesterol and blood pressure) and self-care practices (regular checkup, regular exercise, healthy eating etc.), complications can be reduced drastically. Existing studies have shown that, psychosocial factors are associated with self-care activities (Mogre et al., 2017).

Last but not the list, depending on the severity of diabetes, care provision may be received from primary, secondary or even tertiary health care delivery system. Also, to ensure effective and efficient diabetes care, care services must be “proactive, not reactive, continuous, not episodic, Planned, not sporadic”, must be patient-provider centered and a vibrant and committed diabetes care team (William K. maina, Eva njenga, Acharya Kirtida, Gaman mohamed, 2010).

2.3 KNOWLEDGE ON DIABETES AND DIABETES SELFCARE PRACTICES

A study was conducted in rural Sullia, Karnataka in India with a total of 400 participants. A cross-sectional study design was used to assess the knowledge of persons living with diabetes on diabetes and diabetes self-care. The results showed that, only one fourth representing 100 participants had good knowledge on diabetes and a great number of them also exhibited poor adherence to diabetes selfcare such as diet, regular exercise, daily checking of foots etc. However, this study has some limitations such as a closed ended questionnaire was adopted by which some of the answers given by the respondents might have been based on guessed work (Dinesh, Kulkarni, & Gangadhar, 2016).

Diabetes care is a collective duty. However, existing literature shows that knowledge on diabetes and diabetes care among patients living with diabetes is poor.

A research conducted among 100 respondents in Pakistan to assess the knowledge, attitude and practices of patients visiting a diabetes clinic. The results showed that about 54% of the participants had poor knowledge on diabetes and only 13% had good knowledge on diabetes and diabetes care (Badrudin, Basit, Hydrie, & Hakeem, 2002). This may be explained in relation to the approach the care providers used. They concern much on administering drugs to the patients without further educating them on their illness and its managements and also do not interact with them or make a follow-up when they leave the health facility's environment (Adams & Carter, 2011).

A cross sectional study was conducted among adults with type 2 diabetes in US, who had checked their HbA_{1c} for the last six months with a total sample of 686. The results showed that, 25% of the participants correctly reported their recent HbA_{1c} where as 66% of the respondents reported that they could not remember their HbA_{1c} value. It was concluded that, diabetes patients Knowledge on HbA_{1c} value is associated with better understanding of diabetes care. However, the authors clearly stated that, knowledge on HbA_{1c} value alone is not enough to be responsible for the increased understanding and practicing of Diabetes selfcare (Eisler, 2005).

Another study was conducted in Rural Area of Sangli District, Maharashtra, India with a total number of 307 participants. A cross-sectional design was used were it was concluded that, there was inadequate knowledge about diabetes and this has an association with poor knowledge on diabetes care. However, there might have even been an overestimation of the compliance as the authors confirmed that compliance by diabetes patients were considered without them verifying it (Chavan, Waghachavare, Gore, Chavan, & Dhobale, 2018).

In addition, it has been established that persons with diabetes do not have much knowledge about diabetes (Formosa & Muscat, 2016).

This has been supported by another study in Zimbabwe by Esther et al (Esther Mufunda, Åsa Ernersson, & 2018). However, other research works disagree with the above claim that diabetes patients have poor diabetes knowledge (Al-ghamdi, Ahmad, Ali, Bahakim, & Alomran, 2018). It has been evidenced that, diabetes knowledge does not statistically significantly associate with selfcare practice (Formosa & Muscat, 2016).

Carole A.C. et al (2016) indicated that, Diabetes Selfcare education does influence self-management through the improvement in glycaemia control (Chrvala, Sherr, & Lipman, 2016). They added that, engagement hours, delivery mode, and baseline AIC can effectively influence glycemic control positively (Chrvala et al., 2016).

Diabetes patients knowledge on diabetes selfcare can be improved if diabetes care providers make conscious efforts during consultation with diabetes patients (Umeh & Nkombua, 2018).

2.4 ATTITUDES TOWARDS DIABETES AND SELFCARE PRACTICE

The attitudes of diabetes patients towards diabetes and diabetes care are as a result of several factors.

The attitude of persons living with diabetes towards diabetes care may be influenced by the actions of the care provider and other factors. A qualitative study was organized using a focus group study design involving five focus groups of patients and it was held in Queen Eliza- Beth Hospital; a facility the authors thought was easily accessible to participants. The study aimed at exploring patient's perception on quality care.

The information received from the respondents showed that patients feel their expectations are not usually met as care providers don't examine them or run laboratory investigation and that they are not also educated on the benefits of diabetes care.

Busy working hours making it difficult for them to make time for diabetes test/care and also considering the long waiting hours to be seen. Some also state that, behavior change is difficult such as their taste for sweet things makes it difficult to adhere to diabetes care (Adams & Carter, 2011).

Most patients living with diabetes have negative attitudes towards health and also exhibit little knowledge on diabetes and hence positive attitudes and diabetes educational intervention measures need to be developed and existing ones strengthened (Ahmed et al., 2015; Adams & Carter, 2011).

Yanling W. et al (2014) indicated that, diabetes especially type 2 can be delayed or prevented through change in behavior interventions. Diabetes incidence can be reduced to about 60% through changes in physical activity and diet (Wu, Ding, Tanaka, & Zhang, 2014). However, this may appear difficult specially to improve one's diet as people may not be able to resist temptation of sedentary acts. Some persons with diabetes unwillingly exhibit negative attitude towards diabetes selfcare practices.

They believe in selfcare practice but unfortunately cannot afford cost, for example glucometer for regular checking of their blood glucose level, high cost of fruits and vegetables, high cost of drugs etc. hence hindering them from self-management and resorting to herbal medicine as available alternative (Shah, Kamdar, & Shah, 2009).

Moreover, a research study conducted by Umeh et al shows that, adherence to exercise can help control diabetes. However, 79.63% of respondents exhibited poor exercise adherence (Umeh & Nkombua, 2018). Also, a study has proven that, diabetes patients attitude has an association with selfcare practice (Timothy Chas Skinner, 2015).

