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Attitude and Barriers to the Management of Childhood and Adolescent Obesity

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Abstract

Background: Attitude and barriers to the management of childhood and adolescent obesity were assessed.

Methodology: This study was conducted in 3 places. This includes: University of Nigeria Teaching Hospital, Ituku-Ozalla, Ogbete Main Market Enugu and Ituku village all in Enugu state. The primary data were collected from members of the respondents through the use of structured questionnaires administered personally by the researchers. A sample of 200 respondents was chosen which included civil servants traders, farmers, housewives, students, and contract workers. The data analysis was performed using statistical package for social sciences (SPSS) version 16. Frequency distributions were run on all variables and were completed separately for each occupational group.

Result: shows that amongst the respondents, 22% believed that childhood and adolescent obesity increases the risk of obesity in adulthood, 9.5% believed that it is the leading cause of pediatrics hypertension, 15% said that it is associated with type II diabetes in adulthood, 9.5% believed that it increases the risk of coronary heart disease, 2% said that it increases the stress of weight bearing joints, 25% believed that it lowers self esteem, and affects the relationships with peers while 7% believed that childhood and adolescent obesity has negative impact on child health. Also, it was found that amongst the accepted methods used in the management of childhood and adolescent obesity, 53% of the respondents accepted dietary method, 39.5% accepted physical activity, 6.5% accepted pharmacological therapy while 1% accepted bariatric surgery. Among the accepted methods, it shows that dietary method is more likely accepted, followed by physical activity (39.5%), Pharmacological therapy (13%) and bariatric surgery (2%) respectively. Significant differences were found among the accepted methods ($P < 0.05$). Amongst the unaccepted methods bariatric surgery was more likely not be accepted, followed by pharmacological therapy, physical activity and dietary management respectively and the acceptance differs significantly ($P < 0.05$).

Keywords: Attitude, Barriers, Management, Childhood, Adolescent, Obesity

Introduction

Proper nutrition entails that the nutrient supplied by food/diet must be eaten in adequate quantity and quality in order to ensure the maintenance of good health. Inadequate nutrient intake will result to malnutrition and associated nutritional disorders. Malnutrition could be as a result of undernutrition or over-nutrition. Obesity is a form of malnutrition which can lead to serious health problems including cardiovascular disease, diabetes mellitus and hypertension [(1)].

Childhood and Adolescent Obesity is a medical condition that affects children and adolescents. It is characterized by a weight well above the mean for their height and age and a body mass index of 30.00kg/m^2 and above. Childhood Obesity is considered by many to be "epidemic" in both developing and developed countries. [(2)].Body Mass Index (BMI) is currently the preferred standard for evaluating weight status in children. A BMI greater than the 95th percentile for age is strongly indicative of Obesity in children and adolescents. An association between obesity in childhood and adult weight increases with the age of obesity onset. The earlier the age of onset of obesity, the greater the likelihood and severity of obesity and its long-term health complications.

Obesity during adolescence is particularly unfortunate because it is likely to diminish the individual's self esteem and, consequently, can exclude him/her from the normal social life of the teen years.

Although numerous studies have been done on causes of Obesity, the cause of Obesity is difficult to determine. Heredity is believed to play a role. Just as one inherits height, colour of the hair, it appears that

one also inherits the tendency to obesity. Overfeeding and early introduction of solid foods during infancy and childhood also could be a contributing factor. Once one becomes obese, the obesity itself contributes further to the problem. [3] The problem of Obesity during adolescence is especially difficult to solve until the individual involved makes the independent decision to lose weight. [4] Also, obesity management is not only achieved when a patient attains an ideal body weight but also when small weight losses can reduce obesity risk factors for clinic diseases such as diabetes and hypertension. [5]

Immediate action should be taken to prevent excess weight gain in childhood and adolescents who are already obese. Prevention is the best option in improving the action of treatment. Prevention avoids the pitfalls of dieting in children: possible negative impact on growth and development, body image distortion, learning restrictive eating practices, eating disorders and inappropriate control by adults to a child's intake. [5] Obesity tends to "track" throughout life, meaning that its presence at any age will increase the risk of persistence at subsequent ages. [6]

Good nutrition and healthy lifestyle should be encouraged in order to prevent the occurrence of this disease. Where the disease has already occurred, proper management is essential in order to maintain good nutritional status, correct deficiencies that has already occurred, afford rest to the whole body or certain organs that may be affected, adjust the food intake to the body's ability to metabolize the nutrients and bring about changes in the weight whenever necessary. [1]

This research work was triggered off because the rapidly increasing prevalence of childhood and adolescent obesity is becoming a challenging dilemma facing pediatric care professionals today. Childhood and adolescent obesity are important risk factors for adult obesity, with consequent morbidity and mortality. [7] A variety of adverse consequences are associated with being obese in childhood or adolescence, including but not limited to type 2 diabetes mellitus, dyslipidema, hypertension, and poor self esteem. Type 2 diabetes mellitus currently accounts for up to 45% of all newly diagnosed diabetes in pediatric patients and it is more common in ethnic and racial groups with higher rates of Obesity. [7 – 10]

Obesity can also be seen in association with a wide variety of genetic and endocrine disorders, the signs and symptoms which include hypogonadism, short stature, dysmorphic features, and mental retardation. The high prevalence of childhood and adolescent obesity, coupled with the short term and potential long-term health implication, has emphasized the need for obesity related clinical services including assessment, management and preventive care for children and adolescents. Pediatric Obesity is one of the most pressing health problems facing children and adolescents today. However, surprisingly, little is known about the public attitudes, perceived barriers and management of childhood and adolescent obesity. Despite the efforts in the management of childhood and adolescent obesity, [9 – 10] a number of barriers still interfere with the management of the disease condition.

