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Knowledge and Perception of Health Consequences of Obesity in a Nigerian Secondary School

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Abstract

Background: *Obesity has created a global burden for public health. Adolescents seem to be ignorant of the risk factors and complications associated with obesity. Proper knowledge, perception and practice in terms of behavioural modification, physical activity and nutrition seem lacking amidst these young ones. The aim of this study was to assess the knowledge and perception of health consequences of obesity of secondary school students of Excel Kings and Queens College, Ile Ife, Nigeria.*

Methods: *It was a cross sectional study that made used of 66 pre-tested, self-administered questionnaires to assess the knowledge and perception of health consequences of obesity. Collated data were analysed with descriptive and inferential statistics.*

Results: *The result showed that the most secondary school students' knowledge about obesity is still low and below average and their perception about health consequences of obesity is still poor.*

Conclusion: *We concluded that, there is need to improve on this aspect as to reduce the increase in obesity high prevalence noticed in the world today. This then can reduce the burden of public health as regards the problems associated with obesity.*

Keywords: *Obesity, Perception and Knowledge.*

Introduction

Obesity is reported to be a leading preventable cause of death. The increase in the prevalence of obesity among the adolescents is an emerging public health problem in the world. It poses a serious global epidemic and is a significant threat to human existence (Zhang et al, 2014). Obesity is expressed as a medical condition adverse health consequence and is equally associated with morbidity and mortality (Gomez-Ambrosi et al, 2012). This complex revolves round factors like, environments, genetics, social and behaviours. Obesity is a chronic, relapsing, progressive disease process that requires intervention (Bray et al, 2017).

The prevalence of obesity worldwide is on the increase. It is estimated at 14-20% in industrialised nations. In Kamataka, Mangalathil et al (2014) reported that the prevalence ranges from 8.0 to 10.8%. Also, 11% of prevalence was reported for children and adolescents in India. Abah et al, (2012) reported1% prevalence rate of obesity among adolescents considered in their study. A study reported by Beyen et al (2013) in Ethiopia showed 5.4% prevalence of overweight and 0.5% for obesity in the adolescent population considered.

In the United State prevalence among adolescents was found to be 13.9%, Hu et al, (2018). Obesity poses the risk to some major chronic diseases such as diabetes, heart disease, depression, premature death and many cancers (Hu and Hruby 2015; WHO 2018; Puepet et al, 2002; Zhang et al, 2014; Flegal et al, 2010; Awan et al, 2014).

Significance of the study

The prevalence of obesity worldwide is on the increase. It is estimated at 14-20% in industrialised nations. Less is known about basic knowledge of obesity, its risk factors, complications and associated morbidities, disease action and mortality and the need for urgent intervention among the secondary school students.

Understanding the knowledge gaps and perceptions of obesity are paramount to inform and lead to the development of appropriate targeted health education and promotion campaigns to prevent obesity and its complications among the population at risk. To the best of my knowledge and through extensive review of literature, there is no study conducted to evaluate knowledge and perceptions of health consequences of obesity among these sets of students in Ile Ife, Osun, state Nigeria.

Statement of problem

Obesity is said to be associated with morbidity and mortality in significant manner. The morbidity includes cardiovascular, gastrointestinal, respiratory, psychosocial and endocrine morbidities. In Nigeria, obesity is a major challenge among /across all age with its associated morbidity and mortality. The purpose of the study is to assess the knowledge and perceptions of health consequences of obesity among secondary school students of Excel Kings and Queen College, Ile Ife, Osun state, Nigeria.

Research objectives

1. Assess level of knowledge of health consequences of obesity among secondary school students of Excel Kings and Queens College, Ile Ife, Nigeria.
2. Assess level of perceptions of health consequences of obesity among secondary school students of Excel Kings and Queens College, Ile Ife, Nigeria.
3. To correlate knowledge score and perception of secondary school students.
4. To find out association between knowledge score and some demographic variables.
5. To find out association between perception score and some demographic variable.

