INOSR APPLIED SCIENCES 12(1):46-56, 2024
ISSN: 2705-165X
©INOSR PUBLICATIONS
INOSR1.1.41103
International Network Organization for Scientific Research
https://doi.org/10.59298/INOSRAS/2024/1.1.41103

Assessment of Overweight, Obesity and Lifestyle-Related Factors Among Women Aged 18-49 Years in Kizinda, Bushenyi District

Kkunsa Hadson

Faculty of Clinical Medicine and Dentistry Kampala International University Western Campus Uganda.

ABSTRACT

The trend of overweight and obesity was growing with shifts in individual and behavioral factors. Globally, overweight and obesity becoming a major problem, yet extensive data especially in Africa is still lacking. The objectives of the study were to determine the prevalence, socio-economic, and lifestyle-related factors associated with overweight and obesity among women aged 18-49 years in Kizinda in Bushenyi district. A cross-sectional analytical study design was used. Data on prevalence was collected through anthropometric measurements using the BMI (Body Mass Index) while those of socio-economic and individual factors were collected with a structured questionnaire. 271 women aged 18-49 years in Kizinda Trading Center, Bushenyi district were sampled. The prevalence of overweight and obesity among women of reproductive age in Bushenyi town was 47.24% and 19.92% respectively. Housewives were twice as likely to be overweighed and obese [AOR: 2.10, 95% CI (0.87-3.15)]. Unemployed women have 74% [AOR: 1.26, 95% CI (0.50-2.36)] higher odds of being overweight or obese and those who earn >700000 shillings have 37% [AOR: 1.63, 95% CI (0.56-2.25)] higher odds to be overweight and obese. Compared with women who live in rented houses, those who live in their own houses were 48% [AOR: 1.52, 95% CI (0.78-2.94)] higher odds of being overweight or obese. Women who engaged in physical activity had 65% [AOR: 0.35, 95% CI (0.17-1.27)] less odds of being overweight or obese compared to those who did not. Participants whose food intake is mostly rice and ghee had 55% [AOR: 1.45, 95% CI (0.40-1.27)] and 44% [AOR: 1.56, 95% CI (0.53-2.11)] more odds of being overweight or obese respectively compared to those who take Posho. Women whose food intake was mostly milk were two times [AOR: 2.01, 95% CI (0.55-2.75)] more likely to be overweighed or obese compared to those who take Posho. The high prevalence of overweight and obesity among women of reproductive age in Bushenyi calls for serious attention. Public health interventions through awareness programs about the consequences of overall and abdominal obesity should be implemented.

Keywords: Overweight, Obesity, Posho, Women, Housewives.

INTRODUCTION

Being overweight and obesity as well as associated comorbidities are major challenges to the health system and present an important public health problem in the world. Persons who are overweight are said to have their body weight exceed a certain level for a given body height. While excessive overweight on the other hand is referred to as obesity and classified as a disease [1, 2]. Obesity is a risk factor linked to chronic diseases such as type 2 diabetes mellitus [3, 4], and cardiovascular diseases [5]. It is also associated with a higher risk of premature death [6]. According to the World Health Organization, the prevalence of overweight has nearly tripled since 1975. [7]. Substantive evidence shows that the prevalence of overweight among children and adults has continued to increase. For instance, in 1980, the prevalence of overweight among men stood at 28.8 % this increased to 36.9 % in 2013 and among women from 29.8 % in the same year to 38.0 % in 2013 globally [3]. In 2014, the global prevalence of overweight and obesity among adults was estimated at 39 % (38 % of men and 40% of women) and 13% (11 % of men and 15 % of women) respectively. In 2016, more than 1.9 billion adults, 18 years and above were overweight. Of these, over 650 million were obese. Overall, about 13% of the world's adult population (11% of men and 15% of women) were obese in the same year [7]. Across the WHO regions, America has the highest prevalence of overweight and obesity standing at 61

