

Knowledge, Dietary and Physical Activity Practices Regarding Obesity among Women Aged 25-40 Years in Vhembe District of Limpopo Province

K. Lidovho¹ and T. C. Mandiwana²

¹*LSOC Diet (Slimming and Nutrition Center), Mpumalanga Province, South Africa*

²*University of Venda, P/bag X5050, Thohoyandou, 0950, South Africa*

E-mail: tshifhiwa.mandiwana@univen.ac.za

KEYWORDS Obesity. Overweight. Environment. Consumption. Physical Activity

ABSTRACT Objective is to determine knowledge, dietary and physical activity practices as well as anthropometrics status of women aged 25-40 years of age. A descriptive study was conducted among 60 women aged 25-40 years and snowball sampling was used to select participants with the objective to determine knowledge, dietary and physical activity practices as well as anthropometrics status of women aged 25-40 years of age. It has been observed that 46.7 percent of the participants in this study had very good knowledge on obesity. Participants were more physically active at home level because all the participants were reported to be spending more hours in household activities such as preparing food and washing up, cleaning the house, doing laundry and ironing and taking care of children. The prevalence of obesity was discovered to be very high in this study as compared to overweight. This concludes that participants in this study had good knowledge relating to obesity however they lacked knowledge on other aspects that are linked to obesity.

INTRODUCTION

Globally, there is a huge difference in the prevalence of overweight and obesity within and between the developed and developing countries (Ferro-Luzzi and Puska 2004). Ucer and Ozocelic (2008) reported the prevalence of obese women to be 0.1 percent in South Asia, 2.5 percent in Sub-Saharan Africa, 9.6 percent in Latin America and the Caribbean, 15.4 percent in Central Eastern. However, it has been reported recently that obesity is becoming epidemic in the world wide which demand immediate attention. Europe, 17.2 percent in the Middle East and North Africa, and 20.7 percent in the USA in his study (Randa and Dina 2015).

Bradshaw et al. (2003) "warn that" obesity has a negative impact on South African individuals with regard to their quality of life and their wellness; this burden of disease related to obesity increases the cost of health care, both in private and public health sectors. Despite the fact that increased prevalence of obesity poses a huge economic burden on the society, it also poses a serious health problem as it leads to adverse metabolic effects on blood pressure, blood lipids and insulin resistance (Huaidong 2012). WHO (2008) further indicated that obesity consequently increases the risk of chronic diseases such as type 2 diabetes, cardiovascu-

lar diseases, and hypertension, stroke certain forms of cancer and premature death.

Females are the ones who are mostly affected by obesity for a number of reasons and they tend to put on relatively more weight in childhood's growth spurt in the first decade of life as well as in puberty (Ogana 2012). Physical inactivity among black young women is a major determinant of obesity (Kruger 2005), and so is child-bearing, where after delivery often women do not get rid of weight gained in pregnancy. Prevalence of obesity is generally higher among females compared to males in the developing countries (Low et al. 2009). Randa and Dina (2015) further reported that obesity and weight gain rate are particularly high for young adults as compared to other age groups.

The environment is considered to be an important contributor to a sedentary lifestyle leaving most cases of obesity are due to environmental changes rather than biology (that is, in physiological or genetic changes) (Cohen and Steadman 2005). The transition from a physically demanding environment to a predominantly mechanical environment, has significantly contributed to the decline decrease in physical activity levels (Townsend 2012).

The following factors are often cited as important components of changing environment that may have had consequences on dietary

habits, convenience in food availability (for example, increase in food stores, vending machines, etc.), increasing availability of energy dense, nutrient poor (ready-to-eat) foods, and greater amount of meals consumed away from home in large portions (that is pizza, Mexican food, fast food culture) (Popkin 2005). This new environment can be called the obesogenic environment (Rolls and Barnett 2000) because the choice to make healthy decisions has become difficult and more importantly not obvious for most individuals. In this regard, unhealthy behavior has become a normal response to an abnormal environment (Cohen and Steadman 2005).

METHODOLOGY

Study Design

The study used descriptive design. Descriptive design according to Leedy and Ormrod (2010) involves acquiring information about one or more groups about their characteristics, opinions, attitudes or previous experiences by asking those questions and tabulating their answers. The design helped the researcher to describe the knowledge of women and also determines their dietary and physical practices in relation to obesity.

Study Population

The study was conducted at Ha-Mandiwana village which is located at Nzhelele area under Makhado municipality in Vhembe district. A total of 60 women aged 25 to 40 years were recruited to participate and consented to participate in this study. The study employed snowball sampling design in identifying females with the required age group and who met the criteria for selection in the community. At the beginning, three females were selected and the required information was collected from them and after that they were asked to identify other women of the same age group and women selected by them become part of the sample. Women aged 25 to 40 years of age, who were permanent residents of ha-Mandiwana village were included in this study. Whereas, exclusion criteria for women included being a visitor and not permanent residents of the village. Women with mental problems were excluded in this study as the

might not give accurate responses during interviews. Pregnant women were excluded in this study because their BMI won't be a true reflection of the normal BMI.

