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Determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District. A cross-sectional study.

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Abstract

Background

In Uganda, the prevalence of obesity among adults has been steadily increasing, reaching an estimated prevalence of 29% in urban areas and 14.3% in rural settings. The purpose of the study was to assess the determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV in Mityana District.

Methods

A descriptive cross-sectional study design was used employing quantitative methods of data collection and was conducted in Ssekanyonyi Health Centre IV. In 4 days, 33 adults were selected using a simple sampling method. A structured questionnaire was used to collect data, and it involved closed-ended questions. The data collected was analyzed manually, and the findings were entered into Microsoft Excel 2013, which was then presented in the form of tables, pie-charts, and graphs.

Results

Out of 33 participants, 30.3% were aged 45-49 years, and more than half (58%) were females. For individual determinants, over half (64%) were rarely exercising, more than half (55%) were taking sugary drinks daily, and 85% overate when stressed. Concerning health facility determinants, more than half (58%) health workers could sometimes support them in addressing their weight management issues, all (100%) didn't have weight management programs and (52%) could wait for a very long time and socio-cultural determinants, (64%) large body size was perceived as a sign of wealth and (94%) had a family history of obesity.

Conclusion

Obesity among adults was driven by poor lifestyle choices, limited healthcare support, cultural perceptions, and genetic predisposition; hence, the need for clear interventions.

Recommendation

Promote regular physical activity, reduce sugary drink intake, establish accessible weight management programs, educate communities on healthy body image, and improve health facility support services.

Keywords: *Determinants of Obesity, Ssekanyonyi Health Centre IV, Mityana District.*
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Background of the study

Obesity is a global health issue affecting approximately 39% of adults worldwide, with an increasing prevalence among adults aged 35 to 65 years (Haththotuwa et al., 2020). This age group is particularly vulnerable due to metabolic changes, lifestyle habits, and reduced physical activity, leading to a higher risk of obesity-related complications (Kyrou et al., 2020).

Globally, obesity-related complications account for 29% of premature deaths annually, disproportionately affecting adults in the 35–65 age bracket (Alfaris et al., 2023). This condition arises from multiple factors, including excessive caloric intake, sedentary lifestyles, and genetic predispositions, which contribute to metabolic imbalances (Verdú et al., 2021). In Colombia, Socio-economic challenges such as limited access to healthy food and lack of exercise facilitate 32% and further exacerbate the situation, particularly in low- and middle-income countries (Okinedo, 2022).

In Sub-Saharan Africa, for example, in Burkina Faso, the prevalence of obesity has been rising steadily, with rates estimated at 24% among adults, primarily due to urbanization and changes in dietary habits (Casari et al., 2022). In Central Africa, countries such as Cameroon and Gabon have recorded a 34% increase in obesity prevalence, reflecting the region's shift towards urbanized

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Original Article

lifestyles (Agyemang et al., 2024). For instance, Gabon, one of the more urbanized nations in the region, has seen obesity rates climb to 23.4% driven by increased consumption of processed foods and reduced physical activity among working adults (Owobi et al., 2022).

In East Africa, countries such as Kenya report a prevalence of 27.4% among adults aged 35 to 65 years (Ireri et al., 2024). Tanzania has seen an increase of 26.7% women being disproportionately affected compared to men due to cultural and lifestyle factors (Kamanga, 2019). The consequences of obesity in these regions are profound, including increased risks of type 2 diabetes (34%), hypertension (44%), cardiovascular diseases (32%), and certain cancers (15%) (Sarma et al., 2021). Preventive measures such as dietary modification, physical activity, and regular health screenings are often underutilized where health promotion initiatives are limited (Kumanyika, 2019).

In Uganda, the prevalence of obesity among adults has been steadily increasing, reaching an estimated prevalence of 29% in urban areas and 14.3% in rural settings (Tukahirwa, 2021). Among adults aged 35 to 65 years, obesity is particularly prevalent due to declining physical activity and increased consumption of processed foods (Elagizi et al., 2020).

In Mityana District, an estimated 32% of adults attending the facilities are classified as obese (HMIS Mityana District, 2023). This condition poses significant health challenges, with obesity-related complications accounting for 38% of hospital visits among middle-aged adults. Despite this, limited awareness, inadequate healthcare infrastructure, and cultural perceptions of body weight continue to hinder effective obesity management in the district (Gong et al., 2024). This study, therefore, aimed to assess the determinants of obesity, enhance health outcomes, and reduce associated non-communicable diseases in this vulnerable population.