% and 27 %, respectively, with the lowest reported in the South-East Asia region 22 % overweight and 5% obesity [8]. More than 50 % of women in the European, Eastern Mediterranean and American regions are overweight, with almost 50 % of the overweight women in the same regions being obese. Specific to the African, Eastern Mediterranean and South-East Asian regions, the prevalence of obesity among women has almost doubled that of men[3]. In Africa, an estimated 20-50 % of urban populations are either overweight or obese [9]. According to WHO, the adult prevalence of obesity in Africa was about 6 % among men and 15 % among women in 2014 [4]. In Eastern sub-Saharan Africa (SSA), the prevalence of overweight and obesity among men was estimated at 14.9 % and 4.4 % in 2013 respectively. In the same year, the prevalence of overweight and obesity among women was estimated at 23.7 % and 8.8 % respectively [10]. In Uganda, an increasing trend in the prevalence of overweight and obesity among women of reproductive age from 8 % in 1995 to 18.8 % in 2011 has been reported by the Uganda Demographic Health Surveys[11].Uganda's recent national NCD risk factor survey reported 19.1 % adult prevalence of overweight (11.3 % of men and 27.1 % of women); obesity was 4.6 % (1.8 % of men and 7.5 % of women) [12]; [13]. A study in rural south-western Uganda among individuals aged 13 years and above reported that 3.6 % of males and 14.5 % of females were overweight and 0.5 % of males and 3.9 % of females were obese [14]. Similarly, a study among 35–60 years old adults in rural eastern Uganda reported overweight prevalence of 12.3 % (7.5 % of men and 16.9 % of women) and obesity of 5.3 % (2.2 % of men and 8.2 % of women) [15]. In south western Uganda, the prevalence of overweight of 11.8% in men and 16.9 % of women was reported [16]. Notably was a study in Kasese district which reported that among adults aged 25 years and more, overweight was 15.6 % (14.7 % of men and 16.7 % of women) and obesity was 6.7 % (4.9 % of men and 9.0 % of women) [17]. The trend of overweight and obesity is growing with shifts in individual and behavioral factors [18]. Individual factors such as age, sex, marital status and parity, educational level, income and occupation have been reported to play important roles in the development of overweight and obesity among women [19]. Dietary intake and physical activity patterns of an individual are behavioral variables which influences weight gain when they are not balanced [19]. In Uganda, the nutritional transition taking place is not different from other low and middle income countries, and is associated with accelerating growth of chronic, non-communicable diseases [20]. This study therefore sought to assess overweight, obesity and lifestyle-related factors among women aged 18-49 in Kizinda, Bushenyi district.

The prevalence of overweight and obesity are on the rise worldwide [21]. While underweight prevalence is still high, overweight and obesity are now prevalent in low- and middle-income countries, including those in Africa [2], at a prevalence of 20–50 % [22], in urban areas and 7–30 % in rural areas [15]. Underweight, overweight and obesity are known risk factors for NCDs [23]. Similarly, the Uganda Demographic and Health Surveys (UDHS) from 1995 to 2011 reported an increasing prevalence of overweight and obesity from 8 to 18.8 % while underweight prevalence stagnated at 10 – 12 % [24]. However, evidence examining the influence of the individual, social-economic as well as environment on overweight/obesity is still sketchy and limited to urban and suburban populations in high-income countries which cannot be generalized to low- and middle-income countries and this is even true in rural settings. In Bushenyi district, there is paucity of research data regarding overweight/obesity and lifestyle-related factors among women which this study investigated in Kizinda.

METHODOLOGY

Study Design

The study design was cross-sectional analytical employing quantitative approach.

Area of Study

The study was conducted in Bushenyi-Ishaka municipal council. The municipal council stands on 5 different centers of Nyakabirizi, Bushenyi, Basajabalaba, Ishaka and Kizinda. Bushenyi- Ishaka is found in Igara county of Bushenyi district. It is bordered in the south by Bumbeire, East by Kyeizoba, North by Kyabugimbi and Kakanju and Wets by Nyabubare Sub Counties. This study was specifically conducted in Kizinda trading center which constitute one of the busiest and populous area in Bushenyi-Ishaka municipality.

Study Population

The study population comprised of women aged 18-49 years residing in Kizinda trading center, Bushenyi District.

Inclusion Criteria

All women between the age of 18 and 49 years residing in Kizinda trading center for at least six months, present at the time of data collection and consented.

Exclusion Criteria

Women between the age of 18 and 49 years residing in Kizinda trading center who were less pregnant or did not consent to participate.

Sample Size Determination

The sample size was estimated using Fisher's formula [25]

$$n = \frac{z^2pq}{e^2}$$

Where:

n = desired sample size

z = standard deviation at desired degree of accuracy which is 1.96 at 95% degree of accuracy.

p = is the proportion of the overweight women characteristics = 0.229 [11].

q = (1-p) = 1-0.229 = 0.771

r = margin of error for sampling = 0.05

$$n = \frac{(1.96)^2 \times 0.229 \times (1-0.229)}{(0.05)^2}$$

n = 271 Women aged 18- 49 years

Dependent Variable

The dependent variable in the study was overweight and obesity

Independent Variables

The independent variables of the study were socio-economic and individual factors.

Sampling Procedure

Women aged 18-49 years were purposively sampled as the research team moved from one house to the other until the required sampled size was achieved. On approaching a household or trading shop where women who satisfy the study criteria are, they are informed of the study objectives and anyone who consent was recruited and assessed. Data was obtained from face-to-face interview and physical examination.