2.5 DIABETES BELIEFS AND SELFCARE PRACTICE

Patients living with diabetes have several beliefs about diabetes and its management. A focus group study was conducted to assess the knowledge, attitudes and practices, and the barriers that people living with diabetes faced and hypertension in Barbados that might contribute to lapses in care. The focused group discussions were held at Queen Eliza- Beth Hospital involving five focus groups of patients. It was found out that, some of the patient's belief that they receive better treatment from their care providers others also complain that some of the care providers act as if they are 'God' and you as a servant in fact a beggar. Others also belief that, the cost of diabetes care is very expensive (which the researcher attested to as a billing officer at Legon Hospital) such as the cost of drugs, cost of foods or fruits and vegetables etc.

It was also observed that, the patient's belief that, some public health facilities and pharmacies had poor customer relationship (Adams & Carter, 2011).

In addition, the social network an individual found himself/herself determines whether they will adhere to self-management. Social support networks and personal beliefs of persons living with diabetes influence selfcare practices.

Family and friends do help and influence how diabetes patients manage and live with the disease. Social support, social network and personal-model belief influence selfcare practices and promote social solidarity to ensure sustainability of care, management, practice and well-being. (Timothy Chas Skinner, 2015).

Skinner T.C et al (2002) also indicated that Personal model beliefs influences self-management and well-being. Stability of one's emotions can influence his conscientiousness, perceptions about diabetes consequences and effectiveness of treatment which then can influence adherence to daily regiments (T Chas Skinner, Hampson, & Fife-schaw, 2002).

Viral N. et al (2009) also, indicated that, some patients believe that, the care professionals do not give them the needed time and attention, and hence make it difficult for them to even know how to practice diabetes selfcare(Shah et al., 2009). Care providers consultation with diabetes patients should help improve their knowledge about the disease and how they can manage it at home(Umeh & Nkombua, 2018).

In addition, a research conducted in Saudi Arabia by Al-Ghamdi et al shows that persons with diabetes hold positive perception about diabetes and diabetes care (Al-ghamdi et al., 2018). Positive thoughts of persons with diabetes towards their condition has proven to predict adherence to selfcare practice(Timothy Chas Skinner, 2015).

2.6 CONCLUSION

Form the above literature, it has been established that, there is statistically significant positive association between diabetes patients' knowledge and selfcare practices, attitude and selfcare practices, beliefs and selfcare practices.

The level of one's knowledge on diabetes can influence selfcare practices. This means, a good knowledge of diabetes leads to good adherence of selfcare practices and a poor knowledge of diabetes leads to poor adherence of selfcare practices. However, this is not true for all cases or all the time. Furthermore, positive attitude and belief towards diabetes leads to positive adherence to self-care practices.

Therefore, this study seeks to investigate the influence of knowledge, attitude and belief of diabetes on self-care practice among persons living with diabetes in Tamale Central Hospital (TCH) to either affirm or otherwise.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This section has the following subsections: study site, study design, study population, Inclusion and exclusion criteria, sample size calculation, sampling technique and data collection procedure, study variables, data collection tools, data analysis and ethical clearance.

3.2 STUDY SITE

The study was carried out in Tamale with a population of about 400,000. Tamale is the regional capital of Northern Region, Ghana. Northern region has a population of 2, 479,461. There are three major ethnic groups in the Northern Region, namely, the mole Dagbon (52.2%), the Gurma (21.8%) and the Guans (8.7%), of which the majority are Dagombas (Cote, Nasia, Accra, & Regions, 2018). The data was collected in the Tamale Central Hospital (TCH). There are both private and public health facilities in Tamale. The health facilities include but not limited to, hospitals, clinics, CHPS Zone. Examples of health facilities include but not limited to, Tamale Teaching Hospital (TTH), Tamale Central Hospital (TCH), Kabsad Scientific Hospital, Tamale S.D.A Hospital, Newlife Clinic, Vitting RCH Clinic, Chogu Health Centre, Bilpiela Health Centre, Fulera Maternity Home, Jisonayili Suglo Maternity Home, Bagabaga CHPS ZONE, Zuo CHPS Compound, etc. In Tamale, health services ranges from primary, secondary and tertiary healthcare services. The Tamale Central Hospital is the Regional Hospital and also serves as a referral point for several health facilities in the region and hence receives a good number of persons living with diabetes.

Tamale was selected because, as a capital city, it serves as a home for many people (with different ethnic, religion etc) from other places of the region and beyond. Hopefully, the study findings will cut across many ethnic groups and can be a true representation of the population.

3.3 STUDY DESIGN

A quantitative approach was adopted using a cross sectional survey design with questionnaire. Those who could read and write were allowed to fill the questionnaire themselves and those who were not able to read and write were assisted to fill the questionnaires. The cross-sectional survey design was adopted for this study because, the study seeks to collect information on diabetes patients' knowledge, attitudes, beliefs and diabetes selfcare which can help in making quantifiable deductions or inferences. Also, this study design type is relatively less expensive/ less costly and less time consuming to conduct. In addition, the cross-sectional study design eliminates the problem of attrition among study participants and also makes it possible for the studies to be carried out in a one given point.

3.4 STUDY POPULATION

The population of interest were persons living with diabetes and seeking treatment for their diabetes at the diabetes unit of the Tamale Central Hospital. The persons with diabetes attend diabetes clinic once a week (on every Wednesday). The average attendance to diabetes clinic at the Tamale Central Hospital is about 50 per each Wednesday.

3.5 INCLUSION AND EXCLUSION CRITERIA

The study considered the sex of the diabetes patients (whether male or female), the age range (was from 20 -70 and above but at the end of the research, the minimum age was 35years and the maximum age was 75), the marital status (whether single, married, divorced, widow or

separated), the educational level (whether Primary, Junior High/middle school, Senior High, /O-level/A-level or Tertiary) and the religious affiliation of the patients, whether Islam, Christianity, Traditional or others.

However, the study did not consider; how long the patient had the condition, the residence of the patients (rural or urban), the family system (nuclear and extended), employment status (employed or unemployed), etc.