Literature review

Obesity is seen as a major threat to public health with its prevalence on an alarming rate. Obesity is linked to a range of psychological and physiological health conditions that affects severely and impairs health as well as quality of life of humans. It is reported that about2 billion people are overweight and about a third of them is obese. Obesity is reported to have high contribution to global incidence of coronary health disease, hypertension, type II diabetes, cardiovascular diseases, cancer, osteoarthritis, work disability, social and emotional problems, etc (Filkelste et al 2005; Baillargeon et al, 2005; Afshin et al, 2017).

Adolescent's knowledge and perception about obesity risk factors and its complication is very poor. Rendon-Macias et al (2014) in the children population considered in Mexico perceived obesity as a negative condition that affects health and social performance. In a study carried out by in Saudi Arabia among male secondary school students, the knowledge of obesity was rated as 12% good knowledge, 59% fair knowledge and 29% had bad knowledge. He reported about 93% of the student's population considered to have below average knowledge in relation to obesity with a score less than 50%. In the work by Oyewande et al, (2019), it was reported that 14.4% of the respondents agreed that obesity can lead to diabetes, 11.8% agreed perceived that obesity's effect can be that of social bullying. The work concluded that, the respondents had low knowledge and negative perception about risk factors of overweight. Ben Bassey et al (2007) reported about 93% of the student's population considered had below average knowledge in relation to obesity with a score less than 50%. The work concluded that, the respondents had low knowledge and negative perception about risk factors of overweight.

In a study published by Arilewola (2017), it was reported that about 42.1% of the respondents scored less than 50% scoring between 0-4 on a scale of 0-10 and reported to have poor knowledge, while about 58% had good knowledge having a score above 50%. Abah et al (2012) in their study reported that majority, about 68% of adolescents studied had poor knowledge about risks associated with

obesity and its health consequences.

In like manner, Mangalathil et al, (2014), Ndahayo, (2017), Haghani et al (2017) Alotaibi et al, (2019) all reported low awareness and poor knowledge. Ranjit-Kaur et al (2014) found 67% of the students having inadequate knowledge.

Methods

Research design, study area and population

It is a cross sectional study conducted to assess the knowledge and perception of health consequences of obesity among secondary school students of Excel Kings and Queens, Ile Ife Nigeria. This study was carried out in a private school, a very well-known school in Opa, Ile ife. Ile Ife a popular ancient city in Osun state, south Western part of Nigeria. The study population is made of the secondary school students of the junior classes (JSS I-JSS3) and senior classes (SSS1-SS3) both boys and girls.

Ethical consideration

Permission was obtained from the State Ministry of Education Zonal Ofice, school principals and informed consent sought from the students. Permission to conduct the study was sought and granted by the Ethics and research committee of Obafemi Awolowo University Teaching Hospital Complex.

Sample size determination/method

The available 104 students at the time of data collection were recruited for the study, based on sample of convenience. A sample of 104 students of Excel Kings and Queens secondary school, Opa, Ile Ife comprising of 46(43.8%) male and 56 (53.3%) female. The age ranged from 9-19 years. Respondents were assured of the confidentiality of the information obtained from the questionnaire.

Data collection

Data was collected from the respondents through the use of a pretested 66 item designed, anonymous, self-administered questionnaire, having open and close ended questions. The questionnaire was divided into three major sections. Section A, has 8 questions focused on demographic and information on obesity and source of information on obesity, as well as the meaning of BMI.

Section B has 30 questions focused on the health consequences of obesity which was modified from Obesity Risk Knowledge (ORK 10) having Cronbach valve of 0.9. The questions are multiple choice with three options responses. A score of 1 for correct response and 0 score for wrong and don't know answers.

The total score for knowledge is 30. Section C has 28 questions on their perception about health consequences of obesity. It was structured/modified from illness perception scale and has a Cronbach value of 0.7. score of 1 goes for correct answers and 0 for wrong answer/Not sure response. The total score for perception is 28.

Data analysis

The questionnaires filled were well collated and analysed and presented using descriptive statistics such as simple percentages, frequency, range and mean where applicable. Inference statistics was also used to determine the association between socio-demographic variables, knowledge and perception. Correlation coefficient was determined between knowledge and perceptions of secondary school students of Excel Kings and Queens, Ile Ife to health consequences of obesity using Pearson product moment correlation coefficient. SPSS 17 was used to analyse data.