Data Collection Tools and Methods

Anthropometric measurements taken using steel measuring tape and weighing scale to determine the prevalence of overweight and obesity through BMI calculation. BMI was calculated using the weight and height measurement of each participant. The weights of participants were measured using a bathroom weighing scale to the nearest 0.1kg with the participant wearing light clothes and no shoes. Measurement of height was done using a steel measuring tape to the nearest 0.1cm with the participant standing upright. BMI was obtained by dividing the weight measured in kilograms against the square of the height in meters. The questionnaires were used to obtain data on socio-economic and lifestyle factors.

Table 1: Classification of Overweight and Obesity.

Indicator	Overweight	Obesity
BMI (kg/m^2)	25-29.9	≥30
Waist Circumference (cm)	80-88cm	≥ 88cm
Waist to height ratio	0.50	> 0.50

Source:[26][22]

Data Quality Control

A data collection team of four research assistants were recruited to assist in data collection and to help interpret the questionnaires. The research assistants were trained for two days by the principal researcher on the objectives of the study and how to take the anthropometric measurements.

Pre-Testing of Questionnaires

The principal researcher and the data collection team conducted the pre-testing of the questionnaires over a period of two days in Ishaka the closest and commercial town to Kizinda. Ishaka. Pre-testing is done to impart practical experience to the team in administering questionnaires and using of the various anthropometric tools. Pretesting also gave the researcher an idea of the population characteristics.

Data Analysis

The data was cleaned and checked to ensure was complete. Data was entered in Microsoft office excels then exported to SPSS version 20.0 for analysis. Descriptive statistics was used to show socio-economic and lifestyle characteristics associated with overweight and obesity. a A p value < 0.05 was considered statistically significant. Odds Ratios and their 95 % Confidence Intervals were reported. Results were presented in tables and graphs as percentages and frequencies. BMI was obtained by dividing the weight measured in kilograms against the square of the height in meters.

Ethical Consideration

An introductory letter to conduct this research was obtained from the dean of faculty of clinical medicine & dentistry and taken to the Bushenyi district office through the office of the District Health Officer (DHO) for approval. A focal person was identified in the community who helped the research team to assess the participants. Participants who consented were assured of strict confidentiality.

RESULTS

Demographic Characteristics of the Respondents

Table 2: Socio-Demographic characteristics of women aged 18-49 years in Kizinda Trading center.

Variable	Category	Frequency (n = 271)	Percentage
Age (years)	18-22	20	7.38
	23-27	23	8.49
	28-32	32	11.81
	33-37	31	11.44
	38-42	80	29.52
	43-47	40	14.76
	47-49	45	16.60
Marital status	Married	101	37.27
	Single	124	45.76
	Separated	39	14.39
	Divorced	7	2.58
Level of education	None	48	17.71
	Primary	72	26.57
	Secondary	88	32.47
	Tertiary	63	23.25
Religion	Christian	198	73.06
	Islam	30	11.07
	Others	43	15.87
Parity	1-2	206	76.0
	3-5	49	18.1
	>5	16	5.9

Majority 206 (76.0%) of the women who participated in this study had 1-2 children and were Christians (73.06%). Most 124(45.76%) of the participants were single with the highest level of education attained was reported as secondary (32.47%) and most 80(29.52%) of them were in the age bracket 38-42 years.

Prevalence of Overweight and Obesity Among Women of Reproductive Age in Bushenyi Town Using BMI

Table 3: Prevalence of overweight and obesity by BMI

Classification	Frequency (n=271)	Percentage (%)
Normal	89	32.84
Obesity (BMI: ≥30 kg/m^3)	54	19.92
Overweight (BMI: ≥25-29.9kg/m^3)	128	47.24

Most 128 (47.24%) of the women who participated in this study were overweight while 54 (19.92%) of them were obese. The rest of the women who were sampled were normal 89 (32.84%) (table3 & figure 2).

Socio-Economic Factors Associated with Overweight and Obesity Among Women Aged 18-49 Years in Kizinda T.C, Bushenyi District

Table 4: Distribution of Socio-economic factors associated with overweight and obesity

Variable	Category	Frequency (n =182)	Percentage
Occupation	Employed	45	24.73
	Self employed	55	**30.22**
	Student	28	15.38
	House wife	32	17.58
	Unemployed	22	12.09
Main source of income	Own business	69	**37.91**
	Salary	45	24.73
	Parents	32	17.58
	Husband	36	19.78
Average monthly income (UGX)	<100,000	91	**50.0**
	100001 – 300000	58	31.87
	300001- 500000	21	11.54
	500001- 700000	10	5.49
	>700000	2	1.10

Results in table 4 above shows that half 91(50.0%) of the participants reported that their average monthly income was less than 100,000 UgX and 93(51.08%) said the own the house they stay. Most 55(30.22%) of the participants were self-employed and only 69 (37.91%).