Methodology

Study Design and Rationale

The study was a cross-sectional quantitative study design. This design was chosen because it allowed the researcher to collect and analyze data within a short period; thus, there was no follow-up with respondents.

Study setting and rationale

The study was conducted at Ssekanyonyi Health Centre IV, located in Mityana District, Uganda. This government-owned public health facility is situated along the Ssekanyonyi–Mityana Road, approximately 70 kilometers west of Kampala, Uganda's capital city, and serves both urban and rural populations, including those from neighboring districts such as Mubende to the west and Wakiso to the east. The health center receives an average of 150 patients daily, offering a range of services including an outpatient department which is well-equipped with basic diagnostic tools, including weighing scales and height meters. Other services include inpatient care, antenatal services, immunization, laboratory diagnostics, HIV care (ART clinic), TB management, family planning, and health education. It has a bed capacity of 12 and is staffed by approximately 20 health workers, including clinical officers, nurses, midwives, and laboratory technicians. The Outpatient Department (OPD) at Ssekanyonyi Health Centre IV is a crucial unit that serves as the first point of contact for most individuals seeking medical attention and plays a vital role in disease prevention, diagnosis, treatment, and health education. Its high patient load, proximity to both urban and rural settings, and government ownership made it an ideal site for assessing the determinants of obesity. The geographical coordinates of the health center are approximately 0.4485°N latitude and 31.8336°E longitude.

Study population

The study population was all adults, male and female, aged 35 to 65 years, attending Ssekanyonyi Health Centre IV, Mityana District, who were available at the time of the study. This population was considered to assess the determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District.

Sample size determination

The sample size was calculated using the formula developed by Kish and Leslie (1965), given by n = z2 p q /d2

Where n was the sample size required

P was the estimated prevalence of obesity among adults aged 35 to 65 years, 29% (Ayoola et al., 2022).

p= 29%

d=0.05 was the acceptable error of estimation at a 95% confidence interval

Z was the confidence interval at 95% =1.96

Therefore

$N= [z2\ p\ (1-p)]/\ d2$

= [(1.96x1.96x0.029x (1-0.029)] / [0.05x0.05]

n= 32.96256

n=33 adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana district, were selected for the success of this study.

Sampling procedure

The study used a simple random sampling technique. This technique was chosen because it ensured that the sample was representative of the study population and reduced bias. To obtain the participants, the researcher made pieces of similar-sized papers labeled with K and L.

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Original Article

Respondents were requested to pick papers from an enclosed box each day of data collection, and those who picked papers labeled with K were considered to participate. This process was done daily while sampling 10 respondents per day for 4 days to arrive at a sample of 33 respondents.

Inclusion criteria
All Ugandan males and females, aged 35 to 65 years, and English literate were included in the study.

Exclusion criteria
All Ugandan males and females, aged 35 to 65 years, and English literate who were not willing to continue participating in giving responses, and the very ill, were excluded from the study.

Independent variables
The independent variables are individual, health facility, and socio-cultural determinants of obesity among adults aged 35-65 years.
Dependent variable:
The dependent variable was obesity among adults aged 35-65 years.

Research instrument
The researcher used tape measures to measure the height of adults and a weighing balance to measure weight, and calculated the Body Mass Index (BMI). A researcher-made questionnaire was used to collect data. It was written in English and contained closed-ended questions related to the study objectives. The questionnaire consisted of four sections, which included demographic data, individual, health facility, and socio-cultural determinants. Piloting of the study was conducted for two days before the actual data collection; this gave the researcher insights into the determinants of obesity among adults aged 35–65 years.

Data collection procedures
Data collection started after an introductory letter from Mildmay Uganda school and Nursing and Midwifery authorizing the researcher, which was presented to the in-charge of Ssekanyonyi Health Centre IV, Mityana District, who allowed the researcher to obtain data from the respondents, and the researcher obtained consent from the respondents. Since the questionnaire was in English, the literate sampled respondents were administered the questionnaire to fill in independently. Data was collected from 10 respondents per day, and this procedure took 4 days to cover a total of 33 respondents.

Data management
The filled questionnaires were retrieved, counted, and checked for completeness after each day of data collection to ensure that all were returned, coded, and kept in a safe place as a backup. Raw data was locked in a cupboard for security purposes.

Data analysis
Data from the questionnaires was tallied manually, analyzed, and the findings were then entered into the computer using the Microsoft Excel program (2013). The data was presented in the form of tables, figures, pie charts, and statistical texts depicting respondents' responses in frequencies and percentages.