3.6 SAMPLE SIZE CALCULATION

The calculated sample size was 73 persons living with diabetes, which was calculated using the standard formula for calculating sample size on the basis of prevalence (Ahmed et al., 2015).

$$n = \frac{z^2 * p(1-p)}{e^2}$$

n= sample size, z= standard normal variate for significant level, p= prevalence, e= margin of error. The national prevalence (p) rate of diabetes of Ghana is 5%, (International Diabetes Federation, 2017).

$$n = \frac{(1.96)^2 * 0.05(1-0.05)}{(0.05)^2} = 73$$

A non-response rate of 10% was assumed, (10%*73= 7.3 +73= 80.3). However, at the end of the study, data was collected from 150 respondents representing the final sample size.

3.7 SAMPLING TECHNIQUE AND PROCEDURE FOR DATA COLLECTION

The participants (150 diabetes patients) were selected using systematic random sampling technique, with an interval of 2 and at least 30 participants each Wednesday (diabetes clinic day).

The systematic random sampling technique was used to avoid being biased in the selection of the research subjects. The data collection took place at the Tamale Central Hospital: Diabetes Unit where the participants receive their diabetes care (treatment) on Out-Patient Department basis. Three research assistants were engaged in the data collection. The research assistants were trained and clarity was made to all words used in the questionnaire. All three research assistants were Dagbamba and understand the Dagbanli language excellently. Research assistants were also professionally trained nurses and hence the translations were made clear to respondents and data validation was done. Participant were informed about the purpose of the research and were also taken through the consent form and information sheet. Those who agreed, partook in the study. It took at least 15 minutes and 20 minutes for those who could read and write and those who could not read and write respectively to complete the questionnaire.

3.8 STUDY VARIABLES:

The following are the key variables that was used in the study;

DEPENDENT VARIABLE:

Selfcare Practice

INDEPENDENT VARIABLES:

- Socio-Demographic characteristics (age, sex, level of education, marital status, religion)
- Knowledge
- Attitude
- Beliefs

3.9 DATA COLLECTION TOOLS

A questionnaire was employed in the data collection, made up of closed-ended questions. The variables were measured using questionnaire as the main instrument.

The participants that could read and write in English, were allowed to fill the questionnaire themselves (self-administered) and those who could not read and write were assisted. The questionnaire was translated into Dagbanli language, and all questions were clarified in the best of our ability and to the satisfaction of the respondents. The questionnaire was translated from English Language into the local language and then from local language to English Language. The questionnaire consisted of five (5) sections:

(A) Socio-Demographic Characteristics

This section gathered information on patients' demographics including sex, age, marital status, educational level and religious affiliation.

(B) Diabetes Knowledge Question: (Starr Country, n.d.) (*Al-Hussaini & Mustafa, 2016; Michigan Diabetes Research and Training Center, 1998*). The knowledge section, was made up of 15 ended questions that were used to collect data on the knowledge level of the diabetes patients; the Cronbach's alpha was 0.44.

(C) Diabetes Attitude Survey: (Michigan Diabetes Research and Training Center, 1998)

This section is made up of 15 ended questions about the diabetes patients' attitudes, with a scale ranging from 1-5 (strongly disagree to strongly agree). The Cronbach's alpha was 0.64.

(D) Diabetes Belief Questionnaire: (Broadbent, Petrie, Main & Weinman, 2006).

This is the diabetes belief section. It is made up of 8 questions with scales which ranges from 0 to 10. where 0 means no effect/ not extreme or the likes and 10 means severe effect/ extremely high or the likes. The Cronbach's alpha was 0.63.

(E) selfcare Practice Questionnaire: (Toobert & Glasgow, 1994)

This section is made up of twelve (12) questions with five (5) subscales including diet, exercise, foot care, blood sugar testing and medication. Participants were asked how many times in a week did they engage in any of the specific selfcare practices.

A scale of 0-7 was used, where 0 meant non engagement and 7 meant positive adherence to selfcare practice. The Cronbach's alpha was 0.80.

3.10 DATA ANALYSIS

The data was entered and analyzed using the Statistical Package for Social Sciences (IBM SPSS Statistics 23). The socio-demographic characteristics statistics were obtained using the descriptive statistics function under the Analyze tab in SPSS. To test the various hypotheses, the Pearson correlation was used. The Pearson's correlation also called Pearson product-moment correlation was used to test whether there is an association between diabetes knowledge and overall selfcare practice, diabetes attitude and overall selfcare practice, diabetes belief and overall selfcare practice. Also, the Pearson correlation was used to test for relationship between diabetes knowledge and specific selfcare practices, diabetes attitude and specific selfcare practices, and diabetes belief and specific selfcare practices. Regression analysis was conducted to determine how belief of diabetes patients influences selfcare practice.

3.11 ETHICAL CONSIDERATION

Ethical approval was sought from Ghana Health Service Ethical Review Board (GHS-ERC Number; GHS-ERC048/02/19). The ethical approval from Ghana Health Service Ethical Review Board was submitted to Tamale Central Hospital administration and each participant's consent also sought before involving them (and they were at liberty to opt out from the study at any time they so wished).

There was strict adherence to all ethical guidelines (for using human participants) such as voluntary participation, privacy, confidentiality etc. Efforts was made to ensure minimal risk.

The consent of each participant was sought before involving them (and they were made to understand that, they are at liberty to opt out from the study at any time they so wish).

A consent form was presented to each of the participants who were willing to partake in the study, to write their names and sign/ thumb. The identity of participants was kept anonymous from any third party except with the research team.

Data and Information of participants are kept confidential, by locking it in my box. The participants' information has not been shared with any third party except the research team. This study was purely an academic work and there were no direct benefits for participating. But then, findings from this study will contribute enormously towards quality healthcare delivery and diabetes care specifically. The researcher ensured that research subjects incurred no harm.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

This chapter presents the results from the data analysis. The first phase presents the descriptive statistics including the frequencies and percentages of the socio-demographic characteristics. The second phase presents the descriptive statistics of the categories of the independent variable (knowledge, attitude and beliefs). The third phase presents the inferential statistics in accordance with the hypotheses of the study.

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

One hundred and Fifty (150) persons living with diabetes participated in the study. Out of the 150 participants, more than half were females 78% (117). With the age category, participants within the younger adult category were in the majority 51.3% (77), whilst the older adults' category were 48.7% (73). It must be noted that, for analysis sake, the age category was divided into younger adults and older adults.