This study is generally aimed at identifying the attitudes and barriers to the management of childhood and adolescent obesity.

The specific objectives were to assess the underlisted parameters among members of the public specifically, civil servants, traders, housewives, farmers etc:

I. Attitudes, Perceived barriers, Perceived skill level and training needed in the management of childhood and adolescent obesity.
II. Differences in attitudes, and barriers amongst different occupational groups.
III. Preferred sources of information used to manage obese children and adolescents.
IV. Preferred weight reduction strategies used for the management of obese children and adolescents.

The significance of this research work can never be over-emphasized.

I. Collection and analysis of this data on the attitudes and barriers to the management of childhood and adolescent obesity would serve as a knowledge base for all concerned with the care and management of childhood obesity; physicians, pediatrics nurse, registered dietitians and other healthcare professionals.
II. Since little is known about the attitudes and barriers of members of the public, the information obtained from this research work will help concerned professionals know more about the attitudes and barriers which interfere with the treatment of obesity.

III. Information gathered on the barriers and attitudes would invariably, stimulate strong interest in training programmes that could improve the quality and outcome in obesity prevention and management.
IV. Finally, the results of this study would also provide direction and priority areas for training, education and advocacy efforts.

MATERIALS AND METHODS

Study Area and Design

This study was conducted in 3 sites which included: University of Nigeria Teaching Hospital, Ituku-Ozalla, Ogbete Main Market Enugu state and inside Ituku village all in Enugu State.

Method of Data Collection

The primary data was collected from the public respondent through the use of structured questionnaire administered personally by the researchers. A 4-page questionnaire was administered to a random sample of 200 respondents including the civil servants traders, farmers, housewives, students, and contract workers.

The questionnaires contained many questions that will reveal attitudes and barriers to the management of childhood and adolescent obesity. It has different sections that will reveal all the elements of the attitudes and barriers like their personal data, occupational data, data on meaning of obesity, data on problem of obesity, data on attitudes and barriers, and data on the sources of information preferably used to manage obesity.
The questionnaires contained the following information which were obtained from the respondents: background information, socioeconomic status, problems of childhood and adolescent obesity, preferred methods for the mnanagement of obesity, their attitudes to the management of obesity and perceived barriers to the management of childhood and adolescent obesity.

Data Analysis

The data analysis was performed using statistical package for social sciences (SPSS) version 16. Frequency distributions were run on all variables and were completed separately for each occupational group.

Results Presentation

Background Information

Table 1 (a –c) : Background information of the respondents

(a)

Religion	Frequency	Percentage (%)
Christianity	198	99.00
African traditional religion	2	1.00
Total	**200**	**100.00**

(b)

Ethnic Group	Frequency	Percentage (%)
Igbo	188	94
Yoruba	4	2
Others	8	4
Total	**200**	**100.00**

(c)

Age (years)	Frequency	Percentage (%)
18 – 22	14	17
23 – 27	70	35
28 – 32	80	40
33 – 37	8	4
38 – 48	20	10
42 and above	8	4
Total	**200**	**100.00**

Table l (a) which has the background information shows that 99.0% of the respondents were Christians while only 2% of the respondents practiced African traditional religion.

Table 1(b) also shows that 94.0% of the subjects were Igbo, 2.0% were Yorubas while the remaining 4.0% belonged to other ethnic groups.

Table 2 (a – b): Socio-Economic Information

(a)

Education	Frequency	Percentage (%)
Primary	24	12
Secondary	82	41
NCE/Diploma	6	3
Graduate	46	23
Post Graduate	38	19
Others	4	2
Total	**200**	**100.00**

(b)

Occupation	Frequency	Percentage (%)
Civil Servant	144	72
Farmers	4	2
Traders	12	6
House Works	30	15
Others	10	5
Total	**200**	**100.00**

Table 2(a) shows that 12.0% of the respondents had primary education, 41.0%, had secondary education, 3.0% had National Certificate of Education(NCE)/Diploma level of education, 23% represented those that have B.Sc. level while 19% were post graduate students and the rest (4%) belonged to other levels of education.

