

**ADDIS ABABA UNIVERSITY,
HEALTH SCIENCE COLLEGE
NEUROLOGY DEPARTMENT
ADDIS ABABA, ETHIOPIA**



**A RESEAR THESIS TO BE SUBMITTED TO NEUROLOGY
DEPARTMENT, COLLEGE OF HEALTH SCIENCES, ADDIS
ABABAUNIVERSITY; IN PARTIAL FULFILLMENT OF THE
SPECIALITY CIRTEFICATE IN NEUROLOGY.**

PRINCIPAL INVESTIGATOR:

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**NOVEMBER, 2021
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PREVALENCE OF ERECTILE DYSFUNCTION AND ASSOCIATED FACTORS IN PATIENTS WITH DIABETES MELLITUS HAVING FOLLOW UP AT TIKUR ANBESA SPECIALIZED HOSPITAL ENDOCRINE CLINIC, ADDIS ABABA UNIVERSITY, ADDIS ABABA, ETHIOPIA

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List of acronyms and abbreviations

AAU: Addis Ababa University
ACEI: Angiotensin-converting enzyme inhibitors
ASA: Aspirin
BB: Beta blockers
BMI: Body mass index
DM: Diabetes mellitus
ED: Erectile dysfunction
EDHS: Ethiopian demographic health survey
ETB: Ethiopian birr
FBG: Fasting blood glucose;
HgbA1c: Hemoglobin A1c
IIEF: International index of erectile function
IRB: Institutional Review Board
MAO: Monoamine oxidase
SD: Standard Deviation
SPSS: Statistical package for social science
TASH: Tikur Anbessa Specialized Hospital
TCA: Tricyclic antidepressant
USA: United States of America
WHO: World Health Organization

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Abstract

Background: Erectile dysfunction one of the earliest among the chronic complications of diabetes mellitus is increasing. The worldwide prevalence varies from 35-90%. In Ethiopia there were few studies done on prevalence of erectile dysfunction in men with diabetes and the result varies from 48.7% to 85.5%. In Tikur Anbesa Specialized Hospital Endocrine Clinic there was only one study which was done in 1998 which showed 48.7% of men with diabetes were affected by erectile dysfunction. Since the last 24 years a lot has been changed in terms of socioeconomic status, life expectancy and prevalence of chronic illnesses including the proportion of type of diabetes, prevalence of other associated risk factors like smoking and ways of living. Hence, our study was conducted to seal this opening and assessed the up-to-date prevalence and related factors of erectile dysfunction.

Objectives: The goal of our study was to determine the prevalence of erectile dysfunction and associated factors among diabetic men attending Tikur Anbesa Specialized Hospital, Endocrine clinic in the study period.

Methods: An institution based cross-sectional quantitative study of data collected from June 2021 to August 2021 from 269 men with diabetes mellitus who had a regular follow up at endocrine clinic, Tikur Anbesa Specialized Hospital. Face to face interview method was employed using a preset questionnaire for data collection & by reviewing their electronic medical records. The questionnaire included demographic information, lifestyle habits, medical conditions, the IIEF-5 Questionnaire and acceptance and treatment seeking rate for ED. Data was entered in to SPSS version 25. Median, mode & mean \pm SD, minimum & maximum were used to summarize continuous variables. Categorical variables were summarized by frequency and percentages. Associations were done by chi-square test for categorical variables and by using ONE WAY ANOVA for continuous outcome variables. Strength of the association was determined by binary & multinomial logistic regression using odds ratio with 95% confidence interval and P values less than 0.05 was taken as statistically significant.

Result: In this study the mean age of respondents was 54.45 ± 13.19 . Majority (78.8%) were married & nearly half of them (43.5%) had attended college education or above. The mean duration of diabetes was 12.89 ± 8.98 years. Among a total of 269 respondents 243(90.3%) had varying degree of erectile dysfunction. Of those with ED 11.1% had mild, 44.9% mild to moderate, 23.5% moderate & 20.6% severe form of ED. Statistically significant association was seen in longer duration of diabetes, diabetes related microvascular complications, being on insulin therapy, having comorbid illnesses & drugs other than for diabetes. Majority of the study participants had never discussed about ED with their treating physicians (82.2%).

Conclusion: The prevalence of erectile dysfunction has almost doubled from the previously reported in 1998. This study revealed duration of diabetes, microvascular complications, insulin therapy with or without oral agents, comorbid conditions & drugs other than for diabetes were associated with ED having statistical significance. ED should be given attention & healthcare providers should be proactive in assessing the problem.

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CHAPTER 1: Background

The number of people with diabetes rose from 108 million in 1980 to 422 million in 2014 and this number is expected to rise to 629 million by year 2045(10,12).

People with diabetes have a high risk of developing life-threatening problems. It is known that persistent hyperglycemia causes generalized vascular damage affecting different systems (13). Conditions frequently seen in this group of patients include retinopathy, nephropathy and neuropathy and other complications. People with diabetes are also at increased risk of other diseases including heart, peripheral arterial and cerebrovascular disease, obesity, cataracts, erectile dysfunction, and nonalcoholic fatty liver disease (9).

Erectile dysfunction (ED), defined as the consistent inability to acquire or sustain an erection of sufficient strength and duration for intercourse, is one of the most frequent but under addressed complications of diabetes (4, 5, 7, 11). ED has a higher prevalence in diabetic patients. The mechanism is multifactorial, involving endothelial dysfunction, specific complications of diabetes and psychological factors (3, 7, 14, and 15). ED occurs two to three times more frequently in men with DM than in men without DM. Furthermore, men with DM may experience ED 10 to 15 years earlier than men without DM (16).

Sexual function is both an indicator of health as well as quality of life. So sexual dysfunction is strongly associated with poor social interactions, psychological health, and partner relationships (18). ED is a matter that necessitates privacy; unlike other health issues most men with ED were shy to openly discuss problem with their healthcare providers. Researches showed only few Ethiopian men discuss the issue with their doctors (4, 6, and 8). Most didn't know ED is a complication of DM while others didn't consider the problem is treatable (3, 5,7 and 8).

Physiology of Penile Erection:

Erectile function is an intricate procedure connecting hormonal, vascular, and neural systems, with substantial psychological inputs as well. There are four main stages of male sexual processes (19):

- a. Desire
- b. Erection
- c. Ejaculation (i.e., orgasm)
- d. Detumescence (penile flaccidity)

Erection is initiated by external stimuli acting through somatic and autonomic pathways. The neuronal mechanism involves responses to external sensory stimuli through parasympathetic activity, which leads to release of nitric oxide (NO) from non-adrenergic non-cholinergic (NANC) cavernous (penile) nerve endings and the endothelium of the penis. The initial phase of smooth muscle relaxation results in reduced peripheral resistance of cavernosal arterioles and thereby allows blood to flow into the penis under the driving force of systemic blood pressure (20). Once blood rushes into the sinusoids of the corpora cavernosa, shear stress can also release NO from endothelium to augment smooth muscle relaxation and erection. In addition, oxygen tension and substances secreted by endothelium lining the sinusoidal spaces, (i.e., prostaglandins, endothelins, and angiotensin) may also be involved in penile erection and detumescence (23). Erection subsides at ejaculation or cessation of sexual stimulation and the subsequent flaccidity state is maintained until the next sexual stimulation or nocturnal erection occurs. Pathways responsible for penile flaccidity are no less important than pro-erectile mechanisms, and may play critical roles in certain types of erectile dysfunction (19, 20).

Diagnosis of Erectile Dysfunction:

There are only limited validated tools which are used in diagnosing ED, categorizing its severity, and quantifying management satisfaction. Particular instances of such tools are the International Index of Erectile Function -15(IIEF-15) (25), the modified 5-item version of IIEF (IIEF-5) (26) and the Erectile Dysfunction Index of Treatment Satisfaction (EDITS). The IIEF is a self-administered 15-item questionnaire consisting of five distinct domains: erectile function (total score range 1– 30), orgasmic function (total score range 0–10), sexual desire (total score range 2–10), intercourse satisfaction (total score range 0–15), and overall satisfaction (total score range 2– 10) (28). The modified IIEF-5 is in turn a 5-item questionnaire each question being scored 1-5. In IIEF-5 the maximum score is 25 & minimum is 5. Score 5-7 is severe, 8-12 moderate, 13-16 mild to moderate & 17-21 mild ED. If the score in the range of 22-25 is taken as no ED (12).