In addition, under the marital status, more than half of the participants were married (71.3%), 20% were widowed, twelve of the participants representing 8% were divorced and only one respondent representing 0.7% was separated. Furthermore, with the highest level of education, more than half of the participants representing 123(82%) selected None (meaning had never attended formal education), 10 of the respondents representing 6.7% had education up to Senior High/O-level/A-level, there was an equal number of respondents for Junior High/middle and tertiary representing 4.7% each and only 2% had formal education up to primary.

Regarding religion, as an Islam dominated area, more than half of the participants representing 85.3% were Muslims whereas 22 of the participants representing 14.7% were Christians. None of the respondents fell under traditional or other.

Table 4 1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

| CHARACTERISTICS | CATEGORIES | FREQUENCY (N) | PERCENTAGE (%) |
|--------------------------|-----------------|---------------|----------------|
| Sex | Male | 33 | 22.0 |
| | Female | 117 | 78.0 |
| Age | 35-52 (Younger) | 77 | 51.3 |
| | 53-75 (Older) | 73 | 48.7 |
| Marital Status | Married | 107 | 71.3 |
| | Divorced | 12 | 8.0 |
| | Widowed | 30 | 20.0 |
| | Separated | 1 | 0.7 |
| Educational Level | None | 123 | 82.0 |
| | Primary | 3 | 2.0 |
| | Junior High | 7 | 4.7 |
| | Senior High | 10 | 6.7 |
| | Tertiary | 7 | 4.7 |
| Religion | Christianity | 22 | 14.7 |
| | Islam | 128 | 85.3 |

4.2 INDEPENDENT VARIABLES CATEGORIES

Out of the 150 participants, 41.3% had poor knowledge of diabetes, 28% had fair diabetes knowledge and only 30.7% had good diabetes knowledge. Also, 38% exhibited negative diabetes attitude, 37.3 exhibited moderate diabetes attitude and only 24.7% of the respondents showed positive attitude towards diabetes. Finally, out of the 150 respondents, 36.7% held negative perception about diabetes, 36% were moderate and only 27.3% held positive belief about diabetes.

Table 4 2 INDEPENDENT VARIABLES CATEGORIES

| VARIABLES | CATEGORIES | FREQUENCY (N) | PERCENTAGE (%) |
|-----------|------------|---------------|----------------|
| KNOWLEDGE | Poor | 62 | 41.3 |
| | Fair | 42 | 28.0 |
| | Good | 46 | 30.7 |
| ATTITUDE | Negative | 57 | 38.0 |
| | Moderate | 56 | 37.3 |
| | Positive | 37 | 24.7 |
| BELIEF | Negative | 55 | 36.7 |
| | Moderate | 54 | 36.0 |
| | Positive | 41 | 27.3 |

4.3 TESTING OF HYPOTHESES

HYPOTHESIS ONE

4.3.1 Diabetes patients' knowledge on diabetes will significantly affect their diabetes self-care:

Before running the Pearson correlations, the scatterplots of the variables were looked at to get an overall idea of how the association will be or whether the two variables are correlated. From the scatterplot, it was seen that, a negative linear relationship exists between knowledge and Practice (i.e., when one increases the other decreases). The Pearson correlation was used to determine the association between the knowledge and Selfcare practice and the subscales under the selfcare Practice viz Diet, Exercise, Blood Sugar Testing, Foot Care and Medication.

The Pearson correlation analysis from Table 4.2 showed a statistically significant negative association between diabetes patients' knowledge about diabetes and diabetes self-care practices, $r(148) = -0.25, p < 0.01$. This means that as diabetes patients' knowledge about diabetes increases, diabetes selfcare practices decreases (the more they are likely not to engage in selfcare practices). Therefore, the null hypothesis has been rejected, so it can be concluded that, the research hypothesis H_1 that Diabetes patients' knowledge about diabetes will significantly affect their diabetes selfcare is supported. Also, Table 4.2 showed a significant negative relationship between diabetes patients' knowledge on diabetes and diet and blood sugar testing, $r(148) = -0.32, p < 0.001$, and $r(148) = -0.34, p < 0.001$, respectively. However, there was no significant relationship between diabetes patients' knowledge about diabetes and Exercise, diabetes patients' knowledge of diabetes and Footcare, diabetes patients' knowledge about diabetes and medication, $r = -0.03, r = 0.012$ and $r = -0.12, p > 0.05$ respectively.

Table 4 3 CORRELATION BETWEEN KNOWLEDGE AND SELFCARE PRACTICES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------|---------|--------|--------|--------|--------|--------|------|
| 1. KNOWLEDGE | 1.00 | | | | | | |
| 2. SELFCARE | -0.25** | 1.00 | | | | | |
| 3. DIET | -0.32** | 0.87** | 1.00 | | | | |
| 4. EXERCISE | -0.03 | 0.73** | 0.51** | 1.00 | | | |
| 5. BLOOD SUGAR TESTING | -0.34** | 0.61** | 0.52** | 0.23** | 1.00 | | |
| 6. FOOT CARE | 0.01 | 0.61** | 0.37** | 0.37** | 0.08** | 1.00 | |
| 7. MEDICATION | -0.12 | 0.69** | 0.52** | 0.51** | 0.18* | 0.52** | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

HYPOTHESIS TWO

4.3.2 There will be a positive relationship between attitudes of diabetes patients and diabetes self-care:

The scatterplot graphical representation was looked at before running the Pearson correlation to determine whether there exists a correlation between attitudes of diabetes patients and selfcare practice. The scatterplot showed a positive association between attitudes of diabetes patients and selfcare practice. A Pearson correlation was conducted to determine the correlation between attitudes of diabetes patients and selfcare practice. A significant positive association was found between attitudes of diabetes patients and selfcare practice, $r(148) = 0.27, p < 0.001$, for a one tailed test. As a positive relationship, it means that as attitudes of diabetes patients increases, selfcare practices also increase. Therefore, the null hypothesis has been rejected, hence it can be concluded that, the alternative hypothesis H_2 , that there will be positive relationship between attitudes of diabetes patients and diabetes selfcare is supported.