Quality assurance
Validity
This was ensured by setting questions according to the research objectives and working with the supervisor to ensure that the tool had both face and construct validity.

Reliability
The questionnaires were pre-tested at Magala Health Centre III among 12 selected respondents, and necessary corrections were made. It was then retested among 5 respondents to make final adjustments before the formal study.

Ethical considerations
Consent was sought from the respondents before enrolling them to participate. Only questions that did not encroach on the rights and privacy of respondents were asked. Study respondents were assured of the confidentiality of their information and the anonymity of their identities by not putting names on the questionnaire.

Informed consent
All the participants consented to this study.

Results
Socio-demographic characteristics of the respondents.

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Table 1 showing socio-demographic characteristics of the respondents, n=33

Variable	Category	Frequency(f)	Percentage (%)
Age	35-39 years	6	18.2
	40-44 years	9	27.3
	45-49 years	10	30.3
	50 years and above	8	24.2
Religion	Catholic	12	36.3
	Muslim	5	15.2
	Anglican	9	27.3
	Born Again	7	21.2
Gender	Female	19	58
	Male	14	42
Level of education	Primary	7	21.2
	Secondary	17	51.5
	Tertiary level	9	27.3

From table 1, a small number of the respondents, 10(30.3%) were aged 45-49 years, 9(27.3%) were aged 40-44 years, 8(24.2%) were aged 50 years and above, while the minority, 6(18.2%) were aged 35-39 years. Less than half of the respondents, 12(36.3%) were Catholic, 9(27.3%) were Anglican, 7(21.2%) were Born Again while the least, 5(15.2%) were Muslims. More than half of the respondents, 19(58%), were females, and the least, 14(42%), were males. Less than half of respondents, 17(51.5%) were Secondary leavers, 9(27.3%) had tertiary qualifications, 7(21.2%) were primary leavers.

Individual determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District

Figure 1 Showing the times respondents exercise per week

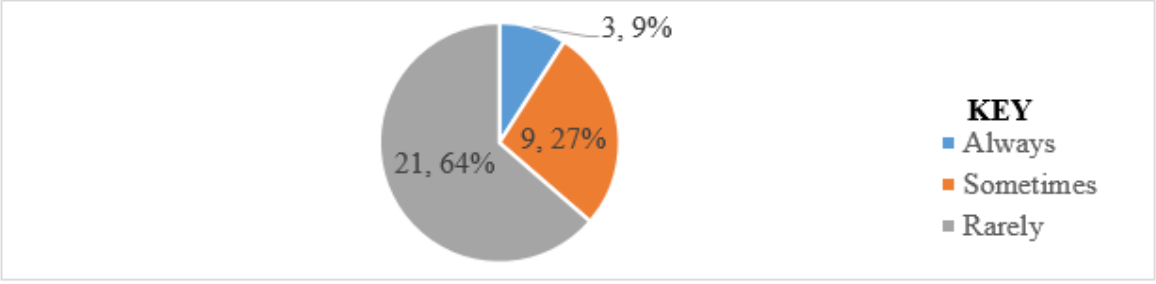

Figure 1 shows that the majority of the respondents, 21(64%), mentioned that they rarely exercise, 9(27%) mentioned that they sometimes exercise, while the minority, 3(9%), mentioned that they always exercise.

Table 2 showing the frequency of taking sugary drinks and overeating when stressed, n=33

Variable	Frequency (f)	Percentage (%)
Daily	18	55
Sometimes	10	30
Never	5	15
Overeat when stressed		
Yes	28	85
No	5	15

From table 2, more than half of the respondents, 18(55%), mentioned that they take sugary drinks daily, 10(30%) mentioned that they sometimes take sugary drinks, while a minority of 5(15%) mentioned that they never take

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Original Article

sugary drinks. A significant number of the respondents, 28(85%), mentioned that they overeat when stressed, while a minority, 5(15%), mentioned that they don't overeat when stressed.