1.1 Statement of the Problem

Diabetes has become a growing global public health problem. From 10 leading causes of death high blood sugar stood 3rd overall in the world and 5th in low-income countries (32). Most studies of diabetes complications have focused on life-threatening conditions, such as cardiovascular diseases (CVDs) or kidney failure, or on conditions, which can result in significant disability, such as retinopathy. ED is a common but often neglected complication of diabetes, which can adversely affect people's quality of life (34, 35). This is of particular concern because of the close association between diabetes and ED (3, 5, 7, 8, and 14). In turn there is also growing evidence that ED might be an early indicator of CVD complication of DM (14). ED is two–three times more prevalent in diabetic men than non-diabetic controls. Research suggests that erectile dysfunction may be an early marker of diabetes, particularly in men ages 45 and younger (16). Studies conducted on prevalence rates of ED amongst diabetic men yield various results. For instance, ED rates among diabetic men were over 60% in Bangladesh (28), 34% in Mexico (29), and 83% in Saudi Arabia. Furthermore, studies have revealed high proportions of ED in Africa. The prevalence of ED reaches as high as 94.7% in South East Nigeria (30), and about 79.4% in Egyptian men with DM (31). The degree of dysfunction was classified as mild, moderate and severe depending on IIF-15 score.

In Ethiopia few hospital-based studies are available which were conducted in different parts of the country. For instance, the overall prevalence of ED was 69.9% in hospitals of central and northwestern Tigray (3), 53.1 % in Gondar university hospital (5), 85.5% in Bahir Dar Felege Hiwot hospital (7), and 60.4% in Jimma University hospital (4).

Even though it is an old one a similar hospital based cross sectional study was done on ED prevalence in TASH almost 22 years ago. Still, they found high prevalence of ED in men with DM which was 48.7 % (8).

In this country, chronic medical illnesses & their complications are alarmingly raising. A higher prevalence of diabetes mellitus was observed in Addis Ababa public health institutions. The overall prevalence of diabetes mellitus was 14.8%, with a sex-specific prevalence of 18.35% and 16.62% for males and females, respectively (33). At TASH endocrine clinic on average 1022 DM patients visit for follow up including gestational diabetes mellitus (GDM) patients, of these about 45% are males (43).

Despite the rising pattern of diabetes in the country especially Addis Ababa, there was no updated data available about the prevalence and the risk factors of ED in diabetic men in our institution. This study aimed to fill this gap. It was conducted to identify the prevalence and the

risk factors of ED in diabetic men attending TASH endocrine clinic in the study period. Thus, knowing its current magnitude is very important for early detection and management as there is effective preventive and therapeutic measures (27).

2. CHAPTER TWO: LITERATURE REVIEW

2.1 Overview of erectile dysfunction

The operative hydraulic attainment of the penis is vital for performing sexual intercourse and for the perpetuation of life. However, getting erection of the penis can be affected by various endogenous and exogenous factors. Failure of a person to get adequate penile erection throughout sexual intercourse due to these factors may result in a problem called erectile dysfunction (ED). Erectile dysfunction is defined by the Fourth International Consultation on Sexual Medicine as the consistent or recurrent inability to attain and/or maintain penile erection sufficient for sexual satisfaction. The global epidemic of DM has resulted in an increasing number of patients suffering from ED (14). Doctors must ask men with DM about sexual health to detect those affected by ED, to identify potentially serious underlying conditions associated with ED, and to improve overall quality of life for the patients (34).

Pathophysiology and risk factors:

Erectile function is a complex process involving, vascular, neural and psychogenic elements. Major blood supply to the penis is from internal pudendal artery through the cavernosal branches while venous drainage occurs via a network of easily compressible venules. For erection to occur the sacral parasympathetic system must be activated and should trigger cascade of events mainly release of nitric oxide and an increment in intracellular cGMP. This cascade results in vascular smooth muscle relaxation and augmented blood flow into cavernosal vessel. The rate of blood flow is rapid enough to outnumber rate of venous drainage and finally compresses venules so there is no more venous outflow. The final result is raised intracavernosal pressure and penile erection. Therefore, any break on this process may result in ED (15, 34). The cause of ED can be categorized as organic or psychogenic. But in real sense it is not uncommon to find a mix of both in a patient. To mention common psychogenic issues related with ED includes; depression, relationship issues, performance anxiety and of course drugs employed for those problems. The organic causes of ED have various groupings such as: hormone-induced, drug-induced, vascular, traumatic/post-surgical, and neurological (16).

Coming to specific organic risk factors in addition to DM there are other strong risks for ED. These include age, hypertension, smoking, dyslipidemia, obesity, sedentary life style and chronic alcohol use. Drug side effects are also common risk factors for ED. To mention some of the medications that have been associated with erectile dysfunction include; α -blockers, benzodiazepines, β -blockers, digoxin, histamine H₂-receptor blockers, methyl dopa, MAO inhibitors, phenobarbital, phenytoin, SSRIs, spironolactone, HCTs, and TCAs. Thyroid disorders are also commonly associated with ED. i.e., both hypo/hyperthyroidism (4,7,28,31,34).

The mechanism of ED in diabetes is multifactorial. The suggested mechanisms of erectile dysfunction in diabetic patients includes accumulation of advanced glycation end-products, increased levels of free radicals, impaired NO synthesis, increased endothelin B receptor binding sites and up-regulated RhoA/Rho-kinase pathway, neuropathic damage and impaired cyclic guanosine monophosphate (cGMP)-dependent protein kinase-1(46).

Significance of sexual health:

Sexuality is a fundamental part of human existence and health. Satisfactory sexual activity is a crucial constituent of quality of life and of sustaining an adequate intimate relationship (37). When sexual health encounters a problem and if not addressed well, it can lead to psychological trauma, frustration and may even heighten the already existing problem thus

lowering the self-esteem. A healthy sexuality requires balance of physical, psychological and social factors and an imbalance in one or more of these factors can result in a sexual dysfunction (34, 35).

There are several epidemiologic studies on prevalence of ED on men with diabetes. Even though the results are variable almost all revealed the magnitude of the problem is quite higher in men with DM compared to the general population (3-7, 11,16,28). ED affects an estimated 34%-45% of men with diabetes worldwide (38), with individual studies reporting ED prevalence rates ranging from 20% to 94.6% (30, 40). In Canadian diabetic men overall, 26.2% of respondents reported having ED. The frequency increased with age and length of diabetes. Compared with respondents without ED, those with ED were more likely to be obese, smokers, physically sedentary, and either divorced, widowed, or separated. Diabetes complications such as neurologic, cardiovascular problems, and kidney disease were also significantly associated with ED (38). The prevalence looks higher in Africans. One meta-analysis and systematic review showed about the overall prevalence of 61.62%. This prevalence was higher on recent publication which was 67.29% in articles published after 2010 (41). Among African countries Nigeria has the highest report which is 94.6% (30). About 79.4% of Egyptian diabetic men were also suffering from ED, of these, 20.3% had mild, 22.5% had moderate, and 36.6% had severe ED (31). Another African country also reported 55.1% men with diabetes had some degree of ED among which 12.8% had mild dysfunction, 11.5% moderate and 27.9% severe dysfunction (36).

In Ethiopia even though published articles are scarce and almost all are hospital-based studies the results range from 48.7% in TASH (8) to 85.5% in Bahir Dar Felege Hiwot hospital (7). A cross sectional hospital-based study was conducted in hospitals of Central and Northwestern zones of Tigray and revealed 69.9% of participants were affected by ED (32.9% mild, 31.7% moderate and 5.2% were affected by severe ED). The mean duration of diabetes diagnosis was 6.22 years. They found T2DM, duration of diabetes diagnosis, increasing age and low income were strong predictors of ED (3). A study published from Southwest Ethiopia identified 53.3% of diabetic men in the study were suffering from ED. Age above 41, T2DM, being divorced or widowed, depression, low educational level, comorbidities/complication and physical inactivity were significantly related with ED in men with DM (6). In TASH a similar study was done in 1998 involving 292 men with diabetes and about 48.7% were affected by ED but didn't stratify the severity of the problem. The mean duration of diabetes was about 9 years and almost half of them were with type I DM (51%). Nearly 79% of patients didn't complain to their physician because of shyness. Almost all of the affected men (92.5%) retained their libido (8).

2.2 Significance of the Study

In our country sexual disorder is under recognized and under reported both by physicians and patients (3-8). The question of ED was less explored and there were few published studies regarding the prevalence and factors associated with ED among patients with DM in especially developing world (3-8, 30,31,41). Little had been done in Ethiopia with regard to ED among men with diabetes. Most of the works were mainly focused on the prevalence only; they didn't suggest strong interventional recommendations to tackle the late detection and societal norm regarding under-reporting of ED. Despite alarming raising pattern of diabetes in Addis Ababa there was no an updated information regarding disease magnitude and factors contributing to ED (33). Therefore, this study was intended to bridge this gap by assessing the current prevalence and factors associated with ED among men with DM and also it provided additional information regarding possible preventive and interventional recommendations.

3. CHAPTER THREE: OBJECTIVE

3.1. General objective

To determine the prevalence of ED and associated factors among men with DM attending the diabetic clinic TASH, Addis Ababa, Ethiopia, 2021.

3.2. Specific objectives

To determine the prevalence of ED among men with DM attending TASH endocrine clinic.

To identify factors that might be associated with ED among men with diabetes attending TASH endocrine clinic.

