



CAUSES AND PREVENTIVE MEASURES OF POSSIBLE OBESITY AND OVERWEIGHT AMONG WORKERS IN TERTIARY INSTITUTIONS

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Abstract:

This study examined the causes and preventive measures of possible obesity and overweight among workers in tertiary institutions in Oyo state Nigeria. The population for this study was workers in the tertiary institutions in Oyo state. A total of 120 respondents comprising of 54 female and 66 male workers were selected using accidental sampling technique. A self-structured questionnaire validated by experts on the field with a reliable correlation coefficient at 0.84 was used for the study. The data collected were analysed using simple percentages and inferential statistics. The result showed that majority of the respondents were aware of the causes and the diseases associated with obesity and overweight. It was also revealed that majority of the respondents were aware of the preventive measures and did not engage in any measure to prevent obesity and overweight. It was further revealed that there was no significant difference in the involvement of preventive measures of obesity and overweight between male and female respondents in the tertiary institutions. Based on findings, it was recommended that there should be enlightenment programme for workers and recreation centres built in the tertiary institutions and in the public places by the government.

Keywords: causes, preventive measures, obesity, overweight, workers, tertiary institutions

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1. Introduction

In developing countries today especially in Nigeria, obesity and overweight is assumed to be a sign of wealthy living. It is a general statement and generally assumed that when one is obese and overweight, this person is said to be in a healthy state and that he is really enjoying his wellbeing, but in the actual sense, the health status of such individual is in jeopardy. Sincerely speaking hardly do people enjoy themselves with recreational activities. Therefore, there is no doubt that sedentary life style results in manifesting obesity and overweight. According to Evidence Brief on Obesity (2014), the occurrence of obesity is on the high increase, particularly among adults. In the same vein, Chhatwal, Verma and Riar (2004), reported that obesity is increasing globally. In developed and the developing world, obesity has gotten to a widespread degree (Derek, David & Kelly, 2006).

Globally, more women are obese than men (Rebecca & Benjamin, 2012). Overweight and obesity are seen as one of major leading threats for worldwide deaths (WHO, 2008). Oriare (1992) defined obesity as overweight. A primary obesity is the commonest type of obesity. An individual receives fat from food eating due to this genetic inheritance. Therefore, two people or more can consume the same amount of food, but may not have the same weight, while one may remain within his weight range, and the other may attain excess fat storage resulting to obesity called B-Secondary obesity (Uzor 1999). In a study conducted by Nkwoka, Egua, Abdullahi, 1Sabi'u and Mohammed (2014), it was observed that out 67% senior staff of the respondents, 8 (11.8%) respondents were obese, while non (0.0%) of the respondents of the remaining 33% junior staffs were obese.

According to World Health Organization (2008), more than over 10% adult globally were said to be obese as at 2008. In a study conducted in Katsina state Nigeria by Kolawole *et al.* (2011), a total of 29.8% females and 9.3 % male adults were seen to be obese. In another study carried out in Nepal, a total of 50% respondents were regarded obesity as a sign of prosperity (Prakash, Amudha, Padam, Raja & Lorma, 2011). In a study carried out by Awosan, Ibrahim, Sabir and Ejimodu (2013), incidence of obesity in Sokoto was much higher among the bankers, teachers and traders than the university staff. The frequency of combination obesity and overweight was 47% of the study population.

Obesity among the populace can also be as a result of excessive eating pattern. Obesity is rising particularly in adults and they are more possibly to die with 2-4 years younger than others in a healthy condition of the body and mind (Evidence Brief on Obesity 2014). According to Campbell (1994), malnutrition in early life is believed to

play a role in rising rate of obesity. NHMRC (2013) and Evidence Brief Obesity (2014) stated that obese adults can contract various diseases such as arthritis, back pain, respiratory difficulties, skin problems and sleep apnoea and other related risk, which can be deleterious to quality of life.

