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Research Article

Knowledge and Factors Associated with Overweight and Obesity Prevention among Women Attending Kibagabaga Hospital, Rwanda

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Abstract

Women in Rwanda are still suffering from overweight and obesity and health-related complications. However, little is known about overweight/obesity prevention knowledge and factors associated with overweight/obesity prevention among women. The aim of this study was to determine knowledge and factors associated with overweight and obesity prevention among women attending Kibagabaga Hospital in Rwanda. A quantitative descriptive cross-sectional design was conducted among women aged 20-45 years that was selected randomly. A structured questionnaire was used to collect data from 384 women seeking health care at the hospital during the study period. SPSS version 21 was used for data analysis; descriptive statistics were used to assess women's knowledge related to overweight/obesity. Logistic regression was used to determine the factors associated with overweight/obesity prevention; the level of significance was set at 5%. Approval to conduct the study was obtained from the University and Hospital. The majority 35.4% of study participants were aged between 30-34 years. Women who live in an urban area dominate the study (76.3%), the majority of study participants were married (60.9%). The study revealed that 22% and 62% of women had higher level and moderate knowledge respectively. In terms of overweight/obesity prevention practices, we found that 67% of mothers had adequate practices towards overweight and obesity prevention. The age of 35-39, and unemployment were found to be significantly associated with overweight/obesity prevention practices. Cost-effective health education focusing on women, physical activity and social support to reduce the socio-cultural constraints that promote overweight/obesity are necessary to combat this epidemic.

Keywords:
Overweight; Obesity; Prevention measures; Women

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Background

Overweight and Obesity is a significant public health problem worldwide, specifically among women. Overweight and obesity are the fifth leading risk of global mortality [9], [13]. The World Health Organization (WHO) defines a person to be overweight if his or her body mass index (BMI) is >25, and obese if BMI is ≥30[14]. Globally, among the people being overweight and obese adults (1.9 billion and 650 million respectively), 40% were female and 39% were male, which is tripled the report estimated in 1975 [15]. Lack of knowledge on the overweight and obesity prevention, cultural aspects, lack of adequate health care for overweight /obese women and poverty are among the several factors that increase overweight and obesity among women in developing countries.

The burden of obesity is on the increase in developing countries compared to developed countries. For example, a recent analysis of demographic and health survey data from 32 Sub-Saharan Africa Countries found that the pooled prevalence of overweight for the region was 15.9 % and 15.6% in Rwanda. Similarly, the prevalence of obesity was also lowest in Madagascar 1.1 %, highest in Swaziland 23.0% and 2.4% in Rwanda. The women in urban residence and those who were classified as rich had a higher likelihood of overweight and obesity; high education level was significantly associated with overweight and obesity[8].

Women tend to be more overweight and obese than males around the world and studies have shown that some NCDs have a predilection for women [16]. For instance, the Nurse's Health study from 1976 to 2005 showed how women, when compared to men, had a higher risk of developing type-2 diabetes mellitus and hypertension for each unit increase in BMI and for each 5-kg increase in weight[2], [3].

A study conducted in 2016 about the prevalence and factors associated with overweight/obesity in Rwanda found that the prevalence of women being overweight/obese increased from 13% in 2000 to 16.5% in 2010. The highest prevalence rates in 2010 were found in Kigali city (35%) and other urban areas (31.5%) [6]. It was speculated that the increase of overweight/obesity among women in Rwanda is due to poor knowledge about obesity prevention and poor lifestyle. The increase in obesity is currently more correlated to new socio-economic trends; the increase is more common in urban areas than in rural areas and the women who attend the Hospital seem to have poor knowledge and poor attitude towards obesity prevention.

Rwanda Demographic Health Survey conducted in 2015 showed that 34% of women were obese or overweight in the City of Kigali as compared to 21% at national level. Kicukiro district was one of the Districts in Kigali city with higher prevalence of obesity/overweight (35%) among women[10]. Therefore, there is a need to investigate the relationship between knowledge, attitude and prevention practices among women in Kicukiro district.

Material and Methods

Study Design, Setting and Population

A cross-sectional research design using quantitative method was conducted to determine the knowledge and factors associated with overweight and obesity prevention among women in Kibagabaga Hospital. The study targeted all women aged 20 to 45 years old attending Kibagabaga Hospital. Participants who did not consent to participate were excluded from participating in this study. The study included women attending outpatient department within the above defined age bracket.