To assess the knowledge of diabetic men regarding possible relation of diabetes with erectile dysfunction

To assess the treatment utilization by diabetic men with ED

4. CHAPTER 4: METHODS AND MATERIALS

4.1 Study area

The study was conducted at Tikur Anbessa Specialized Hospital, CHS, AAU, located in Addis Ababa, Central Ethiopia.

TASH is located in Addis Ababa the capital city of Ethiopia. The establishment was in 1972 by the people of Ethiopia. It is a public, tertiary referral and teaching hospital and the only neurology training center in the country. It stands as the largest hospital in the nation with more than 1020 bed capacity in all units (42). On average, close to one thousand and twenty-two DM cases were seen every month. Males account about 45% of the DM cases (43). Patients were appointed on average every 3-4 months or even longer during the COVID-19 era.

4.2 Study period

The study was conducted from May 1st to the end of July, 2021 GC.

4.3 Study design

Institutional based quantitative cross-sectional descriptive study was conducted.

4.4 Population

4.4.1 Source population

The source population were all men with diabetes mellitus in Ethiopia.

4.4.2 Study population

The study population for this study were men who were diagnosed as patients with diabetes and attending the endocrine clinic at TASH during the study period who fulfill the inclusion criteria.

Inclusion and Exclusion Criteria

Inclusion criteria:

Men with DM and in the age group ≥ 18 years who visited TASH endocrine clinic in the study period

Patients who voluntarily gave consent to participate in the study.

Exclusion criteria:

Patients who were mentally impaired and were unable to give information

Patients with known secondary ED from genetic or surgical causes were excluded from the study.

Those who have never been engaged in sexual activity.

4.5 Sampling technique and sample size

4.5.1 Sampling technique

Systematic random sampling technique was used from diabetic men who appeared for follow at TASH endocrine clinic from May 1, 2021 to end of July 2021.

4.5.2 Sample size

Research done at TASH in 1998 showed that about 48.7% of diabetic men attending TASH endocrine clinic were affected by ED (8). According to the department of internal medicine monthly report on average 1022 diabetic patients visit the clinic of which 45% (460) were men (43). Based on the above study it was calculated that about 224 diabetic men who were affected by ED would visit the clinic monthly. Single population proportion formula (with a 5% margin of error, 95% confidence level and 49% proportion) were used to calculate sample size.

For this research the sample size was calculated first by sample size calculation if the study population is > 10,000: $n = z^2 pq / d^2$.

Where n=sample size

z= Z score at 95% confidence interval which is 1.96

p= prevalence of ED in diabetic men is = 0.49 & approximated to 0.5

q=1-p=0.5

d= degree of accuracy at 95% confidence interval

Therefore;

$$n = (1.96)^2 * 0.5 * 0.5 / (0.05)^2 = 384$$

When the study population is <10,000

$$nf = n / (1 + n/N)$$

Where;

nf= final sample size

n= sample size when study population is >10,000

N= study population size (i.e diabetic men with ED visiting TASH endocrine clinic over 3 months period), $3 * 224 = 672$

$$nf = 384 / (1 + 384/672) = 245$$

Allowing the sample size for 10% attrition; $245 * 0.1 = 24$

$$245 + 24 = 269$$

So, a total number of 269 men with diabetes who visit TASH endocrine clinic in the study period were included in this study.

In 3 months, study period it was estimated that 672 diabetic men having ED would visit the clinic. Then from the nurses register list a random selection of every 3rd patient was selected for interview.

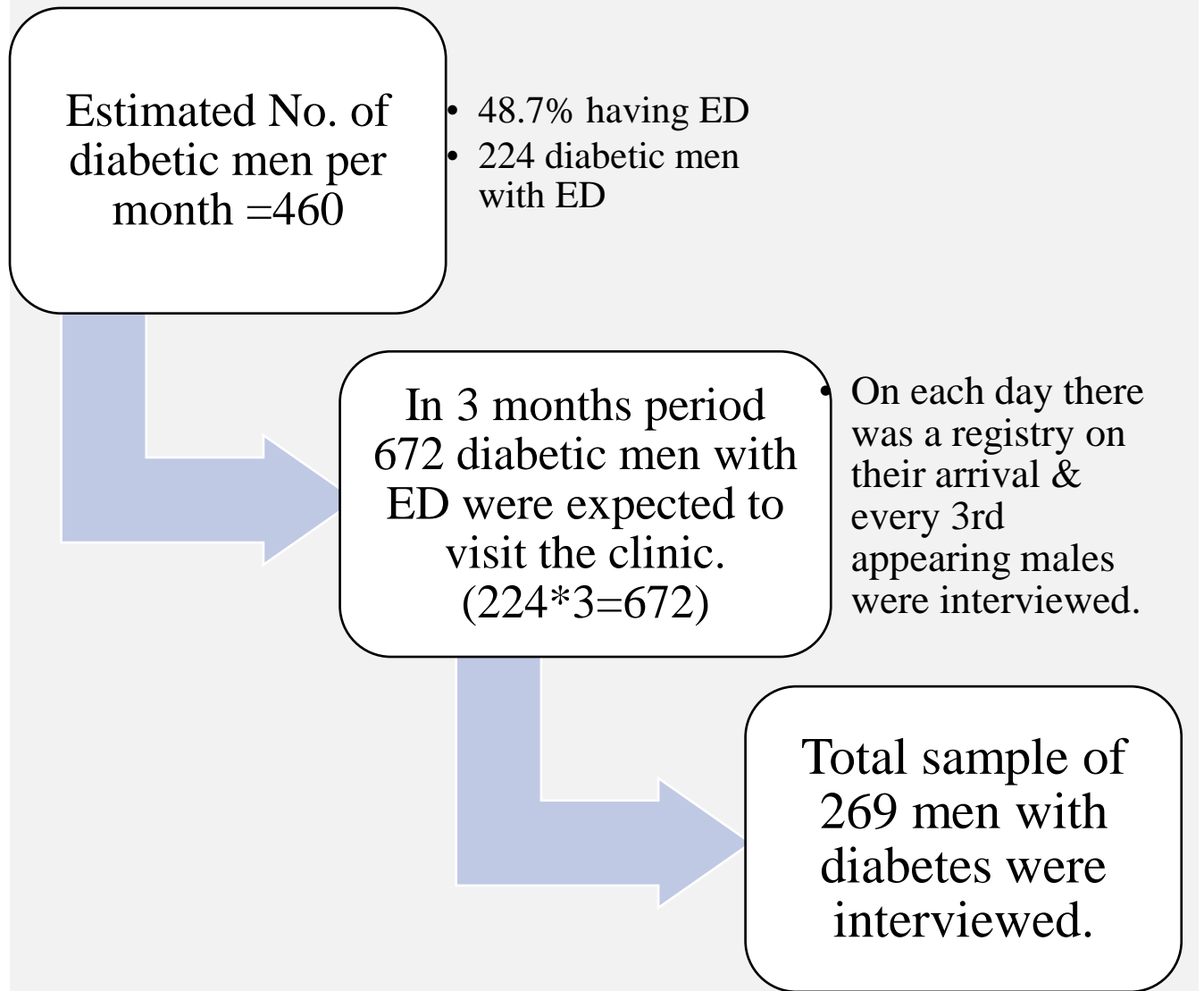


Figure 1: Sampling procedures of diabetic men having follow up at TASH endocrine clinic May 1 2021 to end of July 2021.

4.6 Study Variables

Dependent variable

ED-Present/Absent

Independent variables:

Socio demographic factors:

Age

Sex

Marital status

Educational status

Occupational status

Monthly income

Lifestyle habits

History of alcohol

Regular physical exercise

History of smoking

Body habitus

Clinical factors:

Type of DM

Duration of the DM

HgbA1c

DM related microvascular complications

Drugs for the DM

Hypertension

CKD

IHD

PAD

Stroke

Anxiety

Depression

Drugs other than for the DM

4.7. Data collection and instruments

The endocrine clinic is open 5 days a week. A one-day training was given to data collector nurses working at endocrine clinic. Those trained data collectors administered a structured questionnaire to each eligible man with diabetes & measured height & weight of the respondents. The Icare number of the study participants was used to revise their electronic medical records.

A validated questionnaire adopted from the 5-item version of the International Index of Erectile Function (IIEF-5) was major measuring tool which was used in previous studies in Ethiopia (44).

Privacy was respected. All the questionnaires were unnamed and participants were interviewed alone & allowed for self-administration about IIEF-5 part. The right to withdraw from participation at any time was respected.

4.8. Data quality control

The questionnaire was translated to Amharic language. The principal investigator supervised the data collectors and check the filled questionnaires daily. Accuracy and completeness were reviewed daily. Incomplete papers were not included in the analysis.

4.9. Data processing, analysis and the statistical Package

The raw data which was collected from the eligible participants was documented on the questionnaire provided; then entered, stored & analyzed by using SPSS version 25. For continuous variables descriptive statistics such as mean \pm standard deviation (SD) and median were calculated. Frequencies and percentages were obtained for categorical ones. Chi-square test was used to assess the significance of the association between categorical variables. Multinomial logistic regression was used to assess the strength of the association. One way ANOVA was used to assess the association between the continuous variables. Adjusted odds ratio with a 95% confidence level was calculated and P values below 0.05 was considered statistically significant. The strength of the association was measured by adjusted odds ratio.