In a study conducted by Akinpelu, Oyewole and Oritogun (2008) in Ajoakuta metropolis, Nigeria, a high percentage of overweight/obesity was reported. A study conducted in Niger delta Nigeria, overweight and obese were also observed (Adienbo, Hart, & Oyeyemi 2012). Studies have also shown that females are usually at higher risk of overweight/obesity than their male counterpart (Ahaneku, *et al.* 2011; Fouda, *et al.* 2012; & Olatunbosun, Kaufman & Bella, 2011). Most studies have found that the incidence of overweight and obesity between rural and urban areas have no difference (Azmi 2009; Rampal *et al.* 2007; & (NHMS III) 2006). Suzana *et al.* (2012) have observed that elderly women are significantly obese than men.

According to (NHMS 2011), the nutritional status population studies identified that the educated people are less obese. Obesity is seen as a risk factor, adding to chance of having several major diseases. However, one group that are most commonly obese are the Administrative staff (Fatimah, Tahir, Siti Sa'adiah & Maimunah, 1999). Today, the two major causes for the frequency of obesity in Malaysia is the increase of available food and the consumption with insufficient physical activity (Mohd 2002). Urban male respondents meaningfully consumed more energy than their rural counterparts. Both men and women do consumed fat significantly in urban areas of China (Chee, *et al.* 1997). In a study conducted by Kabir *et al.* (2014) a total of 945 post-graduate students were surveyed in University Putra Malaysia (UPM), 44% had low physical activity as a result; they were meaningfully overweight or obese. Wan Nudri *et al.* (2009) established that men not engaging in exercise were more overweight than men who regularly engaged in exercises.

In studies conducted by Ayiesah *et al.* as cited Nor, *et al.* (2014), insufficient physical activities usually promote obesity among staff in a military hospital in Sepang. It recommended that working groups in the communities, schools, health care centers and workplaces should make it a point of duty to educate the population and take action (Strategy for the Prevention of 2005). Poh *et al.* (2006) found that working women in Kuala Lumpur were reasonably knowledgeable about healthy body weight management and that there were no difference between the normal weight and overweight women. School teachers were highly knowledgeable than civil servants in terms of weight management matters. The most available dietary weight loss strategy used was eating of more fruits and vegetables, reducing the amount of food eaten and

fatty food intake (Al-Qalah 2014). According to Akindele (1999), heart disease is a disorder that makes the heart to function irregularly.

Obesity is usually connected with health dangers in an individual (U.S. Department of Health and Human Services 2010 & Clinical 1998). Existence of obesity can be checked and observed when there is focus on the prevention of obesity (Ogden, Carroll, Kit & Flegal 2014). According to Murphy (2000), quality of food nourishing intake cum dieting and physical exercises help in the handling of obesity and also help to reduce the obesity level. Solid foods that are highly rich in fat and sugars can also help individual to be obese. According to Ogden, Carroll, Fryar, and Flegal, (2015), obesity was found to be 11.8% among in non-Hispanic Asian males and 5.3% of non-Hispanic Asian females. The rates of overweight and obesity have intensely increased due to over consumption of low-cost high kilojoule foods and insufficient daily physical activity levels which are as a result of sedentary life style (Obesity prevalence trends in Australia 2014).

According to Jaymen (2005), good diets are usually low fat diets and low-carbohydrate diets and found to generally promote weight loss. Genetics, diet and physical inactivity have been found to stimulate obesity (ANPHA, 2013) and obesity can jeopardise the health of an individual (Bouchard 2010). It is therefore in the light of this that this study examined the causes and the perceived preventive measures against obesity among workers in tertiary institutions in Oyo state.

2. Research Questions

1. Are you aware of the Causes of Obesity?
2. What are the diseases associated with obesity?
3. Are you aware of the preventive measures of possible obesity/ overweight among these workers?
4. Do you engage in any measure of preventing obesity and Overweight?

2.1 Hypothesis

H01: There is no significant difference in the involvement of preventive measures of possible obesity and overweight between male and female respondents in the tertiary institution.

3. Methodology

Descriptive survey design was employed for this study. The population for this study was the staff of the tertiary institutions in Oyo state. One hundred and twenty

respondents from the tertiary institutions were selected using accidental sampling technique. A total of 66 males and 54 females aged between 30 years and 61 years were used for this study. A well self - structured questionnaire was the instrument used for this study. The data obtained were analyzed using simple percentage counts and tables for the relevant information. Inferential statistics of t-test at 0.05 alpha level of significant was used to test the significant difference.

