WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES DEPARTMENT OF NURSING

KNOWLEDGE ATTITUDE AND PRACTICE TOWARD SELF INSULIN ADMINSTRATION AND ASSOCIATED FACTORS AMONG DIABETIC PATIENTS OF GURAGE ZONE, SNNPRS, ETHIOPIA

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A RESEARCH THESIS SUBMITTED TO WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES DEPARTMENT OF NURSING IN PARTIAL FULFILLMENT OF DEGREE OF BACHELOR OF SCIENCE IN NURSING

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ABREVATION

DM=Diabetes Mellitus

DSME= DiabetesSelf-Management Education

ETB=Ethiopian Birr

FBS = Fasting Blood Sugar Level

KAP= Knowledge, Attitude and Practice

NCD= Non Communicable Disease

NHANES =National Health and Nutrition Examination Surveys

OGTT= Oral Glucose Tolerance Test

RBS = Random Blood Sugar Level

SIA=Self Insulin Administration

SNNPR= Southern Nation Nationality and People

USA= United States of America

WHO=World Health Organization

WKUSTH= Wolkite University Specialized teaching Hospital

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Abstract

Introduction; diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. DM patients are treated by multi dose insulin therapy which it is given through subcutaneous infusion. The study tried to addresses the gap in knowledge or understanding about DM, insulin and self-insulin administration, patient's attitude in usage of insulin and practice toward preparation of injection site and self-administration techniques.

Objective of the study is to assess knowledge attitude, and practice toward self-insulin administration and associated factors among type 1 and type 2 diabetic patients.

METHODS – an institution based cross sectional study was conducted from May o6-may 23, 2022.the data was collected from 3 hospitals found in gurage zone which they are selected by simple random sampling technique. All DM patients who use SIA were included in the study. Data was collected by interview based questionnaire and was analyzed by use of SPSS version 20. A P value of less than 0.05 was considered as statistically significant for all variables.

Result There were a total of 261 DM patients with response rate of 94.2% was taken to assess the KAP of self-insulin administration and to assess the associated factors affecting it. Regarding the knowledge level 130(49.8%) and 121(45.3%) has good knowledge and average knowledge respectively. The overall attitude of self-insulin administration is assessed by DM patients and 86.6% of study population has favorable attitude. The overall practice of SIA among DM patient shows that 3.4% of them has poor practice of SIA. . It's expected from the patient to have the knowledge, favorable attitude and good practice in having proper insulin therapy.

Key word; insulin, diabetes mellitus, Self- medication, knowledge, attitude, practice

CHAPTER ONE

1. INTRODUCTIONS

1.1 Back ground information

Diabetes mellitus is a disease which occurs due to an endocrine disorder causing an abnormal increment of blood glucose level. It is one of the cases which causes problem to different organs of the body like resulting in an end stage renal disease, cardio vascular diseases.[1] DM is controlled by a hormone produced in our body insulin. But in case of DM the insulin action is disturbed may be due to defect in secretion, resistance of insulin action or both. the areas involved in self-insulin administration are abdomen, thigh, arm and hip.[2]

The commonest symptoms of DM are increase in urine output, increase in thirst and increase in hunger.[3] A person is diagnosed as DM if 2 hour post load plasma glucose level is greater than 200 fasting blood glucose level is more than 100 mg/dl and rising blood glucose level is greater than 200mg/dl. A chronic increase in blood glucose level causes a serious health problem which there is no cure for DM that those patient should manage it by nutritional, exercise and other methods.[4]Those with increased blood glucose level are managed by insulin therapy. Insulin is a hormone which is produced by pancreas which it controls amount of glucose in our blood. it is the main corner stone of management in diabetic patients specially type 1 and type 2 DM, but from the users more than 30% fail to take their insulin as prescribed and 20 % of adult miss their doses[5]Giving adequate information about self-insulin administration help to build confidence among patient and to have satisfaction. On its way having knowledge about SIA helps in preventing complication, adverse patient outcome and poor adherence to therapy. [6]

Even if there is lack of adequate data on the prevalence and incidence of DM in Ethiopia it is known that it's increasing. According to WHO in 2015 the prevalence was 3.2 %.These happens because of many combined factors like peoples gap in understanding because of lack of information or less attitude about DM and other non-communicable diseases, also the other factor other than personal one is lack of available resource by organization for the pre test.[7]

1.2 Statement of problem

In today's world DM is becoming one of the leading causes for the premature illness, death, and disability. A study conducted in 2015 shows that there were 415 million (8.8%) diabetic patients found in the world it is estimated that it will increases to 642 million in the next two decades.[8] A research conducted in 2012 shows that the number of death results directly from DM was 1.5 million globally. [9]Its reported that the prevalence of diabetes mellitus in Sub-Saharan Africa is to be low(3%) compared to global prevalence(8.5%) in 2016,but there is rapid rise in person exposed to DM in past few decades due to altered peoples life style, rise in globalization and urbanization.[10]study from National Health and Nutrition Examination Surveys (NHANES) program shows that in the United States of America, a prevalence of insulin therapy was 29.1% in the period from 2005 to 2012.[11]

Different studies in the world shows the knowledge level regarding SIA which is 52.5% in india, 50.3% in turkey. [7] a survey performed by the national WHO stepwise approach to NCD risk factor surveillance in 2015 show that the prevalence of diabetes mellitus was 3.2%.its reported that in. [12, 13]

Knowledge and attitude toward SIA could lead to better administration of insulin. The attitude level of patients show that in Egypt68% of them has good attitude and in turkey the coverage is 50.3%. About 55.3% in Ethiopia had good knowledge on insulin self- administration. Regarding attitude, 68.0% in Ethiopia were found to have favorable attitudes on insulin self-administration. [14]

Patients are treated by multi dose insulin therapy which it is given through subcutaneous infusion. The infusion requires techniques to be infused adequately which it's common in most area the occurrence of error. To have adequate insulin therapy patient should have adequate knowledge and attitude on self-insulin administration,

The factors which influence the knowledge, attitude and practice on insulin self-administration includes age, sex, marital status, educational status, occupation, urban residence, disease duration, duration of insulin use, and family history of DM. Having an adequate Know ledge and positive attitude of patients regarding insulin self-administration could lead to better

management of diabetes, adequate self-administration of insulin, preventing complications and even decreasing mortality rate, eventually leads a patient to good quality of life. [15]studies that evaluated the knowledge, skills and practices of SIA among patients in the study area are lacking there is no evident data on the KAP of self-insulin administration among community members. Additionally because there was no data of KAP on self-insulin administration there was no any intervention done to solve the problems. So the study was designed in developing the level of KAP of self-insulin administration and associated factors among diabetic patients of Gurage Zone also addressing through patient education and demonstration of insulin injection during the hospital visit.

1.3 Significance of the study

The study was aimed at assessing the level of knowledge of the people about self-insulin administration techniques. their attitude and practice of SIA, the triggering factors preventing the usage also helping to build up understanding about the associated factors on insulin self-administration among type 1 and type 2 diabetic patients. by improving understanding about self-insulin administration helps the health institution to decrease the work over load on staffs and providing them to concentrate on other health problems which requires immediate interventions and for patients help to develop understanding about factors influencing SIA, the way of administration, complications and how to prevent the complications of self-insulin administration and also helping health professional on how to teach their diabetic patient about SIA. The finding of this study was aimed at addressing the gap in knowledge or understanding about DM, insulin and self-insulin administration, patient's attitude in usage of insulin and practice toward preparation of injection site and self-administration techniques, also the study was done to provide opportunities for future studies to fill in the gap on the knowledge, attitude and practice of self-insulin administration that this study could not address.