4.10. Ethical considerations

The study protocol was submitted to the department of neurology ethics committee and approved.

The data collectors clearly explained the aims of the study for the respondents. Information was collected after obtaining a written consent from each participant. The right was given to the study participants to refuse or discontinue participation at any time. All the information obtained in the study were kept confidential. There was no any payment for participating in the study. Participants who were found to have ED were linked to the respective clinics.

4.11. Dissemination plan

The result of this research will be submitted to department of neurology, AAU and the principal investigator will present to the group of external examiners for partial fulfillment of specialty certificate in adult neurology. Finally feed backs from the group will be included and will be submitted to international journals for publication.

4.12. operational definitions

Regular exercises

Low (< 3 days per week & each lasting < 20 minutes) of fast walking or jogging

Medium (3-5 days per week, each lasting 20 -30 minutes) of fast walking or jogging

High (5-7 days per week, each lasting > 20-30 minutes) of fast walking or jogging

Alcoholic history

A pathological use of alcohol for 01 month or more

Smoking history

Any smoking

Erectile dysfunction

IIEF-5 score less than 22 out of 25

CHAPTER 5: Result

5.1 Sociodemographic characteristics & lifestyle habits of the study participants

Two hundred sixty-nine participants who visited endocrine clinic, Tikur Anbesa Specialized Hospital during the study period were interviewed for the intended study with the response rate of 100%. The age distribution of the study participants was from 20 – 77 years with mean age \pm SD of 54.35 ± 13.185 .

Among the participants majority (46.5%) were in the age range of 41-60 years old. Only 17.8 % of participants were below age 41 years old.

About 78.8% of the study participants were married (78.8%) & nearly half of (43.5%) the respondents attend college education or above.

Out of the total respondents 26.8% were government employees & almost quarter of (24.9%) the study subjects were retired from work. The rest of participants were merchants (23.4%), farmers (7.4%) and others (17.5%).

Majority of the respondents were non-smokers (97.8%) & non-alcoholics (66.9%).

The monthly income was less than 5000 ETB in almost three quarters (76.6%) of the respondents.

Nearly 81.4% of participants reported they perform regular exercise of different intensity.

Fifty-one-point three percent of participants had BMI of less than 24.9 kg/m^2 (table 1).

Table 1: Socio-demographic characteristics & lifestyle habits of men with diabetes attending TASH endocrine clinic from May 1 2021 to end of July 2021, Addis Ababa, Ethiopia (N=269).

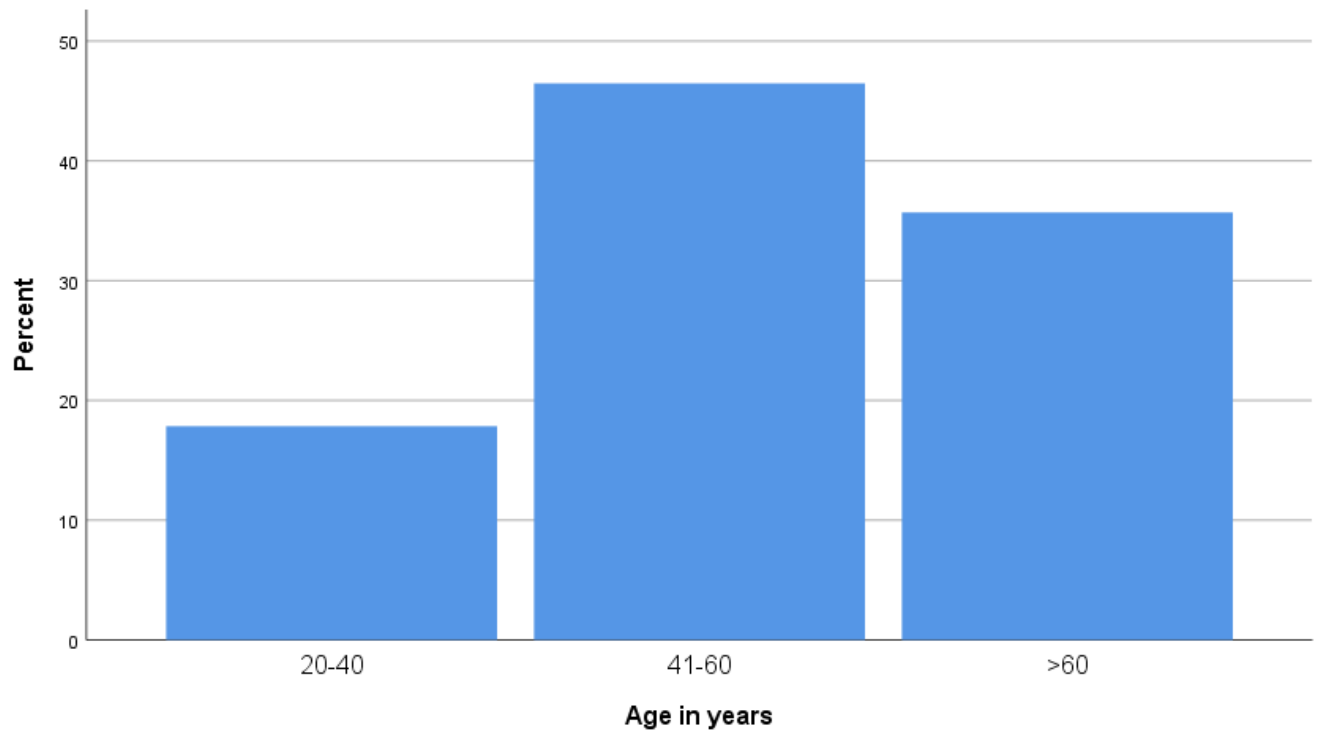
Variable		Frequency (N)	Percent (%)
Age in years	20-40	48	17.8
	41-60	125	46.5
	>60	96	35.7
Marital status	Unmarried	38	14.1
	Married	212	78.8
	Others*	19	7.1
Educational level	No formal education	9	3.3
	Primary school	49	18.2
	Secondary school	94	34.9
	College & above	117	43.5
Occupation	Farmer	20	7.4
	Merchant	63	23.4
	Government employee	72	26.8
	Retired	67	24.9
	Others**	47	17.5
Monthly income in ETB	< 1500	80	29.7
	1500 – 5000	126	46.8
	>5000	63	23.4
Alcohol history	Yes	89	33.1
	No	180	66.9
Regular exercise	Yes	219	81.4
	No	50	18.6

Smoking history	Yes	6	2.2
	No	263	97.8
Body mass index	≤24.9	138	51.3
	>24.9	131	48.7

Others*: divorced & widowed

others:** daily laborer, student, NGO

Figure 2: Age category of diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021(N=269).



5.2 medical characteristics of diabetic men having follow up at TASH from May 1, 2021 to end of July 2021(N=269).

Out of all the respondents more than three quarters (77.7%) had T2DM. The mean duration of diabetes since diagnosis was 12.89 ± 8.97 years. The minimum duration was just newly diagnosed & the maximum duration was 45 years since diagnosis. The majority of the respondents were in the duration range of 2-10 years (36.1%) & 11-20 years (33.1%). Only 11.2% of the respondents had duration of one year or less after the diagnosis of diabetes.

Majority (43.5%) of the respondents were on oral diabetic drugs only where as 30.5% were on insulin only & the rest (26.0%) were taking both oral agents & insulin.

More than half of (53.2%) the study participants had HgbA1c determined in the last 6 months of the interview date. Of those with HgbA1c the mean was 8.9% with SD of ± 2.40 %.

Overall, 35.3% of the respondents had one or more of diabetic related microvascular complications. From assessed microvascular complications majority had peripheral neuropathy (34.7%); nephropathy, retinopathy & more than one complication was identified in 25.3%, 23.2% & 16.8% of study subjects respectively.

Chronic comorbid illnesses were reported in 71.4% of the study participants. From those respondents with comorbid illness majority (44.8%) had more than one chronic illness & next common comorbidity was hypertension (32.0%).

In addition to drugs for the diabetes majority (78.8%) of the participants were taking other drugs. Of those on medication majority (65.9%) was taking aspirin, atorvastin & enalapril either alone or in combination. Amitriptyline & beta blockers were also part of their medication list in 15.9% & 13.1% of respondents respectively.

Table 2: medical characteristics of diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021(N=269).

