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PREVALENCE OF DIABETES IN ADIGRAT TOWN, NORTHERN ETHIOPIA

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ABSTRACT

Diabetes mellitus is recognized as one of the emerging public health problems in developing countries. However, its magnitude has not been studied at community levels, making the provision of appropriate services difficult in such countries. Hence, this study aimed to assess the prevalence of diabetes in Adigrat Town, Northern Ethiopia. Recorded data of diabetics' patients (secondary data) of the year 2005, 2006, and 2007 E.C were collected from Adigrat Hospital and the collected data was analyzed using Microsoft Excel 2010 and presented in the form of tables and percentages. In this study, among the three consecutive years, highest prevalence rate of diabetes in males was recorded in the year 2005 E.C (53.86%) followed by 2006 E.C (52.45%) and 2007 E.C (50 %). Contrary, the highest prevalence rate of diabetes in females was observed in the year 2007 E.C (50 %) followed by the year 2006 E.C (47.54 %) and 2005 E.C (47.14 %), respectively. Moreover, the highest prevalence rate of diabetes in males, which was observed in the age group of greater than 15, was recorded in the year 2007 E.C (97.5 %) where as the highest prevalence rate of diabetes in females, which is observed in the age group of greater than 15, was recorded in the year 2005 E.C (96.3 %). The present study reveals considerably high prevalence rate of diabetes. Thus, to minimize the prevalence rate of diabetes in the study area, appropriate actions need to be taken.

KEYWORDS: Diabetes mellitus; Prevalence; Rate; Adigrat Hospital.

INTRODUCTION

Diabetes mellitus (Dm) is most common chronic metabolic disease that occur when the pancreases is not able produce enough insulin (Type1 Dm) or when the body cannot effectively utilize the insulin it produces (Type2 Dm) (Charbonnel, 2005; Anthony and Alvin, 2008). According to the international diabetes federation report the wide prevalence of diabetes mellitus has risen dramatically over the past two decades from an estimated prevalence of 30 million causes 1985 to 177 million in 2000. Based on the current trends more than 360 million individual will have diabetes by the year 2030, diabetes contributes for 4.6 million death per year accounting for 8.2% of all causes of global mortality (International diabetes federation, 2011).

It was estimated by the World health organization (WHO) that the number of patients with diabetes in Ethiopia to be 800.000 by the year 2000. Moreover, the numbers are expected to increase to 1.8 million by 2030 (Anthony and Alvin, 2008; Paula, 2007). Ethiopia is the second most populous country in sub Saharan Africa where more than 80% of the population lives in the country side. Depressive disorder is one of the common and devastating psychiatric co-morbidities among people with diabetes depressive disorder is characterized by depressed mode of interest or pleasure, feeling of guilty or low self worth, disturbed sleep appetite, low energy and poor concentration. This problem can be came chronic or recurrent leading to substantial impairment in an individual ability to take care of his or her everyday responsibilities (Andree *et al.,* 2009).

Currently, Ethiopia is also challenged by the growing magnitude of chronic non communicable diseases. Despite major progresses in education, the literacy status of the population of Ethiopia is still low with total adult literacy rate of 36% (62% for male and 39% for female). The education level in the country is still a significantly marker influencing the spread of disease, shaping the health seeking behavior of individuals and communities including the utilization of modern health care service (Andree *et al.,* 2009).

Diabetes mellitus is recognized as one of the emerging public health problems in developing countries. However, its magnitude has not been studied at community levels, making the provision of appropriate services difficult in such countries. Hence, this study aimed to assess the prevalence of diabetes in Adigrat town, northern Ethiopia.

MATERIALS AND METHODS

Study Area Description

The study was conducted in Adigrat University from April to June 2015. The University is located at 898 km far from the capital city of Ethiopia, Addis Ababa and 125 km from the capital city of Tigrai Regional State, Mekelle. The area geographical coordinates $14^0 16$' N and 37^0 27'E longitude and latitude respectively. The area is found in the average altitudes range from 2530 - 2660 meter above sea level and its average annual rainfall about 659.4mm. Its temperature is moderated between 15^0C and 20^0C make the area comfortable for human settlement (Adigrat City Administration, 2015).

Study Design and Sampling Technique

A descriptive study design was used in the study to assess the prevalence of diabetics. The simple random sampling technique was applied to collect sample from recorded data in Adigrat hospital.

Data Collection

In order to get sufficient data about the prevalence of diabetes in human health, recorded data of diabetics' patients (secondary data) of the year 2005, 2006, and 2007 were collected from the Adigrat Hospital.

Data Analysis

The collected (secondary) data was analyzed using Microsoft Excel 2010 and presented in the form of tables and percentages.

RESULTS

In this study, the prevalence of diabetes in the year 2005, 2006 and 2007 E.C in relation to different age groups and sex was presented as follows. Among the years, highest prevalence rate of diabetes in males was recorded in the year 2005 E.C (53.86%) followed by 2006 E.C (52.45%) and 2007 E.C (50 %) while the highest prevalence rate of diabetes in females was observed in the year 2007 E.C (50 %) followed by the year 2006 E.C (47.54 %) and 2005 E.C (47.14 %), respectively. In addition, the highest prevalence rate of diabetes in males, which is observed in the age group of greater than 15, was recorded in the year 2007 E.C (97.5 %) where as the highest prevalence rate of diabetes in females, which is observed in the age group of greater than 15, was recorded in the year 2005 E.C (96.3 %).