CHAPTER TWO

2.1. Literature review

Now a day DM is showing a rapid increment in incidence. a study which is conducted in 2013 shows that the world wide coverage was 382 million which this number is expected to rise to 592 million in 2035.[8]according to reports in 2016 more than 29 million Americans are living with diabetes, and 86 million are living with pre diabetes.[16]

Studies show that in the world the prevalence of good knowledge and favorable attitudes about self-insulin administration (SIA) was ranged nearly from 33.3% to 98.7%, 50.3% to 98% receptively,[17] study conducted in Australia in 2021 shows that the prevalence of people living with DM is 5.3% or around 1.3 million people.[18]

In Africa it was discovered that patients do not have adequate knowledge on the sites, storage and the routes of insulin injection and others do not know the proper ways of disposal of insulin used injections.[19]Having less understanding of patient's characteristics and diabetes-related knowledge, practice, and attitude will lead to a high possibility of unsuitable direction and faulty education program. There are few studies done on knowledge of diabetic patients in developing countries like Africa which they shows that patients do not have adequate knowledge on the sites, storage and routes of insulin injection. A study done in Uganda, Kampala University shows that 32.8% of patients do not know that the purpose of SIA is to prevent complication. 20(56%) did not know the correct sites of for insulin injection. [20]

There are factors which contribute to gap on the knowledge about insulin, the attitude and practice of self-insulin administration. Some of those are;

Age; most diabetic patient with increasing age has knowledge on SIA but the problem is that they have difficulty in injecting the proper site related to problem in vision. The young people's understanding about the disease is increasing. In elderly population the boundary between normal and abnormal glucose remains unclear. in a study conducted at Ambo university teaching hospital those young's between age 36 and 55 covers 197(79.4%) of the total good knowledge [21,34]

Sex; there are data's which shows that men's are more compliant than female. A study conducted in zewditu memorial hospital the percentage of male who have good knowledge about SIA is 81(61.4%).[22]

Marital status; those women's who are married perform more self-care behavior than those who married because they share more information discuss more with their husband/wife. A study conducted at metu karl primary hospital shows that those who have good knowledge among married covers 69(53%). [23]

Level of education; those who have low literacy level have less ability to recall what they are advised and inefficient in performing SIA. A study conducted at Uganda,kampala teaching hospital shows that those who joins university covers 50% of having good knowledge about SIA which is higher than the rest. [21]

Religion; it is discovered that most Christian diabetic patients on insulin tend to comply to the treatment than other religions. A study conducted at ambo university referral hospital shows that those Christian covers 87.9% of having good knowledge about SIA.[34]

Occupation; those who are unemployed have less ability to buy drugs related to the economic level. A study conducted at Uganda, kampala teaching hospital shows that among those who have good knowledge employers in government office cover 50% of the total .[22]

Regarding practice a study was conducted and identified errors in all the steps recommended by the American Diabetes Association and Brazilian Diabetes Association for the safe administration of insulin, from hand washing to compression on the injection site.[24] according to study performed in Zewditu memorial hospital those half of patients couldn't inject insulin at 45 degree and around 71.8% of patients injected at same site of injection. The repeated injection at same site results abnormal lipid accumulation at injection site. Another common problem is that a patient injects themselves immediately before or after taking meal this results hypoglycemia.[26]

Regarding the attitude level of DM patients about SIA in Zewditu memorial hospital shows that 62% of them has favorable attitude. Those 180(73.5%) of them agreed that insulin is not tiresome.[29]Because of patients have fear of self-injection nurses should teach them and perform adequate emotional support in performing self-injection, most of the procedure are incorrect which they needs to be knowledgeable regarding the disease and insulin therapy and also they must develop willingness and positive attitude to know more towards Self-administration of insulin injection to overcome the barriers of insulin injection and to have good glycemic control.[29]

2.2. Conceptual frame work[29]

A conceptual frame work on relationship between knowledge, attitude and practice about self insulin administration and factors influence it which was conducted at zewditu memorial hospital. The dependent variables are Patient's knowledge, attitude and Practice of self-insulin administration. The Independent variables includes the Socio-demographic factors like Age, Sex, Marital status, and Educational status, Religion, Place of residence, Ethnic group and Occupation. The Patient related factors include literacy, skill, Fear of embracement and social stigma, Physical health condition, Depression, Time and occupational factor.

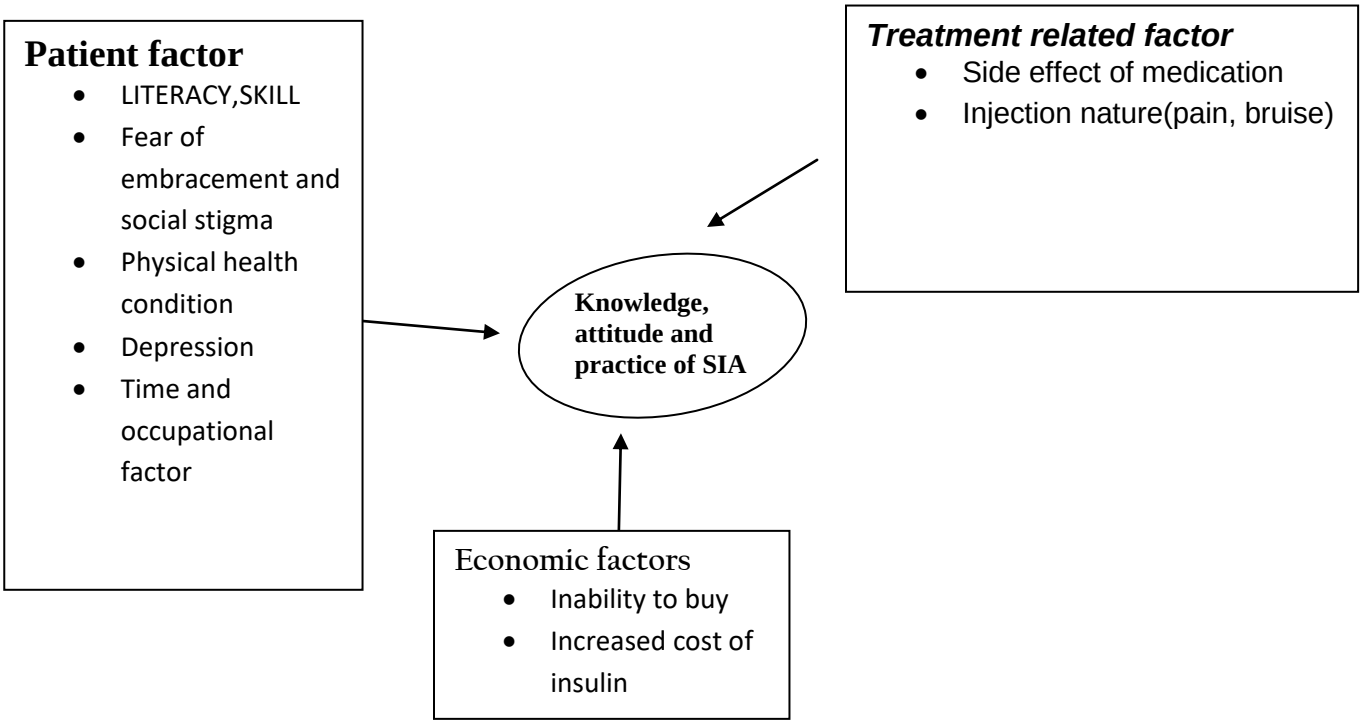

Figure 1: Conceptual frame work on relationship between SIA and factors which influence the usage of insulin [29]

CHAPTER THREE

3. Objective of the study

3.1. General objective

- To Assess knowledge, attitude, and practice toward self- insulin administration and associated factors among diabetic patients at Gurage Zone, southwest Ethiopia, public hospital, 2022.

3.2. Specific objective

- To determine the level of knowledge, attitude and practice of self-insulin administration among DM patients at Gurage Zone, southwest Ethiopia, public hospital from May 06 to May 23, 2022.
- To identify factors influencing self-insulin administration among DM patients at Gurage Zone, southwest Ethiopia, public hospital from May 06 to May 23, 2022

CHAPTER FOUR

4 METHODS AND MATERIALS

4.1. Study area

This study was conducted in Gurage Zone. Gurage Zone is located in South West of Addis Ababa at elevation between 2130 and 2164. Gurage Zone is bordered on Southeast by Hadiya and Yem special Woreda, on West, North and East by the Oromia region. Wolkite is the administrative city of the Zone, according to central statistical agency the number of population of the zone has 5,343,430.[30] Wolkite university specialized hospital is located on Gubre town in front of Wolkite university. Gubre is far away from the capital city Addis Ababa by 167 km and from Wolkite by 17 km. WKUSH was established in 2011 with 123 health workers and number of bed were 112 for inpatients. Gunchre primary hospital is located in Gurage zone, Enamor and ener woreda which its far away from Addis Ababa by 112 km and from Wolkite by 42 km. Agena primary hospital is located in Ezha woreda in which it is located 198 km from Addis Ababa and 23.7 km from Wolkite university.[31]

4.2. Study period

The study was conducted from May 06 to May 23, 2022.

