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Readiness of Primary Health Care Facilities in Jimma Zone to Provide Diabetic Services for Diabetic Clients, Jimma Zone, South West Ethiopia, March, 2013

Fikru Tafese[1], **Elias Teferi**[2*], **Beyene Wondafirash**[1], **Sintayehu Fekadu**[1], **Garumma Tolu**[1] **and Gugsa Nemarra**[1]

[1]*Department of Health Service Management, School of Public Health, Jimma University, Jimma, Ethiopia*

[2]*Department of Public health, College of Medicine and Health Sciences, Ambo University, Addis Ambo, Ethiopia*

[*]**Corresponding author:** Elias Teferi, Ambo University, Ambo, Ethiopia, Tel: 251-917-81-65-14; E-mail: eliasteferi2015@gmail.com

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Abstract

Background: Diabetes is one of the commonest non-communicable diseases of the 21st century. Global burden of diabetes in 2010 was estimated at 285 million and projected to increase to 438 million by the year 2030, if no interventions are put in place. The primary health care facilities are the first level of contact for such rising cases of diabetes, despite of this fact there is no study done on the capabilities of primary health care facilities to accommodate diabetic services. Hence, the objective of this study is to assess the readiness of selected primary public hospitals and health centers to accommodate diabetic care in Jimma zone south west Ethiopia.

Methods: Health facility based cross-sectional study design using quantitative and qualitative method of data collection was conducted from Feb 1-March 1, 2013. After checking the completeness, and coding of questionnaires, the quantitative data were entered into computer software and analyzed using SPSS version 20.0.

Results: All of the facilities have at least some of the drugs and medical supplies and other resources required for the diagnosis and management of diabetes never the less there was no specific plan to deal with diabetic management at health facilities. Majority of patients were first diagnosed in other health facilities and referred to the current health institutions for follow up and there is no routine screening for diabetics in adult outpatient department in some health facilities.

Conclusion and recommendation: Required drugs and medical supplies are not regularly fulfilled, health facilities have no plan for diabetic management, and health workers did not get training on management of diabetics. No routine screening at adult patients at outpatient departments. Hence the Woreda and the zone have to work on the capacity of the health workers and health facilities to handle diabetic care at health center level.

Keywords: Diabetics; PHC; Ethiopia; Jimma University

Introduction

Diabetes mellitus is a chronic metabolic disorder that occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin it produces or both [1]. This results in elevated blood sugar (hyperglycemia) and other metabolic derangements which over time lead to multiple organ damage. The common complications of diabetes include eye complications, damage to heart, blood vessels, kidneys, nervous system and foot complications leading to amputations [1]. Diabetes is one of the commonest non-communicable diseases of the 21st century. In 2007 the global burden of diabetes was estimated to be 246 million people. In its 2009 Diabetes atlas publication, the international Diabetes federation, the global burden of diabetes in 2010 was estimated at 285 million and projected to increase to 438 million by the year 2030, if no interventions are put in place [2].

This rise in diabetes is associated with demographic and social changes such as globalization, urbanization, aging population and adoption of unhealthy lifestyles such as consumption of unhealthy diets and physical inactivity. Despite the higher prevalence of diabetes in high-income countries, the majority of the disease burden from diabetes, more than 70%, is in the developing regions because of their larger populations. The prevalence of diabetes in traditional rural African communities is less than 1% but escalates up to 30% in cities [2].

The predisposing factors include advancing age, family history, excessive body weight, excessive alcohol consumption, lack of physical inactivity, Stress, Unhealthy diet, Gestational Diabetes mellitus and chronic use of steroids [1,3,4]. Diabetes mellitus often goes undiagnosed because many of its symptoms though serious are often missed or are treated as common ailments [5].

Ethiopia, which is one of the developing nations, is at a risk of increased diabetes incidence. In Ethiopia, the number of deaths attributed to diabetes reached over 21,000 in 2007 [6]. Community based studies are non-existent at the national level and hospitals may give figures of those who come for treatment and follow up. As a result, the national estimate is based on neighboring countries with similar socio-economic situations and accordingly, 2%-3% of the population is estimated to live with diabetes in Ethiopia. No population-based prevalence study exists in Ethiopia but from hospital based studies it can be seen that the prevalence of diabetes admission has increased from 1.9% in 1970 to 9.5% in 1999 of all medical admissions [4-7].

WHO estimated the number of diabetics in Ethiopia to be about 800,000 cases by the year 2000, and the number is expected to increase to 1.8 million by 2030 [8]. In Ethiopia, the average age at death of people with Type 1 diabetes is of just 32 years [9]. In urban areas, Type 2 diabetes accounts for 71% of the people with the condition. When compared with the urban population, the proportion of people in the rural areas who are known to have Type 2 diabetes appears to be relatively very low 23% of the people with the condition [9].