In addition, a significant positive association was found between attitudes of diabetes patients and diet, attitudes of diabetes patients and exercise, and attitudes of diabetes patients and blood sugar testing, $r(148) = 0.23, p < 0.01$, $r(148) = 0.34, p < 0.001$, and $r(148) = 0.25, p < 0.01$ respectively. However, there was no significant association between attitudes of diabetes patients and foot care and between attitudes of diabetes patients and medication $r = -0.01$, and $r = 0.10, p > 0.05$ respectively.

Table 4.4 CORRELATION BETWEEN DIABETES ATTITUDE AND DIABETES SELFCARE PRACTICE

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------|--------|--------|--------|--------|-------|--------|------|
| 1. ATTITUDE | 1.00 | | | | | | |
| 2. SELFCARE | 0.27** | 1.00 | | | | | |
| 3. DIET | 0.23** | 0.87** | 1.00 | | | | |
| 4. EXERCISE | 0.34** | 0.73** | 0.51** | 1.00 | | | |
| 5. BLOOD SUGAR TESTING | 0.25** | 0.61** | 0.52** | 0.23** | 1.00 | | |
| 6. FOOT CARE | -0.01 | 0.61** | 0.37** | 0.37** | 0.08 | 1.00 | |
| 7. MEDICATION | 0.10 | 0.69** | 0.52** | 0.51** | 0.18* | 0.52** | 1.00 |

** Correlation is significant at the 0.01 level (1-tailed)

*Correlation is significant at the 0.05 level (1-tailed)

HYPOTHESIS THREE

4.3.3 Diabetes patients' belief will positively affect their diabetes selfcare:

A simple linear regression was conducted to predict Diabetes selfcare practice (outcome variable) based on diabetes patients' belief (predictor). Table 4.4 shows that the regression model does not predict the Selfcare Practice significantly. The results indicate that, the regression was not significant, $F(1, 148) = 0.13, p > 0.05$; Selfcare Practice was equal to $43.82 + 0.04(\text{belief})$, meaning, a unit increase/change in diabetes belief will result in 0.04 increase/change in selfcare practice.

Hence, the null hypothesis cannot be rejected. It can be concluded that the alternative hypothesis H₃ that diabetes patients' belief will positively affect their diabetes self-care is not supported.

Table 4 5 PREDICTING DIABETES SELF-CARE PRACTICE BASED ON DIABETES PATIENS' BELIEF

| | R | R ² | df | F | Sig. | Unstandardized Coefficients (B) | Standardized Coefficients (Beta) |
|------------|-------------------|----------------|-----|------|-------------------|---------------------------------|----------------------------------|
| Regression | .029 ^a | .001 | 1 | .128 | .721 ^b | Constant | 43.82 |
| Residual | | | 148 | | | Belief | .04 |

a. Dependent Variable: SELF-CARE PRACTICE

b. Predictors: (Constant), BELIEF

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

This chapter presents the discussion of the study. The discussion is based on the main themes, research findings and as well seeks to affirm or disagree with previous literature on similar topic.

5.2 DIABETES KNOWLEDGE AND SELFCARE PRACTICES AMONG PERSONS LIVING WITH DIABETES

This study has shown that, majority of persons living with diabetes have poor knowledge about diabetes and this has been affirmed by previous literature (Badruddin et al., 2002). This is also similar to study conducted in Rural Sullia, Karnataka(Dinesh et al., 2016). The work of Ahmad et al has shown that, increase in knowledge positively correlated with selfcare practice which is in disagreement with this current study (Ahmed et al., 2015).

This current study found that, knowledge of diabetes negatively correlates with selfcare practice. This means that, as knowledge about diabetes increases, adherence to selfcare practice reduces and as knowledge of diabetes decreases, selfcare practice increases. However, this is in disagreement with previous studies on similar topic. The findings from a research conducted by Kugbey et al showed a positive correlation between diabetes knowledge and selfcare practice (Kugbey, Asante, & Adulai, 2017). Meaning, as knowledge about diabetes increases, selfcare practice increases and vice versa.

Also, a research conducted in 2016, indicated that, there is no statistical significant association between diabetes knowledge and selfcare practice as opposed this current findings(Formosa & Muscat, 2016).

This current study negates many previous studies and appears to be the only study that shows a statistically negative significant association between diabetes knowledge and Selfcare Practice. This may be explained by the Fear Appeal Theory. According to Janis et al, an extreme level of fear may cause persons with diabetes to be too fearful to comprehend directives or information and also at lower fear level , may make diabetes patients so reluctant to engage in selfcare practice and that a moderate level of fear is desirable to cause a positive change in behavior (selfcare practice) (Witte & Allen, 2015), (Fritzen, 1974).

5.3 ATTITUDES TOWARDS DIABETES AND SELFCARE PRACTICE AMONG PERSONS LIVING WITH DIABETES

According to this study, majority of diabetes patients exhibit negative attitudes towards diabetes and this is similar to some previous studies (Ahmed et al., 2015; Adams & Carter, 2011). However, another existing literature has established that majority of persons with diabetes exhibit positive attitude towards diabetes in contrast with this current study and other previous literature (Mohammadi, 2015).

Mohammadi, 2015 established that, there is no significant association between attitudes and selfcare practice. But then, this current study postulates that, there is a statistically significant positive relationship between diabetes attitude and selfcare practice. This means as diabetes attitude increases, adherence to selfcare practices increases and as such measures should be put in place to promote positive attitude among persons living with diabetes as evidenced in previous studies (Ahmed et al., 2015).

Moreover, Shah et al, 2009 found a negative association between diabetes attitude and selfcare practice (Shah et al., 2009). This means that, as attitude increases, selfcare practice decreases and vice versa. However, this is not supported by the findings of this current study.

5.4 DIABETES BELIEF AND SELCARE PRACTICE AMONG PERSONS LIVING WITH DIABETES

It has been established from the findings of this current research that, majority of persons with diabetes hold negative perception about diabetes but then this has been contradicted by a study conducted in Saudi Arabia, which indicated that persons with diabetes hold positive believe about diabetes and diabetes selfcare (Al-ghamdi et al., 2018).