Results

Demographic Characteristics of study population

A total of 104 secondary schools' students of Excel Kings and Queens College, Ile Ife participated in the study in which 46(44.2%) were males and 56 (53.8%) females. Majority (56.7%) of the respondents were in the age range 13-16.

The result revealed that the highest percentage of students were from the JSS2 class (23.1%). Highest percentage were Christians (89.4%) and (91.3%) were from Yoruba Ethnicity. About (73.1%) reported to have had about obesity before. The highest (53.8%) source of information was from secondary school. All (100%) did not know the meaning of BMI as reflected in Table 1.

Knowledge score of respondents about health consequences of obesity

For the knowledge score, the total score obtainable is 30. The minimum score was 3 and highest score obtained was 26, mode is 17 as seen in table 2a. The mean knowledge score is 14.43, SD is -/+ 5.024. The boys had higher/good knowledge level than girls with mean values of (15.15+/-5.469 and 13.86+/-4.550) respectively, however, no significant difference.

The highest score of 26 was from an SSS 3 class and the lowest score of 3 from a JSS3 pupil. Table 2b reveals the knowledge level, majority of the respondents 58, representing (55.7%) had below average knowledge about health consequences of obesity. About 32.8% had average knowledge and 11.6% had good knowledge.

Perception score of health consequences of obesity

The total obtainable score is 28. The highest obtained score was 26, minimum was 2. The mean perception score was 14.94+/-4.374. The girls had higher perception score (15.00+/-4.549) as compared to the boys (14.93+/-4.250). The highest score of 26 was from SSS3 while the minimum of 2 was from a JSS3 class. The minimum score of 2 was in the age range (13-16) and likewise the highest score of 26 was from the age ranged (13-16). The perception of the respondents was generally low and poor. A total of 74 (71.2%) had poor perception about health consequences of obesity. Only 30(28.8%) had good perception as seen in table 3b.

Table 1. Demographic characteristics of the study population

S. No	Variables	Frequencies (F)	Percentages (%)
1	**Age in years**		
	9-12	42	40.4
	13-16	59	56.7
	17-20	2	1.9
	Nil response	1	1.0
2	**Sex**		
	Male	46	44.2
	Female	56	53.8
	Nil response	2	1.9
3	**Class**		
	JSS1	13	12.5
	JSS2	24	23.1
	JSS3	21	20.2
	SSS1	21	20.2
	SSS2	12	11.5
	SSS3	13	12.5
4	**Religion**		
	Christianity	93	89.4
	Islam	08	7.7
	Others	00	0.0
	Nil response	03	2.9
5	**Tribe**		
	Yoruba	95	91.3
	Igbo	3	2.9
	Hausa	0	0.0
	Others	6	5.8
6	**Have you heard of obesity before?**		
	Yes	76	73.1
	No	24	23.1
	Nil response	4	3.8
7	**Source of information:**		

	Primary school	9	8.7
	Secondary school	56	53.8
	Relative and family members	3	2.9
	Friends	1	1.0
	Newspaper and magazines	3	2.9
	Doctor/health care practitioner	3	2.9
	Nil response	29	27.9
8	**What is the meaning of BMI?**		
	Nil response/don't know	104	100

Table 2a. Table showing the knowledge scores of respondents

Knowledge score	Frequency	Percentage
3	1	1.0
5	2	1.9
6	2	1.9
7	4	3.8
8	7	6.7
9	4	3.8
10	5	4.8
11	8	7.7
12	6	5.8
13	5	4.8
14	6	5.8
15	8	7.7
16	6	5.8
17	11	10.6
18	6	5.8
19	6	5.8
20	5	4.8
21	1	1.0
22	7	6.7
23	1	1.0
24	2	1.9
26	1	1.0

Mean score 14.43+/-5.024, Minimum 3, Maximum 26

Table 2b. Frequency and percentage distribution of knowledge level

Level of knowledge	Knowledge score	Range of score	Percentage frequency (%)
Good	70-100	21-26	11.6
Average	51-69	16-20	32.8
Below average	<50	3-15	55.7