Table 3: Problems of childhood and adolescent obesity

	Problems	Frequency	Percentage (%)
1	It means the risk of obesity in adulthood	44	22
2	It is the leading cause of pediatrics hypertension	19	9.5
3	It is associated with type II diabetes in adulthood	30	15
4	It increases the risk of coronary heart disease	39	19.5
5	It increases the stress of weight bearing joints	4	2
6	It lowers self esteem, and affects the relationships with peers	50	25
7	Non	14	7
	Total	**200**	**100.00**

Table 3 shows that amongst the respondents, 22% believed that childhood and adolescent obesity increases the risk of obesity in adulthood, 9.5% believed that it is the leading cause of pediatrics hypertension, 15% said that it is associated with type II diabetes in adulthood, 9.5% believed that it increases the risk of coronary heart disease, 2% said that it increases the stress of weight bearing joints, 25% believed that it lowers self esteem, and affects the relationships with peers while 7% believed that childhood and adolescent obesity has negative impact on child health.

Significant differences were found amongst the problems of Obesity (22%, 9.5%, 15%, 9.5%, 2%, 25%, and 7%) ($P < 0.05$).

Table 4: Whether childhood and adolescent obesity should be cherished or cherished with reason

Cherish	Frequency	Percentage (%)
Yes	13	6.5
No	187	93.5
Total	**200**	**100.00**

Table 4 shows that 93.5% of the respondents said that childhood and adolescent obesity should not be cherished with the belief that it predisposes the child to a lot of health problems amongst which are coronary

heart disease, increases the risk of obesity in adulthood, causes pediatrics hypertension, associated with type II diabetes mellitus in adulthood, it lowers self esteem and affects the relationship with peers, causes psychological problem while 6.5% believed that obesity should be cherished in children and adolescents with the prediction that an adolescent who is obese is easily regarded and married in the society than those adolescents who are not obese.

Significant differences were found between those correspondents who cherished obesity and those who did not cherish obesity (6.5 vs 93.5), ($P < 0.05$). Table 5: Preferred methods used in the management of childhood and adolescent obesity.

Table 5: Preferred methods used in the management of childhood and adolescent obesity

	Accepted		Not Accepted	
Methods	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Dietary Management	106	53	94	47
Physical Activity	79	39.5	121	60.5
Pharmacological Therapy	13	6.5	187	93.5
Bariatric Surgery	2	1	198	99
Total	**200**			**100.00**

Table 5 shows that amongst the accepted methods used in the management of childhood and adolescent obesity, 53% of the respondents accepted dietary method, 39.5% accepted physical activity, 6.5% accepted pharmacological therapy while 1% accepted bariatric survey. From the accepted methods, it shows that dietary method is most likely accepted, followed by physical activity (39.5%), Pharmacological therapy (13%) and bariatric surgery (2%) respectively.

Significant differences were found among the accepted methods ($P < 0.05$). Amongst the unaccepted methods bariatric surgery was most likely not be accepted, followed by pharmacological therapy, physical activity and dietary management respectively and the acceptance differs significantly ($P < 0.05$).

Table 6 (a – e): Attitudes to the Management of Childhood and Adolescent Obesity

(a) Childhood and Adolescent Obesity is a condition that needs treatment

Attitude	Frequency	Percentage (%)	Cumulative Percent
Most of the time	74	37.0	37.0
Often	52	26.0	63.0
Sometimes	46	23.0	86.0
Rarely	18	9.0	95.0
Never	10	5.0	100.0
Total	**200**	**100**	

(b) It affects chronic disease risk and future quality of life

Attitude	Frequency	Percentage (%)	Cumulative Percent
Most of the time	86	43.0	43.0
Often	42	21.0	64.0
Sometimes	26	13.0	77.0
Rarely	12	6.0	83.0
Never	34	17.0	100.0
Total	**200**	**100**	

(c) Obese children and adolescents would outgrow being obese

Attitude	Frequency	Percentage (%)	Cumulative Percent
Most of the time	12	6.0	6.0
Often	4	2.0	8.0
Sometimes	26	13.0	21.0
Rarely	86	43.0	64.0
Never	72	36.0	100.0
Total	**200**	**100**	

(d) Childhood Obesity is more amenable to treatment than adult Obesity

Attitude	Frequency	Percentage (%)	Cumulative Percent
Most of the time	50	25.0	25.0
Often	18	9.0	34.0
Sometimes	36	18.0	52.0
Rarely	62	31.0	83.0
Never	34	17.0	100.0
Total	**200**	**100**	

(e) Childhood Obesity is a health problem

Attitude	Frequency	Percentage (%)	Cumulative Percent
Most of the time	120	60.0	60.0
Often	18	9.0	69.0
Sometimes	20	10.0	79.0
Rarely	14	9.0	7.0
Never	28	14.0	100.0
Total	**200**	**100**	

Table 6a shows that majority of the respondents felt that childhood and adolescent obesity is a condition that needs treatment most of the time (37.0%), 26.0 felt that it is often, 23% Sometimes, 9.0% rarely while 5.0% felt it does not need treatment. Significant differences were found amongst the degree of ranking or different response scale ($P < 0.05$).

Table 6b shows that majority of the respondents felt that childhood and adolescent obesity affects chronic disease risk and future quality of life (43.0%), most of the time, 21%, often, 13.0% sometimes, 6.0%), most of the time, 21%, often, 13.0% sometimes, 6.0% rarely 17.0% never (meaning that it does not affect chronic disease risk and future quality of life). Significant differences were also found amongst the response scales ($P < 0.05$).