In addition, this research work examined the relationship between diabetes belief and selfcare practice. The findings showed no association between diabetes belief and selfcare practice. However, some literature disagrees with this. According to Kugbey et al, 2017, diabetes belief significantly predicts or influence diabetes selfcare practice among persons living with diabetes (Kugbey et al., 2017).

Furthermore, previous studies have established that, persons living with diabetes hold negative perception about diabetes which affects their selfcare practice (Adams & Carter, 2011). This current study supports the fact that, persons living with diabetes have negative belief about diabetes, however, it does not support the fact that, it influences selfcare practice.

Moreover, a study by Skinner, 2015 has also established that, there is a positive association between diabetes patients' belief and selfcare practice (Timothy Chas Skinner, 2015). This means, as diabetes belief increases, selfcare practice increases and vice versa. However, this current study found no association between diabetes belief and selfcare practice.

Though, this study showed no significant association between diabetes belief and selfcare practice, it still makes sense per previous studies to note that, the perception of diabetes patients may predict or influence their selfcare practices (T Chas Skinner et al., 2002).

It should therefore be noted that, this study found no association between diabetes belief and selfcare practice.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents the conclusion from this study based on the research questions, objectives and hypotheses and the recommendations for public health expert, health care providers, policy makers, patients, general public and the basis for future research.

6.2 CONCLUSION

There is a statistically significant negative relationship between diabetes patients' knowledge about diabetes and diabetes selfcare practice. This means that an increase in diabetes knowledge leads to a decrease in diabetes selfcare practice.

Furthermore, there is a significant positive relationship between attitudes of diabetes patients and selfcare practice, meaning, as diabetes patients' attitude increases, their selfcare practice also increases and vice versa.

Finally, there is no significant relationship between diabetes patients' belief and selfcare practice. This means, diabetes patients' belief about their diabetes does not positively affect their diabetes selfcare practice.

6.3 RECOMMENDATIONS

This recommendation section is categorized into three parts, including health service stakeholders (viz, Ministry of Health, Ghana health service, health facilities and health providers), the persons with diabetes and the general public and researchers.

6.3.1 HEALTH SERVICE STAKEHOLDERS

The findings of this study, showed a negative significant association between knowledge and selfcare practice. This may be due to the fact that, as patients receives more positive education about their illness, which does not make them to feel sense of urgency, they tend to be reluctant in taking positive measures to cure their illness. The perceive seriousness of the Health Belief Model supports this. It is therefore recommended that, in counseling patients with diabetes and also educating the general public, behavior change communication should be adapted. The Health Belief Model can be complimented with the Fear Appeal theory. The patients and the general public should be educated on the seriousness and consequences of diabetes. However, care must be taken not to over scare them, because when people become more fearful, they may end up not taking any action.

Also, it is suggested that, managers of health facilities should liaise with Ghana Health Services to recruit health psychologist(s) or social and behavioral scientist to aid in the counseling of diabetes patients.

Furthermore, the results from this study showed a positive relation between attitudes of patients and selfcare practice, meaning an increase in the attitudes of diabetes patients will lead to an increase in selfcare practice. Hence, public health professionals and other relevant stakeholders should increase awareness of diabetes targeting the attitudes of diabetes patients. Positive attitudes towards diabetes among diabetes should be promoted.

Moreover, most health facilities have TV sets. Those TV sets should be programmed to display diabetes related selfcare tips and other educational programs.

Health facilities should liaise with Ghana Health Service to provide reliable and effective medium of communication between healthcare professionals and patients in that, patients can call or contact the healthcare professionals to seek clarification or discuss other related issues with them. Distance should not be a barrier in seeking health services.

6.3.2 PERSONS LIVING WITH DIABETES AND THEIR RELATIVES

Persons living with diabetes should be proactive in seeking healthcare to prevent late complications. Also, diabetes patients should seek appropriate knowledge about diabetes and equally put into practice the lessons learnt from healthcare providers.

In addition, diabetes patients should consult their healthcare providers in setting goals and making informed decisions.

Furthermore, persons living with diabetes should endeavor to keep their blood sugar close to normal and must also endeavor to take control of their health. This ensures sustainability of changed behavior.

Moreover, family and friends concern and support are very vital in diabetes management. Families and friends should provide the needed support that their relative(s) need(s) in managing their diabetes especially at home.

6.3.3 GENERAL PUBLIC AND RESEARCHERS

The results of this research work showed that women make up more than half of diabetes patients. It is therefore recommended that future research may concentrate in addressing this issue (why more women than men).

Also, the general public should understand that, their support is highly needed in diabetes selfcare management among persons with diabetes.

In addition, future research should compare different socio-demographics of patients and relations with selfcare practice, for instance, religion and its influence on patients' perception of diabetes and diabetes selfcare practice.

Moreover, future studies should explore the reasons for the negative relationship between persons with diabetes knowledge and selfcare practice.

Furthermore, future research should consider exploring the influence of diabetes knowledge, attitude and belief among healthcare professionals.

Last but not the least, future research should consider a mixed method and a larger sample size.

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APPENDICES:

APPENDIX 1: INFORMATION SHEET

Title of Study:

The Influence of diabetes Knowledge, Attitude and Beliefs about Selfcare Practices Among Persons Living with Diabetes in The Tamale Metropolis

Introduction

My name is Sulemana Tikumah Umar. I am a Masters student of University of Ghana, School of Public Health, Legon and I am from the department of Applied Health Social Science. My email is suletikumahumar@gmail.com and my telephone numbers are 0541628029/ 0202788240.

Background and Purpose of the study

I am conducting a study on the influence of diabetes knowledge, attitude and beliefs about diabetes selfcare practices among persons living with diabetes in the Tamale Central Hospital. Diabetes mellitus is a chronic disease characterized by high sugar in the blood. The prevalence of diabetes and its complications are major public health issues globally, regionally and locally. This research seeks to determine the level of diabetes knowledge, attitudes and beliefs among persons with diabetes and whether it is associated with their diabetes self-care.

Nature of Research:

This research work is on the influence of diabetes knowledge, attitude and belief on diabetes selfcare practices among persons living with diabetes in the Tamale Central Hospital.