Minimum score =3 Maximum score =26

Table 3a. Table showing the perception scores of the respondents

Perception score	Frequency	Percentage (%)
2	1	1.0
5	1	1.0
6	1	1.0
7	2	1.9
8	4	3.8
9	2	1.9
10	8	7.7
11	5	4.8
12	5	4.8
13	4	3.8
14	14	13.5
15	6	5.8
16	10	9.6
17	11	10.6
18	6	5.8
19	10	9.6
20	4	3.8
21	6	5.8
22	2	1.9
23	1	1.0
26	1	1.0

Mean perception score 14.94+/-4.374 Minimum 2 Maximum 26

Table 3b. Perception level

Level of Perception	Perception score (%)	Range of score	Percentage frequency (%)
Good	61-100	18-28	28.8
Poor	0-60	0-17	71.2

Table 4. Responses on knowledge of obesity health consequences

S/N	Questions on Knowledge of Obesity Health Consequences	Yes	No	Don't know
1	Consumption of Refined foods like Bread and Biscuits can cause obesity	51 (49.0%)	42 40.4%	11 (10.6%)
2	Age, race and gender are risk factors of obesity	30 (28.8%)	68 (65.4%)	6 (5.8%)
3	Low income and unemployment can predispose to obesity	37 (35.6%)	57 (54.8%)	10 (9.6%)
4	Lack of adequate/insufficient physical activities can cause obesity	80 (76.9%)	20 (19.2%)	4 (3.8%)
5	Genetic disposition/parent characteristics is a causative factor of obesity	59 (56.7%)	31 (29.8%)	14 (13.5%)
6	Obesity is caused by certain medications	39 (37.5%)	55 (52.9%)	10 (9.6%)
7	Obesity predisposes to diabetes	54 (51.9%)	25 (24.0%)	25 (24.0%)
8	Hormonal problems and certain medical conditions can cause obesity	47 (45.2%)	28 (26.9%)	29 (27.9%)

9	Obesity is caused by consumption of sugar sweetened beverages	69 (66.3%)	22 (21.2%)	13 (12.5%)
10	Ignorance and lack of education can predispose to obesity	51 (49.0%)	38 (36.5%)	15 (14.4%)
11	Environment plays a major role in obesity	52 (50.0%)	40 (38.5%)	12 (11.5%)
12	Obesity can cause heart diseases	57 (54.8%)	30 (28.8%)	17 (16.3%)
13	Obesity is associated with menstrual irregularities	44 (42.3%)	31 (29.8%)	29 (27.9%)
14	Obesity may increase the risk of getting breast cancer after menopause	48 (46.2%)	28 (26.9%)	28 (26.9%)
15	Osteoarthritis can result from obesity	44 (42.3%)	23 (22.1%)	37 (35.6%)
16	Obesity predisposes to dyslipidemia in the body	47 (45.2%)	30 (28.8%)	27 (26.0%)
17	Obesity is a risk factor for Hypertension	48 (46.2%)	39 (37.5%)	17 (16.3%)
18	Obesity predisposes to body pain and difficulty with physical function	70 (67.3%)	25 (24.0%)	9 (8.7%)
19	Mental illness and medical disorders are related to obesity	33 (31.7%)	55 (52.9%)	16 (15.4%)
20	Truncal obesity is better than generalised body fat distribution in terms of causing cardiovascular problems	51 (49.0%)	30 (28.8%)	23 (22.1%)
21	Obese people have a higher social problem compared to non-obese	61 (58.7%)	24 (23.1%)	19 (18.3%)
22	Obesity can predispose to asthma	38 (36.5%)	54 (51.9%)	12 (11.5%)
23	Obesity can predispose to cancers	51 (49.0%)	37 (35.6%)	16 (15.4%)
24	Obesity predisposes to stroke	59 (56.7%)	32 (30.8%)	13 (12.5%)
25	Obesity can lead to low self-esteem and low self confidence	64 (61.5%)	26 (25.0%)	14 (13.5%)
26	Breathing problems and sleep apnea can be caused by obesity	58 (55.8%)	29 (27.9%)	17 (16.3%)
27	Low quality of life can result from obesity	45 (43.3%)	38 (36.5%)	21 (20.2%)
28	Complications of pregnancy can arise as a result of obesity	45 (43.3%)	40 (38.5%)	19 (18.3%)
29	Obesity is a risk factor for kidney problem	48 (46.2%)	32 (30.8%)	24 (23.1%)
30	Obesity is associated with premature death	51 (49.0%)	37 (35.6%)	16 (15.4%)