Figure 2 Showing the number of hours respondents sleep every night, n=33

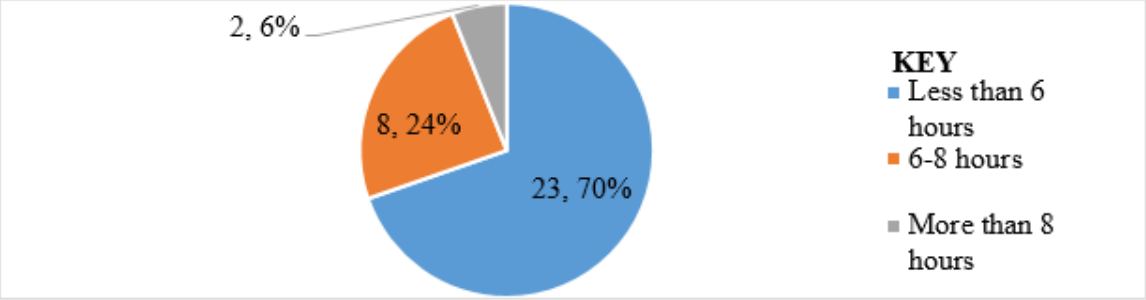

Figure 2 shows that most of the respondents, 23(70%), reported that they sleep for less than 6 hours every night, 8(24%) mentioned 6-8 hours, while a minority, 2(6%), mentioned more than 8 hours.

Health facility determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District

Table 3 Showing health workers help respondents in addressing weight management issues.

Variable	Frequency (f)	Percentage (%)
They support me always	10	30
They sometimes support me	19	58
They don't support me	4	12
Respondents have weight management programs at their facility.		
Yes	0	0
No	33	100
Waiting time when respondents seek obesity related care at the facility		
Very long	17	52
Short time	13	39
Very short time	3	9
Accessibility of specialized obesity treatment services in the community		
Easily accessible	0	0
Partially accessible	9	27
Not accessible	24	73

The majority of the respondents, 19(58%), mentioned that health workers sometimes support them in addressing their weight management issues, 10(30%) mentioned that health workers support them always, while a minority, 4(12%), mentioned that health workers don't support them.

All the respondents, 33(100%), mentioned that they don't have weight management programs at their facility.

The majority of the respondents, 17(52%), mentioned that they wait for a very long time when they go to seek obesity related care, 13(39%) mentioned that they wait for a short time, and the minority, 3(9%), mentioned that they wait for a very short time.

More than half of the respondents, 24(73%), mentioned that the specialized obesity treatment services are not accessible in their community, while a minority, 9(27%), mentioned that the services are partially accessible.

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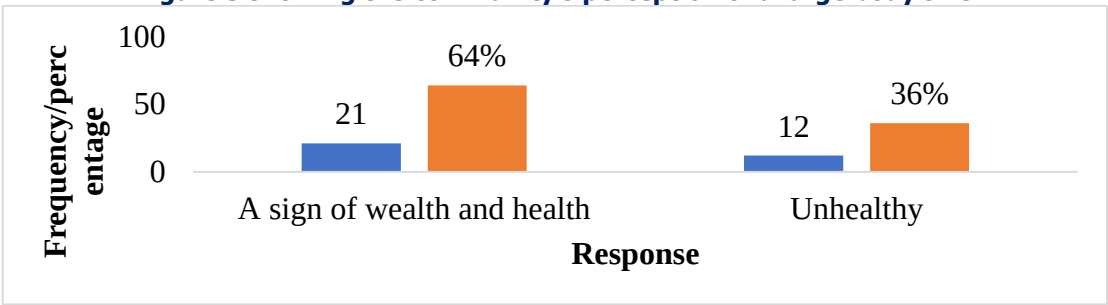
Original Article

Figure 3 showing the community's perception of a large body size



Most of the respondents, 21(64%), mentioned that large body size is perceived as a sign of wealth and health in the community, while the least, 12(36%), mentioned that the community perceives it as unhealthy.

Table 4 showing other Socio-cultural determinants of obesity among adults aged 35 to 65 years

Variable	Frequency(f)	Percentage (%)
Cultural roles limit participation in physical activities.		
Yes	0	0
No	33	100
Not sure	0	0
Frequency of social gatherings leading to overeating		
Frequently	12	37
Occasionally	10	30
Never	11	33
Having a family history of obesity		
Yes	31	94
No	2	6

From Table 4, all of the respondents, 33(100%), mentioned that cultural roles do not limit participation in physical exercise. The majority of the respondents, 12(37%), mentioned that social gatherings frequently lead to overeating, 11(33%) mentioned that they never lead to overeating, while the minority, 10(30%), mentioned that social gatherings occasionally lead to overeating.

Almost all respondents, 31(94%), mentioned that they had a family history of obesity, while a minority, 2(6%), mentioned that they had no family history of obesity.

Discussion

Socio-demographic characteristics of the respondents.