Variable		Frequency (N)	Percent (%)
Type of diabetes	T1DM	60	22.3
	T2DM	209	77.7
Diabetes related complications	Yes	95	35.3
	No	174	64.7
Type of diabetes related complication (N=95)	Retinopathy	22	23.2
	Nephropathy	24	25.3
	Neuropathy	33	34.7
	>1 complications	16	16.8
Comorbidity	Yes	192	71.4
	No	77	28.6
Type of comorbidity (N=192)	Hypertension	62	32.0
	Cardiac problems	13	6.7
	>1 comorbidity	87	44.8
	Others***	32	16.5
Drugs other than for diabetes	Yes	212	78.8
	No	57	21.2
Types of drugs other than for diabetes(N=212)	ASA,statin, ACEI	141	65.9
	Beta blockers	28	13.1
	Amitriptyline	34	15.9
	Others****	11	5.1

Others****: diuretics, HAART, carbamazepine

Figure 3: duration of diabetes among diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021.

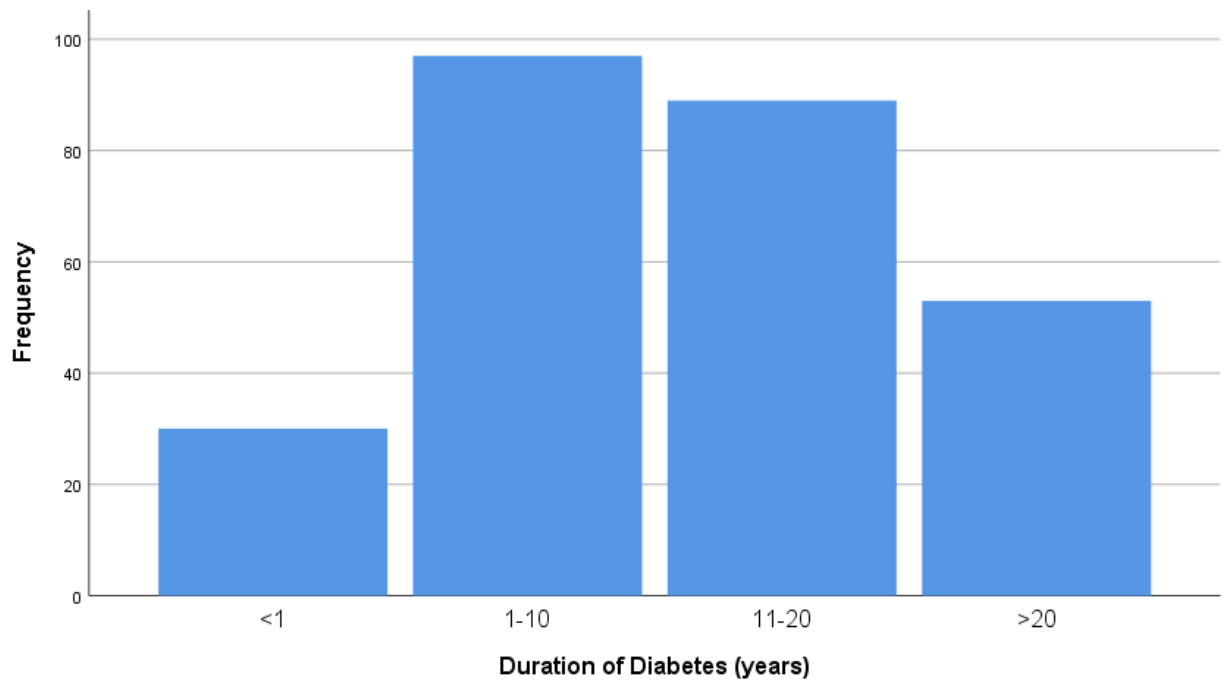


Figure 4: Diabetes related microvascular complications among diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021.

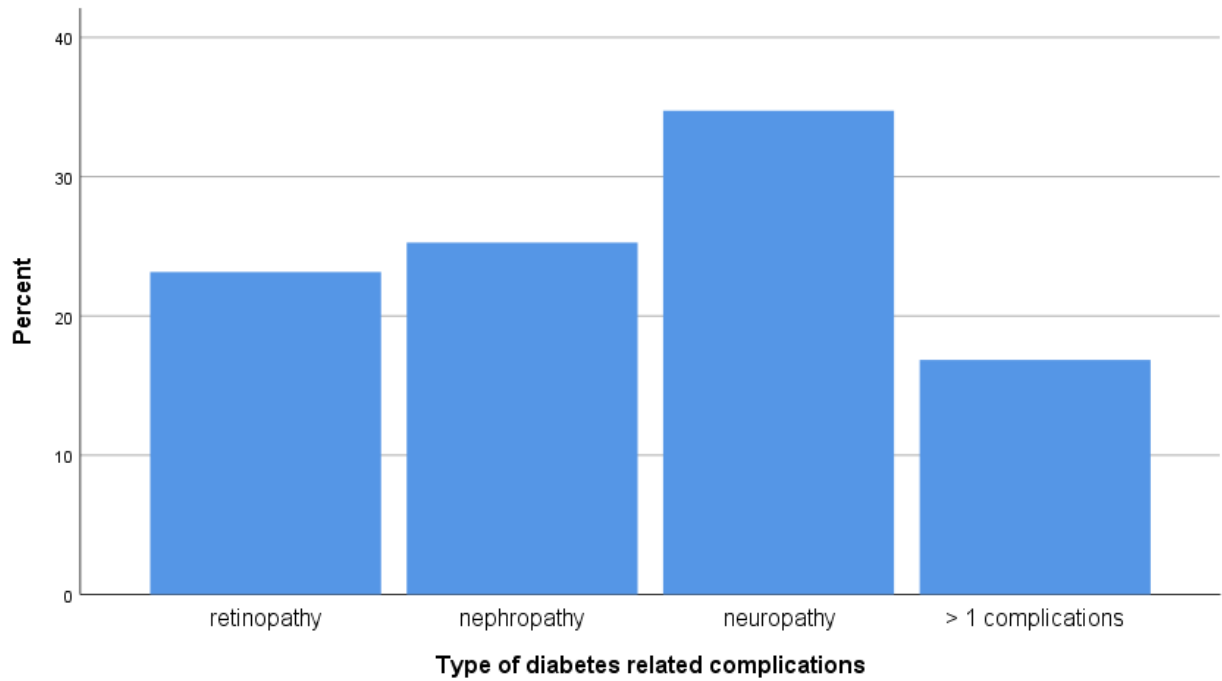
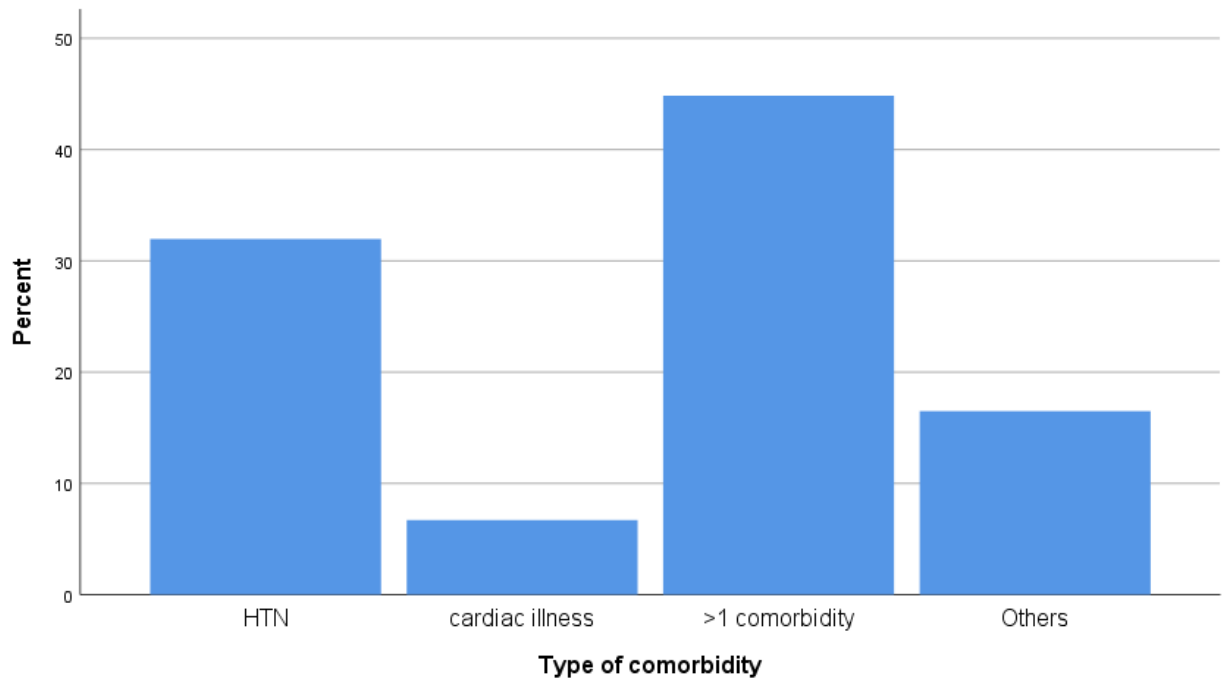


Figure 5: Comorbid illnesses among diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021.