4.3. Study design

An institution based inferential cross sectional study was used.

4.4. Population

4.4.1. Source population

All diabetic patients attending at Wolkite University Specialized Hospital, Agena Primary Hospital and Gunchre Primary Hospital.

4.4.2. Study population

A sample of study was done from diabetes patients who perform SIA, attending at Wolkite University Specialized Hospital,Agena Primary Hospital and Gunchre Primary Hospital

4.5. Inclusion and Exclusion criteria

4.5.1. Inclusion criteria

Patients who have been previously diagnosed with DM were included in the study.

4.5.2. Exclusion criteria

Those who are newly diagnosed with DM and those who have a mental disorder which are unable to respond, unable to hear and or speak were excluded from the study.

4.5.3. Sample size determination

A single population proportion formula was used to determine sample size.

$$n = z^2 p(1-p)/w^2$$

Where, n= required sample size

Z= critical value for normal distribution at 95% confidence interval which is equal to 1.96(at alpha 0.05)

P= an estimate of the proportion of patients who have good attitude is 20.7% which was done previously in Metu Karl Refferal Hospital, Ethiopia.[32] by taking 20.7% of proportion the sample size was taken by single population formula

W= of error which is 5% Margin

$n = 1.96^2 0.207(1-0.207)/0.05^2$n=252.2 approximately 252, the number of sample size

Then finally we considering 10% non-respondents from the participant

$$nf = n + 10/100(n)$$

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$nf = 277.2,$ approximately 277.

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4.3. Sampling technique and procedure

For the collection of data stratified sampling technique was done by selecting three hospitals found in Gurage Zone which are the Wolkite University specialized teaching hospital, Agena Primary Hospital and Gunchre Primary Hospitals.

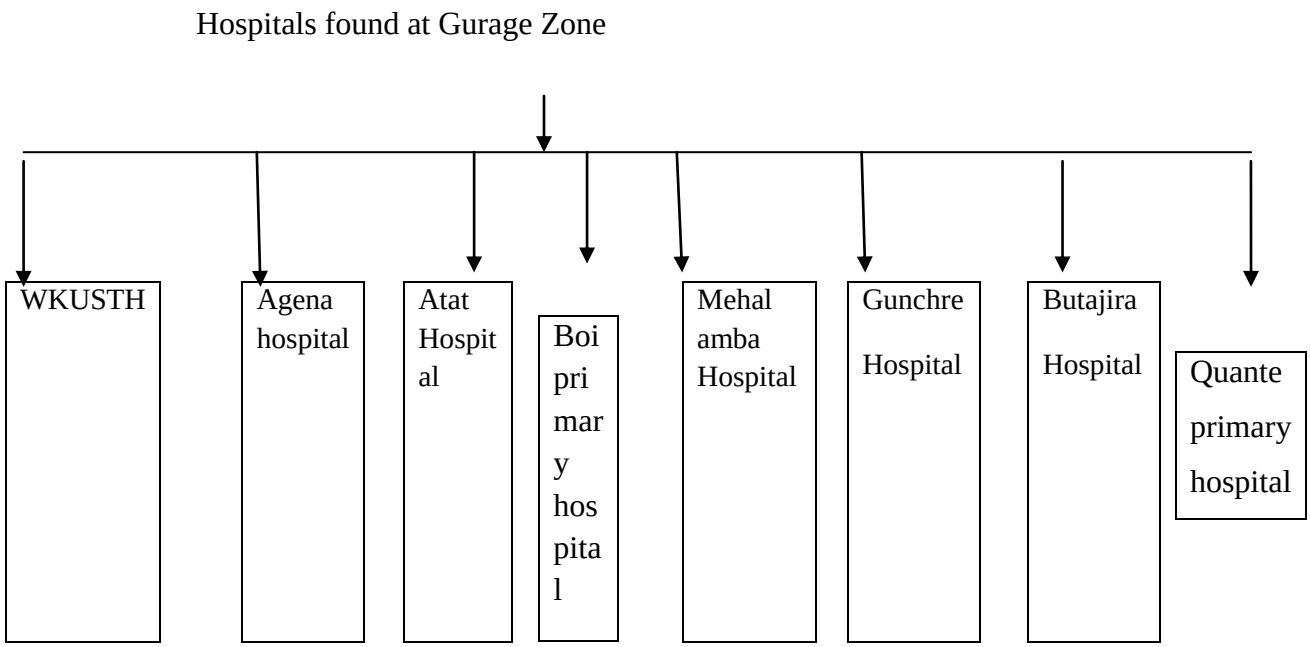

Figure 2; Hospitals found in Gurage zone, south west, Ethiopia, 2022

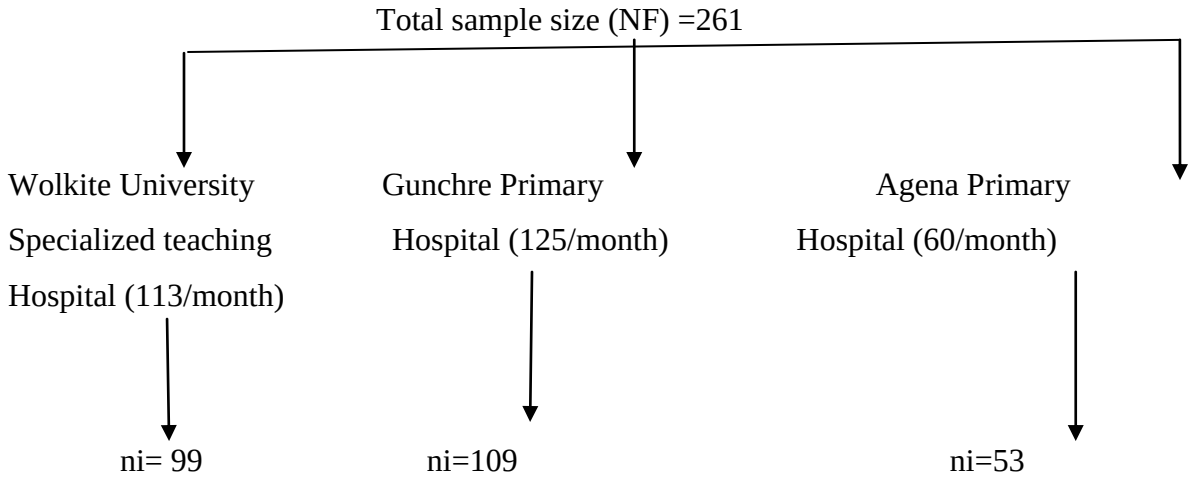

Figure 3; the number of sample size which was taken from selected hospitals

Then a sample of DM patients was selected by consecutive sampling technique from each hospital.

4.4. Dependent variables

- Knowledge, attitude and practice of self insulin administration.

4.6. Independent variables

- Socio-demographic factors (Age, Sex, Marital status, Educational status, Religion, Place of residence, Ethnic group and Occupation)
- Patient related factors (literacy, skill in SIA , Fear of embracement and social stigma, Physical health condition, Depression, Time and occupational factor)
- Treatment related factor like(Side effect of medication, Injection nature(pain, bruise))

4.7. Operational definitions

Good knowledge; refers to person who score greater than 69.2% the mean value (more than4) of knowledge based question.[29]

Average knowledge; refers to person who score between 38.5% and 69.2% of knowledge based question.[29]

Poor knowledge; refers to person who score less than 38.5% of knowledge based question.[29]

Favorable attitude; refers to person who score greater than 60% of attitude based question.[29]

Unfavorable attitude; refers to person who score less than 60% of knowledge based question.[29]

Good practice; refers to person who score greater than the mean value or 50% of practice based question.[29]

Poor practice; refers to person who score less than the mean value or 50% of practice based question.[29]

4.8. Data collection instrument

Structured interview based questionnaires in Amharic were provided to assess knowledge, Attitude and practice about self-insulin administration.

4.11. Data collection technique

Structured questionnaire is developed first in English. The questioners was arranged to meet the information needed to fulfill the particular objective of the research.