Sample Design and Data Collection Tools

A systematic sampling technique was used to select participants for this study. In this study, a sampling frame was defined based on the list of all women attending the Kibagabaga Hospital between 20 – 45 ages. The sample size was calculated based on the following simplified formula provided by Kish Leslie (1965) formula.

$$n = \frac{Z^2 PQ}{(D)^2} = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384$$

Where n= required sample size, Z is value (1.96 for 95% confidence level) and p is the estimated proportion of respondents. Then Q is (1-p), and D is the accuracy (error allowed or error in the margin). Since no large pattern has been performed in the field, P is 0.5 can be used as an approximate small sample to provide the study with excess amount.

Using the above formula a sample size of 384 women was selected to participate in this study.

A structured questionnaire with close ended questions was developed by the researcher using information from the related previous studies. The Questionnaire was translated in Kinyarwanda by the professional linguists and was back translated to ensure that it has maintained its original meaning. To ensure the validity and reliability of research tools, a pilot study was conducted at Masaka Hospital where 25 women attending Masaka Hospital were requested to respond to our questionnaire. After analysis of results from pilot test, the Cronbach's alpha coefficient was 7.3, we therefore concluded that our tools are reliable.

Permission to carry out this study was obtained from Mount Kenya University Rwanda (MKUR) and Kibagabaga District hospital before the Data collection. Participants voluntarily signed the consent form after a brief introduction and explanation of the aims of the revision. The researcher administered the questionnaire to each participant with a cover note which explained the purpose of the study, clear and concise instructions for completing the questionnaire. The participant had about 10-15 minutes to read the questionnaire and asked for any clarification when responding to questions, after which they have got another 20 minutes or more to fill the questionnaire.

Data analysis

After completing data collection, the data was coded and entered into Microsoft Excel computer program for analysis. Data have been analyzed using different quantitative statistical procedures and methods. In return they have been processed, analyzed and tested using SPSS. In the first instance descriptive statistical measures were used to analyze, summarized and categorized in table, means, percentage and frequencies. In the second instance, bivariate analysis using Chi-square test and multivariate analysis have been performed to test the association of knowledge and both attitudes and practices on overweight and obesity prevention among women from Kibagabaga District hospital.

Table 1. Socio-Demographic characteristics of participants

Variables Categories		Frequency	Percent
Age	20-24	63	16.4
	25-29	99	25.8
	30-34	136	35.4
	35-39	42	10.9
	40-44	44	11.5
Residence of respondent			
	Rural	91	23.7
	Urban	293	76.3
Marital status of respondent			
	Single	97	25.3
	Married	234	60.1
	Divorced	19	5.7
	Widowed	34	8.9
Education level of respondent			
	Primary	140	36.5
	Secondary	100	26.0
	University	79	20.6
	No formal education	65	16.9
Occupation of respondent			
	Unemployed	130	33.9
	Public	117	30.5
	Private	137	35.6

Results

Socio-Demographic characteristics of participants

The distribution of social-demographic characteristics of 384 women who participated in the study was presented in Table 1.

A total of 384 mothers aged at least 20 years old in Kibagabaga Hospital were recruited. The majority of women 136(35.4%) were aged 30-34, very few 42(10.9%) were aged 35-39 years old. Among 384 mothers (23.7%) were from rural while 76.3% were from urban setting. Most of the respondents attended primary school (36.5%) and majority 234(60.1%) women were married. Majority 137(35.6%) of the participants were working in private sector.

Level of Knowledge About Overweight and Obesity Prevention

The women's knowledge about overweight and obesity prevention is presented in Table 2.

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Table 2. Knowledge about overweight and obesity prevention among women

Variables	Frequency	Percent
Eating too much fatty food increases overweight and obesity		
Yes	238	62.0
No	146	38.0
Doing insufficient physical activity may be the source of overweight and obesity		
Yes	199	51.8
No	185	48.2
Repeated dieting causes overweight and obesity		
Yes	248	64.6
No	136	35.4
Overweight and obesity should be originated from having stress, anxiety and depression		
Yes	160	41.7
No	224	58.3
Having hormonal disorder can cause overweight and obesity		
Yes	226	58.9
No	158	41.1
Being of high income, employment should be the cause of overweight and obesity		
Yes	234	63.3
No	141	36.7
Overweight and obesity increase the risk of other health problems		
Yes	199	51.8
No	194	48.2
Overweight and obesity should be the cause of the psychological problems		
Yes	190	49.5
No	194	50.5
Overweight and obesity can increase the social problem		
Yes	175	45.6
No	209	54.4
Having normal weight is important for health		
Yes	252	65.6
No	132	34.4