5.3 Erectile dysfunction

Among the study participants majority (90.3%) reported erectile dysfunction of variable severity. Almost half of them (44.5%) had mild to moderate erectile dysfunction with IIEF-5 score of 12-16 out of 25. Moderate (8-11) & severe (5-7) erectile dysfunction was reported in 23.5% & 20.6% of respondents respectively.

Of those with erectile dysfunction only 17.8% of them had discussed the issue of ED with their physician. The rest (82.2%) had never discussed the problem with their physician. Again, the majority (86.6%) hadn't tried any treatment for ED.

Majority (66.5%) of the respondents reported they knew the possibility of diabetes & ED relationship.

Table 3: erectile dysfunction among diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021.

Variable		Frequency(N)	Percent (%)
Erectile dysfunction	Yes	243	90.3
	No	26	9.7
Severity of erectile dysfunction (N=243)	Mild	27	11.1
	Mild to moderate	109	44.9
	Moderate	57	23.5
	Severe	50	20.6
ED discussion with physician	Yes	48	17.8
	No	221	82.2
Treatment tried for ED	Yes	36	13.4
	No	233	86.6
Knew diabetes ED relation	Yes	179	66.5
	No	90	33.5

5.4 Determinants of erectile dysfunction

This study revealed that duration of diabetes, diabetes related microvascular complications & having comorbid illness were significantly associated with erectile dysfunction in men with diabetes mellitus. Men with diabetes for 13 years or longer were found to have 19 times higher chance of getting erectile dysfunction than those with diabetes duration of less than 13 years (AOR:19.10, 95% CI: 2.35-155.31, P value: 0.001). Having one or more of diabetes related microvascular complications(one or more of tripathies) were associated with nearly 7 times increased risk developing erectile dysfunction compared to those without such complications (AOR: 6.75, 95% CI: 1.55-29.17, P value: 0.011). Diabetic men with additional chronic comorbid illness like hypertension, dyslipidemia, cardiac illness & others were almost 9 times more likely to experience erectile dysfunction than those without comorbid conditions (AOR: 8.77, 95% CI: 3.06-25.17, P value:< 0.001).

Even though it was not statistically significant age greater than 55 years old were also associated with two times increased risk of having erectile dysfunction (AOR: 1.96, 95% CI: 0.66-5.85, P value: 0.23).

Table 4: Comparison of diabetic men with ED & without ED having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021 with different clinical parameters

Variable		Respondents with ED	Respondents without ED	Test of significance	P value
Age	One way ANOVA	243	26	F=1.7	0.013
Mean age	≤ mean age	118	19	$\chi^2=5.649$	0.017
	>mean age	125	7		
Marital status	Single	52	5	$\chi^2=0.7$	0.797
	Married	191	21		
Occupation	Retired	64	3	$\chi^2=2.75$	0.097
	Non retired	179	23		
Monthly income (ETB)	< 5000	192	14	$\chi^2=8.29$	0.004
	≥5000	51	12		
Educational status	< college	140	12	$\chi^2=1.26$	0.263
	≥college	103	14		
History of alcohol	Yes	84	5	$\chi^2=2.50$	0.114
	No	159	21		
History of smoking	Yes	6	0	$\chi^2=0.66$	0.418
	No	237	26		
Regular exercise	Yes	199	20	$\chi^2=0.383$	0.536
	No	44	6		
BMI(Kg/m ²)	≤24.9	123	15	$\chi^2=0.47$	0.493
	>24.9	120	11		
Type of diabetes	T1DM	53	3	$\chi^2=1.926$	0.165

	T2DM	186	23		
Duration of diabetes	One way ANOVA	243	26	F=2.033	0.001
Mean duration	≤ mean duration	122	25	$\chi^2=20.007$	<0.001
	>mean duration	121	1		
Type of diabetes drug	Oral agents only	99	18	$\chi^2=7.757$	0.005
	Insulin ± oral agents	144	8		
Microvascular complications	Yes	92	3	$\chi^2=7.123$	0.008
	No	151	23		
Comorbidity	Yes	183	9	$\chi^2=19.03$	<0.001
	No	60	17		
Drugs other than for diabetes	Yes	199	13	$\chi^2=14.306$	<0.001
	No	44	13		

Table 5: Factors associated with erectile dysfunction among diabetic men having follow up at TASH endocrine clinic from May 1, 2021 to end of July 2021(N=269).

Variable	Crude OR	CI 95%	P value	Adjusted OR	CI 95%	P value
Above mean age (>54 years)	2.88	1.17-7.09	0.02	1.96	0.66-5.85	0.23
History of alcohol	2.219	0.808-6.095	0.122	2.391	0.661-8.657	0.184
Occupation	2.741	0.796-9.439	0.11	0.965	0.15-6.22	0.97
Duration of diabetes above 13 years	24.80	3.31-185.90	0.002	19.10*	2.35-155.31	0.01*
Diabetes related complications	4.67	1.36-15.99	0.014	6.731*	1.55-29.17	0.011*
Insulin ± oral agents	3.273	1.369-7.821	0.008	4.758*	1.327-17.069	0.017*
Having comorbidity	5.76	2.44-13.60	< 0.001	8.77*	3.06-25.17	< 0.001*
Drugs other than for diabetes	4.52	1.96-10.42	<0.001	4.62*	1.16-18.45	0.03*

OR: odds ratio

* Statistically significant at p value <0.05

5.5 Discussion

This study revealed the overall prevalence of erectile dysfunction among men with diabetes was 90.3% which is far higher (nearly doubled) than previous study done in the same institution 24 years ago (8). Based on IIEF-5 erectile dysfunction severity scale 11.1% had mild ED, 44.9% mild to Moderate ED, 23.5% moderate ED & 20.6% severe ED. It is also higher than other previous studies in Bahr Dar (85.5%) (7), Tigray (69.9%) (3), Jimma (60.4%) (4), Mizan Aman (53.3%) (6) & Egypt (79.4%) (31). In South East Nigeria there was higher report (94.7%) than our finding (30). The finding of this study is higher than almost all reports from Ethiopia. The reason for this difference were attributed to differences in baseline characteristics of the respondents especially clinical findings with statistical significance. In our study the mean age, mean duration, subpopulations with microvascular complications, comorbid conditions & the proportion of respondents with drugs other than for diabetes were higher than the previous studies. Additionally cultural influences, study period i.e., the stressful covid-19 era with sociopolitical stresses during the study period & to some extent method of interview as well. In our study the respondents were encouraged to self-administer the questionnaire especially the privacy sensitive questions that might have contributed in revealing a higher magnitude of the problem.

Among the tested variables this study had demonstrated that longer duration of diabetes, having diabetes related microvascular complications, being on insulin treatment either with or without oral agents & comorbid conditions were independent predictors of developing erectile dysfunction in men with diabetes. In some other similar studies (3-7) the above-mentioned variables plus advanced age, monthly income & being on drugs other than for diabetes were found to be associated with ED but this study had revealed though there was an association of ED with advanced age & being alcoholic; none of them were statistically significant. This different finding might be attributable to differences in sample size & methodology of the study.

Of the 243 respondents who had ED 82.2 % had never discussed the issue of erectile dysfunction with their physician during their follow up. Our finding is a little higher than the previous report (79.1%) on the same site almost 24 years ago (8). This might be attributed to less patient - treating physician bond due to rotations of residents every few weeks or monthly if utmost. Otherwise, the socio-cultural influence was expected to be in a better way or at least the same

when compared to 24 years back. Majority (77.8%) were waiting to the treating physicians to bring the issue of ED in to the table for discussion, concern of sildenafil related side effects & assuming that ED is a problem of no treatment at all. Only 36(13.4%) of respondents with ED had tried treatment for the problem.

Majority of the study participants reported they were aware of the possible diabetes & erectile dysfunction relation.

5.6 Limitation of the study

The result of this study should be utilized with certain limitations in mind. As the study site was a high-volume tertiary center it's likely that the respondents had more complicated medical conditions than other sites. In addition, the study was conducted in a single center this may lead to selection bias. The other issue was as it assessed a 6-months sexual function & prone to a recall bias. Finally further study with an appropriate design is recommended to assess the etiological relationship.

5.7 Conclusion

This study had brought alarmingly very high prevalence of erectile dysfunction among diabetic men & showed strong association with diabetes related complication, longer duration & other comorbid condition. Therefore, assessing erectile function in diabetic men might be considered as one strategy to peak other microvascular complications early.

5.8 Recommendation

Frontline healthcare providers at endocrine clinic should be proactive in assessing & managing erectile dysfunction in men with diabetes. Dealing about erectile function should be on one of the pillars of the diabetic education by trained health providers.

Further studies should be conducted to assess the impact of ED on relationship & psychosocial status of diabetic men.