Table 6c indicates that majority of the respondents felt that obese children and adolescents rarely and never outgrow being obese 43% and 36% respectively. Few of the respondents felt that they often and most of the time outgrow being obese, 7% and 6%, respectively. Finally, 13% felt that obese children and adolescents sometimes outgrow being obese. Significant differences were also found amongst the 5 response scales ($P < 0.05$).

Table 6(d), also shows that 31%; 25%, 18%, 17% and 9% of respondents felt that childhood obesity is more amenable to treatment than adult obesity rarely, most of the time, sometimes, never, and often respectively. All the response scales differed significantly from each other, ($P < 0.05$).

Table 6(e) shows that 60% of the respondents strongly believed that childhood and adult obesity is most of the time a health problem. 9.0%, 10%, and 7% felt it is a health problem often, sometimes and rarely respectively while] 4% felt that it is never a health problem. Significant differences were found amongst the response scales ($P < 0.05$).

Table 7 (a – j): Barriers to the management of childhood and adolescent obesity

(a) Lack of parents' involvement

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	70	35.0	35.0
Often	66	33.0	68.0
Sometimes	22	11.0	77.0
Rarely	26	13.0	92.0
Never	16	8.0	100.0
Total	**200**	**100**	

(b) Lack of patients' motivation

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	76	38.0	38.0
Often	54	27.0	65.0
Sometimes	30	15.0	80.0
Rarely	38	19.0	99.0
Never	2	1.0	100.0
Total	**200**	**100**	

(c) Lack of support services

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	62	31.0	31.0
Often	64	32.0	63.0
Sometimes	40	20.0	83.0
Rarely	22	11.0	94.0
Never	12	6.0	100.0
Total	**200**	**100**	

(d) Treatment Futility

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	22	11.0	11.0
Often	16	8.0	19.0
Sometimes	72	36.0	55.0
Rarely	74	37.0	92.0
Never	16	8.0	100.0
Total	**200**	**100**	

(e) Lack of Clinicians' time

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	24	12.0	12.0
Often	26	13.0	25.0
Sometimes	30	15.0	40.0
Rarely	88	44.0	84.0
Never	32	16.0	100.0
Total	**200**	**100**	

(f) Low proficiency in counseling skills

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	36	18.0	18.0
Often	34	17.0	35.0
Sometimes	70	35.0	70.0
Rarely	44	22.0	92.0
Never	16	8.0	100.0
Total	**200**	**100**	

(g) Environmental barriers like fast food, sugary drinks, unhealthy school meal/food, and inadequate physical activities

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	80	40.0	40.0
Often	40	20.0	60.0
Sometimes	32	16.0	76.0
Rarely	32	16.0	92.0
Never	16	8.0	100.0
Total	**200**	**100**	

(h) Cultural Influences

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	40	20.0	20.0
Often	18	9.0	29.0
Sometimes	46	23.0	52.0
Rarely	64	13.0	84.0
Never	32	16.0	100.0
Total	**200**	**100**	

(i) "Safety Concern", Lack of safe places for walking and running

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	28	14.0	14.0
Often	16	8.0	22.0
Sometimes	56	28.0	50.0
Rarely	52	26.0	76.0
Never	48	24.0	100.0
Total	**200**	**100**	

(j) Dietary factors such as the use of food as a behavioural reinforces

Response Scale	Frequency	Percentage (%)	Cumulative Percent
Most of the time	48	24.0	24.0
Often	30	15.0	39.0
Sometimes	52	26.0	65.0
Rarely	42	21.0	86.0
Never	28	14.0	100.0
Total	**200**	**100**	

Table 7a, shows that over half of the respondents stated that lack of parents' involvement as a barrier to the management of childhood and adolescent obesity occurs either most of the time or sometimes, 35% and 33.0%, respectively. Few of the respondents cited that it occurs sometimes and rarely, 11.0% and 13.0%, respectively while 8':0% believed that lack of parents' involvement does not have any negative effect on the management. Consequently, significant differences were found amongst the degrees of response ($P < 0.05$).

Table 7b, shows that over half of the respondents felt that lack of parents' motivation has great negative effect on the management of childhood and adolescent obesity 38.0% and 27.0%, respectively while 15% and 19.0% felt that it affects either sometimes or rarely, respectively. There were significant differences amongst the low response scale like most of the time, often sometimes, and rarely to compare with the 1.0% of the respondents who believed it does not have any negative impact towards the management of childhood and adolescent obesity ($P < 0.05$). Consequently, 1 % of the respondents differed insignificantly from 38%, 27%, 15% and 19% ($P > 0.05$).

Table 7c, indicates that majority of the respondents cited that lack of support services as a barrier occurs either most of the time or often, 31 % and 32%, respectively while 20% and 11.0% cited that it affects either sometimes or rarely, respectively. 6% of the subject believed that it is never a barrier to the management of childhood obesity. Significant differences were found amongst various degree of response ($P < 0.05$).