Table 5: Cross tabulation of the socio-economic factors associated with overweight and obesity among women of reproductive age in Bushenyi

Variable	Category	Overweight/Obesity (182)		P-value
		Yes, n (%)	No, n (%)	
Occupation	Employed	27 (60.0)	18 (40.0)	
	Self employed	21 (38.18)	34 (61.82)	
	Student	11 (39.29)	17 (60.71)	0.004
	House wife	22 (68.75)	12 (31.25)	
	Unemployed	9 (40.90)	13 (59.1)	
Main source of income	Own business	40 (57.97)	29 (42.03)	
	Salary	29 (64.44)	16 (35.56)	0.011
	Parents	10 (31.25)	22(68.75)	
	Husband	26 (72.22)	10 (27.78)	
Average monthly income (UGX) x 1000	<100,000	32 (35.16)	59(64.83)	
	100001 – 300000	22 (37.93)	36 (62.07)	0.020
	300001- 500000	12 (57.14)	9 (42.86)	
	500001- 700000	2 (20.0)	8 (80.0)	
	>700000	2 (100.0)	0 (0.00)	
House Ownership	Owned	59 (63.44)	34 (36.56)	
	Rented	38 (42.70)	51 (57.3)	0.003

All the socio-economic factors studied were significantly associated with overweight and obesity among participants. That is, occupation (p = 0.004), main source of income (p = 0.011), average monthly income (p = 0.020) and house ownership (p = 0.003).

Table 6: Multivariate logistic regression for socio-economic variables associated with overweight and obesity

Variable	Category	AOR	Confidence Interval Lower	Upper
Occupation	Employed	1		
	Self employed	0.29	0.13	0.74
	Student	0.36	0.63	1.16
	House wife	2.10	0.87	3.15
	Unemployed	1.26	0.50	2.36
Main source of income	Own business	1		
	Salary	0.34	0.21	0.62
	Parents	0.33	0.18	0.98
	Husband	0.78	0.56	1.55
Average monthly income (UGX)	<100,000	1		
	100001 – 300000	0.93	0.33	1.24
	300001- 500000	0.58	0.43	1.26
	500001- 700000	0.76	0.50	1.95
	>700000	1.63	0.56	2.25
House Ownership		1		
	Rented	1.52	0.78	2.94
	Owned			

The results show that house wives were twice more likely to be overweighed and obese [AOR: 2.10, 95% CI (0.87-3.15)]. Women who are unemployed have 74% [AOR: 1.26, 95% CI (0.50-2.36)] higher odds to be overweight or obese and those who earn >700000 shillings have 37% [AOR: 1.63, 95% CI (0.56-2.25)] higher odds to be overweight and obese. Compared with women who live in rented houses, those who live in their own houses were 48% [AOR: 1.52, 95% CI (0.78-2.94)] higher odds to be overweight or obese (table 6).

Lifestyle-Related Factors Associated with Overweight and Obesity Among Women of Aged 18-40 Years Kizinda Trading Center

Table 7: Lifestyle –related factors associated with overweight and obesity

Variable	Category	Frequency (n = 182)	Percentage	p-value
Physical activity participation (PAP) At home or work	No Yes	60 122	32.97 67.3	0.001
Sedentary activity (time spent sitting at work, watching TV, playing games, reading and traveling)	Yes No	117 65	64.29 35.71	0.040
Food intake	Carbohydrate Proteins Vegetables/fruits	82 60 40	45.05 32.97 21.98	0.023
Smoking	Yes No	5 177	2.75 97.25	0.524
Alcohol intake	Yes No	122 60	67.03 32.97	0.020

Majority 177 (97.25%) of the participants reported that they do not smoke, 122(67.3%) said they engage in one form of physical activity or the other while 117(64.29%) reported that they do one sedentary activity or the other. Majority 122 (67.03%) of the participants said the take alcohol often. Lifestyle-related factors which significantly influenced overweight and obesity among the participants were physical activity, sedentary life, food intake and alcohol intake (table 7).

Table 8: Multivariate logistic regression for lifestyle-related factors associated with overweight and obesity.

