Awareness and Practice of Patients on Insulin Self Medication among Diabetic Patients Attending KIUTH Medical Ward.

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ABSTRACT

Insulin is a drug used in the treatment of type one diabetes. Patients must be actively involved in self-administration and hence it requires them to be much more equipped with good knowledge and practices towards the use of insulin. Therefore, the purpose of the study was to assess the knowledge and practices of diabetic patients on insulin self-medication attending KIU-TH medical ward.The study was descriptive cross-sectional. Quantitative methods were employed in data collection and 36 respondents were involved both male and female who were selected using a systematic sampling method. Majority of the respondent 20(55%) were above 50 years, 18(50%) were married. Majority were Catholics 12(33%), male were 26(72%) which indicated that insulin dependent diabetes is still high in male than female. 18 (50%) had reached university and 18 (50%) of them were employed. Generally respondents knowledge was good as majority 26(72%) had ever received information about insulin. 15 (42%) knew that insulin can cause a low blood glucose level when given in excess and 20(55%) knew the signs and symptoms of hypoglycemia plus the home management of hypoglycemic effect of insulin 20 (55%). Practices were not satisfying, those who kept insulin in a freezer, in cold places, and anywhere were equal 10 (295%). Majority 20(56%) did not know the correct sites of insulin injection, Majority did not wash hands before injecting themselves 18 (50%). 10 (28%) disposed of their insulin used needles in a pit 10 (28%), 10 (28%) in the toilet. 15 (42%) found it expensive to buy insulin leading to poor adherence. Despite good knowledge towards self-insulin administration, respondents demonstrated poor/unsatisfying practice and hence need to be educated more for better results.
Keywords: knowledge, practice, insulin, self-medication, diabetic patients

INTRODUCTION

Insulin is a drug used in the treatment of diabetes type one and the emergencies of diabetes type two [1-10]. Diabetes is a chronic disease which occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin produced [11-20]. This leads to increased concentration of glucose in blood and body weakness [20-30]. There are three types of diabetes that is to say: Type 1 which is known as IDDM, Type 2 known as NIDDM, and gestational diabetes [31-39].

Insulin is a drug of choice used in the treatment of diabetes type one all over the world but patients struggle to buy it and the syringes they should use leading to poor glycemic control [27-39]. This is one of the reasons why the prevalence of diabetes has increased, making diabetes to be recognized as one of the leading cause of death and disability with India being in the leading position. WHO estimated that 366 million people in the world by 2030 will be affected by diabetes. 387million people globally have diabetes with type one accounting for 5-10% of diabetic patients [11].

East Africa and other developing countries are also involved where diabetes is now emerging as an epidemic of the 21st Century and it threatens to affect the health care system in the near future, sadly, the majority of the people with diabetes in developing countries are within the productive age range of 45 to 64

years. Besides their reduced productivity, diabetes further makes it expensive in terms of drugs and the economic growth is slowed down [12].

In Uganda according to study carried out from Mulago Hospital, it was reported that the prevalence of non-adherent diabetic patients was still high which concluded that adherence to diabetic treatment was still suboptimal. There is need to improve it through strategies helping patients understand their drug regimens, always availing drugs in the hospital so that they do not have to buy them and giving shorter time between visits to health worker and further studies should be done to find out why females are not adhering to insulin injection as compared to men so as to improve their adherence [13].

METHODOLOGY

Study Design

This study employed a descriptive cross-sectional study design and quantitative method of data collection. The study design was used because it allowed rapid data collection and a snap short interaction with a small group of respondents at a certain point in time. This allowed conclusions about phenomena across a wide population to be drawn.

Study Setting

The study was carried out at KIUTH which is found in Ishaka Municipality, Bushenyi district in south western part of Uganda.

Study Population

The study consisted of diabetic patients on insulin medication both male and female in the age bracket of 18 – 60years at Kampala international University teaching hospital.

Sample Size Determination

The sample size of the participant considered Kish and Leslie (1965), formula which state that;

$$n = \left(\frac{Z^2 p\, q}{d^2} \right)$$

Where, n=Desired sample size, Z= Standard deviation at confidence level of 95% = 1.96

p = Proportion of population with desired characteristics, q= proportion of population without desired characteristics. d=level precision.