Table 5. Respondents answers to perception questions

S/N	Perception Questions	Yes	No	Not sure
1	Obesity can affect one's daily activities	74	17	13
		(71.2%)	(16.3%)	(12.5%)
2	Obese people are easily prone to bully	60	25	19
		(57.7%)	(24.0%)	(18.3%)
3	Obesity is preventable	64	23	17
		(61.5%)	(22.1%)	(16.3%)
4	Obesity does not have negative social and emotional consequences in life	43	44	17
		(41.3%)	(42.3%)	(16.3%)
5	Involvement in physical activities can reduce obesity	72	23	9
		(69.2%)	(22.1%)	(8.7%)
6	Obese people may be lazy	66	31	7
		(63.5%)	(29.8%)	(6.7%)
7	Obesity is a medical condition	60	29	15
		(57.7%)	(27.9%)	(14.4%)
8	There is a lot those with obese can do to control their weight	75	19	10
		(72.1%)	(18.3%)	(9.6%)
9	Difficult breathing is usually not associated with obesity	51	33	2
		(49.0%)	(31.7%)	(19.2%)
10	Obese people find difficult to control their eating habit	74	23	7
		(71.2%)	(22.1%)	(6.7%)
11	Obese people are often isolated	51	37	16
		(49.0%)	(35.6%)	(15.4%)
12	Obese people are usually irritable	54	30	20
		(51.9%)	(28.8%)	(19.2%)
13	Obese people do not engage in activities	61	32	11
		(58.7%)	(30.8%)	(10.6%)
14	Obesity is sign of bad luck	49	38	17
		(47.1%)	(36.5%)	(16.3%)
15	Obesity is a sign of family problem	44	48	12
		(42.3%)	(46.2%)	(11.5%)
16	Obesity is a temporary than permanent condition	56	30	18
		(53.8%)	(28.8%)	(17.3%)
17	Obesity can be caused by individual's behaviour	41	47	16
		(39.4%)	(45.2%)	(15.4)
18	Obesity runs in the family	45	38	21
		(43.3%)	(36.5%)	(20.2%)
19	Obesity may lead to serious financial consequences	60	32	12
		(57.7%)	(30.8%)	(11.5%)
20	Modification of diet and life pattern can reduce overweight/obesity	64	20	20
		(61.5%)	(19.2%)	(19.2%)
21	Physical activity can help reduce my weight	85	13	6
		(81.7%)	(12.5%)	(5.8%)
22	Anybody can be obese at any time no one has control over his/her body	60	28	16
		(57.7%)	(26.9%)	(15.4%)
23	Obese people can have mental disorders.	30	54	20
		(28.8%)	(51.9%)	(19.2%)
24	Obesity is a sign of good living	23	66	15
		(22.1%)	(63.5%)	(14.4%)

25	Obesity can result in being angry, scared, upset or depressed	48 (46.2%)	35 (33.7%)	21 (20.2%)
26	Obesity is deadly if nothing is done about it	57 (54.8%)	30 (28.8%)	17 (16.3%)
27	Obesity has no treatment/cure	29 (27.9%)	55 (52.9%)	20 (19.2%)
28	Obesity is a great concern.	59 (56.7%)	23 (22.1%)	22 (21.2%)

Table 6. Correlation between knowledge and perception level

Correlations			
Knowledge level		**Knowledge level**	**Perception level**
	Pearson Correlation	1	.315**
	Sig. (2-tailed)		.001
	N	104	104
Perception level	Pearson Correlation	.315**	1
	Sig. (2-tailed)	.001	
	N	104	104
****. Correlation is significant at the 0.01 level (2-tailed)**			

Table 7. Table showing association of socio demographic variables with knowledge and perception