Variable	Category	AOR	Confidence Interval Lower	Upper
Physical activity participation (PAP) At home or work	No Yes	1 **0.35**	0.17	1.27
Sedentary activity	No Yes	1 **2.45**	0.40	3.15.
Food intake	Posho Matooke Rice Potatoes Chapatti Milk Ghee Beans	1 0.85 **1.45** 0.67 0.76 **2.01** **1.56** 0.74	 0.46 0.67 0.30 0.40 0.55 0.53 0.49	 1.56 2.67 1.75 1.57 2.75 2.73 1.37

Food intake	Posho Matooke Rice Potatoes Chapatti Milk Ghee Beans	1 0.85 **1.45** 0.67 0.76 **2.01** **1.56** 0.74	 0.46 0.67 0.30 0.40 0.55 0.53 0.49	 1.56 2.67 1.75 1.57 2.75 2.73 1.37
Alcohol intake	No Yes	1 **2.13**	0.74	3.14

DISCUSSION

Prevalence of Overweight and Obesity Among Women Aged 18-49 Years in Kizinda Trading Center in Bushenyi District

In this study, the prevalence of overweight and obesity of women in Kizinda using anthropometric measurement of Body Mass Index (BMI) was found to be 47.24% and 19.92% respectively. Being female was the most significant factor associated with being overweight or obese. These findings concur with findings of Mayega et al. [27] in Uganda, Gomes et al. [28] in Mozambique, Samadoulongou et al. [29] in Malawi and Rudastsikira et al.[30], in Zambia. However, the findings of this study disagrees with findings from other studies which reported that overweight or obesity among women is predominant to those in urban areas as reported by [31-36]. This study therefore shows that rural populations are also at risk of the nutritional disorder and it is on the rise. The result is however in absolute agreement with available data which indicates that the burden of obesity generally shifts towards the poorer groups as countries improve their level of economic development.

Socio-Economic Factors Associated Overweight and Obesity Among Women Aged 18-49 Years in Kizinda Trading Center an Bushenyi District

Findings from this study, revealed that house wives were twice more likely to be overweighed and obese. This finding agrees with the findings of Karki et al. [32] who showed that being a housewife especially of a medium income class is associated with overweight and obesity. The study findings also show that women who were unemployed were overweighed and obese, this finding disagrees with that of Mayega [27]who reported higher chances of underweight among unemployed persons. Findings of this study revealed that women who earn >700000 Uganda shillings were overweighed/obese. Higher monthly income could suggest higher standard of living and comfort being that a woman could afford most of the things she requires easily. This is in agreement with a study carried out among South African men and women which attributed overweight and obesity to wealth [6]. However, another study reported decreasing levels of overweight and obesity as income increases [21]. In this study, women who owned houses were overweighed and obese. This could be attributed with the level of satisfaction and comfort achieved when a woman owns her residential house and vice visa. However other studies have reported a higher likelihood of home renting to overweight and obesity [37-44].

LIFESTYLE-RELATED FACTORS ASSOCIATED OVERWEIGHT AND OBESITY AMONG WOMEN AGED 18-49 YEARS IN KIZINDA TRADING CENTER IN BUSHENYI DISTRICT.

This study found that women in Kizinda trading center in Bushenyi district who live sedentarily were overweighed and obese. This can be attributed to the high unemployment as indicated earlier and can also be explained by ownership of a private business which requires sitting in one place all day. This study is consistent with a study by Cohen et al. [34], which found higher levels of sedentary activity among black women. Finding from this study also show that women who take a lot of milk and ghee were overweight/obese [43-47]. This is expected considering that the major animal protein consumed in this region is mostly diary and its product being that the major occupation of the people in this region is agriculture and cattle rearing. In this study, it was found that women who consume alcohol (AOR= 2.134) were overweight/obese. This finding agrees with by study in Kerala, India by Traversy et al. [35] who found that alcohol users have more risk to develop obesity compared with nondrinkers.

CONCLUSION

The findings of this study showed that majority of the women in Bushenyi town are either overweight, obese or both. This implies that due to their sedentary lifestyles and consistent consumption of fatty and starchy food from milk and carbohydrates will continue to have a toll of the women and their health. Being a housewife, unemployed, earning high and owning a house (s) were socio-economic factors associated with overweight and obesity.Living sedentarily, taking carbohydrates and milk, consuming alcohol (AOR = 2.134) and not exercising often are lifestyle-related factors associated with overweight and obesity.