Therefore for this study;

n= desired sample size.

P= proportion of the population of diabetic patients aged 18 to 60 years estimated at 50%= 0.5.

$$n = \left(\frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} \right)$$

$$n = 384$$

According to Kish and Leslie's formula (1965), the sample size was 384 diabetic patients on insulin self -medication aged between 18 and 60 years. However, I used a sample size of 36 respondents (diabetic patients on insulin self- medication aged between 18and 60 years) due to limited time and resources for the study.

n=36 respondents, Therefore 36 respondents were recruited for the study.

Sampling Procedure

Systematic sampling method was used to select respondents where the researcher made a list of all available patients on each research day and every 5th person on the list was selected for the study. This method was opted for because it was easy to use and shortened the time as some respondents were in a hurry to go for treatment so that they reach home early.

Inclusion Criteria

The study included all diabetic patients on insulin self-medication aged 18 – 60years who consented and were on insulin self-medication.

Exclusion Criteria

Diabetic patients who were not on insulin and those who did not consent were excluded from the study.

Data Collection Procedure

Permission to conduct a study was obtained from the research committee Kampala International University School of nursing sciences. On each research day, the respondents selected were talked to and the researcher explained to them the

need for their participation in the study. Small papers with numbers written on them were put in a box and every diabetic patient on insulin self-medication who picked number 1 to 8 was selected until all the required number was obtained.

Data Analysis

The collected data was summarised and tabulated using Microsoft Excel showing frequency tables, bar graphs and Pie charts of each response in order to make interpretation and analysis easier. The most frequent responses were used as a measure of the truth about the event and this helped to draw conclusions in chapter five of the report.

Ethical Consideration

A letter of introduction was obtained from Kampala International University School of Nursing sciences, to permit the researcher to carry out the research. Permission was obtained from KIUTH Executive Director for acceptance into their facility and consent was sought from every participant. The study was on a voluntary basis and information was kept private and confidential. Participants were explained to that they had the right to withdraw from the study at any moment one felt uncomfortable to continue participating without any penalty. The study was conducted while upholding the professional cord of conduct in a manner that would not compromise the scientific inclinations of the research.

RESULTS

Table 1: Socio-Demographic Characteristics

Sex	Frequency(f)		Percentage(%)
Male	26	72	
Female	10	28	
Age	**Frequency (f)**		**Percentages (%)**
18-28	1	3	
29-39	6	17	
40-50	9	25	
Above 50	20	55	
Marital status	**Frequency(f)**		**Percentage (%)**
Single	5	14	
Divorced	5	14	
Married	18	50	
Others	8	22	
Academic Level		**Frequency(f)**	**Percentage (%)**
Primary	10	28	
Secondary	5	14	
University	18	50	
Others	2	6	
Religion	**Frequency(f)**		**Percentage (%)**
Muslim	4	11	
Catholic	12	33	
Anglican	10	28	
Pentecostal	4	11	
Others	2	6	
Occupation		**Frequency(f)**	**Percentage (%)**
Employed	18	50	
Un employed	10	28	
Business	8	22	
Others	2	6	

Table 1 shows that majority of the respondents were male 26(72%) and 10 (28%) were female, out of 36 participants, 20(55%) were above 50 years, 25% were between the age of 40 - 50 years, 17% were between 29-39 years and 3% were between 18-28 years. Most of them 18(50%) were married, the divorced and the single were equal 5(14%), and others were 8(22%). Majority 18 (50%) of respondents had reached university, 10 (28%) had stopped in primary, 5 (14%)of them had reached secondary and 3 (8%) were in others, Catholics carried the biggest number (12)33%, Anglican were (10)28% Muslims and Pentecostals were equal (4)11% and others 2(6%). 18 (50%) of respondents were employed10 (28%) of them were unemployed, 6 (17%)of them were business workers and 2 (6%)

Table 2: Ever received information about insulin, n= 36%

Ever received information about insulin	Frequency (f)	Percentage (%)
Yes	26	72.2
No	10	27.8