Participant's Recruitment

Visit one - the researcher visited the chief kraal to introduce herself and submit a letter seeking permission to conduct research in the village. On this day, the researcher introduced herself as well as the study's aim, objectives and all the procedures on how the study is to be conducted.

Visit two - the researcher identified and visited the first three participants in the village to explain the study aim, objectives, and significance of the study. These participants were given consent forms to sign and they were also asked to identify others. The researcher went door to door recruiting participants by explaining the study procedure and leaving consent form for the participants to sign after deciding whether they want to participate in the study or not. Consent forms of participants who did not need more time to think were collected the same day but consent forms of those who needed time to take decision were collected on visit 3.

Visit three - the researcher explained the research to women who needed more information about the study before they could participate or sign consent forms. Data was collected during this stage where weight and height were taken and interviews were conducted in the same day. The researcher conducted interviews using Tshivenda which is the local language spoken in the village. The researcher interviewed 12 women per day for five days of which each interview took 20 minutes including anthropometric measurements.

Data Collection

A validated interviewer structured questionnaire was used for data collection using the local language spoken in the village which is Tshivenda. The questionnaire included demographic information, obesity knowledge test questions, dietary and physical activity practices and anthropometric measurements. The researcher interviewed 12 women per day for five days of which each interview took 20 minutes including anthropometric measurements.

Although data was collected in different places, the researchers ensured that all the interviews were conducted in a private place where there were only the researchers and the interviewee. Some data were collected indoors some was collected outside depending on how the researcher was welcomed in deferent households. The researchers always ensured that the scale was placed in a flat surface when taking anthropometric measurements.

Statistical Analysis

Descriptive statistics were tabulated and percentages were used to interpret data. Knowledge was scored out of 23 questions as follows: 0-5 was rate as poor, 6-9 was rated as fair, 10-14 was rated as good, 15-18 was rated as very good and 19-23 was rated as excellent. A grading scale to interpret these scores was designed as poor, fair, good, very good and excellent. Questions regarding dietary and physical activity practices were analyzed through the use of Statistical Package of Social Sciences (SPSS). Anthropometric measurements were analyzed using body mass index (BMI) standards, where it was calculated using weight (kg)/height² (m) formula then it was interpreted using the classes of BMI.

Ethical Considerations

Ethics approval was obtained from the Department of Nutrition at the University of Venda. Permission to conduct a study was sought from the chief of Ha-Mandiwana village and the civic members. All participants were provided informed consent prior participation. The intention of the consent form was to protect the researcher in case the participants change their minds or make false claims. Codes were also used to ensure confidentiality.

RESULTS

Knowledge Test Results

Table 1, reflects the scores of participants in relation to obesity. The results indicated that (46.7%) participants have very good knowledge on obesity as they managed to answer 15 to 18 questions correctly, (21.7%) were categorized in a group of participants with excellent knowledge because they managed to answer 19 to 32 ques-

tions correctly and (20%) had good knowledge because they managed to answer 10-14 questions correctly while (11.7%) had fair knowledge because they managed to answer 6 to 9 questions.

Table 1: Knowledge test scores

S. No.	Scores	Category	n=60	%
1.	0-5	Poor	-	-
2.	6-9	Fair	07	11.7
3.	10-14	Good	12	20
4.	15-18	Very good	28	46.7
5.	19-23	Excellent	13	21.7

Dietary and Physical Activity Practices

Breakfast, lunch and supper were reported to be the meals consumed by participants. Supper was reported to be the most consumed meal (88%) followed by breakfast which is consumed every day by 80 percent of the participants and 39 percent of the participants reported to skip lunch every day. Foods usually consumed in different meals were breakfast (bread (68%) lunch (porridge and chicken 48%, 33.3 % bread), and supper (porridge and vegetables (68%), whereas 2 percent eat porridge with chicken and vegetables and 20 percent eat porridge and chicken eggs. With regard to snack consumption, only 26.7 percent participants reported to eat snack daily and the remaining participants reported to snack rarely or once to three times a week. About 60 percent of the participants used fruits as snack and up to 50 percent reported to use potato chips. Only 18 percent of the participants reported that they consumed fruits every day and the rest of the participants reported that they consumed fruits rarely, once, twice or three times a week. About 35 percent of participants reported that they consume one fruit a day, 26.6 consumed 3 fruits while only 3.3 percent eat 4 fruits per day. Twenty-five percent (25%) of participants in this study reported to consume vegetable daily. More than half of participants (65%) indicated that they consumed 2 vegetables per day. Only 16.7 percent consumed fried foods daily (mostly eggs and chicken) and 40 percent had fried foods once or twice a week.