4. Results and Discussion

Table 1: Percentage distribution of respondents by sex, age and class

Items	Variables	Frequency	Percentage
Sex	Male	66	55.0
	Female	54	45.0
	Total	120	100.0
Age	30 years and below	16	13.3
	31-40 years	26	21.7
	41-50 years	32	26.7
	51-60 years	30	25
	61 years and above	16	13.3
	Total	120	100.0
Religion	Christian	36	30
	Muslim	78	65
	Others	06	05
	Total	120	100.0
Tertiary Institutions	College of Education	36	39.1
	Polytechnic	32	26.7
	University	52	34.2
	Total	120	100.0

Research question 1: Are you aware of the Causes of Obesity and Overweight?

Table 2: Percentage Distribution of Respondents showing awareness of the Causes of Obesity/over weight

S/N	Variables	Responses (%) No = 120			
		Agreed		Disagreed	
		No	%	No	%
1.	Hereditary from parents	76	63.3	44	36.7
2.	Excessive / over-eating pattern	86	71.7	34	28.3
3.	Increased consumption of cheap high kilojoule foods	82	68.3	38	31.7
4.	Lack of physical exercise/ recreation activities	99	82.5	21	17.5
5.	Excessive and energy food intake	75	62.5	45	37.5

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6.	Solid foods that are high in fat and sugars	86	71.7	34	28.3
7.	Reduced daily physical activity	72	60	48	40
8.	Sedentary life style	75	62.5	45	37.5
9.	Diseases	45	37.5	75	62.5
11.	Drug Use	67	55.8	53	44.2
12.	Indiscriminate eating in between meals	32	26.7	88	73.3

From table 2 above, it is shown that 75 (63.3%) respondents identified that hereditary from parents could be a cause of obesity/overweight. A total of 86 (71.7%) respondents signified that excessive / over-eating pattern can cause obesity/overweight. Increased consumption of cheap high kilojoule foods was also identified by 82 (68.3%) respondents as a cause of obesity/overweight. A total of 99 (82.5%) respondents said lack of physical exercise/ recreation activities said can lead to obesity/overweight. Excessive and energy food intake was also signified by 75 (62.5%) respondents to cause obesity/overweight. As regards solid foods that are high in fat and sugars, 86 (71.7%) respondents accepted. Reduced daily physical activity 72 (60%) respondents accepted that it can cause obesity/overweight, while 75 (62.5%) respondents were in favour of sedentary life style as a cause of obesity/overweight. This implied that the major causes of possible obesity/overweight are nutrition and lack of physical activities

Research question 2: What are the diseases associated with obesity and overweight?

Table 3: Percentage Distribution of respondents showing diseases associated with obesity/ overweight

S/N	Variables	Responses (%) No = 120			
		Agreed		Disagreed	
		No	%	No	%
1.	Hypertension	87	72.5	33	27.5
2.	Cancer (Breast in Woman, Prostrate in Cancer in Man)	35	29.2	85	70.8
3.	Diabetes	82	68.3	38	31.7
4.	High Cholesterol (excess fatty substance in Blood)	99	82.5	21	17.5
5.	Heart disease	59	49.2	61	50.8
6.	Sleep apnea	82	68.3	38	31.7
7.	Stroke	75	62.5	45	37.5
8.	Back pain	86	71.7	34	28.3
9.	Respiratory difficulties	84	70	36	30
10.	Joint problems	78	65	42	35
11.	Arthritis	16	13.3	104	86.7

Table 2 above shows that a total of 87 (72.5%) respondents identified that hypertension was associated with obesity. Eighty-two (68.3%) respondents signified that diabetes is a disease can be associated with obesity and overweight. High Cholesterol (excess fatty substance in Blood) was said to be a disease that can be associated with obesity and overweight with 99 (82.5%) respondents. As regards Sleep apnea, 82 (68.3%) respondents indicated that it was a disease connected with obesity and overweight. A total of 75 (62.5%) respondents signified that Stroke (a disease) could be associated with obesity and overweight. Back pain with 86 (71.7%) respondents was identified as a disease of obesity and overweight. Respiratory difficulties with 84 (70%) respondents and Joint problems with 78 (65%) respondents were indicated as diseases of obesity and overweight. This presented that there were many diseases were associated with possible obesity and overweight.

