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Perception and Attitude of Nigerian Mothers towards Obesity

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Authors' contributions

All authors contributed to the study. Author BNT designed the study, conducted literature search, wrote the proposal, and designed the data collection tool. She also carried out the data analysis, created the charts and tables, wrote the abstract and the final manuscript. Author NU carried out literature search and wrote the initial draft of the manuscript. Author DI pilot-tested the data tool and supervised all data collection. Authors IM, CR and IO managed and executed data collection and carried out the measurements. Author CPT reviewed and corrected the data and carried out the data entry. All authors reviewed and approved the final manuscript.

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ABSTRACT

Background and Introduction: The incidence of Obesity and overweight appears to be on the increase in resource poor nations that previously had to battle infectious disease and under-nutrition only. Obesity is a cause of life threatening diseases and a leading cause of death in the developed world. The most effective way of tackling obesity and overweight is by helping the population understand its dangers and have an attitude that allows for healthy trim people. Since family history reflects genetic susceptibility and environmental exposures shared by close relatives, this study assessed the perception of and attitude to obesity among mothers in a tertiary center in a Nigerian city. This is on the background knowledge that children of obese parents who also have

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poor perception of obesity are at a higher risk for obesity and associated diseases.
Methods: The study was a cross sectional study of Nigerian mothers attending the immunization and child welfare clinic at the Institute of Child Health, University of Nigeria Teaching Hospital Enugu. Participants were enrolled consecutively after the research team had obtained ethical clearance from the hospital's Health Research Ethics Committee. Questionnaires were administered on 322 consecutive consenting Mothers attending the immunization Clinic.
Their perception and attitude were measured from a well-structured questionnaire alongside their body mass index (BMI) obtained from height (meters) and weight (Kg) measurement.
Results: The mean (standard deviation) and median weights were 71Kg (±13.4) and 69Kg respectively; while the mean (standard deviation) and median heights were 1.6m (0.1) and 1.6m respectively (Table 1). Two hundred and four (63%) of mothers were overweight/obese (112, 36% overweight, 87, 27% obese) while 118 (37%) had normal BMI. The median BMI was 26.9 and the median BMI class was the overweight class. Fifty nine (18%) and 65 (20%) mothers had not heard of overweight and obesity respectively. Eighteen percent and 16% of respondents correctly defined overweight and obesity in lay terms while 48% and 39% had no idea respectively (Fig. 2). Forty eight (24%) of the 204 overweight and obese respondents knew they were obese or overweight.
Twenty six participants (8%) perceived obesity as a sign of good living while 264 (84%) perceived it as not being good. Ninety four (29%) believed that nothing could be done about obesity since it is inherited. Forty seven (14.6%) subjects perceived their parents to be obese and 97% of these perceived obese parents were mothers. Of the 15 participants whose children were perceived to be obese, 86% had one affected child while 14% had 2 affected children.
Conclusion: Awareness of overweight/obesity and prevention is low in the studied population and the incidence of obesity is high. A good proportion of mothers also had perceived obese parents and children. There is poor perception of body size among the obese/overweight participants. Intensive and sustained media campaign should be carried out by both government and non-government agencies to enlighten the general public on the dangers and complications including death that arise from obesity and overweight. Also, appropriate policy action and implementation will likely help to address obesity in the country of study.

Keywords: Body Mass Index (BMI); Institute of Child Health (ICH); obesity; overweight; perception; mothers.

1. INTRODUCTION

Obesity refers to a body mass index (BMI)≥ 30 while overweight refers to a BMI of between 25-29.9 [1]. Obesity also refers to a person who has accumulated so much fat that it impairs the person's health or a person who weighs 20% more for age, height, sex and race [1]. BMI is a statistical measurement derived from a person's height and weight [1]. Obesity has assumed a global pandemic status. In developed countries, it is viewed as a serious life-threatening disease and efforts have been made to create a high level of awareness. Overweight/obesity is a leading risk for global deaths. About three and half million people die annually as a result of being overweight/obese [1].

However, in developing countries where under nutrition, kwashiorkor and marasmus are still taking a toll on the population including children, not much attention has been given to obesity and overweight. Data has however shown that there is a double burden of disease in developing countries consisting of diseases of the poor as well as diseases of the affluent. With reference to malnutrition in particular, a double burden of under nutrition and over nutrition is being documented. However, awareness has remained very low as many cultural and ethnic beliefs, as well as widespread ignorance contribute to rising incidence of obesity in the developing countries. The incidence of obesity is not only rising among adults in developing countries but also among children.

It is also thought that obese mothers may have obese children if they do not see their weight as a health challenge as they will indulge their children in unhealthy life style that predisposes to obesity.