Physical Activity

When participants were asked if they engage themselves on exercise intended on weight loss

or fitness, 71.6 percent reported that they do not exercise while 28.3 percent reported to exercise. Out of 28.3 percent of participants who reported that they exercise, 18.3 percent of the participants reported to do moderate (jogging and brisk walking) exercise, 5 percent reported that are taking vigorous exercise (running) and only 3.3 percent reported that they take light exercise (walking slowly). About 11.7 percent reported that they exercise once per week and 10 percent reported to that they exercise twice per week while 6.7 percent takes exercise daily. However, all the participants reported that they spend hours doing household chores such as cooking, cleaning, washing, ironing and taking care of kids which leaves them in meeting the recommended time for being physical active (150 minutes per week). In addition, some participants indicated that they do not use transport when going to a place distance which is less than 1.6km instead they walk.

Anthropometric Status

Table 2, illustrates the classes of participant's BMI. Only 18.3 percent of the participants were having a normal BMI and 33.3 percent were overweight. Approximately 48.3 percent of participants were obese and were classified as follows: 27 percent were obese class 1, 15percent were obese class 2 and 6.6 percent were obese class 3.

Table 2: BMI classification

Body mass Index	n=60	%	Interpretation
<18.5 kg/m ²	-	-	Underweight
18.5 – 24.5 kg/m ²	11	18.3	Healthy weight (Normal)
25 – 29.9 kg/m ²	20	33.3	Overweight (Increased)
30-40 kg/m²	29	48.3	Obese
30.0 – 34.9 kg/m ²	16	26.6	Obese class I (Moderate)
35.0 – 39.9 kg/m ²	09	15	Obese class II (Severe)
40.0 kg/m ²	04	6.6	Obese class III (Severe)

DISCUSSION

The study showed that participants had very good knowledge on obesity even though there was still lack of knowledge in some important aspects for example participants failed to relate the risk of genetic factors and obesity,

knowledge on dietary fiber and variety of foods. However, lack of physical activity and dietary practices has contributed to the overweight and obesity among participants. Similar results were observed by Cheampong and Haldeman (2013), where 63 percent of the participants in the study had good knowledge on nutrition and obesity. This contradict with the results reported by Geaney et al. (2015) indicating that participants had nutrition knowledge among working population was relatively low and employees were lacking knowledge in particular areas including food groups and food diet disease relationships. It is well established that overweight and obesity are risk factors for many chronic diseases such as heart disease, diabetes mellitus and hypertension (Downess 2015). Interestingly, participants in this study showed a very good understanding of the complications that comes with obesity and a negative impact on health. However, the diets of the participants lack variety of foods and the consumption of vegetables and fruits are very low.

A cross-sectional, descriptive study conducted by Ruka (2005) to determine the prevalence rates and level of awareness of obesity among people of different age groups in Morogoro municipality reports that unlike the old age group (41-50 years), 70 percent of the youngest subjects were not aware about the harmful effects of obesity. On the other hand, more than two thirds of all the subjects could not associate excess body weight with chronic non-communicable diseases such as coronary heart disease, high blood pressure and breathing problems.

With regard to dietary practices, in-between meal snacking was not very common in this study and porridge was reported to be the most daily consumed food. However porridge is reported to be consumed during lunch and supper but some reported that they also use it for breakfast with some kind of relish which is either vegetable-based or protein-based for example chicken, fish, beans, eggs, vegetables, milk and potatoes. Phaswana-mafuya and Peltzer (2012) concur with these findings and further indicating that vegetables are consumed as relish to accompany the main staple dish which is mostly maize meal porridge not as snacks.

The South African food based dietary guidelines states that 'plenty fruits and vegetables should be consumed daily' but in this study

there is low consumption of both fruits and vegetables. Vorster et al. (2008) also concluded in his study that there is a decline in the consumption of vegetables and fruits. It is also recommended that per day a person must have consumed at least 5 portions of fruits and vegetables but in this study 70 percent reported that they eat 1 or 2 fruits while 65 percent reported that they eat 2 vegetables per day. Phaswana-Mafuya and Peltzer (2012) found the same results where the amount of fruit and vegetables consumed by older South African participants was considerably lower than current recommendations.

The prevalence of obesity was reported to be very high in this study, mostly because majority of participants reported not to exercise. High prevalence of obesity has also been reported in many studies in different countries with the use of BMI (Mogro et al. 2012; Owiredo et al. 2011). A study conducted by Malhodra et al. (2008) also supports these findings because they reported that the prevalence of obesity (BMI 30 kg/m²) was 53.4 percent among women of the same age group.