Then the first draft of questioner was submitted to the advisors and colleagues for comments. Accordingly redundancy, vagueness and logical flow of the questions was corrected, then after correction is made on the revision of the first questioner the final version of the English questionnaire was translated to Amharic version. Then a pretest questioner on 5% of sample size of study population was conducted in Emdiber health center from May 02 to May 05, 2022. Then after conducting a pretest, evaluation was conducted and done up to May 06. Then the revised questioner was conducted on targeted study population attending at WKUSTH, Agena Primary Hospital and Gunchre Primary Hospital from May 06 to May 23, 2022 by 3 data collectors from nurses working at WKUSTH, Agena Primary Hospital and Gunchre Primary Hospital and 2 supervisors was selected from investigators

4.12. Data quality assurance

There was a series evaluation on the completeness and accuracy of the questioner. A pretest questioner was done on 5% (14 patients) of the study unit which was conducted in DM patients who was attending at Emdiber health center. During the pretest those who need assistance was guided by data collector. the data collectors was selected from WKUSTH, Agena Primary Hospital and Gunchre Primary Hospital they were 3 in number who are BSC nursing graduates working at medical OPD. Training was given for data collectors by 2 supervisors which they were selected from investigators.

4.13. Data processing and analysis

The Collected data was analyzed by using statistical package for social sciences (SPSS) software application version 20 and was presented in graphs, tables and pie charts. Descriptive analysis was take place Binary logistic regression was used to assess the association between outcome and explanatory variables. Odds ratio and p-value at <0.05 were used to see the association and strength between outcome and explanatory variables.

4.14. Ethical consideration

Ethical clearance letter was obtained from Wolkite University College of medicine and health science department of nursing.

Chapter 5

5. Result

5.1 Socio-demographic Characteristics

There were a total of 261 DM patients with response rate of 94.2% was taken to assess the KAP of self insulin administration and to assess the associated factors affecting it. From the total sample the majority152 (58.2%) were male. Regarding their educational level 122(46.74%) has completed at least secondary educational. the majority 212(81.2%) are married.

Table 1; Socio-demographic characteristics of diabetic patients found at gurage zone, public hospital, south west Ethiopia.(n=261)

S no	Variable	Category	Frequency(n)	%
1	Sex	Male	152	58.2%
		Female	109	41.8%
2	Age(years)	<34 year	135	51.7%
		>34 year	126	48.3%
3	Religion	Orthodox	136	52.1%
		Muslim	73	27.9%
		Protestant	38	14.55%
		Catholic	14	5.3%
4	Education	Unable to read and write	37	14.17%
		Primary level	102	39.08%
		Secondary level and above	122	46.74%
5	Occupation	Business worker	76	29.2%
		Officer	54	20.8%
		Agriculture	52	20.0%
		Homemaker	19	7.3%

		Other	59	22.7%
6	Residence	Urban	138	52.9%
		Rural	123	47.1%
7	Ethnic group	Gurage	201	77.3%
		Oromo	21	8.7%
		Amhara	19	6.7%
8	Marital status	Married	212	81.2%
		Single	34	12.7%
		Divorced	15	5.7%
9	Family history of DM	Yes	82	31.4%
		No	179	68.6%

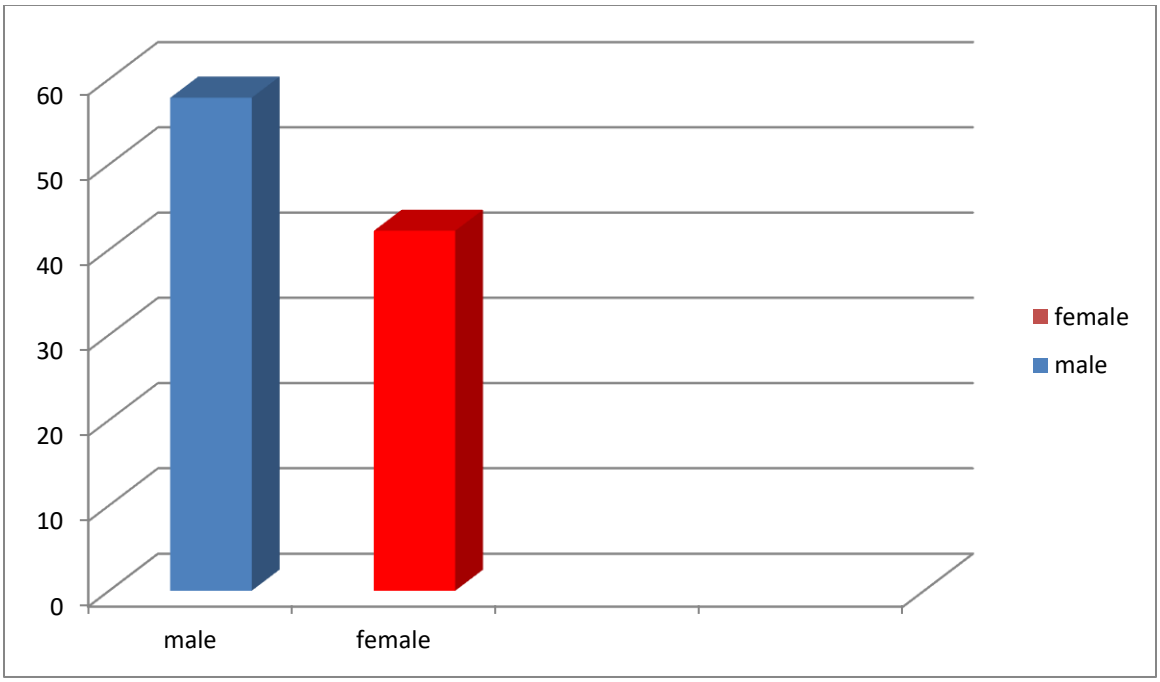

Figure 4; sex ratio of male and female study participants

5.2. Knowledge of the study patients towards insulin self-administration

A patients knowledge was assessed by providing 7 questions, from those study unit those who had a good knowledge are 130(49.8%) and average knowledge of 121(45.3%). around 245(93.9%) patients have information about DM .their source of information is that the majority 202(82.1%) got from the health worker. the result also shows that 203(77.8%) of the patients know that insulin usage is also to prevent the complication

Table 2; knowledge of self-insulin administration among diabetic patients found at gurage zone, public hospital, south west Ethiopia.(n=261)

S no	Variables	Category	Frequency(n)	%
1	Do you have information about DM	Yes	245	93.9
		No	16	6.1
2	Source of information	health worker	202	82.1
		TV/radio	25	10.2
		Newspaper/magazine	2	0.8
		Other people	17	6.9
3	Function of insulin is decreasing blood glucose	Yes	245	93.9
		No	16	6.1
4	Range of rising blood glucose level is between 80-130mg/dl	Yes	209	80.1
		No	52	19.9
5	Purpose of rotation is preventing abnormal fat accumulation	Yes	200	76.6
		No	61	23.4

6	Purpose of insulin is also preventing complications	Yes	203	77.8
		No	58	22.2
7	Do you know the areas to be injected	Yes	256	98.1
		No	5	1.9