The prevalence of diabetes and its complications are major public health issues globally, regionally and locally.

This research seeks to determine the level of diabetes knowledge, attitudes and beliefs among persons with diabetes and whether it has an influence on diabetes selfcare and the findings will be used to improve upon existing policies, treatments(care/management) and interventions and also in developing new policies, interventions and diabetes self-care/management education. A quantitative approach will be adapted using a cross-sectional survey design with questionnaire. Persons living with diabetes at the Tamale Central Hospital will be participants and 150 participants will be involved in this study.

Participants Involvement:

What is involved/Duration:

This is a quantitative study with closed-ended questionnaire. You are required to complete the questionnaire as the study seeks to collect information on your knowledge, attitude and beliefs of diabetes and their influence on your selfcare practices. We will need about 20 to 30 minutes of your time.

Potential Risks/Benefits:

This study is purely an academic work and there are no direct harm or benefits for partaking in this. But then, findings from this study will contribute enormously towards quality healthcare delivery and diabetes care specifically. The researcher will ensure that your participating in the study incur no harm.

Costs: No cost is involved. The patients would not be transported to a different place. Data will be collected in the hospital.

Compensation:

There would be no compensation or payment of remuneration because this is purely an academic work and intends not to incur any harm.

Confidentiality:

Data and Information of participants will be kept confidential, by locking it in my box. The participants' information will not be shared with a third party except the research team.

Voluntary Participation or Withdrawal:

Partaking in this study is absolutely and completely voluntary and respondents are at liberty to opt out from the research at any time they so wish without any penalty.

Outcome and feedback:

Feedback intends to be provided as findings from this study will contribute enormously towards quality healthcare delivery and diabetes care specifically. Also, finding will be used to improve upon existing policies, treatments(care/management) and interventions and also in developing new policies, interventions and diabetes self-care/management education.

Funding Information:

This is a self-sponsored study though may receive family and friends support either in cash or in kind.

Sharing of Participants Information/Data

Data of participants generated from this study is solely for the principal investigator and may only be shared with research team as this is purely academic.

Provision of Information and Consent for Participants

Participants will be given copies of the consent form and information sheet after it has been signed or thumb-printed to keep.

Who to contact for further clarification/Questions:

In case you need more information or clarification kindly contact the principal investigator, Sulemana Tikumah Umar through my email address suletikumahumar@gmail.com or through my telephone numbers 0541628029/0202788240. I am a Masters student of University of Ghana, School of Public Health, Legon and I am from the department of Applied Health Social Science.

You can equally contact the Ghana Health Services Ethical Review Committee through their email ghserc@gmail.com or through the administrator, Madam Hannah Frimpong on her mobile number; 0507041223 or 0243235225 (Office: +233 302 681109).

APPENDIX 2: INFORMED CONSENT FORM:

STUDY TITLE:

The Influence of Diabetes Knowledge, Attitude and Beliefs about Selfcare Practices Among Persons Living with Diabetes in The Tamale Metropolis

PARTICIPANTS INFORMATION

I acknowledge that I have read or have had the purpose and contents of the participants' Information Sheet read and satisfactorily explained to me in English/Dagbanli. I fully understand the contents and any potential implications as well as my right to change my mind (thus, withdraw from the study) even after I have signed/thumb printed this form.

I voluntarily agree to be part of this research.

Respondent Name/Initials.....

Signature/thumbprint/Mark..... Date.....

INTERPRETERS' STATEMENT

I interpreted the purpose and content of the participants' Information Sheet to the afore named participant to the best of my ability in the Dagbanli language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter Date.....

Contact Details

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participants' Information Sheet was read and explained satisfactorily to the participant in the Dagbanli language.

I confirmed that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name.....

Signature/thumbprint/Mark..... Date.....

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that, the details of this study at large have been thoroughly explained to the participant and all questions and clarifications raised were duly attended to.

Researcher Name.....

Signature..... Date.....

Principal Investigator:

My name is Sulemana Tikumah Umar. I am a Masters student of University of Ghana School of Public Health, Legon. I am conducting a study on the influence of diabetes knowledge, attitude and beliefs about diabetes selfcare practices among persons living with diabetes in the Tamale Central Hospital. Your participation in this study will help us know whether knowledge, attitude, and beliefs of persons living diabetes have an influence on diabetes care. And Your participation in the study is completely voluntary and you can decide to opt out from the study at any time. We would also like to assure you that all information collected in the course of this study is strictly for academic purposes and will remain confidential. And so, kindly be as honest as possible, and remember that there are no wrong and right answers but only the truth.

For further information or clarification kindly contact me on 0541628029/ 0202788240

Principal Supervisor: Dr. Franklin Glozah

APENDIX 3: QUESTIONNAIRE

SECTION (A) Socio-Demographic Characteristics

1. Sex: Male () Female ()
2. Age.....
3. Marital status: Single [] Married [] Divorced [] Widow [] Separated []
4. Highest level of education: None [] primary [] junior high/middle school [] Senior high/O-level/A-level [] tertiary []
5. Religion: Christianity () Islam () Traditional () Others ()

SECTION (B) Diabetes Knowledge Question (Starr Country, n.d.) (Al-Hussaini & Mustafa, 2016; Michigan Diabetes Research and Training Center, 1998)

| NO | QUESTIONS | STRONGLY DISAGREE 1 | DISAGREE 2 | NEUTRAL 3 | AGREE 4 | STRONGLY AGREE 5 |
|----|--|------------------------|---------------|--------------|------------|---------------------|
| 1 | Eating too much sugar and other sweet foods is a cause of diabetes. | | | | | |
| 2 | The usual cause of diabetes is lack of effective insulin in the body | | | | | |
| 3 | If I am diabetic, my children have a higher chance of being diabetic | | | | | |
| 4 | Diabetes can be cured | | | | | |
| 5 | Medication is more important than diet and exercise to control my diabetes | | | | | |
| 6 | The way I prepare my food is as important as the foods I eat | | | | | |

| | | | | | | |
|----|--|--|--|--|--|--|
| 7 | Diabetes can damage my kidneys | | | | | |
| 8 | Diabetes is a condition of not enough insulin in blood | | | | | |
| 9 | Diabetics should take extra care when cutting their toenails | | | | | |
| 10 | Diabetes is non-contagious/noncommunicable | | | | | |
| 11 | Blurred vision, Frequent urination and thirst are signs of low blood sugar | | | | | |
| 12 | amputation, kidney problem, are some complications of diabetes | | | | | |
| 13 | Diabetes occur in children, adolescents, and adult | | | | | |
| 14 | Diabetes is a condition of high blood sugar | | | | | |
| 15 | Insulin is available as a drug for diabetic patient | | | | | |