Table 2 shows that the majority of the respondents 26 (72.2%) had ever received information about insulin and 10 (27.8%) had never received information about insulin.
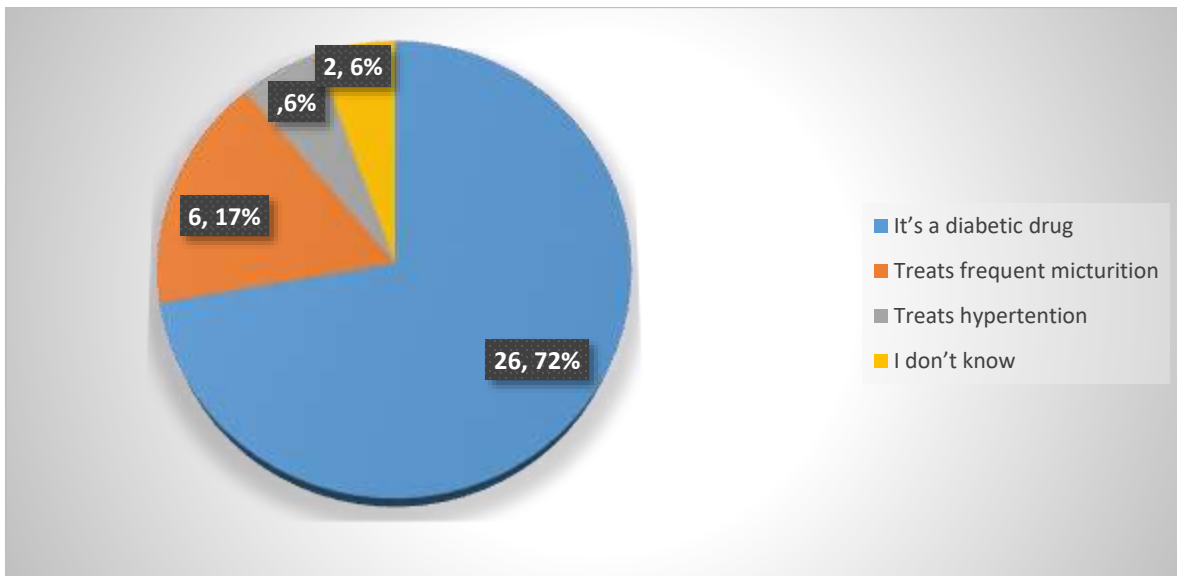

Figure 1: Respondent's knowledge about insulin and its use, 36%

Figure 1 shows that most of the respondents knew about insulin 26 (72%), 6 (17) of them said it treats frequent maturation, 2 (6%) of them said it treats hypertension and 2 (6%) of the 36 respondents said they did not know.

Table 3: Respondent's knowledge on complications of insulin use, n = 36

Complications of insulin	Frequency (f)	Percentage (%)
Causes low blood sugar when given in excess.	15	42
No complication at all	6	18
I don't know.	14	39
Others said it causes drowsiness.	1	3

Table 3 indicates that among 36 respondents, 15 (42%) knew that insulin can cause a low blood glucose level when given in excess, 6 (17%) of them said it has no complication at all, 14 (39%) did not know and 1 (3%) said it causes drowsiness.

Table 4: Respondent's knowledge on the signs and symptoms of hypoglycemia, n=36

Knows the signs and symptoms of hypoglycemia	Frequency (f)	Percentage (%)
Yes	10	29
No	20	55
Not sure	6	17