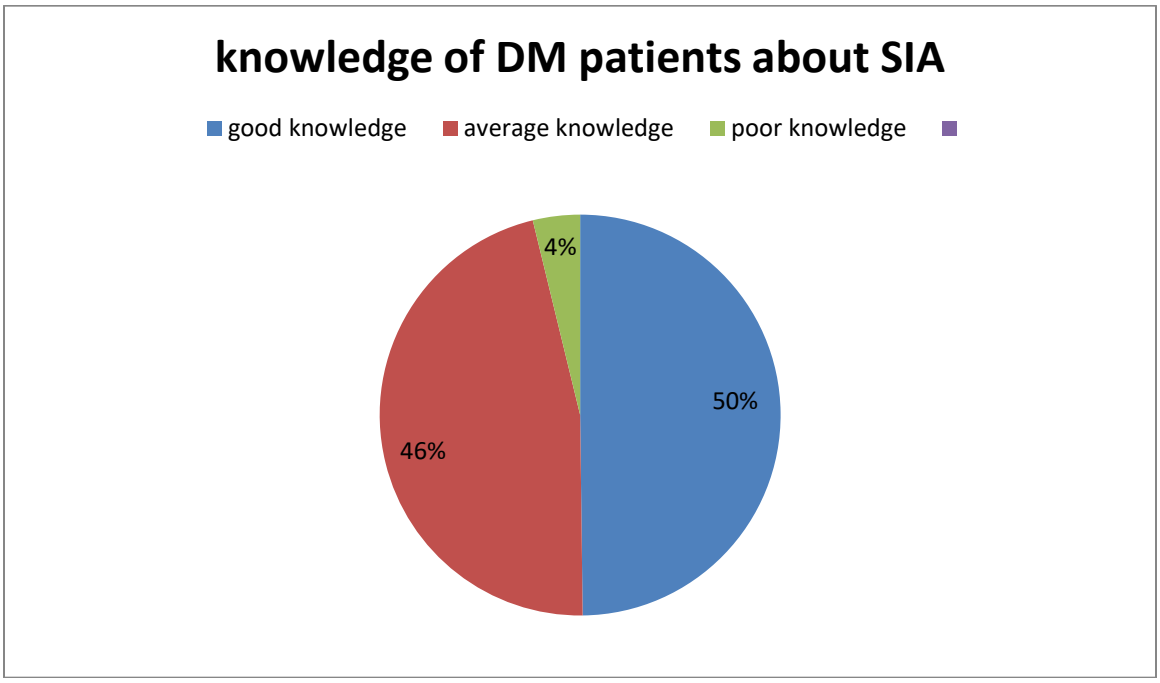

Figure 5; percentage of knowledge level of DM patients

5.3. Attitude of the study patients towards insulin self-administration

The overall attitude of self-insulin administration is assessed by DM patients and 226(86.6%) of study population has favorable attitude. About 131 (50.2%) of people agrees that insulin is not tiresome.

Table 3 : Attitude of the study patients towards insulin self-administration among patients found at Gurage zone, public hospital, south west Ethiopia.(n=261)

S No	Variables	Category	N	%
1	How much do you have satisfaction with insulin	Very satisfied	79	30.3
		satisfied	136	52.1
		Poorly satisfied	46	17.6
2	Insulin decrease blood glucose level	Agree	202	77.4
		Disagree	40	15.3
		Neutral	19	7.3
3	Self-insulin administration is not tire some	Agree	131	50.2
		Disagree	89	34,1
		Neutral	41	15.7
4		Agree	237	90.8

	Self-insulin administration do not bring stigma	Disagree	8	3.1
		Neutral	16	6.1

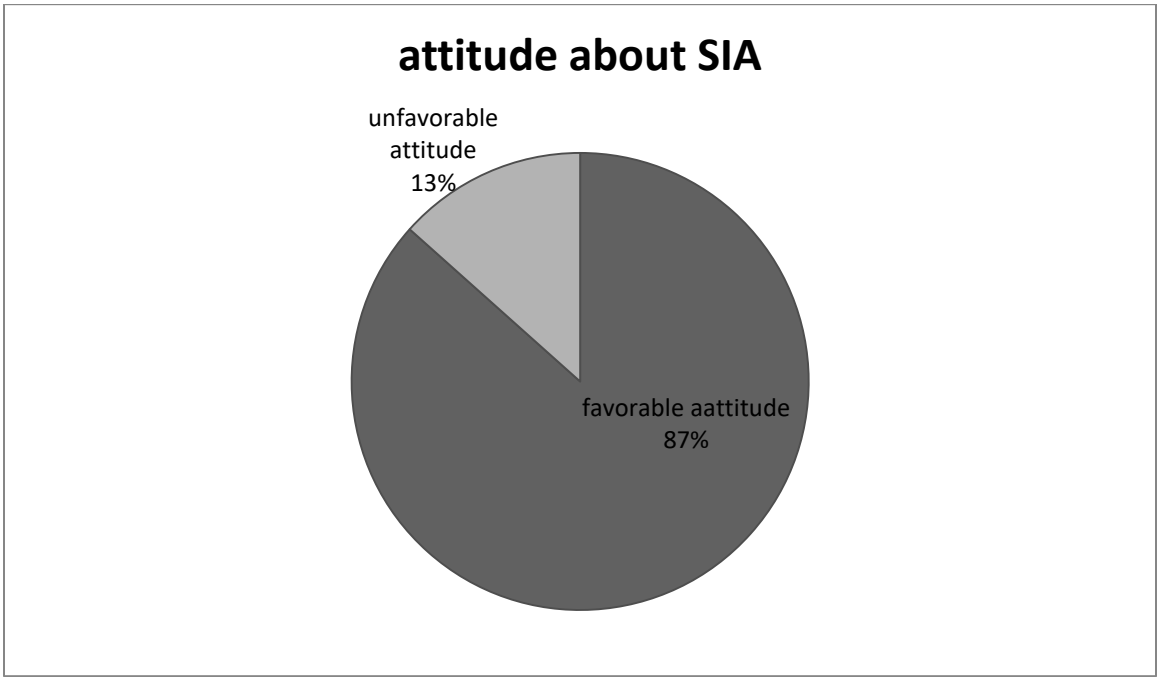

Figure 6 ; percentage of Attitude level of DM patients found at gurage zone, public hospital, south west Ethiopia.(n=261)

5.4. Practice of self-insulin administration among diabetic patients

The overall practice of SIA among DM patient shows that 252(96.6%) of them had good practice regarding SIA.146 (55.9%) of them shake medication before usage. regarding the accurateness of drawing medication 126(48.3%) of them says that it's difficult for them to always draw up accurate dose of insulin. Regarding sanitation only 138(52.9%) of study unit wash hand before preparing medication.

Table 4; Practice of SIA among diabetic patients **found at gurage zone, 2022 (n=261)**

	Variables	Category	**N**	**%**
1	washes hand before preparing medication	Always	138	52.9
		Sometimes	90	34.5
		Never	33	12.6
2	how often measure blood glucose level	Always	126	48.3
		Sometimes	133	51.0
		Never	2	0.7
3	How often shake medication before usage	Always	146	55.9
		Sometimes	96	36.8
		Never	19	7.3
4	How often wipes a rubber before taking medication	Always	92	35.2
		Sometimes	132	50.6
		Never	37	14.2
5	How often you draw up accurate dose of insulin	Always	131	50.2
		Sometimes	126	48.3
		Never	4	1.5
6	How often do you recap after usage	Always	180	69
		Sometimes	80	30.7
		Never	1	0.4
7	How do you administer insulin	By pinching skin	163	62.5
		By inserting needle at 45	90	34.5

		degree		
		I don't care	8	3.1
8	Do you aspirate during injection	Yes	76	29.1
		No	185	70.9
9	Do you have habit of exercise	Yes	97	37.2
		No	164	62.8
10	Where do you store insulin	Refrigerator	82	31.4
		Sand or cold place	173	66.3
		I don't care	6	2.3

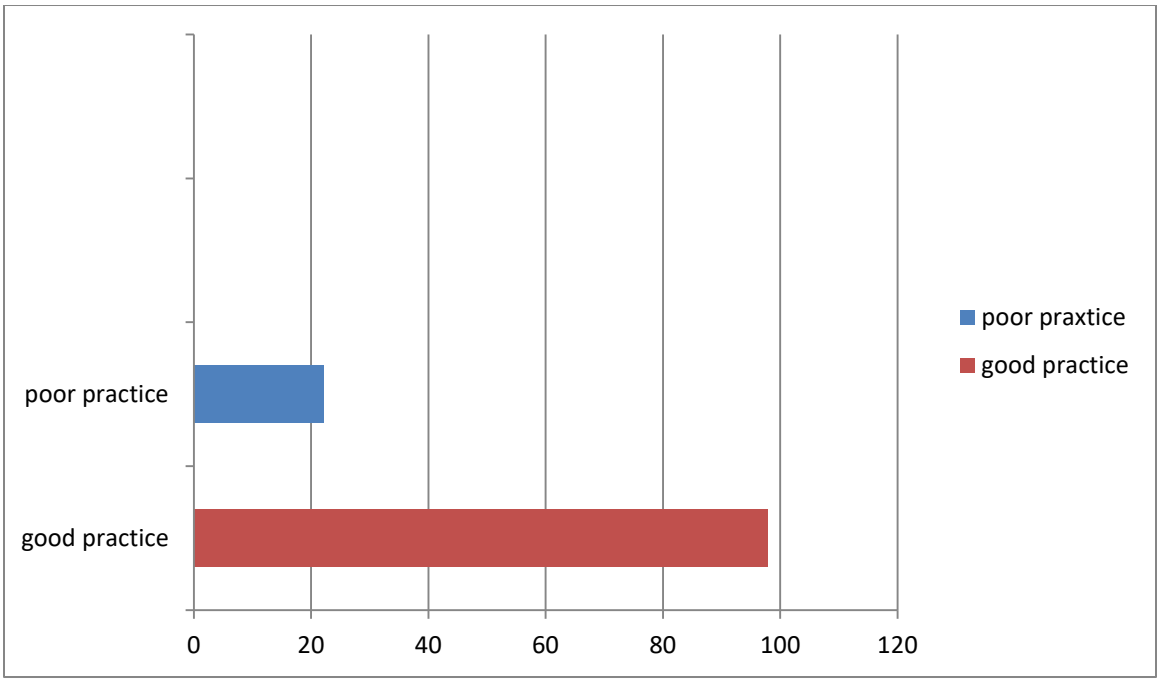

Figure 7; Practice of SIA among DM patients found at gurage zone

Associated factors affecting Knowledge of diabetic patients on self-insulin administration3