Regarding age, the majority of the respondents (30.3%) were aged 45–49 years. There could be a likelihood that obesity was more common among respondents aged 40 years and above, since these were more likely to be established and overfed. This implies that increasing age may be associated with reduced physical activity, greater food access, and lifestyle habits that contribute to weight gain and obesity.

For religion, most of the respondents (36.3%) were Catholic. This can be attributed to the fact that Catholicism is the dominant religion in Mityana District, which may reflect general population trends rather than a direct link to obesity. This implies that religion might not directly influence obesity levels, but religious gatherings and associated eating practices could indirectly contribute to increased calorie intake.

About gender, more than half of the respondents (58%) were females. There could be a likelihood that females have higher chances of becoming obese due to limited chances of engaging in physical activity, compared to their male counterparts. The findings of the study are in agreement with the study done by Peng et al. (2023), where findings showed that women were at higher risk of obesity due to limited opportunities for physical activity,

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Original Article

as cultural norms prioritized their domestic roles over outdoor or fitness-related activities.

Educational background, the majority of respondents, 17(51.2%), were Secondary leavers. There could be a likelihood that the more educated respondents had better income, which could have enabled them to overfeed and end up with obesity. The findings are not in agreement with the study done by Hsieh et al. (2020), where findings showed that participants with lower educational levels were obese largely due to a lack of knowledge about healthy eating and exercise.

Individual determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District

Regarding exercise, the majority of the respondents (64%) mentioned that they were rarely exercising. The practice of not frequently exercising might have greatly contributed to the obesity among respondents. The findings of the respondents are in alignment with the study done by Wang et al. (2021), where findings showed that participants engaged in less than 150 minutes of physical activity weekly, contributing to a 40% increase in obesity prevalence.

Study results showed that more than half of the respondents (55%) mentioned that they were taking sugary drinks daily. The daily consumption of sugary drinks might have been another factor that contributed to the accumulation of fatty tissue in the bodies of respondents. The findings of the respondents align with the study done by Martini et al. (2021), where findings showed that participants consumed diets high in processed foods and sugary beverages, leading to a 35% higher prevalence of obesity.

In times of stress, the majority of the respondents (85%) mentioned that they overate when stressed. This could be because this was the respondents' coping mechanism to stress, which might have eventually been a contributing factor to their increasing body weight. The findings of the study are in agreement with the study done by Wijnant et al. (2021), where findings showed that participants experiencing chronic stress were obese due to increased cortisol levels and emotional eating.

Concerning sleep, most of the respondents (70%) reported that they slept for less than 6 hours every night. The act of sleeping for fewer hours might have increased the chances of respondents' overfeeding, since they had longer hours when active. The findings of the study are in agreement with the study done by Nymo et al. (2021), where findings showed that participants who slept less than six hours per night were obese, as poor sleep disrupts the hormonal regulation of appetite.

Health facility determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District

Regarding health workers, more than 58% of the respondents mentioned that health workers could sometimes support them in addressing their weight management issues. This might have enabled respondents to manage their weight, although the practice should have been more frequent than it was reported. The findings of the study disagree with the study done by Sagi-Dain et al. (2022), where findings showed that patients felt that healthcare professionals were either indifferent or stigmatized their weight issues.

Research results collected also revealed that all the respondents (100%) mentioned that they didn't have weight management programs at their facility. This might have left gaps in the weight management strategy for the respondents, which might have been another factor that led to uncontrolled weight gain amongst respondents. The findings of the study are in agreement with the study done by Croghan et al. (2019), where findings showed that healthcare centers did not offer structured weight management programs such as nutrition counseling or physical activity plans, which significantly hindered efforts to address obesity.

Concerning waiting time, the majority of the respondents (52%) mentioned that they could wait for a very long time when they went to seek obesity related care. This might have discouraged respondents from seeking obesity related care often. The findings of the study are in agreement with the study done by Nuwematsiko, where findings showed that participants with obesity reported long waiting times and overcrowded health facilities, which discouraged them from seeking medical advice and treatment. (Nuwematsiko et al., 2021).

Most of the respondents (73%) mentioned that the specialized obesity treatment services were not accessible in their community. The inaccessibility of the services in the community might have caused respondents not to consider seeking the service, as they would have sought it. The findings of the study agree with the study done by Sedekia et al. (2023), where findings showed that participants lacked access to basic healthcare services, including routine check-ups that could have detected early signs of obesity.