Table 4 shows that majority of them 20 (55%) knew the signs and symptoms of hypoglycemia only 10 (27.8%) knew, and others were not sure 6(17%).
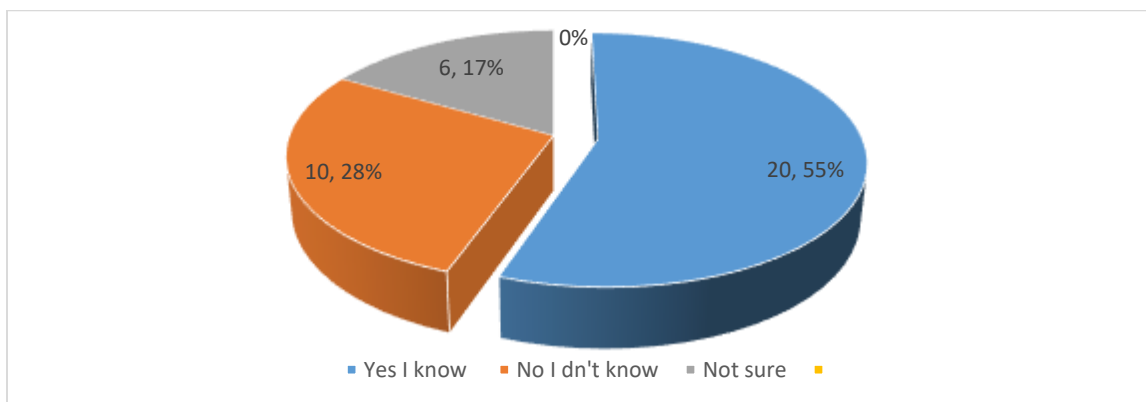

Figure 3: Knows the home management of hypoglycemic effect of insulin, n=36

Figure 3 shows that majority of the respondents knew the home management of hypoglycemic effect of insulin 20 (55%), some of them did not know 10 (27.8%), and 6 (16.7%) were not sure.
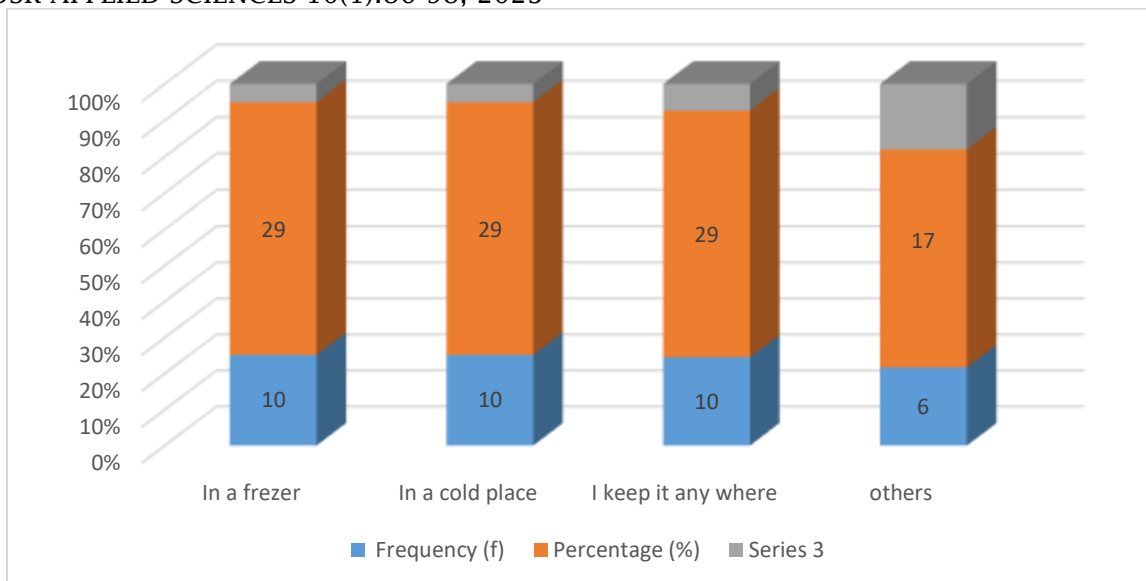
Figure 4: Storage of insulin at home, n=50

Figure 4 shows that 10(29%), 10(29%), 10(29%), and 6(17%) kept insulin in a freezer, in cold places, anywhere, and other ways of storage respectively

Table 5: Knowledge of correct site for insulin injection.

Knows correct site	Frequency (f)	Percentage (%)
Yes	16	44
No	20	56

Table 5 shows that majority of the respondents 20 (56%) did not know the correct sites of insulin only 16 (44%) new the correct site for insulin injection.