An assessment conducted by FMOH Ethiopia in 2008 has revealed that non communicable diseases such as cardiovascular diseases, diabetes mellitus and cancers are among the major Contributors to the high level of mortality and morbidity. The combined prevalence of impaired fasting glucose and glucose tolerance test was 14.8% in Jimma town [10] and the overall prevalence of chronic non communicable disease in Gilgel Gibe Field Research Center was 8.9% (7.8% men and 9.8% women). The specific observed prevalence was 0.5% for diabetes mellitus in this Fielded research [11]. Slow implementation of programmes to tackle NCDs is one of the challenge forwarded by HSDP III and it is recommended (by HSDP IV) undertaking the necessary preparedness with regard to growing burden of non-communicable diseases and emerging medical conditions.

The overall goal of diabetes management is to help individuals with diabetes and their families gain the necessary knowledge life skills, resources, and support them to achieve optimal health. This is done through team effort and in a stepwise approach. The approaches to diabetes management are nutritional management, physical exercise, psychological support, drug treatment: using insulin and or oral anti-diabetic drugs depending on the type of diabetes and the individual patient, monitoring of blood glucose [1,3,4].

Therefore, despite its multi-system effects, diabetes is a controllable disease, and enormous human and economic toll can be significantly reduced by early and aggressive ongoing therapeutic intervention specifically at primary level of care. Therefore if diabetes care is to achieve the health benefits that modern science has made possible, it must be continuous, proactive, planned, patient centered, and population based at the point of first contact in health system especially in resource limited settings. The purpose of this study is therefore, to determine the level to which the primary level healthcare facilities accommodate services for diabetic clients.

Methods and Materials

Study area and period

The study was conducted in PHC facilities in Jimma zone from Feb1-March 1, 2013. Jimma zone is one of the 18 Zones in Oromia Regional State in which its main city is located at about 357 km away from the capital in the Southwest. According to the Ethiopian 2007 census report, the zone has a total population of 2,692,740 [12]. The majority of the population lives in rural area and engaged in farming activities. Politically the zone is subdivided in to 18 administrative Woredas, which are further subdivided in to 545 administrative Kebeles (515 rural and 30 urban Kebeles).

In the zone eight health centers, namely Serbo , Assan Daboo, Omo Nada, Sheki, Seka, Shebe, Yebu and Agaro were giving chronic non communicable disease services (epilepsy, diabetes and cardiovascular diseases) in collaboration with Jimma University and tropical health and education Trust (THET) and the British council project. Jimma University and tropical health and education Trust mainly train health officers and nurses in those health centers and provide supplies and drugs for screaming and management of theses chronic diseases [13]. But other PHCs in Jimma zone were providing these services by the government budget.

Study design

Health facility based cross-sectional study design that with quantitative and qualitative method of data collection was conducted.

Sample size, sampling technique and population

All diabetic patients that fulfill the inclusion criteria were interviewed, the average number of diabetic patients on follow up in the month before data collection was 15 per each health facility, therefore based on this 240 patients are expected. All health care providers working in the facilities during data collection period (320, that means 120 for facilities under THET project and 200 for facilities not under THET project) were included.

Five patient provider interactions at each health facility were observed. For qualitative study one key informant from zonal health office, each selected Woredas' chronic disease program coordinator and each selected PHC facility heads were purpose fully selected for in-depth interview.

As source population, all diagnosed diabetic patients who were on follow up in Jimma Zone PHC facilities during the data collection period were considered. All healthcare providers working in the PHC facilities during the data collection period and the focal persons from zonal health office, and each selected Woredas' chronic disease program coordinator were also taken as source population.

Inclusion criteria

Adults who came for diabetic follow at selected facilities during the study period.

Exclusion criteria

Diabetic patients who were unstable due to complications of diabetes like diabetic keto acidosis (DKA) and other co-morbidities were excluded.

Operational definitions

Resource for diabetic care: Includes laboratory equipment and reagents, staffs, registration format and plan documents at PHC facility level.

Provider's knowledge: It is measured based on modules and guide lines to manage Diabetes at PHC level. These include mentioning main sign and symptom of diabetes, laboratory investigation, drug management, and health information and when to refer the diabetic patient).

Healthcare providers' attitude: It was measured on five-point likert scale using four questions. The attitude score was standardized as a percentage of maximum scale score so that the score was between ranges 0 and 100.

PHC facilities: This includes primary hospitals and health centers.