Table 1: Prevalence of diabetes in relation to age and sex groups (2005 E.C).

Prevalence of Diabetes (Percentage)		
Age	Sex	
	Male	Female
<4	9 (0.693)	1(0.09)
5-15	55(4.24%)	40(3.60%)
>15	1234(95.2%)	1070(96.3%)
Total	1297(53.86%)	1111(47.14%)
Grand Total	2408	

(Source: Adigrat Hospital, 2007)

As shown in table 1, the prevalence of diabetes in males (53.86%) was higher than in females (47.14%). In addition, the prevalence of diabetes in males was higher than in females in all of the age groups. Comparably, among the different age groups, the prevalence of diabetes was higher in the peoples with greater than 15 years old while lowest prevalence of diabetes were recorded in age groups of less than 4 years old.

Table 2: Prevalence of diabetes among age and sex groups (2006).

Prevalence of Diabetes 2006		
Age	Sex	
	Male	Female
<4	15(1.3%)	2(0.2%)
5-15	81(7.02%)	75(7.2%)
>15	1058(91.7%)	969(92.64%)
Total	1154(52.45%)	1046(47.54%)
Total sum	2200	

(Source: Adigrat Hospital, 2007)

According to table 2, the peak prevalence rate of diabetes was observed in the age group among greater than 15 years old while the lowest prevalence rate was observed among the age group less than 4 years old. The above table also shows that prevalence of diabetes was observed in both sex, but highly prevalent in males (52.45 %) than females (47.54%).

Table 3: Prevalence of diabetes between age and sex groups (2007).

Prevalence Of Diabetes 2007		
Age	Sex	
	Male	Female
<4	4(0.4%)	15(1.5%)
5-15	21(2.1%)	55(5.5%)
>15	976(97.5%)	931(93.01%)
Total	1001(50%)	1001(50%)
Total sum	2002	

(Source: Adigrat Hospital, 2007)

As shown in table 3, generally the prevalence of diabetes was higher in the age group with greater than 15 years old while lowest prevalence of diabetes was observed in the age group with less than 4 years old. In addition, the overall prevalence of diabetes in the year 2007 E.C was similar in both the sexes in males (50 %). Differently, the prevalence of diabetes was higher in females in the age group between 5 -15 (5.5%) than males in the same age group (2.1%).

DISSCUTION

As the result of the present study reveals that, the prevalence of diabetes in the study area was high. As shown in the result section, from the different age groups, higher prevalence rate of diabetes were observed in the age group of greater than 15 years old. The prevalence of diabetes of this study is agreed with the

finding from Iran and Pakistan (Marin *et al.*, 1995). The high prevalence rate of diabetes in the age group of greater than 15 years old might be due to use of sugars and other stimulants frequently (Marin *et al.*, 1995).

In addition, the prevalence rate of diabetes was higher in male than females. This indicates that males were more affected by diabetes than females. The reason for this might be due to frequent link of males with alcohol, chat and other chemicals that contribute to the disease diabetic and it is associated with different risk factors like hypertension, obesity and dyslipidemia. The result of this study is not in agreement with study conducted at Jima University (Dejen *et al.*, 2014). This disagreement might be due to the difference of using different chemicals that stimulate the diabetes disease by the individuals and might be due to study sittings difference (Dejen *et al.*, 2014).

Furthermore, among the three years the prevalence highest rate of diabetes in males was recorded in the year 2005 E.C (53.86%) followed by 2006 E.C (52.45%) and 2007 E.C (50 %). This indicates that reduction of the prevalence of diabetes in year each by some extent. This little reduction of the prevalence of diabetes in males might be due to reduced use of substances and other chemicals that lead to more occurrence of diabetes. On the other hand, within the three years, the highest prevalence rate of diabetes in females was observed in the year 2007 E.C (50 %) followed by the year 2006 E.C (47.54 %) and 2005 E.C (47.14 %), respectively. This result is dissimilar with the prevalence rate of diabetes in males of this study. This might be due to the association different risk factors with female gender and poor glycemic control (Marin *et al.*, 1995).

CONCLUSION AND RECOMMENDATIONS

Conclusion
The prevalence of diabetes in this study was considerably found to be high. The highest prevalence rate of diabetes in males was shown in the year 2005 E.C while the highest prevalence rate of diabetes in females was observed in the year 2007 E.C (50 %). In addition, the highest prevalence rate of diabetes in males, which is observed in the age group of greater than 15, was recorded in the year 2007 E.C where as the highest prevalence rate of diabetes in females, which is observed in the age group of greater than 15, was recorded in the year 2005 E.C. Thus, to minimize the prevalence of diabetes in the study area, appropriate actions need to be taken.

Recommendations
- ✓ It is recommend that strong referral linkage between diabetes and psychiatry clinic has to be set functional and
- ✓ Further integration of mental health care in to diabetes clinic has to be considered.
- ✓ Continuous health information, education, and communication towards raising awareness about the

possibilities of morbidities and early sign and symptoms of diabetes have to be delivered for patients.

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