Table 7d, shows that majority of the respondents felt that treatment futility as a barrier towards the management of childhood and adolescent obesity occurs either sometimes and rarely, 36.0% and 37.0%, respectively while 11.0% and 8.0% believed that it occurs either most of the time or often. Few of the respondents believed treatment futility is never an important barrier towards the management of childhood and adolescent obesity. Significant differences were found amongst the degree of their response ($P < 0.05$). But between the two response scale (Often vs never) (8% vs 8%), are the same and differed insignificantly ($P > 0.05$).

Table 7e, indicates that 44.0% of the subjects cited that lack of clinicians' time as an important barrier rarely affect the management of childhood and adolescent obesity. 12%, 13%, 15% and 16% cited that it occurs most of the time, Often, Sometimes, and never, respectively. Significant differences were found amongst the degree of their response ($P < 0.05$).

Table 7f, shows that 35% of the respondents cited that low proficiency in - counseling skills affect the management of obesity sometimes while 18%, 17%, 22% and 80% believed that it occurs most of the time, often, rarely, and never, respectively. Significant differences were found amongst the respondent's degree of response ($P < 0.05$).

Table 7g, shows that 40.0% of the subjects felt that environmental barriers - affect the management of obesity most of the time while 20%, 16.0%, 16.0% and 8% felt that it occurs often, sometimes, rarely and never respectively. Significant differences were found amongst (40%, 20%, 8%) vs (16% and 16%) ($P < 0.05$). But 16% (sometimes) and 16% (rarely) differed insignificantly ($P < 0.05$).

Table 7h, indicates that 32% and 23% of the respondents cited that cultural influences as an important barrier occurs either rarely or sometimes while 20.0%, 9.0%, and 16.0%, believed that it occurs most of the time, often, and never, respectively. There were significant differences amongst the degree of response ($P < 0.05$).

Table 7i, shows that more than half of the respondents felt that "safety concern", lack of safe places for walking and running as an important barrier affecting the management of obesity either most of the time, sometimes or rarely, 28.% and 26%, respectively. 48% of the respondents felt that" safety concern" is never a barrier. Significant differences were found amongst the degree of response.

Table 7j, shows that 25%, 15.0%, 26.0%, 21 % felt that dietary factor, such as the use of food as a behavioural reinforcer is an important barrier to the - effective management of childhood and adolescent obesity occurs most of the time, often, sometimes, and rarely, respectively.' Consequently, 14% of the respondents felt that dietary factors are never a problem. Significant were also found amongst different degrees of response ($P < 0.05$).

Table 8 (a – j): Differences in Attitudes and Barriers amongst Different Occupational Groups

Barriers

(a) Lack of parents' involvement

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	30	60
	Housewife	5	10
	Trader	10	20
	Farmer	8	16
Often	Civil Servants	7	14
	Housewife	5	10
	Trader	5	10
	Farmer	10	20
Sometimes	Civil Servants	8	16
	Housewife	10	20
	Trader	13	26
	Farmer	12	24
Rarely	Civil Servants	5	10
	Housewife	15	30
	Trader	12	24
	Farmer	10	20
Never	Civil Servants	2	4
	Housewife	15	30
	Trader	10	20
	Farmer	10	20
Total		**200**	

Civil Servants = 50
Housewife = 50
Trader = 50
Farmer = 50

(b) Lack of parents' motivation

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	15	30
	Housewife	5	10
	Trader	4	8
	Farmer	2	4
Often	Civil Servants	10	20
	Housewife	5	10
	Trader	6	12
	Farmer	2	4
Sometimes	Civil Servants	10	20
	Housewife	5	10
	Trader	10	20
	Farmer	2	4
Rarely	Civil Servants	3	6
	Housewife	10	20
	Trader	10	20
	Farmer	2	4
Never	Civil Servants	2	4
	Housewife	15	30
	Trader	10	20
	Farmer	32	64
Total		**200**	

(c) Lack of support services

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	20	40
	Housewife	5	10
	Trader	10	20
	Farmer	4	8
Often	Civil Servants	10	20
	Housewife	5	10
	Trader	5	10
	Farmer	4	8
Sometimes	Civil Servants	10	20
	Housewife	5	10
	Trader	5	10
	Farmer	10	20
Rarely	Civil Servants	3	6
	Housewife	10	20
	Trader	20	40
	Farmer	18	36
Never	Civil Servants	7	14
	Housewife	25	50
	Trader	10	20
	Farmer	14	28
Total		**200**	

(d) Treatment Futility

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	20	40
	Housewife	5	10
	Trader	10	20
	Farmer	4	8
Often	Civil Servants	10	20
	Housewife	6	12
	Trader	4	8
	Farmer	4	8
Sometimes	Civil Servants	14	28
	Housewife	5	10
	Trader	5	10
	Farmer	11	22
Rarely	Civil Servants	2	4
	Housewife	10	20
	Trader	20	40
	Farmer	15	30
Never	Civil Servants	6	12
	Housewife	25	50
	Trader	10	20
	Farmer	14	28
Total		**200**	

