

Research Application Summary

Overweight and obesity among health clubs attendants in Kampala City, Uganda

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Abstract

Physical activity is a cornerstone of good health but technologically driven lifestyle has reduced it in urbanized societies. Physical inactivity leads to overweight and obesity (OWO) a risk factor for non communicable diseases (NCDs) and a public health challenge of the 21st century. Health clubs have emerged to provide programmes and therapy necessary to reduce OWO within Kampala City. However, little is known about the body weight status (BWS) of clients that visit them. A cross sectional survey was conducted to investigate if clients who visited health clubs in Kampala City have a health weight status. A total of 100 clients (53 male; 47 female) participated in the study. The Canadian guidelines for body weight classification using Body Mass Index (BMI) were used to categorise clients into underweight, normal weight, overweight and obese. Body weight status was determined using height and weight for BMI. SPSS software was used to analyse the data collected. Findings revealed that 64.2 % male and 83.0% female clients were OWO. The most prevalent of all categories was overweight (45.3% in males; 57.4% in females) and the least prevalent was obesity (18.9% males; 25.5% females). Overweight and obesity were higher in females clients (83.0%) than in male clients (64.2%). The study concluded that there was prevalence of OWO among clients who visited health clubs in Kampala City.

Key words: Body mass index, body weight abnormalities, Kampala, obesity, overweight, physical activity

Résumé

L'activité physique est la pierre angulaire d'une bonne santé, mais le mode de vie axé sur la technologie l'a réduite dans les sociétés urbanisées. L'inactivité physique conduit au surpoids et à l'obésité (SO), un facteur de risque de maladies non transmissibles (MNT) et un défi de santé publique du 21^e siècle. Des clubs de santé ont vu le jour pour fournir les programmes et la thérapie nécessaires pour réduire l'OWO dans la ville de Kampala. Cependant, on sait peu de choses sur l'état de poids corporel (EPC) des clients qui les visitent. Une enquête transversale a été menée pour déterminer si les clients qui fréquentaient les clubs de santé de la ville de Kampala avaient un poids santé. Au total, 100 clients (53 hommes et 47 femmes) ont participé à l'étude. Les lignes directrices canadiennes pour la classification du poids corporel à l'aide de l'indice de masse corporelle (IMC) ont été utilisées pour classer les clients en insuffisance pondérale, poids normal, embonpoint et obésité. Le poids corporel a été déterminé en utilisant la taille et le poids pour l'IMC. Le logiciel SPSS a été utilisé pour analyser les données recueillies. Les résultats ont révélé

que 64,2 % des clients masculins et 83,0 % des clients féminins étaient des SO. La plus répandue de toutes les catégories était le surpoids (45,3 % chez les hommes ; 57,4 % chez les femmes) et la moins répandue était l'obésité (18,9 % chez les hommes ; 25,5 % chez les femmes). Le surpoids et l'obésité étaient plus élevés chez les clientes (83,0 %) que chez les clients masculins (64,2 %). L'étude a conclu qu'il y avait une prévalence De SO parmi les clients qui fréquentaient les clubs de santé de la ville de Kampala.

Mots clés : Indice de Masse Corporelle, anomalies du poids corporel, Kampala, obésité, surpoids, activité physique

Introduction

Physical activity is a foundation for good health as it reduces the risk of cardiovascular disease (Ohuruogu, 2017). However, physical inactivity has increased in most urbanised societies due to the advancement in technology that has consequently caused most people to live a sedentary lifestyle (Ellulu, 2014; Akindutire and Olanipekun, 2017) which is associated with numerous psychological and health effects including overweight and obesity that greatly affects body weight of different individuals (Akindutire and Olanipekun, 2017). According to the Government of Canada, (2003), body weight is categorised using body mass index (BMI) into underweight (BMI; $<18.5 \text{ kg/m}^2$), normal weight (BMI; $18.5\text{-}24.9 \text{ kg/m}^2$), overweight (BMI; $25.0\text{-}29.9 \text{ kg/m}^2$) and obesity (BMI; 30.0 kg/m^2). BMI is being used generally to evaluate the risk for mortality in different groups of individuals (Nuttall, 2015). The risk of poor health increases with increase in BMI (Kopelman, 2007). Underweight, overweight and obesity are considered as unhealthy body weights and are linked to different morbidities and mortality (Flegal *et al.*, 2005). Underweight is connected to a number of health risks including osteoporosis, impaired immune competence, eating disorders, infertility and it has numerous adverse effects on ones psychological, physical and social functioning (Government of Canada, 2003). Normal weight is desirable body weight status and is associated with lowest risk of morbidity and mortality (Stefan *et al.*, 2017). Overweight and obesity (OWO) are a risk factor for NCDs and a public health concern in the 21st century (Barlow, 2007; Flegal *et al.*, 2009; Ogden *et al.*, 2014). The global epidemic of OWO has become a worldwide problem not only in developed countries but also in developing countries (Bhurosy and Jeewon, 2014; World Health Organization, 2014; Seidell and Halberstadt, 2015). Overweight and obesity are a public health concern that impairs the health of individuals and adds severally to health care budgets (Seidell and Halberstadt, 2015). Overweight and obesity contribute greatly to the incidence of cardiovascular diseases, type 2 diabete mellitus, cancer, work disability, sleep apnea among others (Barlow, 2007; Flegal *et al.*, 2009). The risk of disease increases with overweight (BMI of $25.0\text{-}29.9 \text{ kg/m}^2$) and it becomes more severe with obesity (BMI greater than 30.0 kg/m^2) (WHO, 2008). In 2014, 39% of adults aged 18 years and older were overweight (38% men, 40% women) and 11% men and 15% women were obese globally (WHO, 2014). In africa, the prevalence of overweight and obesity is high in all african regions and the rate is higher in urban parts compared to rural parts (Charles *et al.*, 2015; Biadgilign *et al.*, 2017). Women are more likely to be obese than men world wide (Bhurosy and Jeewon, 2014; Shalom and Opeyemi, 2014; Charles *et al.*, 2015). In uganda, 19.9 adults (20.1% males and 19.8% females) were overweight and a total of 4.3% (3.8 males and 4.7% females) were obese in 2010 (WHO, 2011). In 2016, a total of 4% adults (2% female and 7% female) were were obese in uganda (WHO, 2018). Overweight and obesity and the related Non communicable diseases can be prevented and reduced by making