Table 5; Association between knowledge and educational level among DM patients found at gurage zone, 2022

Variables	Category	Knowledge			OR (CI=95%)	P value
		Good knowledge	Average knowledge	Poor knowledge		
Educational level	**Unable to read and write**	12	20	4	**0.420(0.114-1.543)**	**0.021**
	Primary level	53	45	4		
	Secondary level	65	56	2		

From the study population of those who have good knowledge 65(24.9%) of participants reached secondary level and above. The educational level has an association with knowledge level about SIA (p=0.021)

Table 6; Association between knowledge and place of residence among DM patients found at gurage zone, 2022

Variables	Category	Knowledge			OR (CI=95%)	P value
		Good knowledge	Average knowledge	Poor knowledge		
Place of residence	Urban	87	48	3	**2.308(0.565-9.432)**	**0.00**
	Rural	43	73	7		

From the patients 123(47.1%) of them are living in rural. The place which the patients living matter their knowledge level which it have an association (p=0.00)

Table 7; Association between knowledge and duration of insulin among DM patients found at gurage zone, 2022

Variables	Category	Knowledge	OR	P value

		Good knowledge	Average knowledge	Poor knowledge	(CI=95%)	
Duration of insulin	≤ 5year	62	61	10	**0.00**	**0.047**
	>5 year	68	60	0		

130(49.8%) of the study population having good knowledge about SIA have short duration of usage of insulin (<5 year).

Table 8; Association between knowledge and monthly income among DM patients found at gurage zone, 2022

Variables	Category	Knowledge			OR (CI=95%)	P value
		Good knowledge	Average knowledge	Poor knowledge		
Monthly income	<4800 birr	61	71	7	**8.525(1.051-69.161)**	**0.00**
	>4800 birr	69	50	3		

From the study population the majority139 (53.25%) of them has monthly income less than 4800 birr. There is relationship between the knowledge level about SIA and monthly income of DM patients (p=0.00).

Associated Factors affecting attitude of self-insulin administration

Table 9; Association between attitude and duration of DM among DM patients found at gurage zone, 2022

Variables	Category	Attitude		OR (CI=95%)	P value
		favorable attitude	Unfavorable attitude		
Duration of DM	< 7 year	138	88	2.094(0.994-4.412)	0.049
	>7 year	1	34		

From the study participants 226(86.6%) of them have duration of less than 7 year. (p=0.049).

Table 10; Association between attitude and educational level among DM patients found at gurage zone, 2022

Variables	Category	Attitude		OR (CI=95%)	P value
		favorable attitude	Unfavorable attitude		
educational level	Unable to read and write	34	2	0.465(0.227-0.952)	0.032
	Primary level	91	11		
	Secondary level and above	101	22		

There is an association between educational level and attitude of DM patients about SIA. (P=0.032)

Table 11; Association between attitude of patient and information about DM among DM patients found at gurage zone, 2022

Variables	Category	Attitude		OR (CI=95%)	P value
		favorable attitude	Unfavorable attitude		
Information about DM	Yes	215	30	0.307(0.100-0.945)	0.031
	No	11	5		

There is significant association between information about DM and their attitude about SIA. (p=0.031, CI=95%, OR=0.307)

Associated factors affecting the practice of self-insulin administration

Table 12; Association between practice and educational level among DM patients found at gurage zone, 2022

Variables	Category	Practice		OR (CI=95%)	P value
		Good practice	Poor practice		
Educational level	**Unable to read and write**	36	0	0.106(0.013-0.851)	0.016
	Primary level	101	1		
	Secondary level	115	8		

From the 123 of those who finished secondary level 115(93.5%) of them perform good practice on SIA.

Table 13; Association between practice and age among DM patients found at gurage zone, 2022

Variables	Category	Practice		OR (CI=95%)	P value
		Good practice	Poor practice		
Age	<38 year	135	0	0.00	0.001
	>38 year	117	9		

Those who have started usage of insulin with short period of time perform more good practice of SIA than those with prolonged period. (p=0.001)

Table 14; Association between practice of and monthly income of patients found at gurage zone, 2022

Variables	Category	Practice		OR (CI=95%)	P value
		Good practice	Poor practice		
Monthly income	<4800 birr	123	8	8.390(1.034-68.071)	0.018
	>4800	129	1		

The monthly income is associated with the practice of SIA (p=0.018)

Chapter 6

6, Discussions

The study identified the knowledge, attitude and practice of self-insulin administration among diabetic patients of gurage zone, south west Ethiopia. In this study the average age of study population is 38year. The study noticed that 152(58.2%) were male which has mild increament with similar finding which was conducted in Zewditu memorial hospital, Addis Ababa, Ethiopia that male student were132 (53.9%)**[29]**. It is an indication that insulin dependent diabetes is still higher in male than female. In relation to self-insulin administration men tend not to fear injection and are more likely to be compliant than women. [19]The educational level of study population shows that much of them has finished their secondary educational level122(46.74%) which it is consistent with study conducted in mettu karl referral hospital, Ethiopia. there is significant association between information about DM and educational level(p=0.021,CI=95%,OR=0.420) which those who have attained a higher educational level are more able to get and receive appropriate information. they are more able to receive and interpret the advice given appropriately. the gap could be addressed by providing information from the health workers starting from the period that patient is newly diagnosed and during the period of insulin usage. The residency rate shows that 138(52.9%) of them lives in urban area and 123(47.1%) of them lives in rural area. the proportion of coverage of urban residence is less when compared to study conducted in zewditu memorial hospital which is 219(89.4%). the urban residents knowledge is more because of that their exposure to technologies which they get additionally from the social media or TV additional to the health worker and they easily able to communicate with the health workers. the gap on knowledge of those on rural area should be addressed by educating, additionally demonstrating what it is not clear on education.**[29]**. There is strong association between attitude of DM patient and the duration of usage of DM (p=0.049, CI =95%, OR=2.094).it indicates that with increasing the duration of exposure to the disease patients begin to adopt and change their negative feeling about the disease. 203(77.8%) of patient knows that the purpose of having insulin is to prevent complication which is higher than study conducted on kampala, uganda15 (42%).[20] there is significant association between patients information about DM and their understanding about the complication which those who have information have 6.840 times more understanding about the complication than those who don’t

have information, it indicates that those who have get appropriate information about DM and self-insulin administration are more able to know about the complication and way of preventing it. It should be addressed by the health workers and patient have to get information from others who are users and have knowledge about it. [20] . 131(50.2%) of them agreed on that insulin is not tiresome which it is less when compared to previously done at Zewditu memorial hospital180 (73.5%).which indicate that more work is expected from different bodies like health worker or responsible government bodies in improving the attitude of patients toward SIA.**[29]** The overall practice of self-insulin administration is that those who have good practice regarding SIA are 271(97.83%), its higher than a similar study conducted at Hawassa referral hospital, southern Ethiopia (54.4%). [33] There is strong association between age and practice of SIA among dm patient (p=0.001) those with at lower level of age needs assistance from other in having injection until they are fit to care for themselves. Those with prolonged duration of insulin perform good practice by 1.196 more times than those who have short duration of having self-insulin administration(p=0.023) which it indicates that having more and repeated exposure to the injection results to an increased information about the practice of SIA. From those who have poor practice 44.4% of them have complain of pain at injection site which it may be from their way of injection, hygienic problem or following inappropriate procedure in having self-injection.the gap in poor technique of injection should be addressed by demonstrating about injection, teaching the angle of injection and the appropriate site for injection. Those who have more income have more able to perform good practice than those who have less incomes (p=0.018, AOR=8.39, CI=95%) due to in accessing the material what its suitable to perform the procedure, in having materials to perform exercise, appropriate materials to store the insulin. the hospitals and health centers should work cooperatively with government and trader on availing needed materials for self injection with low cost to user.[14]

Chapter 7

7. Conclusion and recommendation

7.1. Conclusion

Wfrom the study we can conclude that males are more prone to DM and more need of having care for the disease. Regarding education level 46.74% has reached their secondary level or above, from this we concluded that those who are able to read and write are more able to receive instructions given by health workers and even from other sources. Most of them have knowledge about SIA which it is related to having information about DM indicating that most of the patients have more concern about their disease.