Research question 3: Are you aware of the preventive measures of possible obesity/ overweight among these workers?

Table 4: Percentage Distribution of respondents showing awareness of preventive measures of possible obesity/ overweight among these workers by gender

S/N	Variables	Male 66 %		Female 54 %	
		Agreed No %	Disagreed No %	Agreed No %	Disagreed No %
1.	Eating of moderate and three square meal in a day	50 (41.7)	16 (13.3)	44 (36.7)	10 (8.3)
2.	Eating of balanced diet/ quality of diet intake.	52 (43.3)	12 (10)	44 (36.7)	10 (8.3)
3.	Moderate and energy food intake	46 (38.3)	20 (16.7)	38 (31.7)	16 (13.7)
4.	Regular physical exercises/ Recreation activities	56 (46.7)	10 (8.3)	46 (38.3)	08 (6.7)

Table 4 above showed that 50 (41.7%) male respondents and 44 (36.7%) female respondents were aware that eating of moderate and three square meal in a day will be a prevent measure for possible obesity/ overweight. A total of 52 (43.3%) male respondents and 44 (36.7%) female respondents were aware that eating of balanced diet/ quality of diet intake will prevent possible obesity/ overweight, while a total number of 56 (46.7%) male respondents and 46 (38.3%) female respondents were aware that regular physical exercises/ Recreation activities will serve as a preventive measure

for possible obesity/ overweight. This implied that the respondents were much more aware of preventive measure for possible obesity/ overweight.

Research question 4: Do you engage in any measure of preventing obesity and Overweight?

Table 5: Percentage Distribution of respondents' involvement in measures of preventing possible obesity and overweight

S/N	Variables	Male 66 %		Female 54 %					
		Agreed		Disagreed		Agreed		Disagreed	
		No	%	No	%	No	%	No	%
1.	Eating of moderate and three square meal in a day	8	(6.7)	58	(48.7)	12	(10)	42	(35)
2.	Eating of balanced diet/ quality of diet intake.	18	(15)	48	(40)	14	(11.7)	40	(33.3)
3.	Moderate and energy food intake	24	(20)	42	(35)	20	(16.7)	34	(28.3)
4.	Regular physical exercises/ Recreation activities	6	(13.3)	60	(41.7)	12	(10)	42	(35)

Table 5 above shows that many of the respondents both male and female never involved or engaged in measures that can prevent possible obesity and overweight particularly regular physical exercises/ recreation activities despite the fact that they were aware of the preventive measures attributed to possible obesity and overweight.

Research Hypothesis 1: There is no significant difference in the involvement of preventive measures of possible obesity and overweight between male and female respondents in the tertiary institution.

Table 6: t-test analysis of significance difference in the involvement of preventive measures of possible obesity and overweight between male and female respondents in the tertiary institution

Variables	N	Mean	Std	Df	t-cal	P	Df	Decision
Male	55	12.185	16.351	79	1.000	3.211	3	N.S
Female	45	12.028	17.322					

Table 6 above showed the descriptive and t-test analysis of significant difference in the involvement of preventive measures of possible obesity and overweight between male and female respondents in the tertiary institutions. To test if the difference observed

was statistically significant, t-test analysis was used to test. The data analysis showed the calculated t-test calculated value 1.000, $p = 3.211$, $df = 3$, $p > 0.05$ alpha level. Based on this result, the null hypothesis which stated that there is no significant difference in the involvement of preventive measures of possible obesity and overweight between male and female respondents in the tertiary institution was accepted.

5. Discussion of findings

From the findings, it was presented research question 1 that the major causes of possible obesity/overweight are nutrition and lack of physical activities which is given as sub-headings as shown in research question table 1. This is in line with the studies conducted by Ayiesah *et al.* as cited Nor, et al (2014) that insufficient physical activities usually promote obesity among staff in a military hospital in Sepang, and Al-Qalah (2014) who stated that today, the two major causes for the frequency of obesity in Malaysia is the increase of available food and the consumption with insufficient physical activity (Mohd 2002).