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a

Annex I: COST BUDGET AND TIME SCHEDULES

WORK SCHEDULE

S.no	Activities	Responsible person	June 2020	July	August	Sept	October	February 2021	April	May	Jun	July	August	Sept	October & November
1	Proposal preparation, comment and approval and final proposal submission	Investigator + advisors													
2	Application for ethical approval and permission	Investigator													
3	Proposal presentation	investigator													
4	Data collection	Data collectors													
5	Data entry, clearing and write up	Investigator													
6	Data analysis	Investigator													
7	Draft thesis	Investigator													
8	Final thesis	Investigator													
9	Defense	Investigator													
10	Finalizing thesis	Investigator													

Budget

No	Items	Unit	Quantity	Unit Cost (ETB)	Total cost	Justification
Stationery						
1.	Note pad	Pcs	5	25	125	For data collector
2.	Pencil	Pcs	5	5	25	For data collection
3.	Pen	Pcs	10	10	100	For data collection
4.	Eraser	Pcs	2	10	20	For data collection
5.	Sharper	Pcs	2	10	20	For data collection
6.	CD –R	Pcs	5	10	50	For soft copy submission
7.	Binder	Pcs	3	40	120	For proper data collection
8.	Fastener	Pcs	1	50	50	For data collector
9.	Check list photocopy	Pages	1600	1.5	2400	Questionnaire duplication
10.	Printing and Binding	Pages	10	150	1500	
11.	Sub Total		4410			
Personnel						
		Number of patients	Number of people	Unit Cost	Total	
12.	Remuneration for data collector	256	3	60 birr/patient	15,360	
13.	Per diem for supervisor	256	1	100 birr/day 44*100=4400	4400	
	Sub total	19,760				
	Total	2,4170				
	5% Contingency	1,208.5				
	Grand Total	25,378.5 ETB				

Appendix II

Information sheet and consent form.

Greetings Hello, how are you?

My name is Dr. Desalegn Yayeh. I am working in the research team of Graduate thesis of Addis Ababa University College of Health Sciences, Department of Neurology. I would like to interview you a few questions about your opinion on your follow-up at endocrine clinic while you are in this institution. This study aimed to assess the prevalence of ED and associated factors among diabetic patients which are important feedback for the hospital to improve screening protocol for ED in patients with diabetes. The study will provide information that might enable the health personnel and the government to improve ED control for our patients. I would like to take your time to respond to my questions and it will take approximately 10-15 minutes. I request you to answer as truthfully as possible. Your name will not be written anywhere in the form and all the information you give is confidential except for the purposes of this study and it will never be disclosed for the third parity. In addition, I would like to inform you that by participating in this study, you will get no short term or long-term risk or benefit. I also would like to inform you that you have a full right to withdraw from the study or to stop the study any time or to skip any question that you do not want to answer. Your cooperation and willingness for the study is very helpful in identifying the problem related to the issue.

So, do you agree to participate in this study? Yes No

If respondent agrees to participate go to the next part.

If respondent does not agree to be participant stop

Thank you in advance for your cooperation

Data collectors Name _____ sign: _____

If you have any question or doubt, you can contact as with the address below.

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ADVISORS:

Dr. Abenet Tafesse (MSc, MD, Internist and associate professor of neurology)

Dr. Getahun Tarekegn (MD, Internist and assistant professor of endocrinology)

Dr. Fikru Tsehayneh (MD, assistant professor of neurology)

Dr. Hanna Assefa (MD, assistant professor of neurology)

Dr. Teklil Hagos (MD, assistant professor of neurology)

Annex: II Questionnaire (English Version)

No _____

Addis Ababa University College of Health Sciences

This questionnaire is designed to determine Prevalence of erectile dysfunction and associated factors in male patients with diabetes mellitus having followed up at TASH endocrine clinic Addis Ababa University, Addis Ababa, Ethiopia.

Direction for Data Collectors: Please circle the patients' response from the given options where it is applicable.

I. Socio-demographic characteristics

1. Age (year) _____
2. Marital Status
 - i. Single
 - ii. Married
 - iii. Divorced
 - iv. Widowed
3. Educational Status
 - i. No formal education
 - ii. Primary school
 - iii. Secondary school
 - iv. College & above
4. Monthly Income (ETB)
 - i. <1500
 - ii. 1500-5000
 - iii. 5000-10,000
 - iv. >10,000
5. Occupational Status
 - i. Farmer
 - ii. Daily Laborer
 - iii. Merchant
 - iv. Government employee
 - v. NGO employee
 - vi. Other(s) _____

II. Life Style Habits

6. Do you drink alcohol?
 - a) Yes
 - b) No,
 - c) If yes
 - a) Drinks usually
 - b) Drinks on social gatherings only
7. Do you exercise regularly?
 - i. Yes
 - a) Low (< 3 days per week & each lasting < 20 minutes)
 - b) Medium (3-5 days per week, each lasting 20 -30 minutes)
 - c) High (5-7 days per week, each lasting > 20-30 minutes)
 - ii. No
8. Do you smoke cigarettes?

- i. Yes
 - a) Number of pack years-----
 - ii. No
9. Body habitus,
- i. Height: _____
 - ii. Weight: : _____
 - iii. BMI (Kg/m²: _____

III. Medical Characteristics

10. How long you have been diagnosed with DM(Months/years)? : _____
11. Which type diabetes do you have?
- i. T1DM
 - ii. T2DM
12. HgbA1c level in the last 6 months & current FBS:
- i. FBS: _____
 - ii. HgbA1C: _____
13. Your medications for the diabetes?
- i. Oral agents only
 - ii. Insulin only
 - iii. Insulin & oral agents
14. Do you take any drugs other than for diabetes?
- i. Yes
 - ii. No
 - iii. If yes list the drugs:
 - a) : _____
 - b) : _____
 - c) : _____
 - d) : _____
15. Do you have chronic non communicable diseases other than diabetes?
- i. Yes
 - ii. No
 - iii. If yes please select from the following list
 - a) Hypertension
 - b) Congestive Heart Failure /IHD
 - c) Chronic Kidney Disease
 - d) Chronic Liver Disease
 - e) Depression
 - f) Anxiety
 - g) PAD
 - h) Other (specify) _____

IV. The IIEF-5 Questionnaire

S. No	Over The Past Six Months:	1	2	3	4	5
1	How do you rate your Confidence that you could get and keep an erection?	Very low	Low	Moderate	High	Very High
2	When you had erections with Sexual stimulation, how often were your erections hard enough for penetration?	Almost never/never	A few times (much less than half the time)	Sometimes (about half the time)	Most times (much more than half the time)	Almost always/always
3	During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?	Almost never/never	A few times (much less than half the time)	Sometimes (about half the time)	Most time (much more than half the time)	Almost always/always
4	During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?	Extremely difficult	Very difficult	Difficult	Slightly difficult	Not difficult
5	When you attempted sexual intercourse, how often was it satisfactory for you?	Almost never/never	A few times (much less than half the time)	Sometimes (about half the time)	Most times (much more than half the time)	Almost always/always

V. Acceptance and Treatment Seeking rate for ED

16. Have you ever discussed about sexual problems with your doctor before?

- i. Yes
- ii. No

17. If no to question No 16 what was the reason?

- i. shyness
- ii. I didn't think it has treatment
- iii. Physician didn't ask
- iv. Other

18. Have you ever sought any medical help for sexual related problems before?

- i. Yes

- ii. No
- 19. If 'yes' to question number 18, what type of therapy did you receive?
 - i. Drugs
 - ii. Psychotherapy
 - iii. Other
- 20. Have you tried traditional treatment/medicines?
 - i. Yes
 - ii. No
- 21. Do you think ED is can be related to DM?
 - i. Yes
 - ii. No

Thank you for your cooperation.

Data Collector's Name _____ Signature _____

Date _____

አባሪ ሰነድ III

አባሪ ሰነድ አንድ : የመረጃ ዝርዝር እና የፈቃድ መግለጫ ቅጽ

ስሜ ዶ/ር ደሳለኝ ያየህ ይባላል። በአዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ የሕክምና ትምህርት ቤት የኒዮሮሎጂ ትምህርት ክፍል የመመረቂያ ጽሁፍ አዘጋጅ የጥናት ቡድን ውስጥ በመስራት ላይ እገኛለሁ። የስከር ህመም ከሚያስከትላቸው ተዛማጅ የጤና እክሎች መካከል አንዱ ስለሆነው ስነ-ምግባር ስነ-ምግባር በሽታው ስላለው የስርጭት ሁኔታ እና አጋላጭ ሁኔታዎች ጥናት እያከናወንኩ እገኛለሁ። ለዚህ ጥናት ይረዳ ዘንድ አንዳንድ ጥያቄዎችን ልጠይቅዎት እወዳለሁ። በጥናቱ ላይ የሚሰጡት የግል መረጃ ሚስጥራዊነት በጥብቅ የሚጠበቅ ሲሆን ለዚህ ይረዳ ዘንድ ስምዎት መጠይቁ ላይ አይጻፍም። ምንም እይነት መረጃ ለሶስተኛ ወገን ተላልፎ አይሰጥም። ቃለመጠይቁን ለማድረግ 10-15 ደቂቃ ብቻ ይወስዳል። ምላሽዎትን በታቸለ መጠን እውነተኛ በሆነ መልስ እንዲሰጡ እጠይቅዎታለሁ። የእርስዎ በጎ ፈቃደኝነት እና በጥናቱ ላይ የሚኖርዎት ተሳትፎ ከጉዳዩ ጋር የሚኖሩ ተያያዥ ችግሮችን ለመለየት የላቀ እገዛን ይሰጣል።