Table 6: Washes hands when going to inject self with insulin, n=36

Wash hands	*Frequency (f)*	*Percentage (%)*
Yes	10	27.8
No	18	50
Sometimes	8	22.2

Table 6: Shows that majority of respondents do not wash hands before injecting themselves 18 (50%) only 10 (28%) wash their hands and 8(22%) only wash once in a while.

Table 7: Eats something immediately after insulin injection, n=36

Response	Frequency (f)	Percentage (%)
Yes	32	89
No	4	11

Table 7 shows that majority of the participants eat something after insulin injection 32 (89%), and 4(11%) do not eat anything immediately after the injection.
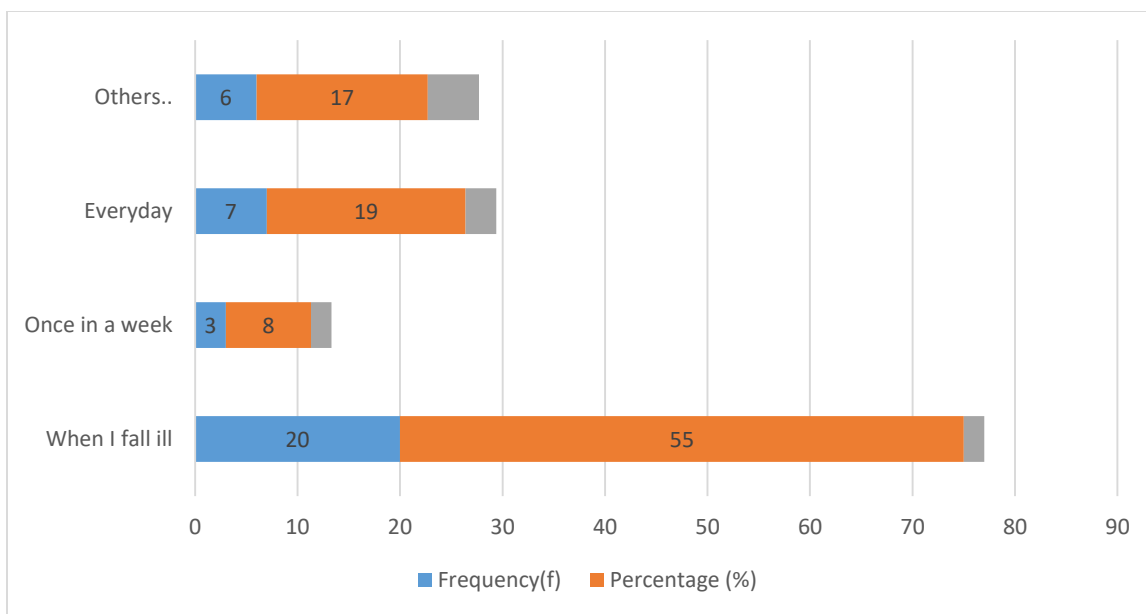
Figure 5: Frequency of checking blood glucose level

Figure 5 shows that majority of the respondents check their blood glucose level when they fall ill 20 (55%), few of them check once in a week 3 (8%), 7 (19%) of them check every day and others who do not check were 6 (17%).

Table 8: Do you receive your insulin injection as often as doctors prescribe for you?

Response	Frequency(f)	Percentage (%)
Yes	10	27.8
No	20	50
Others	6	16.7

Table 8 indicates that among 36 respondents, 10 (29%) of them received their insulin injection as prescribed by the doctor, majority of them 20 (50) do not receive it and others said receive it as prescribed once in a while 6 (17%).

Table 9: Ever used a glucometer

Response	Frequency (f)	Percentage (%)
Yes	10	28
No	26	72

Table 9 Shows that majority of the respondents had never used a glucometer, 26 (72%) and 10 (28%) had ever used a glucometer.

Table 10: Disposal of syringes after use, n=36

Response	Frequency (f)	Percentage (%)
I dug a hole where I dispose them	10	28
In the toilet	10	28
On the rubbish pit	10	28
Others	6	17

Table 10 shows that respondents disposed off their insulin used needles in a pit 10 (28%), some of them 10 (28%) dispose off in the toilet, 10 (28%throw them on the rubbish pit and others said they throw them in the bush. 6 (17%).