Readiness of facility: It was measured by resources, health workers knowledge and attitude, and plan documents for diabetic services based on WHO guideline [14].

Study variables, data collection instruments and procedures: Measurements Variables that have been theoretically, empirically and conceptually linked to Resource for diabetic care, Provider's knowledge, Healthcare providers' attitude, Readiness of facility were used in this study.

Accordingly, Socio-demographic variables (Age, marital status, educational status, religion, occupation and residence), Availability of logistics and supplies (urine test kits, glucose test kits, glucometer, swabs, lancets, 45% DW), Availability diabetic drugs and diagnostic set ups, Availability of trained staffs, Availability of local plans were taken as independent variables. The dependent variables were Patients perception, Healthcare providers' knowledge and Healthcare providers' attitude.

Quantitative data collection tools were adapted after review of relevant literatures [15] and modified to the local situation. For qualitative data collection, FGD guide in-depth interview guide and checklist were developed based on national guideline. The exit interviews were conducted by five trained diploma nurses who can speak Afan Oromo (local language) fluently. Key informants were interviewed by four BSC holders in public health. FGD was conducted by PI and two masters of public health holders.

Data quality control

To ensure quality of the data, adapted questionnaires were used for data collection. In addition, pre- testing of all the data collection tools on 5% of the study subjects on Jimma University specialized hospital was done prior to the actual conduction of study. Moreover, training was given for three consecutive days in interview technique, and ethical issues, emphasizing the importance of safety of the participants and interviewers, minimization of under reporting and maintaining confidentiality.

Data analysis

After checking the completeness, and coding of questionnaires, the quantitative data were entered into computer software and analyzed using SPSS version 17.0 windows. The findings were presented in mainly tables. The qualitative data was analyzed thematically and presented by narrating and triangulated to the quantitative findings.

Ethical considerations

Before field work, ethical clearance was obtained from the ethical review board of the College of Public Health and Medical Science, Jimma University. Jimma zonal health department and respective Woreda health office were informed to get the official letters to conduct the study.

After a brief explanation on the purpose of the research, clients who gave verbal consent were interviewed at the end of their visit by trained interviewers who were not members of the clinics' staffs. Participants' involvement in the study was on voluntary basis. Farther more, confidentiality was assured by excluding name of the clients from any response obtained.

Results

Socio demographic characteristics

Eight health facilities (one primary hospital and seven health centers were assessed and 207 patients on chronic follow up were interviewed. The mean age of the patients was 42 years, majority of them are from rural area 128(61.8). More than half of them were farmers 115(55.6) (Table 1).

Variables	N=207	No	%
Residence	Urban	79	38.2
	Rural	128	61.8
Ethnicity	Oromo	167	80.7
	Amhara	25	12.1
	Others	15	7.2
Religion	Musilim	139	67.1
	Christan	67	32.1
	Others	1	0.5
Marital status	Married	141	68.1
	Single	42	20.3
	Others	24	11.6
Occupation	Farmer	115	55.6
	Merchant	30	14.5
	Civil servant	27	13
	House wife	14	6.8
Educational status	Illiterates	82	39.6
	Read and write only	53	25.6
	Primary school (1-8)	32	15.5
	Secondary school	16	7.7
	Grade 12 and above	24	11.6

Table 1: Major socio- demographic characteristics of the study subjects in Jimma Zone, south west Majority of the patients were diagnosed in year 2002 and more than half of them were first diagnosed in other health facilities and came to the health facilities where they have been interviewed for follow up.

Availability of resources

All of the health facilities have had some of the resources to treat chronic non communicable diseases at the time of data collection. The distribution of available resources at each health facility is presented in Table 2.

Even though the above drugs and medical supplies are there during the visit, most of the key informants have said that these resources are not regularly there and not planned according to the expected number of patients.

Knowledge and attitude of health workers

Thirty two health workers who were working at different department were assessed on their knowledge about diabetes management, twenty three (71%) of them were male, majority of them were nurse 22(87%), the minimum, maximum and mean service year of the health workers respectively was 1,21 and 6.7 with 6.34 Standard deviation. The minimum, maximum, mean age and Standard deviation of the health workers was 2,46,28.6 and 6.1 respectively. Majority of the respondents 25(78.1%) mentioned RBS/FBS as the major diagnostic approach to diabetes. Twenty nine (90.6%) of the respondents mentioned polyphagia as major symptom of diabetes. More than 80% of the respondent mentioned polydepsia as major symptom of diabetes. Polyuria was mentioned by 28(87.5%) of the health works as major symptom of diabetes.