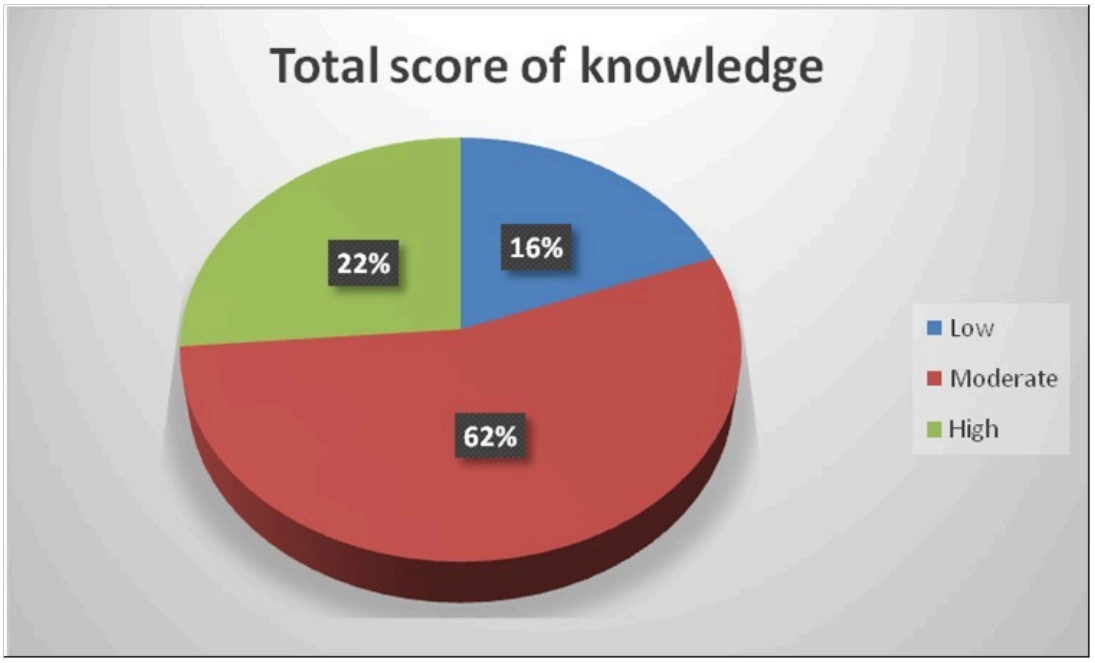


Figure 1. Total score of knowledge among women

This study shows the results of knowledge different components about overweight and obesity prevention. Among 384 mothers recruited more than 62.0% know that Eating too much fat can cause obesity while more than half knew that doing insufficient physical activity (51.8%) can also lead to overweight and obesity. The respondent knew that having stress should increase the risk of overweight/obesity (41.7%). Having hormonal disorder is known to be a risk factor of overweight and obesity (58.9%). Most of the respondents knew that being in high income category (63.3%) can contribute to increase of overweight/obesity among the women. At least a half 51.8% of women knew that being overweight and obesity is a risk of other health problems. Nearly half of respondents 175 (45.6%) knew that being overweight or obese increases social problems. More than sixty percent of women (65.6%) were aware that normal weight is important for health.

Total Score of Knowledge About Overweight and Obesity Prevention

The level of knowledge among women about overweight and obesity prevention was estimated using individual answers presented in Table 2. Women were considered to have high level of knowledge if they had a score of ≥70%, moderate level if they had score between 50 and >70% and low level if they had a score <50%. Figure 1.

The current study reveals that only 22% of women had a higher level of knowledge, 62% of women demonstrated moderate knowledge while 16% had lower knowledge about overweight and obesity prevention.

Practices Towards Overweight and Obesity Prevention Among Women Attending Kibagabaga Hospital

The participants were each asked to answer questions about her practices towards overweight and obesity prevention. Table 3 presented the women's practices towards overweight/obesity prevention.