Another finding on research question 2 presented that many diseases were associated with obesity and overweight. This finding agrees with NHMRC (2013) and Evidence Brief Obesity (2014) stated that obese adults can contract various diseases such as arthritis, back pain, respiratory difficulties, skin problems and sleep apnoea and other related risk, which can be deleterious to quality of life. But the finding contradicts the afore-mentioned authors that Cancer (Breast in Woman, Prostrate Cancer in Man) with 35 (29.2%) respondents and Arthritis with 16 (13.3%) respondents believed that these two were not diseases of obesity and overweight.

Further finding showed that very many of the respondents were aware of the two major preventive measures which are nutrition and Regular physical exercises/ Recreation activities. The finding correlates with Murphy (2000), that quality of food nourishing intake cum dieting and physical exercises help in the handling of obesity and also help to reduce the obesity level. This agrees with Jaymen (2005), that good diets which generally promote weight loss are low fat diets and low-carbohydrate diets

Another finding showed that many of the respondents both male and female never involved or engaged in measures that can prevent possible obesity and overweight particularly regular physical exercises/ recreation activities despite the fact that they were aware of the preventive measures attributed to possible obesity and overweight. This is in agreement with Wan Nudri *et al.* (2009) who established that men who do not engaged in exercise were more overweight than men who regularly engaged in exercises.

Finally, it was observed in one of the findings that there was no significant difference in the involvement of preventive measures of obesity between male and female respondents in the tertiary institution. This implied that the way the male and female. This contradicts Studies conducted by Ahaneku, et al. (2011); Fouda, et al. (2012); & Olatunbosun, et al (2011), which showed that females are usually at higher risk of overweight/obesity than their male counterpart. And also in agreement with Wan Nudri *et al.* (2009) who established that men who do not engaged in exercise were more overweight than men who regularly engaged in exercises.

6. Conclusion

Based on the results, the following conclusions were drawn:

- Majority of the respondents were aware of the causes of possible obesity and overweight.
- Majority of the respondents were aware of the diseases associated with possible obesity and overweight.
- Majority of the respondents were aware of the preventive measures of possible obesity and overweight.
- Majority of the respondents did not engage in any measure or forms of preventing of possible obesity and overweight.
- Lastly, there was no significant difference in the involvement of preventive measures of possible obesity and overweight between male and female respondents in the tertiary institution.

7. Recommendations

The following recommendations were generated:

- There should be enlightenment programme organized through mass media (radio and Television) for a health living and to change their pattern of living of the general populace by the 3 tiers of the government.
- There should be health seminar / or health talk organized by the government but monitored by the health officers.
- Recreation centres should be built in the public places around the towns and villages with well-equipped and standardized equipment and facilities by the government for effective recreation and exercise should also be done.
- Well-furnished recreation centres should also be available by the government in the tertiary institutions for the workers.

- The authority of the private tertiary institutions should also provide recreation centres for their workers.

References

1. Adienbo O. M., Hart V. O. & Oyeyemi W. A. (2012). [High Prevalence of Obesity among Indigenous Residents of a Nigerian Ethnic Group: The Kalabarisin the Niger Delta Region of South-South Nigeria. Greener Journal of Medical Sciences 2: 152-156.](#)
2. Akindele, S. R. (1999). Human Obesity with Control, Calabar Gabumopress, Ltd;
3. Akinpelu A. O., Oyewole O. O. & Oritogun K. S. (2008) [Overweight and Obesity: Does It Occur In Nigerian Adolescents in an Urban Community? International Journal of Biomedical and Health Sciences 4:11-17.](#)
4. Ahaneku G. I., Ahaneku, Osuji C. U., Anisiuba B. C. & Ikeh V. O., et al. (2011) Evaluation of blood pressure and indices of obesity in a typical rural community in eastern Nigeria Annals of African Medicine. Annals of African Medicine. 2011;10(2):120–126. [[PubMed](#)]
5. Al-Qalah Saaj, Ghazi H. F., Zaleha M. I. & Karim N. A. (2014). Dietary weight loss practice among government working women who successfully lose weight in Malaysia. Pakistan Journal of Nutrition; 13(8): 486-91.
6. Australian National Preventive Health Agency (ANPHA) (2013). State of Preventive Health 2013. Report to the Australian Government Minister for Health. Canberra; ANPHA,
7. Awosan K. J., Ibrahim M. T. O., Sabir A. A. & Ejimodu P. (2013). Awareness and prevalence of risk factors of coronary heart disease among teachers and bankers in Sokoto, Nigeria. Journal of. Medical Science. 4(9): 335-342
8. Ayiesah R., Leonard J. H., Vijaykumar P. & Mohd Suhaimy R. (2013). Obesity and habitual physical activity level among staffs working in a Military Hospital in Malacca, Malaysia. The International Medical Journal Malaysia; 12(1): 53-8.
9. Azmi M. Y., Junidah R., Siti Mariam A., Safiah M. Y., Fatimah S., Norimah A. K., et al. (2009) Body Mass Index (BMI) of adults: findings of the Malaysian Adult Nutrition Survey (MANS). Malaysian Journal of Nutrition; 15(2): 97-119.
10. Bouchard, C. (2010) "Defining the Genetic Architecture of the Predisposition to Obesity: A Challenging but not Insurmountable Task." *The American Journal of Clinical Nutrition*, vol. 91, no. 1, 2010, pp. 5–6.
11. Campbell, S. (1994): Increasing Prevalence of Overweight and Nutrition. Examination Survey, Research Report II 1960 -1991, 272:

12. Chee S. S., Ismail M. N., Ng K. K. & Zawiah H. (1997). Food intake assessment of adults in rural and urban areas from four selected regions in Malaysia. *Malaysian Journal of Nutrition*; 3: 91-102.
13. Chhatwal J., Verma M. & Riar S. K. (2004). Obesity among pre-adolescent and adolescents of developing country (India). *Asian Pacific Journal of Clinical Nutrition*. 13(3): 231-235.
14. Derek Y., David S. & Kelly D. B. (2006). Epidemiologic and economic consequences of the global epidemics of obesity and diabetes. *Nature Med*. 12 (1):62-66.
15. Evidence Brief on Obesity: Prevalence Trends in Australia (2014). Promoting a Health Australia Australian National Preventive Health Agency. Canberra City ACT 2601 www.anpha.gov.au Retrieved 16-03-2017
16. Fatimah S., Tahir A., Siti Sa'adiah H. N. & Maimunah A. H. (1999). Nutritional Status of Adults Aged 18 Years and above. National Health and Morbidity Survey 1996, Volume 14. Institute of Public Health, Ministry of Health: Malaysia.
21. Fouda A. A., Lemogoum D., Manga J. O., Dissongo J., Tobbit R., et al. Epidemiology of obesity in the work milieu, Douala, Cameroon. *Rev Med Brux*. 2012 May-Jun; 33 (3):131–137. [[PubMed](#)]
22. Ibrahim N., Moy F. M., Awalludin I. A., Ali Z. & Ismail I. S. (2014). The health-related quality of life among pre-diabetics and its association with body mass index and physical activity in a semi-urban community in Malaysia- across sectional study. *BMC Public Health*; 14(1): 298.
23. Institute for Public Health (2008). The Third National Health and Morbidity Survey (NHMS III) 2006, Nutritional Status. Ministry of Health, Malaysia.
24. Institute for Public Health. National Health and Morbidity Survey 2011 (NHMS 2011) Vol II, Non-communicable Diseases; 2011.
25. Kabir S., Salmiah M. S. & Suriani I. (2014). Prevalence and factors associated with overweight and obesity among Malaysian post graduate students in a public university. *International Journal of Public Health and Clinical Sciences*; 1(1): 131-40.
26. Kolawole W., Wahab M., Sani U., Bashir O. Y., Maruf G., Akeem G. & Mamud I. Y. (2011). Prevalence and determinants of obesity- a crosssectional study of an adult Northern Nigerian population. *Int. Arch. Med*. 4:10.
27. Lim T. O., Ding L. M., Zaki M., Suleiman A. B., Fatimah S., Siti S., et al. (2000) Distribution of body weight, height and body mass index in a national sample of Malaysian adults. *Medical Journal of Malaysia* 2000; 55(1): 108-28.