CONCLUSION

Participants in this study presented with good knowledge relating to obesity but then they still lack knowledge on other aspects that are linked to obesity. Even though participants have good knowledge regarding obesity, they reported very low consumption of fruits and vegetables and limited variety of foods as very few food items were reported to be the most consumed and mostly consumed with porridge. Other than dietary practices participants showed to be physical active at home level but the prevalence of obesity is very high in this village. The findings show that the prevalence of obesity in the village is very high even though the participants are physically active at home level.

RECOMMENDATIONS

Based on the prevalence of obesity and other aspects leading to that, it is recommended that education on obesity, healthy eating and exercise be given to women, further studies should be conducted focusing on factors that lead to obesity among women residing in rural areas and the relationship between knowledge, practices and factors that hinders the practice of good nutrition among women.

ACKNOWLEDGEMENT

The voluntary and cooperation of all women who participated in the study is highly appreciated.

REFERENCES

- Bradshaw D, Groenewald P, Laubscher R, Nanna N, Nojilana B, Norman R 2003. Initial burden of disease estimates for South Africa. *South African Medical Journal*, 93: 682-688.
- Cohen P, Steadman S 2005. Social, environmental, behavioral, and other contributors to obesity. *Obesity Journal*, 33(4): 18-19.
- Cheampong I, Haldeman L 2013. Are nutrition knowledge, attitudes and beliefs associated with obesity among low income Hispanic and African women care takers. *Obesity Journal*, 2012: 351-363.
- Downess L 2015. Physical activity and dietary habits of college students. *Journal Nurse Practitioners*, 11(2): 192.
- Ferro-Luzzi A, Puska P 2004. Sounding the Alarm: Obesity Scourge Spreads Unchecked. Global Health and Environment Monitor. From <<http://www.ceche.org/mol/Spring-04/jump>> (Retrieved on 21 April 2013).
- Ganey F, Fitzgerald S, Harrington JM, Kelly BA and Greiner IJP 2015. Nutrition knowledge, diet quality and hypertension in a working population. *Preventive Medicine Reports*, 2: 105-113.
- Huaidong DU 2012. Dietary determinants of obesity. *Tutorial*, 3: 377-378.
- Kruger HS 2005. Obesity in South Africa: Challenges for Government and health professionals. *Public Health Nutrition*, 8(5): 491-500.
- Leedy PD, Omrod JE 2010. *Practical Research, Planning and Design*. 9th Edition. USA: Pearson.
- Low S, Chew Chin M, De urenberg-Yap M 2009. Review on the epidemic of obesity. *An Academic Medical Journal*, 38(1): 57-58.
- Malhondra R, Hoyo C, Zulu J, Hughets J, Puaane T 2008. Determinants of obesity in urban townships of South Africa. *South African Clinical Nutrition Journal*, 21(14): 315-320.
- Mogro V, Mahtoy M, Cateau B 2012. Original article: Impact of physical activity level and diet on central obesity among civil servants in tamale metropolis. *Journal of Medical and Biochemical Science*, 1(2): 1-9.
- Ogana W 2012. Migrants' role in raising obesity among women of Zulu ethnicity in Durban South Africa. University of Kwazulu Natal. *Alternation*, 19(1): 239-261.
- Owiredo WKBA 2011. The prevalence of metabolic syndrome among active sports-sportswomen and sedentary workers in the Kumasi metropolis. *Journal of Science and Technology*, 31(1): 23-36.
- Popkin BM 2005. Environmental influences on food choice, physical activity and energy balance. *Physiology and Behavior*, 86: 603-613.

- Phaswana-Mafuya N, Peltzer P 2012. Fruits and vegetable intake and associated factors in older adults in South Africa. *Global Health Action Journal*, 12(2): 16-33.
- Randa RAF, Dina SAR 2015. Effect of nutritional awareness on body mass index among university students. *Journal of International Association for the Study of Obesity*, 28(2): 282-289.
- Rolls B, Barnett RA 2000. *The Volumetric Weight-control Plan: Feel Full on Fewer Calories*. New York: Harper Collins.
- Ruka SK 2005. Nutrition knowledge food habits and health attitude of Chinese university students: A cross-sectional study. *Family Nutrition Journal*, 4(4): 1475-1480.
- Townsend N 2012. *Physical Activity Statistics*. London: Britain Heart Foundation Health Promotion Research Group.
- Ucer A, Ozecelic AO 2008. Gender differences in adult's knowledge about dietary fats, cholesterol, fiber, and energy. *Parkistan Jornal of Nutrition*, 7(2): 234-239.
- Vorster HJ, Stevens JB, Steyn GJ 2008. Production systems of traditional leafy vegetables. Challenges for research and extension. *South African Journal of Agricultural Extension*. 37: 85-96.
- World Health Organization 2008. *Obesity and Overweight. Report of A WHO Consultation of Obesity Geneva 3-5 June*. WHO/NUT/NCD/. 08. 1. Geneva: WHO.