(e) Lack of clinicians' time

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	25	50
	Housewife	5	10
	Trader	5	10
	Farmer	4	8
Often	Civil Servants	11	22
	Housewife	5	10
	Trader	4	8
	Farmer	4	8
Sometimes	Civil Servants	11	22
	Housewife	4	8
	Trader	5	10
	Farmer	10	20
Rarely	Civil Servants	2	4
	Housewife	10	20
	Trader	20	40
	Farmer	17	34
Never	Civil Servants	9	18
	Housewife	24	48
	Trader	11	22
	Farmer	14	28
Total		**200**	

(f) Low proficiency in counseling skills

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	30	60
	Housewife	4	8
	Trader	1	2
	Farmer	4	8
Often	Civil Servants	10	20
	Housewife	6	12
	Trader	4	8
	Farmer	4	8
Sometimes	Civil Servants	10	20
	Housewife	5	10
	Trader	5	10
	Farmer	11	22
Rarely	Civil Servants	2	4
	Housewife	10	20
	Trader	20	40
	Farmer	21	42
Never	Civil Servants	10	20
	Housewife	24	48
	Trader	11	22
	Farmer	14	28
Total		**200**	

(g) Environmental barriers like fast food, sugary drinks, unhealthy school meal/food and inadequate physical activities

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	10	20
	Housewife	7	14
	Trader	8	16
	Farmer	9	18
Often	Civil Servants	20	40
	Housewife	3	6
	Trader	12	24
	Farmer	11	22
Sometimes	Civil Servants	15	30
	Housewife	10	20
	Trader	5	10
	Farmer	5	10
Rarely	Civil Servants	4	8
	Housewife	3	6
	Trader	15	30
	Farmer	1	2
Never	Civil Servants	1	2
	Housewife	2	4
	Trader	10	20
	Farmer	14	28
Total		**200**	

(h) Cultural influences

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	20	40
	Housewife	20	40
	Trader	6	12
	Farmer	9	18
Often	Civil Servants	15	30
	Housewife	20	40
	Trader	10	20
	Farmer	10	20
Sometimes	Civil Servants	15	30
	Housewife	10	20
	Trader	8	16
	Farmer	5	10
Rarely	Civil Servants	-	-
	Housewife	-	-
	Trader	6	12
	Farmer	6	12
Never	Civil Servants	-	-
	Housewife	-	-
	Trader	14	28
	Farmer	20	40
Total		**200**	

(i) "Safety Concern", Lack of safe places for running

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	-	-
	Housewife	-	-
	Trader	-	-
	Farmer	2	4
Often	Civil Servants	-	-
	Housewife	-	-
	Trader	5	10
	Farmer	4	8
Sometimes	Civil Servants	-	-
	Housewife	-	-
	Trader	5	10
	Farmer	4	8
Rarely	Civil Servants	10	20
	Housewife	11	22
	Trader	5	10
	Farmer	5	10
Never	Civil Servants	45	90
	Housewife	40	80
	Trader	42	84
	Farmer	35	70
Total		**200**	

(j) Dietary Factors such as the use of food as a behavioural reinforcer

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	10	20
	Housewife	2	4
	Trader	1	2
	Farmer	3	6
Often	Civil Servants	20	40
	Housewife	3	6
	Trader	4	8
	Farmer	11	22
Sometimes	Civil Servants	15	30
	Housewife	10	20
	Trader	5	10
	Farmer	5	10
Rarely	Civil Servants	4	8
	Housewife	10	20
	Trader	15	30
	Farmer	2	4
Never	Civil Servants	1	2
	Housewife	25	50
	Trader	25	50
	Farmer	35	70
Total		**200**	

Table 8(a) shows that 60% of the Civil servants were more likely to cite lack of parents' involvement as an important barrier to the management of childhood and adolescent obesity than other occupational groups like the housewives (10%) traders (20%) and farmers (16%) who saw it as a less frequent barrier. Only 4% of the civil servants believed that lack of parents' involvement is never a barrier but greater number of the housewives (30%), traders (20%) and farmers (20%) also believed that it is never a barrier.

Table 8(b) shows that 30%, 20% and 20% of the Civil servants were more likely to believe that lack of parents' motivation occurs most of the time, often, and sometimes respectively more than other occupational groups like the housewives (10% and 10% traders (8%, 12% and 20%) and farmers (40b, 4% and 4%), respectively. However, 20% and 30% of the housewives believed that lack of patients' motivation is rarely and never an important barrier (20% and 30%). respectively, than other occupational groups, Civil servants (6% and 4%) and traders (20% and 20%). Significant differences were found amongst different occupational groups.

