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Epidemiological Burden of Diabetes among Displaced and Settlement women in Nyala Locality, South Darfur State

Prepared by: Dr. Hanaa Abdalla Adam Mahmoud- Lecturer, Faculty of Public Health, Alzaiem Alazhari University.
Adam Abdalla Mater - Associate professor, Faculty of Public Health, Alzaiem Alazhari University.

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Abstract

A descriptive cross-sectional community based study was conducted in Nyala Town among adults women in Otach camp and North Nyala locality to assess the epidemiological burden of diabetes.

The study aimed to measure the prevalence of diabetes among study population and to determine most risk factors associated with the disease. The Probability sampling was used to select women with a sample size (490); of whom (359) settlement women and (131) displaced women. Data was collected by interview and questionnaire; also the laboratory examination of diabetes. Data was analyzed by the computer system of statistical package for social science (SPSS). The study results concluded the following: out of 490 women examined, 117 of blood samples were positive for diabetes which constituted a prevalence rate of 23.9% .The prevalence rate for settlement women was 28.1 % and displaced women was 12.2% , (p value 0.000). The study recommended the planning and implementation of effective health education programs to increase the awareness of people about diabetes and its controllable risk factors, early diagnosis and treatment maintenance of normal body weight, physical exercise and complication of disease to decrease of disability. providing the treatment of diabetes and clinics for examination.

1. Introduction:

Diabetes is a group of diseases marked by high levels of blood glucose resulting from defects in insulin production, insulin action, or both. Diabetes can lead to serious complications and premature death, but people with diabetes, working together with their support network and their health care providers, can take steps to control the disease and lower the risk of complication[(1)]. Diabetes is a disease caused by deficiency or diminished effectiveness of insulin [(2)].

The main types of diabetes are Type 1 diabetes results from the body's failure to produce sufficient insulin and Type 2 diabetes results from resistance to the insulin and Gestational diabetes pregnant women who have never had diabetes before but who have high blood glucose levels during pregnancy are said to have gestational diabetes [(3)]. Risk factors for diabetes include: age, sex, family history, obesity, History of gestational diabetes, lack of physical activity and stress [(2)]. The preventive measures of diabetes by reduce the risk factors e.g. the maintenance of normal body weight through adoption of

healthy nutritional habits and physical. Diabetes is major cause of disability through its complications, e.g.; blindness, kidney failure, cardiovascular diseases and damage of nerves [3].

The increasing prevalence of diabetes worldwide has led to a situation where approximately 382 million people had diabetes in 2013, of which more than 95% would have had type2 diabetes. This number is estimated to increase to 552 million by 2030 and it is thought that about half of those will be unaware of their diagnosis [2].

Data on diabetes prevalence by age and sex from a limited number of countries were extrapolated to all 191 world health organization member state and applied to United Nations population estimates for 2000 and 2030.urban and rural populations were considered separately for developing countries [4].

In Sudan diabetes prevalence ranged from 2.6% in rural Sudan to 20.0% it was significantly higher in urban areas than in rural areas. Undiagnosed diabetes is common in Sudan with a prevalence ranging from 18% to 75 %[5]. The study aimed to measure magnitude of diabetes in settled and displaced adult women.

2. Material and method

- **Study design**:

This was a cross-sectional community based study was conducted among women from 15 to 60 years old in Otach camp and North Nyala locality to assess the epidemiological burden of diabetes.

- **Study area:-**

Nyala Town , South western Sudan, located at an elevation of 2,208 feet (673 meters) in the Darfur historical region. The city's industries produce textiles, processed food, and leather goods. Nyala is a road and railway terminus and serves as a trading center for gum Arabic. It also has a domestic airport.

- **Study population:**

The study population consist of displaced women and settlement women

- **study variables:**

In order to answer the research, question the following variables were studied:
independent variable such as demographic and Socioeconomic factors (age, residence, educational level, occupation, family size, Income, and risk factors (obesity, history of gestational diabetes, lack of physical activity, stress, cigarette, tobacco, alcohol abuse, dietary patterns.
Dependent variable diabetes.

- **Sampling**

Probability sampling by using stratified random sampling (displaced women and settlement women from 15years old to above that) and systematic random sampling was used to select sample size from houses or tents (household) from Otach camp and North Nyala locality.

	N	Women from 15-60 years	Representative sample
Displaced in Otach camp	51629	17209	131
Non –displaced Nor Nyala	284398	47399	359
Total		64608	490

-Sample size:-

By equation from total population:

$n=z^2pq\e^2 = (1.96)^2 *0.2*0.8 \(0.05)^2 =245.8624*2=490$

n= sample size

z= level of confidence (95%) =1.96

p= proportion of previous study about diabetes =20%[5]

q= complementary of proportion=1-p =1-0.2=0.8

e=error allowable =0.05

- **Data collection:**

Interview (questionnaire) and the laboratory examination.