Regarding attitude 71.8% of study population has favorable attitude we can conclude that there is some gap in attitude of patient on having SIA.136(52.1%) of them were satisfied with insulin which their satisfaction level is influenced by the duration that those who have prolonged exposure decrease their satisfaction which they become bored in having injection. We can conclude that most of them have positive attitude regarding to stigma that SIA do not bring stigma even it is expected to all patient to have positive attitude regarding stigma.

Regarding practice we can conclude that most of them 252(96.6%) has good practice of SIA which it is related to having appropriate cares like sanitation, storage of insulin, appropriate follow up of blood glucose level and other. The patients usage of insulin shows that those who have high income are more compliant to usage (p=0.001) it shows that there is some imbalance in income level of the society and the need which they spend for medication. The amount the government present the medication may be in some high for the users. In attempt to assess the practice of self-insulin administration regarding the storage site it's advisable to store it between 2-8 degree Celsius. Therefore the gap on knowledge, attitude and practice of patient should be addressed on providing information from the health worker on that how to measure, administer, how often to measure their blood glucose level. It's better to have discussion with the community members on the problems which influence usage of SIA and how to make them free from cultural influence. Assisting those patients found with old age is needed because of that they could suffer problem in injecting resulting from their defect in vision or movement ability.

7.2. Recommendation

To the study area:

The study shows that there is strong relationship between patients information about SIA and educational level (p=0.00, CI=95%, OR=0.271) which shows that there should be more work expected to address those with less information about SIA. the health workers on medical wards and in diabetic clinics should give thorough health education talks and teach beyond self-administration of insulin including how patents can dispose their used needles, proper storage must be emphasized and hand washing before self-administration of insulin.

To the Respondents/diabetic patients:

71.8% of study population has favorable attitude. Diabetic patients should endeavor to attend diabetic clinics regularly and try as much as possible and have to do what they are taught by the health workers in order to improve their attitude about SIA.

To the government:

The monthly income has effect on usage (p=0.018) those who have low income are less compliant compared to those with high income may be due to the money spent to buy medication which the government should work on accessibility of materials or other resources important to fulfill the need of DM patients. Diabetic patients more so insulin dependent diabetic patients will get all the care they want including the insulin which some of them said that it is expensive.

To the ministry of health:

The ministry of health should integrate with other sectors both to get support for in terms of Sensitizing the country about the possible predisposing factors to diabetes mellitus and possible Ways of preventing it and in terms of treatment and rehabilitation those who get complication despite being on insulin for life.

7.3. Limitation of study

The study couldn't fulfill 100% of response rate which is due to limited period for the data collection.

The practice of insulin self administration was assessed solely on patients' responses without actual observation that could underestimate the magnitude of malpractice.

The study might not show cause and effect relationship because of the nature of study design (cross-sectional).

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Annexes

Questioners

Dear respondents we are from wolkite university college medicine and health science department of Nursing. This questionnaire is prepared in order to assess the knowledge, attitude and the practices done about self insulin administration among type 1 diabetic patients attending at wolkite university specialized hospital. if you are willing you are going to answer some of the question regarding to self insulin administration and generally in some about the disease. There is no possible risk associated with participating in this study, your name will not be written in the questionnaire and please be assured that all the information you give will be kept strictly confidential. Your participation is completely voluntary.

A. Agree

B. Disagree

Data collector name.....

Data collector signature.....

Data collection date...../...../.....

PART I. SOCIO-DEMOGRAPHIC

Instruction: encircle the letter that contains appropriate response for you or write the appropriate answer on the space provided.

1, sex A, male B, female

2, age…….. ----------

3, religion A, orthodox B, Muslim C protestant D, catholic E, other(specify)…….

4, Ethnicity A, Gurage B, Oromo C, Amhara D, other(specify)……..

5, Educational level …….

6, Place of residence A, urban B, rural

7, marital status A, married B, single C, divorced D, widowed

8, monthly income in ETB……..

9, family history of DM A, yes B, no

10, duration of DM in year ……..

11, duration of insulin usage in year

Knowledge based questioner toward self insulin administration

12, do you have adequate information about DM

A, yes B, no

13, if yes for question 12 where do you get the information from ----------

14, Function of insulin is decreasing blood glucose level

A, yes B, no

15, Normal range of blood glucose level after meal should be between 140-199mg/dl

A, yes B, no

16, purpose of rotating site of injection is to prevent abnormal fat accumulation

A, yes B, no

17, Insulin usage by itself causes complication

A, yes B, no

18, do you know the areas to be injected?

A, yes B. no

19, what are the areas to be injected----------

Practice based questioner toward self insulin administration

20, how often do you wash your hand before mixing a medication?

A, always B, sometimes C, never

21, how often you measure blood glucose level before and after taking insulin

A, always B, sometimes C, never

22, how often you shake insulin before administration

A, always B, sometimes C, never

23, how often do you wipe the rubber top with alcohol70%?

A, always B, sometimes C, never

24, how often do you draw up the quantity of insulin necessary to complete the prescribed dose?

A, always B, sometimes C, never

25, How often do you recap the bottle after usage A, always B, sometimes C, never

26, how do you administer insulin?

A, by pinching fold of skin B, by inserting needle at 45degree C, I don't care about the way of administration

27, If you use insulin syringe do you aspirate the fluid back into the syringe to check for the Blood return

A, yes B, no

28, do you have habit of doing exercise as advice by your doctor

A, yes B, no

29, where do you store your insulin vial----------

Attitude based questioner toward self insulin administration

30, how much do you have satisfaction with insulin medication?

A, Satisfied B, very satisfied C, poorly satisfied

31, Insulin self-administration decreases blood glucose

A, agree B, disagree C, neutral

32, Insulin self-administration is not tiresome

A, agree B, disagree C, neutral

33, Insulin self-administration does not brings stigma

A, agree B, disagree C, neutral

Personal factor related questioner

34, is there any health abnormality other than DM

A, yes B, no

35, if yes to above question does it trigger your usage of insulin

A, yes B, no

36, do you have depression?

A, yes B, no

37, Occupation A, homemaker B agriculture C, business D, officer E, other

38, does it trigger usage of SIA?

A, yes B, no

Cultural belief related questioner

39, is taking modern medicine useful

A, yes B, no

40, Insulin self-administration is acceptable

A, agree B, disagree C, neutral

41, does taking insulin causes hypoglycemia

A, yes B, no

Treatment related factor

42, is there any side effect you have been exposed after taking medication?

A, yes B, no

43, do you have any bruise or excessive pain at injection site?

A, yes B, no

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የነርሲንግ የትምርት ክፍል

<u>የስኪር ታካሚዎች የኢንሱሊን አጠቃቀም ላይ ያተኮረ መጠይቅ; 2014</u>

<u>ታካሚዉ በጥናቱ ላይ ለመሳተፍ ፍቃደኛ ስለመሆናቸዉ የሚገልፅ ፎርም</u>

እንደምን ሰነበቱ? እኛ ዋለልኝ ክፍሌ፣መሰረት ኑሬ እና ትግስት ጥላሁን የተባልን በወልጤ ዩኒቨርሲቲ የጤና ትምርት ክፍል የነርሲንግ ተማሪዎች ስንሆን በወልጤ ዩኒቨርሲቲ ለሚደረገዉ ጥናት ክፍል ተሳታፊ ነን. የዚ ጥናት ኣላማ የስኪር ታካሚዎችን ስለ ኢንሱሊን አጠቃቀም ያላቸዉን እዉቀት፣ግንዛቤ እና አጠቃቀም ሁኔታዎች እና ተያያዥ ችግሮችን ለመረዳት ይረዳ ዘንድ የተዘጋጀ ሲሆን ለጥናት እና ምርምሩ መሳካት የእርሶ ትብብር እንሻለን፤፤ ይሄ ጥናት እርሶ ላይ ምንም አይነት ችግር የማይፈጥር ሲሆን የእርሶ ስምም ሆነ አድራሻ የማይካተት መሆኑን እንገልፃለን፤፤ የእርሶ ተሳትፎ በፍቃደኝነት ላይ የተመሰረተ ነዉ.።

የሰብሳቢዉ ስም ----------

የሰብሳቢዉ ፊርማ.....