Table 11: Challenges faced during insulin self-medication

Response	Frequency (f)	Percentage (%)
Is expensive	15	42
It's painful	15	42
No challenge	1	3
Others	5	14

Table 11 shows that of 36 respondents, 15 (42%) found it expensive to buy insulin, 15 (42%) of them said it's painful, only one said gets no challenge 1(3%) and others said transport to the health center or pharmacy was a challenge 5 (14%).

DISCUSSION

According to the study majority of the respondent 20(55%) were above 50 years, Usually diabetic patients with old age have good knowledge and portray good practices towards insulin self-administration however due to the growing age and the fact that they have spent many years with the disease their site tends to reduce and this affects their ability to inject themselves with insulin. One of the earlier studies that was done by Kadirvelu et al. [14] Was in line with this finding and revealed that diabetic patients with old age often have enough knowledge on insulin self-medication but some of them lose their sight as a complication of the disease. This makes it difficult for them to inject themselves with insulin because they can't see properly. So, their families and friends can improve this by assisting in complex practices like, glucose testing, insulin injection, diabetes meal planning, checking feet, and exercises. Fortunately, most of them 18(50%) were married and this implied that responds could be assisted by their partners to inject them and also give them other diabetic care hence had good practices. This finding was in not in line with the study that was done by Kadivelu et al. [14] which revealed that most women who tent to exhibit better self-care behavior are less likely to be married.

The Catholics carried the biggest number 12(33%) though there was not much gap from Anglicans who were 10(28%), religion is yet another strong factor which affects many aspects of life with health inclusive, for instance nowadays there are many patients in some denominations who are convinced that they have been prayed for and hence should not continue with their life long therapy, however for this study did not encounter any evidence of religion affecting insulin self-medication. On reviewing the literature in one of the studies by Ebrahim et al. [15] it was discovered that most Christian diabetic patients on insulin tend to comply with the treatment than other religions.

Most of them were male 26(72%),this was an indication that insulin dependent diabetes is still high in males than female, in relation to insulin self-medication, men

tend not fear injections and therefore are more likely to be compliant than women, however, on the other hand men are more likely to make themselves stronger considering the superiority of man more so in African where men even when they become sick it is later when the disease has advanced that they either seek medical attention therefore in this way women out compete men in exhibiting good knowledge and practices towards insulin self-medication though women tend to fear injections hence poor compliance. This was in agreement with a study by Kalyango *et al.* [13] where it was discovered that men are more compliant to insulin injection than women. This was because most women tend to fear injections and the cosmetic disfigurement brought about by continuous injections. Both studies had the same results.

Majority 18 (50%) of respondents had reached universityand18 (50%) of them were employed. This implied that most the respondents would be able to understand the instructions given to them by health workers on insulin self-medication due the fact that they were literates and being employed implied that they were able to meet the cost for buying insulin. This was compared with a study by Idongest *et al.* [16] In a study to find out the relationship between literacy rates and medication adherence revealed that Patients particularly those with low levels of literacy may not recall verbal advice or may misinterpret advice. Health cards with figures and pictures, combined with verbal instructions, which should be repeated often to reinforce understanding, may help such people s and according to Magurova et *al.* [17] in a study done on knowledge of diabetic patients on insulin self-medication in Slovakia, patients who had received education about insulin had better practices than those who had not received 60% this was still sub optimal. In a study that was done on socio-demographic determinants of compliance on diabetic drugs, Avery large number of patients were illiterate, while only few had a university education. Young patients

(age<40) were more compliant with all aspects of management, except medication, with which older patients were more compliant [18].

Majority of the respondents 26 (72%) had ever received information about insulin this was a good indicator that patients show concern about the health and also health workers are doing well in availing information to the diabetic patients so that they can cope up with this chronic morbidity, to relate this finding with another study that was done to assess the knowledge of insulin requiring patients with diabetes in Nigeria by Jasper *et al.* [19] It was in agreement with these findings. Those who had received education on insulin self-medication had sufficient knowledge on insulin medication and this can minimize unpreventable complications, poor adherence to therapy and poor glycemic control.