Socio-cultural determinants of obesity among adults aged 35 to 65 years attending Ssekanyonyi Health Centre IV, Mityana District

About the community perception, the majority of the respondents (64%) mentioned that large body size was perceived as a sign of wealth and health in the community.

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Original Article

This might have brought pride in the hearts of respondents, which might have hindered them from seeking weight management services. The findings of the study were supported by the study done by Lee, where findings showed that individuals living in communities that valued large body sizes as a sign of wealth and health had higher obesity rates compared to those from areas without such beliefs. (Lee et al., 2020).

For cultural roles, all of the respondents (100%) mentioned that cultural roles did not limit participation in physical exercise. This might have given respondents a chance to engage in weight management exercises if they so wished. The findings of the study disagree with the study done by Peng et al. (2023), where findings showed that women were at higher risk of obesity due to limited opportunities for physical activity, as cultural norms prioritized their domestic roles over outdoor or fitness-related activities.

Further findings revealed that less than half of the respondents, 12(37%), mentioned that social gatherings frequently led to overeating. This could be because the respondents' culture defines eating as a sign of brotherhood. The findings of the study are in agreement with the study done by Al-Okaily, where findings showed that individuals reported overeating during social gatherings due to cultural emphasis on hospitality and food sharing. (Al-Okaily et al., 2024).

Furthermore, study results showed that almost all respondents (94%) mentioned that they had a family history of obesity. This might have greatly contributed to respondents' obesity since they already had an existing genetic trait for obesity. The findings of the study are supported by the findings of the study done by Bouchard (2021), where findings showed that participants with a family history of obesity were obese.

Conclusions

For the individual factors, this study revealed that individual behaviors such as low physical activity, frequent intake of sugary drinks, poor sleep patterns, and stress-related eating significantly contributed to obesity. These lifestyle choices highlight the critical role of personal habits in the development and persistence of obesity among adults at Ssekanyonyi Health Centre IV.

The health facility-related findings showed that the lack of structured weight management programs, irregular support from health workers, and long waiting times at Ssekanyonyi Health Centre IV discouraged clients from seeking help. These systemic barriers reduced access to professional care, limiting effective prevention and management of obesity.

For socio-cultural factors, the study found that cultural beliefs valuing large body size, social pressure to overeat during events, and a strong family history of obesity significantly influenced obesity rates. These socio-cultural influences, combined with genetic predisposition and environmental factors, increased the community's vulnerability to obesity.

Limitations of the Study

The study was carried out in a limited setting, so its findings could not be generalized to other facilities in the country due to divergences in society in other areas.

Recommendations

To the Ministry of Health: The Ministry should develop and implement national weight management programs accessible at lower-level health facilities. It should train healthcare workers in counseling and management of obesity-related conditions. Public health campaigns should be intensified to raise awareness about the risks of obesity and healthy lifestyle choices.

To Health Facility Managers: Health facility managers should integrate regular weight monitoring and nutrition counseling into routine services. They should reduce waiting times by improving service efficiency and increasing staff capacity.

To Community Leaders: Community leaders should champion behavior change by promoting physical activity and healthy eating habits in local forums. They should work to dispel cultural myths that associate obesity with wealth and health.

To Individuals and Families: Individuals should adopt healthier lifestyles by engaging in regular physical activity and reducing intake of sugary drinks and processed foods. Families should support each other in maintaining good sleep hygiene and managing stress effectively. Those with a family history of obesity should seek early screening and adopt preventive measures.

Acknowledgement

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May God richly bless them all.

List of Abbreviations

ART: Antiretroviral Therapy
BMI: Body Mass Index
HC IV: Health Centre Four

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Original Article

HIV: Human immunodeficiency Virus
HMIS: Health Management Information System
MOH: Ministry of Health
TB: Tuberculosis
UHPAB: Uganda Health Professions Assessment Board
WHO: World Health Organization
OPD: Outpatient Department

Source of funding
The study was not funded.

Conflict of interest
The author declares no conflict of interest.

Author contributions
Suzan Nakubulwa was the principal investigator, Jane Frank Nalubega, Edith Akankwasa, Elizabeth Okello, and David Kavuma, manuscript writing; Immaculate Naggulu Posperia cleaned the data and analysis.
Hasifa Nansereko supervised the research project.

Data availability
Data is available upon request.

Author biography
Suzan Nakubulwa holds a Diploma in Nursing, directly from Mildmay Uganda School of Nursing and Midwifery.
Hasifa Nansereko is a tutor at Mildmay Uganda School of Nursing and Midwifery.

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