SECTION (C) Diabetes Attitude Survey

Find below some statements about diabetes and tick appropriately. you may regard some statement as true for one person but not for another person or may be true one time but not be true another time. kindly tick the answer that you believe is true most of the time or is true for most people. kindly answer all statements. Each numbered statement in the table finishes the sentence “**In general, I believe that...**”

kindly Note: The term “health care professionals” in this survey refers to doctors, nurses, and dietitians.

| | In general, I believe that... | Strongly Disagree 1 | Disagree 2 | Neutral 3 | Agree 4 | Strongly Agree 5 |
|----------|--|------------------------------------|-----------------------|----------------------|--------------------|---------------------------------|
| 1 | ...health care professionals who treat people with diabetes should be trained to communicate well with their patients. | | | | | |
| 2 | there is not much use in trying to have good blood sugar control because the complications of diabetes will happen anyway. | | | | | |
| 3 | diabetes affects almost every part of a diabetic person's life. | | | | | |
| 4 | the important decisions regarding daily diabetes care should be made by the person with diabetes. | | | | | |
| 5 | ...health care professionals should be taught how daily diabetes care affects patients' lives. | | | | | |
| 6 | ...older people with Type 2* diabetes do not usually get complications. | | | | | |
| 7 | keeping the blood sugar close to normal can help to prevent the complications of diabetes. | | | | | |
| 8 | ..health care professionals should | | | | | |

| | | | | | | |
|-----------|--|--|--|--|--|--|
| | help patients make informed choices about their care plans. | | | | | |
| 9 | ...it is important for the nurses and dietitians who teach people with diabetes to learn counseling skills. | | | | | |
| 10 | ...people whose diabetes is treated by just a diet do not have to worry about getting many long-term complications. | | | | | |
| 11 | ...almost everyone with diabetes should do whatever it takes to keep their blood sugar close to normal. | | | | | |
| 12 | ...health care professionals should learn how to set goals with patients, not just tell them what to do. | | | | | |
| 13 | ...people with diabetes should learn a lot about the disease so that they can be in charge of their own diabetes care. | | | | | |
| 14 | ...people with diabetes have the right not to take good care of their diabetes. | | | | | |
| 15 | ...support from family and friends, is important in dealing with diabetes. | | | | | |

SECTION (D) The Brief Illness Perception [Diabetes Belief Questionnaire]

Using the scale below, tick your beliefs about diabetes mellitus:

1. How much does your diabetes affect your life?

0 1 2 3 4 5 7 8 9 10

No effect at all

severely affects my life

2. How long do you think your diabetes will continue?

0 1 2 3 4 5 7 8 9 10

a
forever

very

short

time

3. How much control do you feel you have over your diabetes?

0 1 2 3 4 5 7 8 9 10

Absolutely
extreme

no amount of control

control

amount of

4. How much do you think your treatment can help your diabetes?

0 1 2 3 4 5 7 8 9 10

Not at all

extremely helpful

5. How much do you experience symptoms from your diabetes?

0 1 2 3 4 5 7 8 9 10

No symptoms at all

many severe symptoms

6. How concerned are you about your diabetes?

0 1 2 3 4 5 8 9 10

Not at all concerned
concerned

extremely

7. How well do you feel you understand your diabetes?

0 1 2 3 4 5 7 8 9 10

Don't understand at all
clearly

understand very

8. How much does your diabetes affect you emotionally? (e.g. does it make you angry, scared, upset or depressed?)

0 1 2 3 4 5 6 7 8 9 10

Not at all affected emotionally
emotionally

extremely affected

SECTION (E) Diabetes Self-care Practices (management) Questionnaire (Toobert & Glasgow, 1994).

kindly circle appropriately the answer applicable to you

Diet

1. How many of the last SEVEN DAYS have you Followed a healthful eating plan? 0 1 2 3 4 5 6 7

2. On average, over the past month, how many DAYS PER WEEK have you followed your eating plan?

0 1 2 3 4 5 6 7

3. On how many of the last SEVEN DAYS did you eat Five or more servings of fruits and vegetables?

0 1 2 3 4 5 6 7

4. On how many of the last SEVEN DAYS did you eat High fat foods such as red meat or full-fat dairy

Products? 0 1 2 3 4 5 6 7

Exercise

5. On how many of the last SEVEN DAYS did you Participate in at least 30 minutes of physical activity?

(Total minutes of continuous activity, including Walking). 0 1 2 3 4 5 6 7

6. On how many of the last SEVEN DAYS did you Participate in a specific exercise session (such as Swimming, walking, bicycling) other than what you do around the house or as part of your work? 0

1 2 3 4 5 6 7

Blood Sugar Testing

7. On how many of the last SEVEN DAYS did you test your blood sugar? 0 1 2 3 4 5 6 7

8. On how many of the last SEVEN DAYS did you test your blood sugar the number of times recommended by your healthcare provider? 0 1 2 3 4 5 6 7

Foot Care

9. On how many of the last SEVEN DAYS did you check your feet? 0 1 2 3 4 5 6 7

10. On how many of the SEVEN DAYS did you inspect the inside of your shoes? 0 1 2 3 4 5 6 7

Medications

11. On how many of the last SEVEN DAYS, did you take your recommended diabetes medication?

0 1 2 3 4 5 6 7

OR

12. On how many of the last SEVEN DAYS did you take your recommended insulin injections?

0 1 2 3 4 5 6 7

I AM VERY GRATEFUL FOR YOUR PARTICIPATION. THANK YOU VERY MUCH *GOD BLESS YOU!*