The respondents among mothers attending Kibagabaga hospital described their lived experiences by freely giving their opinions about the overweight and obesity prevention practices. Eating moderate food 140(36.45%), eating less fatty 164(42.7%) and avoiding eating between meals 221 (57.5%) were reported as measures used by women to prevent overweight and obesity. Eating more fruits and vegetables 224(58.3%), consumption of lower caloric drinks 251(65.3%) and lower consumption of energetic drinks 187(48.6%) are measures used by women towards obesity prevention. The majority of women 64.8% do physical exercises as overweight/obesity prevention measure, 58.3% avoided alcoholic beverage consumption as a measure to prevent overweight and obesity.

Table 3. Practices towards overweight and obesity prevention among women

Variables	Categories			
	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Eating moderate food during meals	140	36.45	244	63.54
Eating less fatty food	164	42.7	222	57.3
Do not eat between meals	221	57.55	163	42.44
Eating more fruits and vegetables	224	58.33	160	41.66
Consuming lower caloric drinks	251	65.36	133	34.63
Lower consumption of energetic drinks	187	48.69	197	51.3
Following every low calories diet	288	75	96	25
Enjoying less dairy food products	242	63.02	142	36.97
Following commercial/ adverse diet	264	68.75	120	31.25
Doing physical exercises/Sport	249	64.84	135	35.15
Avoiding alcoholic beverage	224	58.33	160	41.66
Avoid sitting for a long time	224	58.33	160	41.66

Total Practices Towards Overweight and Obesity Prevention Among Women

Individual questions presented in Table 3 were used to aggregate the total practice scores where respondents with 50% and more were considered as having adequate practices while those with less



Figure 2. Total score about women prevention practice

than 50% were considered as having poor/inadequate practices towards overweight/obesity prevention. Figure 2.

Present research finds that 67% of mothers had adequate practices compared to 33% who had inadequate practices towards overweight and obesity prevention.

The Factors Associated with Overweight and Obesity Prevention Among Women

The main purpose of this analysis is to know to what extent the dependent variable (overweight and obesity prevention) is influenced by the independent variables. Variables were analyzed through multivariate logistic regression analysis to examine the independent variables associated with overweight and obesity prevention. The independent variables associated with overweight and obesity prevention are presented in Table 4 below.

Table 4. Association between all independent variables with overweight and obesity prevention

Variable	AOR	95%CI		p value
		Lower	Upper	
Full model				
Age of respondents				
20-24	7.88	1.81	34.25	0.006
25-29	0.79	0.31	2.01	0.619
30-34	0.48	0.20	1.13	0.093
35-39	5.74	1.11	29.60	0.037
40-44	Ref			
Level of education				
No formal	1.50	0.57	3.97	0.414
Primary	1.74	0.81	3.76	0.158
Secondary	2.60	1.11	6.13	0.029
University	Ref			
Occupation of respondent				
Unemployed	2.84	1.41	5.72	0.004
Public	3.05	1.48	6.27	0.003
Private	Ref			
Knowledge of overweight and obesity				
Low	Ref			
Moderate	4.46	2.27	8.78	0.000
High	23.47	7.77	70.90	0.000

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Table 4 (continued)

Variable	AOR	95%CI		p value
		Lower	Upper	
Reduced model				
Age of respondents				
20-24	7.25	1.74	30.24	0.007
25-29	0.80	0.32	2.00	0.629
30-34	0.53	0.23	1.23	0.139
35-39	6.58	1.31	33.18	0.022
40-44	Ref			
Occupation of respondent				
Unemployed	3.12	1.61	6.05	0.001
Public	2.96	1.47	5.95	0.002
Private	Ref			
Knowledge of overweight and obesity				
Low	Ref			
Moderate	4.44	2.28	8.65	0.001
High	24.52	8.16	73.64	0.001

From backward Wald binary logistic regression, variables that were retained in the model after considering variables associated with dependent variable and controlling potential confounders were age, occupation, total knowledge and total attitude while others were found to be not independent predictors of overweight and obesity prevention. From the multivariate analysis the present study reveals that age has a strong statistical association with overweight and obesity prevention where advanced age group (35-39) was found to be 6.58 times compared to other age-group (AOR = 6.58 95% CI= 1.31-33.18, p-value<0.001). Unemployed workers were about 3.12 times more likely to prevent overweight and obesity as compared to public and private people (AOR = 3.12% CI= 1.61-6.05; p-value< 0.001).