Table 8(c) shows that almost half (50%) of the housewives believed that lack of support services is never a barrier than other occupational groups, the Civil servants (14%), traders (20%), and fanners (28%). Traders were more likely to cite lack of support services as an important barrier to the management of childhood and adolescent obesity. Civil servants were less likely to cite lack or support services as a frequent barrier to occur most of the time and often (40% vs 20%), respectively, than other occupational groups. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 8(d) also shows that 50% of the housewives believes that lack or clinician time is never a barrier to the effective treatment of childhood obesity than other occupational groups, Civil servants, traders, and farmers, (20%, 21 % and 28%), respectively. Civil servants saw it as a frequent barrier with the prediction that it occurs most of the time (40%), often (20%), and sometimes (28%) while - other occupational groups believed that it occurs rarely and never than most of the time, often, and sometimes. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 8(e) indicates that, civil servants saw lack of clinicians' time as a frequent barrier than other occupational groups. Significant differences were found amongst difference occupational groups ($P < 0.05$).

Table 8(f) also shows that civil servants saw low proficiency in counseling skil1 as a frequent barrier which occurs most of the time (60%), Often (20%), and Sometimes than those of the housewives, traders, and farmers who reluctantly cited it as a less important to the management of childhood and adolescent obesity to

occur rarely and never (20%), respectively. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 8(g) shows that the Civil servants saw environmental barriers as a frequent harrier which occurs most of the time (20%). Often (40%) and sometimes (30%) housewives and traders who were more likely to believe that it occurs rarely and never, (20%), respectively. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 8(h) shows that those of the Civil servants and housewives saw cultural barrier as a frequent barrier which occurs most of the time (40% and 40%), Often (30% and 40%), and Sometimes (30% and 20%), respectively more than other occupational groups.

Table 8(i) shows that all the occupational groups believed that safety concern is rarely and never an important barrier to the management of obesity, (20%, 22%, 10%, and 10%), (90%, 80%, 84% and 70%), respectively.

Table 8(j) shows that Civil servants were more likely to cite dietary factors such as the use of food as behavioural reinforcer as an important barrier to the effective management of childhood and adolescent obesity which occurs most of the times (20%, 40% and 30%), respectively. In contrast, those of the housewives, traders and farmers took it as less important barrier with the prediction that is never an important barrier (50%, 50%, and 70%), respectively.

Table 9 (a – e): Attitudes to the Management of Childhood and Adolescent Obesity amongst Different Occupational Groups

(a) Childhood and Adolescent Obesity is a Condition that Needs Treatment

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	40	80
	Housewife	8	16
	Trader	22	44
	Farmer	5	10
Often	Civil Servants	3	6
	Housewife	-	-
	Trader	13	26
	Farmer	10	20
Sometimes	Civil Servants	5	10
	Housewife	-	-
	Trader	5	10
	Farmer	10	20
Rarely	Civil Servants	1	2
	Housewife	-	-
	Trader	5	10
	Farmer	15	30
Never	Civil Servants	0	0
	Housewife	50	100
	Trader	10	20
	Farmer	10	20
Total		**200**	

(b) It affects chronic disease risk and future quality of life

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	20	40
	Housewife	30	60
	Trader	25	50
	Farmer	-	-
Often	Civil Servants	25	50
	Housewife	10	18
	Trader	10	20
	Farmer	-	-
Sometimes	Civil Servants	5	70
	Housewife	10	20
	Trader	15	30
	Farmer	-	-
Rarely	Civil Servants	4	8
	Housewife	10	-
	Trader	10	20
	Farmer	10	20
Never	Civil Servants	1	2
	Housewife	14	28
	Trader	25	50
	Farmer	20	40
Total		**200**	

(c) Obese children and adolescents would outgrow being obese

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	40	80
	Housewife	-	-
	Trader	-	-
	Farmer	-	-
Often	Civil Servants	10	20
	Housewife	-	-
	Trader	-	-
	Farmer	-	-
Sometimes	Civil Servants	-	-
	Housewife	-	-
	Trader	-	-
	Farmer	15	30
Rarely	Civil Servants	3	6
	Housewife	14	28
	Trader	10	20
	Farmer	1	2
Never	Civil Servants	2	4
	Housewife	50	100
	Trader	40	80
	Farmer	49	98
Total		**200**	

(d) Childhood Obesity is more amenable to treatment than adult obesity

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	30	60
	Housewife	40	30
	Trader	10	20
	Farmer	18	36
Often	Civil Servants	20	40
	Housewife	10	20
	Trader	19	38
	Farmer	7	14
Sometimes	Civil Servants	-	-
	Housewife	-	-
	Trader	11	22
	Farmer	25	50
Rarely	Civil Servants	-	-
	Housewife	-	-
	Trader	-	-
	Farmer	-	-
Never	Civil Servants	-	-
	Housewife	-	-
	Trader	-	-
	Farmer	-	-
Total		**200**	

(e) Childhood Obesity is a health problem

Response	Occupation	Frequency	Percentage (%)
Most of the time	Civil Servants	30	60
	Housewife	-	-
	Trader	10	20
	Farmer	15	30
Often	Civil Servants	12	24
	Housewife	1	2
	Trader	10	20
	Farmer	2	4
Sometimes	Civil Servants	5	10
	Housewife	-	4
	Trader	10	20
	Farmer	8	16
Rarely	Civil Servants	2	4
	Housewife	5	10
	Trader	11	22
	Farmer	15	30
Never	Civil Servants	1	2
	Housewife	50	100
	Trader	50	100
	Farmer	50	100
Total		**200**	