The study also found that most of the respondents knew about insulin 26 (72%) and its use. This could have been attributed to the Education talks that they received from diabetic clinics and also due the fact that majority of them were literates and seen in socio-demographic characteristic that most of them 18 (50%) had reached Universities and the least number of those who had not reached school 3(8%) had little knowledge. This was compared with a study that was done in Brazil by Enferm *et al.* [20] focusing on patients' knowledge on the use of medication, regarding the dose, time and how manytimes a day that revealed that there was a significant deficit in knowledge in 50% to 80% of individuals who were illiterate. Therefore sufficient knowledge about the treatment is important in controlling the disease and its complications enabling patients to live better with the chronic condition [20].

In an attempt to assess the practice on storage and site of insulin injection, it was found that 10(29%), 10(29%), 10(29%), kept insulin in a freezer, in cold places, and anywhere respectively and majority of the respondents 20(56%) did not know the correct sites of insulin for insulin

injection. This needs agent attention as it showed that many of them actually did not know how to store their insulin well to maintain its potency and to embark on the sites of injection it could be that respondents did not know that unlike some other injections, insulin can be given in more than two site. This was in line with a study by Gurmu et al. [21] which showed that Insulin storage appropriateness was significantly not satisfactory and was associated with educational level which revealed that practices among the diabetic patients regarding self-insulin therapy were still sub optimal. Ebrahim et al. [15] in a study done in Basra city in Iraq to assess the attitude and practice of diabetic patient towards self-administration of insulin, revealed that (66%) preferred the arm as a site of injecting insulin.

It was also revealed that majority of the respondents eat something after insulin injection 32 (89%), this was assign that respondents had learnt how to prevent insulin related complication like hypoglycaemia and this might also have been attributed to the good education level of the respondents and the fact that the majority were employed and could at least try and get something to eat before or immediately after injecting themselves with insulin. This was in line with a study that was done by Ebrahim et al. [15] that revealed that (97%) of the patients eat something after insulin administration.

More still, the study indicated that majority of the respondents checked their blood glucose level only when they fell ill 20 (55%). This must have been like this because most respondents were male 26(72%) and generally not only in diabetic patients but also in kinds of ill health male have always do not take action and it is only when they are severely ill that they either seek medical attention. In line with

Ebrahim et al. [15] in a study done in Basra city in Iraq to assess the attitude and practice of diabetic patient towards self-administration of insulin, it revealed that all patients consult regularly for their condition, (50%) of them prefer private clinic as facility for consultation. (43%) of them checked their blood glucose only when they fell ill. Hospitals considered as source of insulin for (41%) of patients, (66%) prefer the arm as a site of injecting insulin. Only (20%) of them use the insulin syringe for single injection, (4%) of them dispose the used insulin needles in a special container at home, (97%) of them eat some food shortly after insulin. Only (54%) had good practices during self-administration of insulin. The rate of correct practices among males was higher than the rates among females for the majority of the items.

The study found the only 10 (29%) of the respondents received their insulin injection as prescribed by the doctor, majority of them 20 (50) did not receive it as prescribed. This calls for attention to find out why they do not comply with the instructions given to them probably it may be because the regimens that were given to them are not good for them and therefore they are trying to regulate/formulate for themselves regimens that can work for them. A similar study was conducted by Rwegerera [22] conducted a study on adherence to anti diabetic drugs in Tanzania and mentioned that adherence to anti diabetic drugs particularly insulin was found to be suboptimal. Patients with other medical conditions in addition to diabetes mellitus are more likely to adhere to anti-diabetic medications. There is a need for the responsible authorities to set policies that subsidize cost of anti-diabetic drugs to improve adherence and reduce associated complications.

CONCLUSION

Generally respondents knowledge was good as majority of the respondents 26(72%) had ever received information about insulin which indicated that patients show concern about their health, majority knew about insulin 26 (72%) and its use

which was thought have been attributed to the Education talks that they received from diabetic clinics and also majority being literates. 15 (42%) knew that insulin can cause a low blood glucose level when given in excess and 20(55%) knew the signs and

symptoms of hypoglycemia plus the home management of hypoglycemic effect of insulin 20 (55%).

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