በጥናት እና ምርምሩ ላይ ተካፋይ በመሆንዎ የሚከፈልዎት ምንም እይነት ከፍተኛ አይኖርም። ያለምንም ቅድመ ሁኔታ በማንኛውም ሰዓት ከጥናቱ እራስዎትን የማግለል መብት አልዎት።

ስለሆነም በጥናቱ ተሳታፊ ለመሆን ይስማማሉን ? እስማማለሁ አልስማማም

በቅድሚያ ስለ ትብብርዎ ምስጋናዬን አቀርባለሁ።

የመረጃ አሰባሳቢው ስም _____ ፊርማ _____

የዋና ተመራማሪ ስም: ደሳለኝ ያየህ (የኒዮሮሎጂ ረዚደንት)

ተንቀሳቃሽ ስል ቁ. +251910419735

ኢ.ሜል: dyayeh@gmail.com

የጥናት እና ምርምሩ አማካሪዎች:

ዶ/ር አብነት ታፈሰ (የውስጥ ደዌ ሕክምና ስፔሻሊስት እና በኒዮሮሎጂ ትምህርት ክፍል ተባባሪ ፕሮፌሰር)

ዶ/ር ጌታሁን ታረቀኝ (የውስጥ ደዌ ሕክምና ስፔሻሊስት፣ ኢንዱስትሪ ሎጅስቲክስ እና በወስጥ ደዌ ትምህርት ክፍል ረዳት ፕሮፌሰር)

ዶ/ር ፍቅሩ ፀሀይነት (በኒዮሮሎጂ ትምህርት ክፍል ረዳት ፕሮፌሰር)

ዶ/ር ሀና አሰፋ (በኒዮሮሎጂ ትምህርት ክፍል ረዳት ፕሮፌሰር)

ዶ/ር ተክሊል ሓጎስ (በኒዮሮሎጂ ትምህርት ክፍል ረዳት ፕሮፌሰር)

መጠይቆች

ክፍል አንድ፡ የማህበረሰብ ጥናት መረጃ

1. እድሜ _____
2. የጋብቻ ሁኔታ
 - I. ያላገባ
 - II. ያገባ
 - III. ፍቺ የፈጸመ
 - IV. የትዳር አጋሩን በሞት የተነጠቀ
3. የትምህርት ሁኔታ፤
 - I. ማንበብ እና መጻፍ የማይችል
 - II. የመጀመሪያ ደረጃ ትምህርት
 - III. የሁለተኛ ደረጃ ትምህርት
 - IV. የኮሌጅ ትምህርት እና ከዚያ በላይ
4. ወርሃዊ ገቢ
 - I. ከ 1500 በታች
 - II. 1500-5000
 - III. 5000-10000
 - IV. ከ10000 በላይ
5. የስራ ሁኔታ
 - I. አርሶ አደር
 - II. የቀን ሰራተኛ
 - III. ነጋዴ
 - IV. የመንግስት ሰራተኛ
 - V. መንግስታዊ ያለሆነ ድርጅት
 - VI. ሌላ

ክፍል ሁለት የህይወት ልማዶች

6. አልኮል ይጠጣሉ
 - I. አዎ
 - II. አልጠጣም
 - III. መልስዎ አዎ ከሆነ ምን ያክል ይጠጣሉ? _____ ::
 - a. ዘወትር
 - b. አልፎ አልፎ በማህበራዊ ህይወት ብቻ
7. የአካል ብቃት እንቅስቃሴ ያደርጋሉ
 - I. አዎ
 - i. ዝቅተኛ(በሳምንት ከ 3 ቀን በታች ከ 20 ደቂቃ ያለበለጠ)
 - ii. መካከለኛ(በሳምንት 3-5 ቀን ለ 20-30 ደቂቃ)
 - iii. ከፍተኛ(በሳምንት 5-7 ቀን ለ 20-30 ደቂቃ እና ከዛ በላይ)
 - II. አላደርገም

8. ሲጋራ ያጨፋሉ

I. አዎ

i. በቀን ምን ያክል ሲጋራ: _____

ii. ለስንት አመት: _____

II. አላጨፋም

9. የሰውነት ሁኔታ

I. ቁመት: _____

II. ከብደት: _____

III. ምጥጥን: _____

ክፍል ሶስት: የክሊኒካል መረጃዎች

10. የስካር ህመም እንዳለብዎት ካወቁ ምን ያክል ጊዜ ሆነ? _____ ::

11. የትኛው አይነት ስካር ነዉ ያለብዎት ?

I. አይነት 1(T1DM)

II. አይነት 2(T2DM)

III. ሌላ

12. አሁናዊ በጾም ሰዓት በደም ውስጥ የሚገኝ የስካር ልኬት(FBS): _____ እና HgbA1c ባለፉት 6 ወራት : _

13. ለስካርዎት የሚወስዱት መድሃኒት

I. ኪኒን ብቻ

II. ኢንሱሊን ብቻ

III. ኢንሱሊን እና ኪኒን

14. ለስካር ከሚወስዱት መድሃኒት ውጭ የሚወስዱት መድሃኒት አለ?

I. አዎ

II. የለም

III. መልስዎ አዎ ከሆነ የመድሃኒቱ አይነት/አላማ

i. _____

ii. _____

iii. _____

15. ከስካር በተጨማሪ ሌላ ተላላፊ ያላሆነ ህመም አለብዎት

I. አዎ

i. የደም ግፊት(HTN)

ii. የልብ ድካም/የልብ የደም ስር መጥብብ(ischemic heart disease)

iii. የኩላሊት ህመም(CKD)

iv. ረጅም ጊዜ የቆዩ የጉበት ህመም(CLD)

v. ድብርት(depression)

vi. ከመጠን ያለፈ ፍርሃት(anxiety)

vii. የደም ስር መጥብብ/ መዘጋት(peripheral arterial disease)

viii. ሌላ _____

II. የለብኝም

ክፍል አራት፡ የአይክሌኤፍ-5 መጠይቆች

ተ.ቁ	ላለፉት ስድት ወራት	1	2	3	4	5
1	ስለብልትዎት መነሳሳት እና በቂ ጊዜ መቆየት ያለዎት በራስ መተማመን	በጣም ዝቅተኛ	ዝቅተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ
2	ብልትቆት ለግንኙነት ከተነሳሳ ብሁላ ወደ ሱቱዋ ብልት ለመግባት ያለዉ ጥንካሬ	በጣም ዝቅተኛ	ዝቅተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ
3	ግንኙነት ከጀመሩ በሁዋላ የብለትዎትን መነሳሳት ጠብቆ ማቆየት	በጣም ዝቅተኛ	ዝቅተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ
4	የብልትዎትን መነሳሳት ግንኙነት እስኪጨርሱ ጠብቆ ማቆየት ምን ያክል ያስቸግርዎታል	በጣም ዝቅተኛ	ዝቅተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ
5	ግንኙነት በሚያደርጉ ጊዜ ምን ያክል እርካታ ይሰማዎታል	በጣም ዝቅተኛ	ዝቅተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ

ክፍል አምስት፡ ህመሙን ስለመቀበል እና ህክምና ፍላጋ

16. ካሁን በፊት ስለስንፈተ ወሲብ ከሃኪምዎት ጋር ተወያይተው ያዉቃሉ

- I. አዎ
- II. አላዉቅም

17. ለጥያቄ ቁጥር 16 መልስዎት አላዉቅም ከሆነ ምክንያቱ ምን ነበር

- I. የሀፍረት ስሜት
- II. ሀኪሙ ስላልጠየቀ
- III. ህክምና አለዉ በሎ አለማሰብ
- IV. ሌላ

18. ካሁን በፊት ለስንፈተ ወሲብ ህክምና ሞክረው ያዉቃሉ

- I. አዎ
- II. ሞክሬ አላቅም

19. ለጥያቄ ቁጥር 18 መልስዎት አዎ ከሆነ ምን አይነት ህክምና ተሰጠዎት

- I. መድሃኒት
- II. ስነ አዕምሮ ህክምና
- III. ሌላ

20. ለስንፈተ-ወሲብ የባህል ህክምና ሞክረዉ ያቃሉ

- I. አዎ
- II. ሞክሬ አላዉቅም

21. ስንፈተ-ወሲብ ከስካር ህመም ጋር ሚያያዝ ይመስልዎታል

- I. አዎ
- II. አይመስለኝም
- III. አላዉቅም

ስለትብብርዎ ክልብ አመሰግናለሁ፡፡

የዳታ ሰብሳቢዉ ስም እና ፊርማ -----