የተሰበሰበበት ቀን...../...../.....

ትክክለኛ መልስ ይሆናል ያሉትን ያክብቡ እንዲሁም ባዶ ቦታዎችን ማብራሪያ ይስጡ

1, ፆታ ሀ. ወንድ ለ. ሴት

2, እድሜ.....

3, ሀይማኖት ሀ. ኦርቶዶክስ ለ. ሙስሊም ሐ. ፕሮቴስታንት መ. ካቶሊክ ሰ. ሌላ(ጥቀስ)

4.ብሄር ሀ. ጉራጌ ለ. ኦሮሞ ሐ. አማራ መ. ሌላ(ጥቀስ).....

5, የትምርት ደረጃ.....

6, መኖሪያ ቦታ ሀ. ከተማ ለ. ገጠር

7, የጋብቻ ሁኔታ ሀ. ያገባ ለ. ያላገባ ሐ. አግብቶ የፈታ መ. ባለቤቱ የሞተበት

8, የወር ገቢ መጠን በብር .....

9, በቤተሰብ የስኪር በሽታ ያለዉ አለ ሀ. አዉ ለ. የለም 10, የስኪር በሽታ ከያዘሀ/ሽ ምን ያክል ጊዜ ሆኖሻል/ሃል

11, ኢንሱሊን መጠቀም ከጀመርክ/ሽ ምን ያክል ጊዜ ሆኖሃል/ሻል.....

ስለ ስኪር ህመም የታካሚዉ እዉቀትን የተመለከቱ ጥያቄዎች

12,ስለ ስኪር በሽታ በቂ መረጃ አለህ/ሽ ወይ

ሀ. አዎ አለኝ ለ.አይ የለኝም

13. አዎ ከሆነ መልሱ መረጃዉን ከየት ነዉ ያገኘነዉ .....

14፣የኢንሱሊን አገልግሎት የደም መጠንን መቀነስ ነዉ

ሀ. አዎ ነዉ ለ.አይ አይደለም

15,ትክክለኛ የደም ስኪር መጠን ከ 140-199 ባለዉ ዉስጥ ነዉ

ሀ. አዎ ነዉ ለ.አይ አይደለም

16,የኢንሱሊን መዉጊያ ቦታ መቀያየር ጥቅሙ ከመጠን ያለፈ ስብን ለመከላከል ነዉ

ሀ. አዎ ለ.አይ አይደለም

17,ኢንሱሊን መጠቀም በራሱ ተያያዥ ጉዳቶችን ያመጣል

ሀ. አዎ ለ.አይ አይደለም

18,የኢንሱሊን መዉጊያ ቦታዎችን ታዉቃለህ/ታዉቂያለሽ

ሀ. አዎ ለ.አይ አይደለም

19,አዎ ከሆነ መልሱ የት የት ቦታ ላይ ነዉ ምንሰጠዉ----------

የታካሚዉ የኢንሱሊን አጠቃቀም የተመለከቱ ጥያቄዎች

20, እጅህን መዳኒት ከማዘጋጀትህ በፊት ትታጠባለህ

ሀ. አዉ ሁልጊዜ ለ.አንዳንዴ ሐ.አልታጠብም

21,ኢንሱሊን ከመጠቀም በፊት ወይም በኋላ የደም ስኳር መጠንህን/ሽን ትለካለህ

ሀ.አዉ ሁልጊዜ ለ. አንዳንዴ ሐ. አልታጠብም

22,ኢንሱሊን ከመጠቀም በፊት የኢንሱሊን እቃዉን ትበጠብጣለህ/ጫለሽ

ሀ. አዉ ሁልጊዜ ለ. አንዳንዴ ሐ. አልታጠብም

23,ኢንሱሊን ከመጠቀም በፊት የኢንሱሊን ክዳኑን ታፀዳለህ/ጀለሽ

አዉ ሁልጊዜ አንዳንዴ አላፀዳም

24,ኢንሱሊን ከመጠቀምህ/ሽ በፊት መጠኑን በታዘዘልህ ልክ ትለካለህ

አዉ ሁልጊዜ አንዳንዴ አልለካም

25ኢንሱሊን ከተጠቀምክ/ሽ ቦኋላ ክዳኑን ትከድናለህ/ሽ

ሀ. አዉ ሁልጊዜ ለ. አንዳንዴ ሐ. አልከድንም

26,ኢንሱሊን እንዴት ነዉ ምትጠቀመ/ሚዉ

ሀ. ቆዳዬን በጣቶቼ በመያዝ ለ. መርፍዉን 45 ዲግሪ በመያዝ ሐ. እንዴት መዉጋት እንዳለብኝ አልጨነቅም

27,ኢንሱሊን መርፌ ከመዉጋትህ/ሽ በፊት ደም ስር ላይ አለመሆኑን ታረጋግጣለህ

ሀ. አዉ ለ. አይደለም

28, የኣካል ብቃት አንቅስቃሴ ትሰራለህ/ሪያለሽ

ሀ. አዉ ለ. አይደለም

29,የኢንሱሊን እቃዉን የት ነዉ ምታስቀምጪ/ጠዉ----------

ስለ ስኪር ህመም የታካሚዉ እዉቀትን የተመለከቱ ጥያቄዎች

30, ስለ ኢንሱሊን መዳኒት ምን ታስባለህ

ሀ. በጣም ጥሩ ነዉ ለ. ጥሩ ነዉ ሐ.ጥሩ አይደለም

31, ኢንሱሊን መጠቀም የደም ስኪር መጠንን ይቀንሳል
ሀ. አዉ እስማማለሁ ለ. አልስማማም
32. ኢንሱሊን መርፌ መጠቀም አድካሚ ነዉ
ሀ. አዉ እስማማለሁ ለ. አልስማማም
33, ኢንሱሊን መጠቀም ማህበራዊ ግንኙነት ላይ ምንም አይነት ችግር አያመጣም
ሀ. አዉ እስማማለሁ ለ. አልስማማም

ኢንሱሊን መጠቀም በግለሰብ ደረጃ የሚያመጣዉን ችግሮች የተመለከቱ መጠይቆች

34, ከስኪር ህመም ዉጪ ሌላ ህመም አለብህ/ሽ

ሀ. አዉ ለ. የለብኝም

35, አዉ ከሆነ ህመሙ ኢንሱሊን ለመጠቀም ያስቸግርሻል/ህ

ሀ. አዉ ለ. የለብኝም

36, ድብርት ስሜት ይሰማሃል/ሻል

ሀ. አዉ ለ. አይሰማኝም

37, የስራ ድርሻ

ሀ. ንግድ ለ. እርሻ ሐ. የቢሮ ሰራተኛ መ. ሌላ ስራ

38, ስራዉ ኢንሱሊን ለመጠቀም ያስቸግርሻል/ህ

ሀ. አዉ ለ. አያስቸግረኝም

ኢንሱሊን መጠቀም በማህበረሰብ ደረጃ የሚያመጣዉን ችግሮች የተመለከቱ መጠይቆች

39, ከባህል ህክምና ዘመናዊ ህክምና ይሻላል ብለህ/ሽ ታስባህ/ሽ

ለ. አይ

40, ኢንሱሊን መጠቀም ጥሩ ነዉ ብለህ/ሽ ታስባለህ/ሽ

ሀ. አዉ ለ. አይ

41,ኢንሱሊን መጠቀም ከሚገባዉ በታች የስኪር መጠንን ይቀንሳል

ሀ. አዉ ለ. አይ

ኢንሱሊን ከመጠቀም ጋር ተያይዞ የሚመጡ ጉዳቶች የተመለከቱ መጠይቆች

42, ኢንሱሊን መጠቀም የጎንዮሽ ጉዳት አድርሶብሻ/ሀል

ሀ. አዉ ለ. አይ

43,ኢንሱሊን ምትወጊ/ጋበት ቦታ ላይ የተለየ ጠባሳ ወይም ህመም ይሰማሃል

ሀ. አዉ ለ. አይ