individual lifestyle changes that involve making healthier choices of foods and regular physical activity (Chan and Woo, 2010; Akindutire and Olanipekun, 2017). Because of this awareness, many health clubs have emerged in Kampala city to provide programmes and therapy in form of physical activity to reduce overweight and obese (Uganda Registration Services Bureau, 2014). However little is known about the body weight status of clients that visit them. This study sought to investigate overweight and obesity status of clients who visited health clubs to participate in different activities offered in Kampala City, Uganda.

Methods and Materials

A total of 100 clients (47 female and 53 male) 18 years and above participated in the study voluntarily. All the participants were clients in different health clubs in Kampala City, Uganda. The study excluded clients who were below 18 years, pregnant and physically challenged. Weight was measured in kilograms to the nearest 0.01kg using tanita biometric weighing scale from USA. Height was measured in metres to the nearest 0.001m using a metre ruler with the clients standing barefooted. BMI (kg/m^2) was computed by dividing weight (kg) divided by height (m^2). Body weight status categories were defined using the Canadian guidelines for body weight classification in adults as follows: underweight ($<18.5 \text{ kg/m}^2$), normal weight ($18.5\text{-}24.9 \text{ kg/m}^2$), overweight ($25.0\text{-}29.9 \text{ kg/m}^2$) and obesity (30.0kg/m^2). Obesity was further categorised as follows: Obesity class 1 ($30.0\text{-}34.9 \text{ kg/m}^2$), obesity class 2 ($35.9\text{-}39.9 \text{ kg/m}^2$) and Obese class 3 (40.0 kg/m^2). Data was collected from 10 health clubs from the five divisions of Kampala City. Two health clubs were selected from each of the five divisions and 10 clients from each health club. Data was collected from specific health clubs and was analysed using SPSS software and one-sample t-test was used to test if there was a significant difference between the weight status of female and male clients. Differences were significant at the level of $p<0.05$.

Table 1. Mean weight and height of clients

Sex of the clients		Weight of clients in kg	Height of clients in meters
Male	Mean	78.6521	1.7207
	Std. Deviation	12.49867	.06635
	Minimum	54.90	1.58
	Maximum	118.40	1.91
Female	Mean	72.4553	1.6050
	Std. Deviation	12.28962	.07255
	Minimum	60.40	1.49
	Maximum	119.50	1.89

Source: Primary Data

Results and discussions

Table 1 shows the mean and standard deviation of the weight and height of clients who participated in the study. According to the results, the mean weight and standard deviation of male clients was 78.6 ± 12.4 , respectively while the mean weight and standard deviation for female clients was 72.4 ± 12.2 , respectively. The mean height and standard deviation for male clients was $1.72\text{m} \pm 0.06$ and that of female clients 1.60 ± 0.07 , respectively. The finding implies that on average male clients from this study weighed 78.6kg and measured 1.7m in height while women clients weighed 72.4kg and measured 1.6m in height. This implies that male clients in the study had higher values of weight and height than female clients. Considering that BMI is calculated by dividing weight by the square of height, the average BMI was 27.2kg/m^2 and 28.3kg/m^2 for male and female clients respectively. It can be concluded from this finding that the study sample for both male and female clients was generally overweight at 27.2kg/m^2 and 28.3kg/m^2 , respectively but women were more overweight than male clients.

Figure 1 shows the BMI ratings of clients. It shows that out of the 53 male clients, only 35.8% and out of 47 female clients, only 17.0% were rated as having a normal BMI. There were twice as many male as female who were rated as having a normal BMI. This means that more women were either overweight or obese. In both the male and the female, majority (45.3%, 57.4%) of the clients were rated as being overweight, respectively, 17% and 19.1% were rated as obese class I clients. No male client was rated as being extremely obese unlike the female where 4.3% were noted to be so.