REFERENCES

1. Lazzari, C., Shoka, A., Nusair, A., & Rabottini, M. Weight gain and obesity in general adult psychiatric inpatients: a longitudinal and cross-sectional study. *Rivista di Psichiatria*, 2021; *56*(4), 211-216.
2. Adeoye, A. O., Adebayo, I. A., & Ajijolakewu, K. A. Roles of Phytometabolites in the Management of Obesity. *Medicinal and Aromatic Plants: Healthcare and Industrial Applications*, 2021; 353-372.
3. Alum, E. U., Ugwu, O. P. C., Obeagu, E. I., Aja, P. M., Ugwu, C. N., Okon, M.B. Nutritional Care in Diabetes Mellitus: A Comprehensive Guide. *International Journal of Innovative and Applied Research.* 2023; 11(12):16-25. Article DOI: 10.58538/IJIAR/2057DOIURL: http://dx.doi.org/10.58538/IJIAR/2057.
4. Alum, E. U., Umoru, G. U., Uti, D. E., Aja, P. M., Ugwu, O. P. C., Orji, O. U., et al. Hepato-protective effect of Ethanol Leaf Extract of *Datura stramonium* in Alloxan-induced Diabetic Albino Rats. *Journal of Chemical Society of Nigeria.* 2022; 47 (3): 1165 – 1176. https://doi.org/10.46602/jcsn.v47i5.819.
5. Uti, D.E., Ibiam, U.A., Omang, W.A., Udeozor, P.A., Umoru, G.U., Nwadum, S.K., Bawa, I., Alum, E.U., Mordi, J.C., Okoro, E.O., Obeten, U.N., Onwe, E.N., Zakari, S., Opotu, O.R., Aja, P.M.: Buchholzia coriacea Leaves Attenuated Dyslipidemia and Oxidative Stress in Hyperlipidemic Rats and Its Potential Targets In Silico. Pharmaceutical Fronts. (2023). https://doi.org/10.1055/s-0043-1772607

6. Peer, N., Lombard, C., Steyn, K., Gwebushe, N., Levitt, N.: Differing patterns of overweight and obesity among black men and women in Cape Town: The CRIBSA study. PLoS ONE. 9,(2014).https://doi.org/10.1371/journal.pone.0107471
7. WHO: Obesity and overweight Factsheet No. 311,http://www.who.int/mediacentre/factsheets/fs311/en/%0Ahttp://who.int/mediacentre/factsheets/fs311/en/
8. Peltzer, K., Pengpid, S., Alafia Samuels, T., ??zcan, N.K., Mantilla, C., Rahamefy, O.H., Wong, M.L., Gasparishvili, A.: Prevalence of overweight/obesity and its associated factors among university students from 22 countries. International Journal of Environmental Research and Public Health. 11, 7425–7441 (2014). https://doi.org/10.3390/ijerph110707425
9. Kandala, N.B., Stranges, S.: Geographic variation of overweight and obesity among women in Nigeria: A case for nutritional transition in Sub-Saharan Africa. PLoS ONE. 9,(2014).https://doi.org/10.1371/journal.pone.0101103
10. Abrha, S., Shiferaw, S., Ahmed, K.Y.: Overweight and obesity and its socio-demographic correlates among urban Ethiopian women: Evidence from the 2011 EDHS. BMC Public Health. 16, (2016). https://doi.org/10.1186/s12889-016-3315-3
11. UBOS: Uganda demographic and health survey 2011. Uganda Demographic and Health Survey. 1–45 (2011)
12. MOH: Non- Communicable Disease Risk Factor Baseline Survey UGANDA 2014 REPORT MINISTRY OF HEALTH. (2014)
13. Wesonga, R., Guwatudde, D., Bahendeka, S.K., Mutungi, G., Nabugoomu, F., Muwonge, J.: Burden of cumulative risk factors associated with non-communicable diseases among adults in Uganda: evidence from a national baseline survey. International Journal for Equity in Health. 1–10 (2016). https://doi.org/10.1186/s12939-016-0486-6
14. Murphy, G.A.V., Asiki, G., Young, E.H., Seeley, J., Nsubuga, R.N., Sandhu, M.S., Kamali, A.: Cardiometabolic risk in a rural ugandan population (Diabetes Care (2013) 36 (e143)), (2014)
15. Kirunda, B.E., Fadnes, L.T., Wamani, H., den Broeck, J., Tylleskär, T.: Population-based survey of overweight and obesity and the associated factors in peri-urban and rural Eastern Uganda. BMC Public Health. 15, 1–11 (2015). https://doi.org/10.1186/s12889-015-2506-7
16. Asiki, G., Murphy, G., Nakiyingi-Miiro, J., Seeley, J., Nsubuga, R.N., Karabarinde, A., Waswa, L., Biraro, S., Kasamba, I., Pomilla, C., Maher, D., Young, E.H., Kamali, A., Sandhu, M.S.: The general population cohort in rural south-western Uganda: a platform for communicable and non-communicable disease studies. International journal of epidemiology. 42,129–41(2013). https://doi.org/10.1093/ije/dys234
17. Mondo, C.K., Otim, M.A., Akol, G., Musoke, R., Orem, J.: The prevalence and distribution of non-communicable diseases and their risk factors in Kasese district, Uganda. Cardiovascular journal of Africa. 24, 52–7 (2013). https://doi.org/10.5830/CVJA-2012-081
18. Mosha, T.C.E., Fungo, S.: Prevalence of overweight and obesity among children aged 6-12 years in Dodoma and Kinondoni municipalities, Tanzania. Tanzania Journal of Health Research. 12, 1 (2010). https://doi.org/10.4314/thrb.v12i1.56202
19. Mbochi, R.W., Kuria, E., Kimiywe, J., Ochola, S., Steyn, N.P.: Predictors of overweight and obesity in adult women in Nairobi Province, Kenya. BMC Public Health. 12, 823 (2012). https://doi.org/10.1186/1471-2458-12-823
20. Schwartz, J.I., Guwatudde, D., Nugent, R., Kiiza, C.M.: Looking at non-communicable diseases in Uganda through a local lens : an analysis using locally derived data. 1–9 (2014). https://doi.org/10.1186/s12992-014-0077-5
21. Ogden, C.L., Fakhouri, T.H., Carroll, M.D., Hales, C.M., Fryar, C.D., Li, X., Freedman, D.S.: Prevalence of Obesity Among Adults, by Household Income and Education — United States, 2011–2014. MMWR. Morbidity and Mortality Weekly Report. 66, 1369–1373 (2017). https://doi.org/10.15585/mmwr.mm6650a1
22. Yoo, E.G.: Waist-to-height ratio as a screening tool for obesity and cardiometabolic risk, (2016)
23. Ofori-Asenso, R., Agyeman, A.A., Laar, A., Boateng, D.: Overweight and obesity epidemic in Ghana—a systematic review and meta-analysis. BMC Public Health. 16, 1239 (2016). https://doi.org/10.1186/s12889-016-3901-4
24. UBOs, U.B. of S.-, International, I.C.F.: Uganda Demographic and Health Survey 2011. (2012)
25. Jung, S.-H.: Stratified Fisher's exact test and its sample size calculation. Biometrical