Similarly, total score of knowledge has been also found to be a strong predictor of overweight and obesity prevention (p< 0.001). Mothers with a high level of knowledge were 24.52 times more likely to prevent overweight and obesity than the ones who have low and moderate level (AOR=24.52,95% CI=8.16-73.64, p-value <0.001).

Discussion

The main research objective of the study was to determine the factors that influence the overweight and obesity prevention among women attending Kibagabaga hospital. Overweight and obesity are important indicators of health status of women. The present study indicates that 22% of women possess higher of knowledge on overweight and obesity prevention. Similar results were reported in a study conducted in Kenya where less than half of study participants had an appropriate knowledge of obesity[5]. Another study conducted in Zimbabwe showed that only 0.8% of study participants has strong nutritional knowledge[7]. In contrast a study conducted in Nepal found that participants had good knowledge about obesity prevention[12]. The poor overall knowledge observed in this study may be due to cultural aspects and preference of women appearance in Africa. In Africa being overweight specifically for women is still regarded as a sign of good nutrition, happiness and improved socio-economic conditions.

The current study found that women attending Kibagabaga Hospital had adequate practices towards overweight and obesity prevention. A study conducted in Brazil found that overweight is much frequent in females aged 20 to 60 years. The same study revealed that Low fitness levels and excessive proportion of high-energy foods have contributed to higher rates of obesity among females in Brazil [1]. Generally, women are physical inactive than males; this predisposes them to the risk of overweight and obesity.

The present study findings show the association between independent and dependent variables where age group with (p-value<0.001) was found to have a strong statistical association. Again, factors of overweight and obesity prevention were found to be total score of knowledge (p-value<0.001) respectively. A study conducted among Spanish adults found that a lower incidence of overweight is found in those with regular exercise, with gender disparities (10.9% vs 21.6%). Obesity and overweight are correlated with male gender (OR = 3.35 2.75-4.07), heavy alcohol intake (OR = 1.38 1.03-1.86) and tv watching (OR = 1.52 1.11-2.07), and products like rice and dairy products (OR = 1.47 1.13-1.91) [11]. While the triggers of obesity and overweight are complicated, two potential main causes, called the "Big Two," have been found out by scientists. The "Big Two" consists of a calorie consumption that is too high, coupled with a substantial drop in regular exercise. True to the declines in regular exercise, too few carbohydrates are consumed relative to their consumption[4].

As evidenced from RDHS(2014-15) The steps research study published in Rwanda in 2012/13 indicated that the frequency of major risk factors for obesity and associated health negative impacts were: unhealthy diets (only 0.3 percent of fruit intake each day, 0.9 percent of veggies consumed, and 99.1 percent of fruits and/or vegetables consumed less than 5 servings), lack of physical activity (21.4 percent of activity was low) (MoH, 2015). With family education and income, excess weight and overweight in women rises. Excess weight has risen from 12 percent to 21 percent in 2014-151 since 2005[10].

The prevention of overweight and obesity should involve two main objectives to adopt healthy behaviors focused on food and nutritional aspect and physical activities because has been shown the sedentary life the risk of gaining extra weight and overweight is increased.

Conclusions

The most important significant factor for overweight and obesity prevention was found to be age amongof participants. Most of the mothers have a moderate level of knowledge of any components about overweight and obesity prevention. The current study reveals the adequate practices towards overweight and obesity prevention among mothers attending Kibagabaga hospital. However, further research is needed to explore and explain the observed difference in overweight and obesity prevention and education level as associated factors compared to other researches done in the past.

Ethical Consideration

After obtaining the permission from MKU Rwanda and from the Kibagabaga hospital coordinators and approval consent from participants, data collection was done by the researcher himself and this took three weeks. The first week was about the arrangement of the instrument. The second week was to pretest and to provide the explanation to the participants who were involved in responding according to the aim of study, motivation, significance, introducing my consent and data collection then, the other weeks were for data collection and entry. In addition, the following guideline was followed in order to assure the confidentiality of participants for their information.

By means of an official document, the object of the study was provided to the respondents. Respondents were sure that the data they had given was strictly confidential. Each group was given with an explicit, written permission and clarified. Participation in the research was purely voluntary and the individual was free at any time to withdraw from the research without penalty.

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