Resources	Health facilities							
	Agaro HC	Limmu Hospital	Setema HC	Toba HC	Sheik HC	Shebe HC	Asandabo HC	Sokoru HC
Hb, WBC, ESR	yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fasting Blood Sugar	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cllini test	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BUN and Creatinine	No	Yes	no	no	no	yes	yes	Yes
Lipid	no	Yes	no	no	no	no	no	no
HbA1c	no	Yes	no	no	no	no	no	no
Specific drugs for diabetes management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insulin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Insulin syringes								
OHA	no	no	no	no	no	no	no	no
Drugs for management of complications of diabetes	no	Yes	no	no	no	no	no	no
Aldomet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Propranolol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hydrochlorothiazide	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lasix	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digoxin								
Human power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average number of Doctors	0	4	0	0	0	0	0	0
Average number of Nurses	5	12	4	6	4	6	6	8
Average number of laboratory technicians	3	4	2	2	2	2	3	3

Table 2: Availability of drugs, medical supplies and other resources in the health facilities, Jimma zone, south west Ethiopia, March 2013.

Majority of the health workers had no in-service training on diabetes management. The key informants have also supported this finding because most of them said that in-service trainings are mostly given on common infectious diseases like Tb, HIV and malaria.

Patients' perception on the services

Majority of patients 190 (91.8%) agreed that they regularly get the health care provider on their each follow-up. However thirty two 15.5% of them reported that they usually do not get the drug at their visit to health facilities for follow up. Almost all of the patients 200 (96.6%) reported that they come for the services regularly according to their appointment and majority of them have good perception that the health workers give them enough time to present their problems. 10% of the patients disagree that the health care providers did not tell about their current health problems. 17% of the patients disagree that the dose and frequency of their drug were well explained to them by health care providers. Almost 20% of the patients disagree that the health care provider did explain healthy life style to them (Table 3).

Discussion

In this study it is attempted to assess the readiness of primary health facilities to provide diabetes care. As there are few studies done on this area literatures are few to compare especially in Ethiopia. This study may also be limited. Since we have interviewed patients at health facility they might give the positive information only. But we have interviewed the facilities head and checked resources and plan availability to support quantitative findings. The availability of resources like drugs and laboratory facilities are there even though they are in comprehensive way not established well during data collection which is also supported by study done in Addis Abeba heath care facilities [16]. All key informants have also addressed that there is no specific plan to address this health problem at health facilities which made it difficult to address the resource issue comprehensively.

Heath care provider gave you enough time to explain complaints	Number	Percent
Strongly disagree	32	15.5
Disagree	20	9.7
Undecided	19	9.2
Agree	91	44.0
Strongly agree	45	21.7
Health care provider told you what could worsen health condition and what should the patient take care of		
Strongly disagree	24	11.6
Disagree	18	8.7
Undecided	36	17.4
Agree	76	36.7
Strongly agree	53	25.6
Health care provider has well explained to you the type, dose and frequency of the drug I should take		
Strongly disagree	12	5.8
Disagree	22	10.6
Undecided	31	15.0
Agree	85	41.1
Strongly agree	57	27.5

Table 3: Patients' perception to health care providers practice in giving them enough time for patients compliant (N=207), Jimma zone, south west Ethiopia, March 2013.

Majority of the patients were also diagnosed in other health facilities like Jimma university specialized hospital that also shows the current facilities are mostly receiving referred cases. It was also pointed out by key informants that there is no regular follow-up of the service since it is not in their priority plans. Even though majority of patients reported that they can get the health care providers during their follow-up visits, considerable number of them didn't get the drugs that they have to get. This is similar with the finding from study conducted in Egypt in which 87% of the patients said they were visiting their physician regularly [17]. Majority of the health care providers had good attitude to the services as reported by majorities of the patients. However, this is not supported by patient's perception to what health care provider told them about what worsens their current problem and this could be due to lack of comprehensive knowledge about the disease. There is also no guideline for health care providers to help manage this problem which may also justify this patient's perception. concerning the drug and dose frequency, 17% of the patients disagree that the health care provider explained this issue for them, this may also be due to knowledge gap and facilities readiness in availing information that help these issues.

Health life style advice to patients was also not agreed by considerable number of patients and this has been very critical information equal to drug information, again this gap may be justified by health care providers' knowledge.

Conclusion and Recommendation

In conclusion, Required drugs and medical supplies are not regularly fulfilled, health facilities have no plan for diabetic management, health workers particularly working at the outpatient departments had not given training on the management of this problem and there is no guideline that support what they are doing. Majority of the outpatient departments were run by nurses. There was no routine screening of adult patients at outpatient departments. Generally the facilities are not ready to accommodate this service. The Woreda and the zone have to work on the capacity of the health workers and health facilities to handle diabetic care at health center level.

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