Journal. 56, 129–140 (2014). https://doi.org/10.1002/bimj.201300048
26. WHO: Obesity and Overweight, http://www.who.int/mediacentre/factsheets/fs311/en/index.html
27. Mayega, R.W., Makumbi, F., Rutebemberwa, E., Peterson, S., Östenson, C.-G., Tomson, G., Guwatudde, D.: Modifiable Socio-Behavioural Factors Associated with Overweight and Hypertension among Persons Aged 35 to 60 Years in Eastern Uganda. PLOS ONE. 7, e47632(2012).https://doi.org/10.1371/journal.pone.0047632
28. Gomes, A., Damasceno, A., Azevedo, A., Prista, A., Silva-Matos, C., Saranga, S., Lunet, N.: Body mass index and waist circumference in Mozambique: urban/rural gap during epidemiological transition. Obes Rev. 11, 627–634 (2010). https://doi.org/10.1111/j.1467-789X.2010.00739.x
29. Samadoulougou, S., Diallo, M., Cissé, K., Ngwasiri, C., Aminde, L.N., Kirakoya-Samadoulogou, F.: High Urban-Rural Inequities of Abdominal Obesity in Malawi: Insights from the 2009 and 2017 Malawi Noncommunicable Disease Risk Factors Surveys. Int J Environ Res Public Health. 19, 11863(2022).https://doi.org/10.3390/ijerph191911863
30. Rudatsikira, E., Muula, A.S., Mulenga, D., Siziya, S.: Prevalence and correlates of obesity among Lusaka residents, Zambia: a population-based survey. Int Arch Med. 5, 14 (2012). https://doi.org/10.1186/1755-7682-5-14
31. Kamadjeu, R.M., Edwards, R., Atanga, J.S., Kiawi, E.C., Unwin, N., Mbanya, J.C.: Anthropometry measures and prevalence of obesity in the urban adult population of Cameroon: An update from the Cameroon Burden of Diabetes Baseline Survey. BMC Public Health. 6, (2006). https://doi.org/10.1186/1471-2458-6-228
32. Karki, A., Shrestha, A., Subedi, N.: Prevalence and associated factors of childhood overweight/obesity among primary school children in urban Nepal. BMC Public Health. 19,1055(2019).https://doi.org/10.1186/s12889-019-7406-9
33. Rehm, C.D., Moudon, A. V, Hurvitz, P.M., Drewnowski, A.: Residential property values are associated with obesity among women in King County, WA, USA. Social science & medicine (1982). 75, 491–5 (2012). https://doi.org/10.1016/j.socscimed.2012.03.041
34. Cohen, S.S., Matthews, C.E., Signorello, L.B., Schlundt, D.G., Blot, W.J., Buchowski, M.S.: Sedentary and Physically Active Behavior Patterns Among Low-Income African-American and White Adults Living in the Southeastern United States. PLoS One. 8, e59975(2013).https://doi.org/10.1371/journal.pone.0059975
35. Traversy, G., Chaput, J.-P.: Alcohol Consumption and Obesity: An Update. Curr Obes Rep. 4, 122–130 (2015). https://doi.org/10.1007/s13679-014-0129-4
36. Aja, P. M., Igwenyi, I. O., Okechukwu, P. U., Orji, O. U., & Alum, E. U. Evaluation of anti-diabetic effect and liver function indices of ethanol extracts of Moringa oleifera and Cajanus cajan leaves in alloxan induced diabetic albino rats. *Global Veterinaria*, *14*(3), 439-447(2015).
37. Ugwu. O.P.C, and Amasiorah, V. I. The In Vivo Antioxidant Potentials of the Crude Ethanol Root Extract and Fractions of Sphenocentrum jollyanum on Oxidative Stress Indices in Streptozotocin-Induced Diabetic albino rats. *IDOSR Journal Of Biology, Chemistry and Pharmacy*, *5*(1), 26-35(2020).
38. Enechi, O. C., Oluka, I. H., Ugwu, O. P., & Omeh, Y. S. Effect of ethanol leaf extract of Alstonia boonei on the lipid profile of alloxan induced diabetic rats. *World Journal Of Pharmacy and Pharmaceutical Sciences*, *2*(3), 782-795 (2013).
39. Ude C.M. and T.J. Iornenge M.C. Udeh Sylvester, O.F.C. Nwodo, O.E. Yakubu, E.J. Parker, S. Egba, E. Anaduaka, V.S. Tatah, O.P. Ugwu, E.M. Ale (2022). Effects of Methanol Extract of Gongronema latifolium Leaves on Glycaemic Responses to Carbohydrate Diets in Streptozotocin-induced Diabetic Rats. *Journal of Biological Sciences*, 22. 70-79. https://ascidatabase.com/
40. Ugwu Okechukwu, P. C., Nwodo Okwesili, F. C., Joshua Parker, E., Odo Christian, E., & Ossai Emmanuel, C.. Effect of ethanol leaf extract of Moringa oleifera on lipid profile of mice. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, *4*(1), 1324-1332 (2013).
41. Enechi, O. C., Manyawo, L., & Ugwu, P. O. Effect of ethanol seed extract of Buccholzia coriacea (wonderful kola) on the lipid profile of albino rats. *African Journal of Biotechnology*, *12*(32) (2013).
42. Ugwu Okechukwu, P. C., Onwe, S. C., & Okon, M. B. The effect of Methanol Extract of Rauwolfia vomitoria on Lipid Profile of Chloroform intoxicated Wistar Albino