- **Data analysis and presentation:**

The data was organized by a master-sheet and entered by statistical package for social science (SPSS) program, then finally represented in tables and graphs.

3.Informed consent: A written consent about the purpose of the study was signed by each respondent before starting the direct interview & collection of the data. All personal information was kept confidential.

4. Results

Table No (1): Shows age groups among displaced women in Otach camp and settlement women in North Nyala locality 2019 (n=490).

Age groups	Frequency		%	
	Camp	Urban	Camp	Urban
15-24	36	51	27	14
25-34	41	81	31	23
35-44	39	78	30	22
45-above	15	149	12	41
Total	131	359	100%	100%

Table no (2): explain that the residence among two study population 2019 (n=490)

Residence	Frequency	%
Camp	131	27
Urban	359	73
Total	490	100

Table No (3): Shows the social status among displaced women in Otach camp and settlement women in North Nyala locality 2019 (n=490).

Social status	Frequency		%	
	Camp	Urban	Camp	Urban
Married	91	237	70	66
Divorced	9	25	7	7
Widow	21	38	16	11
Unmarried	10	59	7	16
Total	131	359	100	100

Table No (4): explain the educational level among two target population 2019 (n=490)

Educational level	Frequency		%	
	Urban	Camp	Urban	Camp
No educate - illiterate	49	69	14	53
Nook	62	11	17	8
Basic -primary	82	25	23	19
Secondary	92	15	26	11
University	66	10	18	8
Postgraduate	8	1	2	1
Total	359	131	100	100

Table No (5): Distribution of the occupation of displaced women in Otach camp and settlement women in North Nyala locality 2019 (n=490).

	Urban	Camp	Urban	Camp
Officer -employee	85	11	24	8
Householder	112	59	31	45
Student	97	21	27	16
Free business	65	40	18	31
Total	359	131	100	100

Table No (6): explain that the family size among two study population 2019 (n=490)

Family size	Frequency		%	
	Urban	Camp	Urban	Camp
1-3	52	18	14	14
4-6	128	45	36	34
7-9	141	52	39	40
10-more than 10	38	16	11	12
Total	359	131	100	100

Table No (7): explain that the Result of examination of diabetes among displaced and settlement women 2019 (n=490)

Result of examination	Frequency		%	
	Urban	Camp	Urban	Camp
Positive	101	16	28	12
Negative	258	115	72	88
Total	359	131	100	100

Table No (8): Shows the type of diabetes among displaced women in Otach camp and settlement women in North Nyala locality 2019 (n=490)

Type of diabetes	Frequency		%	
	Urban	Camp	Urban	Camp
Type 1	35	6	35	38
Type 2	58	8	57	50
Gestational diabetes	8	2	8	12
Total	101	16	100	100

5. Discussion

This was a cross-sectional community based study conducted among adult women d in Otach IDP camp and North Nyala locality to assess the epidemiological burden of diabetes. This study was conducted on 490 women aged 15 to above among displaced women of whom (131 as 27%) and settlement women (359 as 73%) . The prevalence rate of diabetes was 23.9% among study population while it was 28.1 % among settlement women and 12.2% among displaced women, The prevalence of diabetes mellitus was significantly higher for urban residents than in IDP camp (p value= 0.000).This is in agreement with reference (33) who also reported that the prevalence of diabetes mellitus was 3.3%; while it was 2.0% for rural and (4.6%) for urban dwellers.

The prevalence of diagnosed cases showed the types of diabetes to be 35% for type1, 56.5% for type2 as highest proportion and 8.5% for gestational diabetes. (p value (0.000) is statistically significant . This is in agreement with reference (10) who reported that Type 2 diabetes may account for about 90% to 95% of all diagnosed cases of diabetes.

The highest rate of diabetes (43.3%) was among the age group 45 years and above than 45 (p value 0.000) which means that the risk of diabetes increased with age. This finding agrees with the finding of reference (24) who stated that the risk of developing disease increases with age, especially after age of 45.

6. Conclusion

The study Results were as follows:

- The prevalence rate of diabetes was 23.9% among study population. 28.1 % among settlement women and 12.2% among displaced women, The prevalence of
- diabetes mellitus was significantly higher for urban residents than in IDP camp (p value=0.000)

- The types of diabetes found to be 35% for type1, 56.5% for type2 as highest proportion and 8.5% for gestational diabetes. (p value =(0.000) is statistically significant .

7. Recommendations

According to the findings the study recommended the health authorities with the follow suggestion:

- Multidisciplinary efforts should be exerted to increase the awareness of diabetes and its controllable risk factors such as smoking ,alcohol, life style , diet , stress ……
- Improvement of the preventive measures comprise maintenance of normal body weight through adoption of healthy nutritional habits and physical exercise
- Program of health education of diabetic patient about early diagnosis and treatment to maintain blood glucose levels as close within the normal limits and diet control.
- Planning and implementation an effective health education program to improve awareness of diabetic patient about complication of disease
- providing the treatment of diabetes and clinics for examination .

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