28. Mohd Ismail N. (1991). The nutrition and health transition in Malaysia. *Public Health Nutrition* 2002; 5:191-195. (Government of Malaysia. Sixth Malaysia Plan, 1991-1995. Kuala Lumpur: National Printing Press, 1991).
29. National Health & Medical Research Council (2013). *Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults*. Canberra: NMHRC. Available from: <http://www.nhmrc.gov.au/guidelines/publications/n57> Retrieved 16-03-2017
30. Nkwoka I. J., Eguwa M.O., Abdullahi M., Sabi'u A. & Mohammed A. I. (2014). Overweight and obesity among staff of Usmanu Danfodiyo University, Sokoto, Nigeria *Educational Research* (ISSN: 2141-5161) Vol. 5(8) pp. 290-295,
31. Nor Afiah M. Z., Suriani I., Abdul Hakim M. S., Simmadorai R. & Nor Shahida Akhma M. S. (2014). Influence of eating behaviours and psychosocial factors on overweight and obesity among medical students in a public university in Malaysia. *International Journal of Public Health and Clinical Sciences*; 1(1): 151-9.
32. Olatunbosun S. T., Kaufman J. S. & Bella A. F. (2011). Prevalence of obesity and overweight in urban adult Nigerians. *Obes Rev.* Apr; 12(4):233–241. [[PubMed](#)]
33. Ogden C. L., Carroll M. D., Kit B. K. & Flegal K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011–2012. *JAMA* 311(8):806–14.
34. Ogden, L. C., Carroll, D. M., Fryar, C. D. & Flegal, K. M., (2015). Prevalence of Obesity Among Adults and Youth: United States, 2011–2014 NCHS Data Brief No. 219, November 2015. Retrieved 17/03/2017
35. Oriare, C. U. (1992): How obesity affects your Well-Being, Nigeria Medical Association. ISA, (673).
36. Osuji C. U., Anisiuba B. C., Ikeh V. O., et al. Evaluation of blood pressure and indices of obesity in a typical rural community in eastern Nigeria *Annals of African Medicine*. *Annals of African Medicine*. 2011;10(2):120–126. [[PubMed](#)]
37. Poh B. K., Sia P. H., Norimah A. K. & Mohd Ismail N. (2006). Pengetahuan pengurusan berat badan di kalangan wanita bekerja di Kuala Lumpur. *Malaysian Journal of Health Sciences*; 4(1): 71-84.
38. Puepet F. H., Zoakah A. I. & Chuhwak E. K. (2002) [Prevalence Of Overweight And Obesity Among Urban Nigeria Adults In Jos. Highland Medical Research Journal 1: 13-16.](#)
39. Prakash S., Amudha P., Padam P. S., Raja A. & Lorna A. (2011). Knowledge, attitude, and prevalence of overweight and obesity among civil servants in Nepal. *Asia Pacific Journal of Public Health*.23(4):507-517

40. Strategy for the Prevention of Obesity - Malaysia. Malaysian Association for the Study of Obesity, 2005.
41. Wan Nudri W. D., Wan Abdul Manan W. M. & Mohamed Rusli A. (2009). Body mass index and body fat status of men involved in sports, exercise, and sedentary activities. *Malaysian Journal of Medical Science*; 16(2): 21-26.
42. World Health Organization (WHO, 2008). Technical report series: obesity: preventing and managing the global epidemic. Geneva: world health organization.
43. Rampal L., Rampal S, Khor GL, Zain AM, Ooyub SB, Rahmat RB, *et al.* (2007) A national study on the prevalence of obesity among 16,127 Malaysians. *Asia Pacific Journal of Clinical Nutrition* 2007; 16(3): 561-6.
44. Rebecca K., Benjamin C (2012). Global Gender Disparities in Obesity: A Review. *Adv Nutr* vol. 3: 491-498
45. Suzana S., Kee C. C., Jamaludin A. R., Noor Safiza M. N., Khor G. L., (2012). The Third National Health and Morbidity Survey: prevalence of obesity, and abdominal obesity among the Malaysian elderly population. *Asia Pacific Journal of Public Health* 2012; 24(2): 318-29.
46. The impact of chronic disease in Nigeria. www.who.int/chp/chronic_disease_report/en/
47. Uzor, S.K. (1991): Obesity. Nigeria. *Guardian*, June 6, 24.
48. U.S. Department of Health and Human Services, Office of the Surgeon General. The surgeon general's vision for a healthy and fit nation. Rockville, MD: 2010.

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