Variables	**N**	**%**	**Knowledge**			**Perception**		
			X2	**df**	**P**	**X2**	**df**	**P**
Age								
9-12	42	40.4	2.085	4	.720	3.223	2	200
13-16	59	56.7						
17-20	2	1.9						
Nil response	1	1.0						
Sex								
Male	46	44.2	3.608	2	.165	0.446	1	504
Female	56	53.8						
Nil response	2	1.9						
Class								
JSS1	13	12.5	37.538	10	.000*	14.576	5	.012*
JSS2	24	23.1						
JSS3	21	20.2						
SSS1	21	20.2						
SSS2	12	11.5						
SSS3	13	12.5						
Religion								
Christianity	93	89.4	3.527	2	.171	1.231	1	.267
Islam	08	7.7						
Others	00	0.0						
Nil response	03	2.9						
Ethnicity								
Yoruba	95	91.3	3.534	4	.473	1.439	2	.487
Igbo	3	2.9						
Hausa	0	0.0						
Others	6	5.8						
Have you heard of obesity before?								

Yes	76	73.1	0.942	2	.624	4.176	1	.041*
No	24	23.1						
Nil response	4	3.8						
Source of information								
Primary school	9	8.7	6.823	12	.869	10.303	6	.112
Secondary school	56	53.8						
Relative/ family members	3	2.9						
Friends	1	1.0						
Newspaper and magazines	3	2.9						
Doctor/health care practitioner	3	2.9						
Nil response	29	27.9						

Significant difference. $\alpha < 0.05$.

Discussion

This study was conducted to assess the level of knowledge and perception of health consequences of obesity of students of Excel Kings and Queens College. The sex distribution favours more girls than boys. Girls education seem to be on the increase, and similar to the works of Ndahayo (2018) and Arilewola (2017). Many Christians more than other religion, showing it as the religion more practised in that environment. Yoruba respondents were more, probably as a result of the location of the study. Majority of the respondents have heard about the word obesity before, similar to the work of Mangalathil et al (2014) and highest percentage source of information came from secondary schools. This maybe as result of probably being taught in the school.

Majority of the respondents 58, representing (55.7%) had below average knowledge about health consequences of obesity. About 32.8% had average knowledge and 11.6% had good knowledge. (table 2a and 2b). The result agrees with the work of Oyewande et al (2019), Abah et al (2012) and Ben Bassey (2007) who found the knowledge of adolescents to be poor in the study they conducted. The work seems at variant with Arilewola (2017) and Adebimpe, (2019) who reported good knowledge. This variance may be due to the questionnaire used and the population considered. The respondents also had low/poor perception about the health consequences of obesity (table 3b). This is in agreement the work of Oyewande et al (2019), who reported that the student's population considered had negative/low perception about obesity. Many of the students responses on knowledge about obesity were, age , race and gender are risk factors of obesity 30(28.8%).Obesity can predispose to cancers 51(49.0%), Obesity is a risk factor for kidney problem, 48(46.2%,) Obesity can predispose to asthma, 38(36.5%), Obesity is a risk factor for Hypertension, 48(46.2%, Obesity is caused by certain medications, 39(37.5%), Obesity may increase the risk of getting breast cancer after menopause, 48(46.2%) as seen in (table 4).

Many of the students perception about obesity were: Obesity is sign of bad luck, 49(47.1%), Obesity can be caused by individual's behaviour, 41(39.4%), Obesity runs in the family, 45(43.3%), Obesity has no treatment/cure, 29(27.9%) as seen in(table 5). There was significant correlation between knowledge and perception of the respondents. (table 6). As observed in table 7, only class was significantly associated with knowledge. This related to the work of Oyewande et al (2019) and Arilewola (2017). Class was also associated with Perception, related to Oyewande et al (2019). Their prior information about obesity before was also associated with their perception similar to the work Mangalathil et al (2014) who found 'heard of obesity' to be associated with attitudes of the students.

Conclusion

Secondary school students' knowledge about obesity is still low and below average and their perception about health consequences of obesity is still poor. There is need to improve on these aspect as to reduce the increase in obesity high prevalence noticed in the world today. This then can reduce the burden of public health as regards the problems associated with obesity.

Recommendation

There is need to involve all means of communication in passing information (bill boards, hand bills, radio, television) regarding the danger associated with obesity. Mothers, teachers and government needs to do something fast to reduce this increasing prevalence. Also, further study can be carried out to assess the perception and knowledge of parents, teachers and government officials as regard obesity. More schools can also be assessed.

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