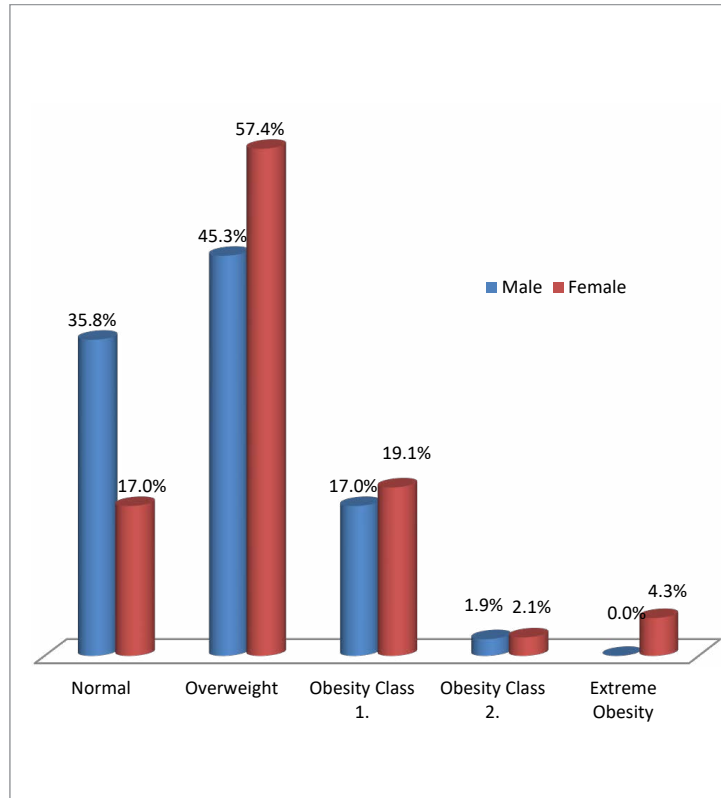


Figure 1. Body Mass Index ratings of clients

Relationship between male and female weights. The study considered hypothesis (Ho1) that “There would be no significant difference between the weight status of female and male clients in Kampala City health clubs”. The one-sample t-test was used to test this hypothesis. The results showed that the two-tailed P-value was .000. This implied that there was a statistically significant correlation between the weights of the male and those of the female clients at 99% confidence level. Based on these findings, the hypothesis that, “There would be no significant difference between the weight status of female and male participants in Kampala City health clubs”, was rejected

Discussion

The results from this study show that male clients were bigger than female clients. On average male clients weighed 78.6kg and measured (height) 1.72m whereas female clients weighed 72.4kgs and measured 1.60m. This finding is similar to the findings of Shalom and Opeyemi, (2014) who carried out a study about underweight, overweight and obesity amongst young adults in Ota, Nigeria and found out that males were significantly bigger in size than (weight and height) than females. The findings from this study revealed that the average BMI was 28.3kg/m² and 27.2 kg/m² for female and male clients, respectively. This implies that their health was at increased risk of morbidity and mortality according to the Government of Canada, (2003). The prevalence of normal weight was high in male clients (35.8%) than in female clients (17.0%) and this implies that more male clients had a health weight which is associated with the lowest risk of morbidity and mortality. Overweight and obesity happened more in female clients than in male clients (Figure 1). This result is similar to reports of other studies in different parts in the world. Bhurosy and Jeewon (2014) carried out a study on overweight and obesity epidemic in developing countries and results stated that women showed higher BMI trends than men subjects. Also a study was carried out by Charles *et al.*, (2015) in sub-saharan africa and results revealed that overweight and obesity is higher in women than in male subjects. The results from this study also coincides with the findings of Shalom and Opeyemi, (2014) who carried out a study on underweight, overweight and obesity among young adults in Ota, Nigeria and found out that women were more prone to body weight abnormalities than males subjects. The findings from this study showed that the prevalence of OWO was high among both male (64.2%) and female (83.0%) clients who attended activities in health clubs although female clients were more obese than male clients. The high prevalence of OWO is similar to what has been described in other reports and studies (World Health Organization, 2014; Charles *et al.*, 2015; Seidell and Halberstadt, 2015; Biadgilign *et al.*, 2017) . The high Prevalence of OWO among clients who take part in different activities in health clubs could be attributed to poor eating habits and inappropriate exercise programmes. Females were more obese than male clients in all obese categories.

Conclusions

Overweight and obesity are prevalent among both male and female clients in Kampala City health clubs. Less than half of all clients were rated as having a normal BMI. More female clients were either overweight or obese than male clients. There is need to engage in healthy eating habits and appropriate exercise programmes so as to improve lifestyle and minimise the risks of OWO.

Acknowledgement

We thank the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), Kyambogo University and Kenyatta University for their support. This paper is a contribution to the Seventh Africa Higher Education Week and RUFORUM Triennial Conference held 6-10 December 2021 in Cotonou, Benin.

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