Rats. *IAA Journal of ScientificResearch,8*(1),73-82 (2022).

43. Aja, P. M., Ibekwe, V. I., Ekpono, E. U., Ugwu, P. C. and Okechukwu, P. C. Effect of ethanol extract of Cajanus cajan leaf on plasma lipid level in albino rats. *Inter J Cur Res Acad Rev*, *3*(1), 161-167 (2015).
44. Ugwu O.P.C. and Amasiorah, V. I.The effects of crude ethanol root extract and fractions of sphenocentrum jollyanum on the lipid profile of streptozotocin-induced diabetic wistar albino rats. *IDOSR Journal of Biology, Chemistry And Pharmacy, 5*(1), 36-46 (2020).
45. Anaduaka, E. G., Egba, S. I., Ugwu, J. U., Apeh, V. O., & Ugwu, O. P. C. Effects of dietary tyrosine on serum cholesterol fractions in rats. *Afr J Biochem Res*, *8*(5), 95e100(2014).
46. Eze-Steven, P. E., Udeozo, I. P., Chidiebere, E. U., Emmanuel, O., Okechukwu, P. U., & Egba, J. J.. Anti-Lipidemic Effects of Desmodium velutinum Water Leaf Exract on Albino Wistar Rats Fed with High Fat Diet. *American-Eurasian Journal of Scientific Research*, *9*(2), 26-30 (2014).
47. Ezekwe, C. I., Okorie, A., Ugwu O. P.C, Nwodo O.F.C. and, E.S.C Blood Pressure Lowering Effect of Extract of Gongronema latifolium. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, *5*(2), 952-959 (2014).

CITE AS: Kkunsa Hadson (2023). Assessment of Overweight, Obesity and Lifestyle-Related Factors Among Women Aged 18-49 Years in Kizinda, Bushenyi District. INOSR APPLIED SCIENCES 12(1):46-56. https://doi.org/10.59298/INOSRAS/2024/1.1.41103