Table 9(a) indicates that 80% of the Civil servants believed that childhood and adolescent obesity is condition that needs treatment most of the time, often, and sometimes, while 100% of the housewives believed that it does need any treatment, while 44%, 20% and 10% of the traders also believed it needs treatment most of the time, Often and Sometimes while 10% cited that it does not need treatment. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 9(b) indicates that those of the civil servants, housewives and traders believed that Obesity affects chronic disease risk and future quality of life most of the time (40%,60% and 50%), Often (50%,20% and 20%), and Sometimes (10%, 20% and 30%), respectively. Farmers believed that Obesity affects chronic

disease risk and future quality of life rarely (20%) and never (80%). Significant differences were found amongst different occupational groups.

Table 9(c) shows that only the Civil servants believed that obese children and adolescent would outgrow being Obese most of the time (80%) and sometimes (20%) while those of the housewives, traders and farmers cited that obese children and adolescents rarely and never outgrow being obese, (28%, 20% and 1%) vs (100%, 80% and 98%), respectively. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 9(d) shows that 100% of the occupational groups believed that childhood obesity is more amenable to treatment than adult obesity with the prediction that it occurs most of the time, often and sometimes. Significant differences were found amongst different occupational groups ($P < 0.05$).

Table 9(e) indicates that 100% of the housewives, farmers, and traders believed that childhood and adolescent obesity is never a health problem. In contrast, 100% of the civil servants cited that it is a health problem.

Table 10: Sources of Information That Would Be Used To Manage Obese Children and Adolescents

Method	Frequency	Percentage (%)
Past experiences	66	33
Workshops/seminars and continuing education methods	73	36.5
Computer-based programmes	40	20
Information from pharmaceuticals	21	10.5
Total	**200**	**100**

Table 10 indicates that the workshops, seminars and continuing education methods is the most preferred source which would be used in the management of childhood and adolescent obesity, 36.5% of the correspondents preferred past experience while 20% and 10.5% of the correspondents preferred Computer-based programmes and information from the pharmaceuticals, respectively. Significant differences were found amongst different occupational groups ($P < 0.05$).

Discussion

The most urgent challenge to nutritional health for the 21st century is addressing the epidemic of Obesity [10 – 11]. Reversal efforts towards the rising prevalence of childhood and adolescent obesity will require multifaceted healthcare professionals' partnership and interventions directed at health care settings, schools, communities, and the environment [12 – 15]. Health care professionals which are inclusive of Registered Dietitians have critical role to play in both prevention and treatment efforts. Immediate action must be taken to prevent excess weight gain during childhood and adolescence and to manage those children and adolescents who are already obese. Unfortunately, practitioners have few opportunities to learn the most current assessment and counseling strategies and behavioural management techniques for pediatric obesity treatment. Educational programs that teach counseling techniques in medical and residency training for physicians and in undergraduate and graduate training for nurses and Registered Dietitians will help develop skills in future practitioners.

This study shows that members of the public have different view over the weight reduction regimen which could be used to manage obese children and adolescents. The most preferred methods used by the public are dietary management and physical activity (Table 5). The result of this study also highlights some interesting differences amongst different occupational groups based on their view on obesity. The civil servants seemed to have more optimistic view of childhood and adolescent obesity and felt that intervention is necessary. It would be attributed to the fact that they are ignorant of the impact of obesity on health outcomes. This study revealed a lot of barriers and attitudes which interfere with the treatment efforts amongst which are lack of patients' motivation, lack of parents' involvement, lack of support services, treatment futility, lack of clinicians' time, low proficiency in counseling skills, environmental barriers, cultural influences, safety concern, and dietary factors such as the use of food as a behavioural reinforcer. Civil servants perceived more frequently barriers than other occupational groups (housewives, traders, and farmers), who seemed to have somewhat less optimistic attitudes and to perceive more barriers. The housewives were not concerned about the need for treatment because they cherished obesity and also pessimistic about the effectiveness of current treatment strategies.

Based on the attitudes towards the management of childhood and adolescent obesity, civil servants, farmers and traders believed that childhood obesity is a condition that needs treatment while the housewives believed that it does not need treatment. Only the civil servants believed that children and adolescents would outgrow their obesity while all the occupational groups indicated that childhood obesity is more amenable to treatment than adult obesity. This study also revealed that the most preferred sources of information which could be used to manage obese children and adolescents are past experiences 66%, and workshops/seminars and continuing education methods 73%. However, the strength of the study are the inclusion of 4 occupational groups (Civil servants, housewives, traders, and farmers). Additional research that replicates and extends the findings from this study should be conducted.

Conclusion

The process of childhood and adolescent obesity management covers spectrum ranging from prevention, to treatment of Obesity and its related conditions. Effective Obesity management strategies will need to address both elements through coordinated efforts. Educational efforts from residency and graduate training through continuing education should focus on assessment and counselling skills and behavioural strategies to change eating and physical activity patterns. Finally, there is a critical need for exploring strategies to reduce barriers to prevention and treatment services.

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