Since family history reflects genetic susceptibility and environmental exposures shared by close relatives, this study assessed the perception of and attitude to obesity among mothers in a tertiary center in a Nigerian city. This is on background knowledge that children of obese

parents who also have poor perception of obesity are at a higher risk for obesity and associated diseases than the general population [2]. The objective of this study is therefore to assess the perception of and attitude to obesity among mothers in Enugu, Nigeria.

2. METHODS

The study was a cross sectional study. Mothers attending the immunization clinic at the Institute of Child Health, University of Nigeria Teaching Hospital, who gave consent, were consecutively enrolled until a sample size of 322 was reached. The questionnaire return rate was 100%, although a few questions were not answered by some participants.

An interviewer-administered questionnaire (which was pretested) was used to collect relevant data. The information obtained includes socio-demographic data (name, age, ethnicity, religion, education, occupation); knowledge about obesity and overweight, attitude to overweight/obesity, associated diseases, treatment and prevention, if parents and children are overweight or obese, whose responsibility to prevent obesity (study questionnaire is available on request).

Informed consent was obtained from eligible mothers and ethical clearance was obtained from the University of Nigeria Teaching Hospital Enugu (UNTH) Health Research Ethics Committee.

Participants were weighed on a stadiometer (RGZ-120, Jiangsu Suhong Medical instruments Co. China) with light clothing. The stadiometer was standardized each day using a standard five kilogram weight. The height was read off without the head gear and shoes, with the back of the head, buttocks, shoulders and heels all touching the stadiometer. Weight was measured in Kilogram and height in meters. The BMI (kg/m^2) was calculated, documented immediately and classified as underweight if BMI was less than 18.5, normal weight if 18.5-24.9, overweight 25-29.9, and obese if ≥30.

Data analysis was done using the GraphPad Prism version 5 after data entry into Microsoft Excel 2010. Data are presented in tables, charts and prose. Continuous variables are expressed as mean and standard deviation while dichotomous and nominal variables are expressed as frequencies and percentages.

3. RESULTS

A total of 322 mothers were enrolled. Of the 322 study subjects, 314(97.5%) were Igbos, one participant was Hausa, while seven (2%) were classified as others. Three hundred and twenty participants (99%) were Christians while two did not volunteer their religion. Thirty-one (9.7%) had primary education, 141(44%) had secondary education, 148(46%) had tertiary education (1 no-formal-education and 1 nil response). Majority of the mothers were traders (80, 25%), civil servants (63, 20%) and self-employed (62, 19%). One hundred and eighty one (61%) had one to two children, 101 (34%) had three to five children, while 16(5%) had more than five children.

The mean (standard deviation) and median weights were 71Kg (±13.4) and 69Kg respectively; while the mean (standard deviation) and median heights were 1.6m (0.1) and 1.6m respectively (Table 1). Two hundred and four (63%) of the mothers were overweight/obese (112, 36% overweight; 87, 27% obese) while 118 (37%) had normal BMI. The median BMI was 26.9 and the median BMI-class was the overweight class (Tables 1 and 2, Figs. 1a and 1b). Fifty nine (18%) and 65 (20%) mothers had not heard of overweight and obesity respectively. Eighteen percent and 16% of respondents correctly defined overweight and obesity while 48% and 39% had no idea respectively (Fig. 2). Forty eight (24%) of the 204 overweight and obese respondents knew they were obese or overweight.

Table 1. Mothers' weight, height and BMI

	Mean	**±SD**	**Median**
Weight	71	13.4	69
Height	1.6	0.1	1.6
BMI	27.5	4.5	26.9
Body Mass Index (BMI)			
BMI Class	N	%	
Underweight	0	0	
Normal weight	118	37	
Overweight	117	36	
Obese	87	27	
	322	100	

On causes of overweight and obesity, mothers responded “yes” or “no” to each option and 92% of participants said yes to lack of physical activity, 91% to eating more than the body requires, 88% to taking more starchy foods, 85% to taking too much fast food, 80% to taking too

much sugary drink, and same proportion agreed that spending many hours on television and video was a cause (Fig. 3). The balance of these proportions did not agree that these factors contribute to overweight/obesity. Seventy-seven percent attributed its cause to inheritance while 58% attributed it to unhealthy food being cheap and 54% to healthy food being expensive, 48% perceived drug as a cause of overweight and obesity while 19% attributed age as a cause (Fig. 3).

Table 2. Have you heard of overweight/obesity?

Response	Overweight		Obesity	
	N	%	N	%
Yes	261	81	255	79
No	59	18	65	20
No response	2	1	2	1
	322	100	322	100

Two hundred and thirty eight (74%) and 229 (71%) respondents correctly identified diabetes mellitus and heart disease as complications respectively. The least number of participants identified lung disease as a complication of overweight and obesity.

By responding “yes” or “no” to each option, twenty-nine percent said that nothing could be done about obesity since it is inherited while 46% were indifferent. Twenty six participants (8%) perceived obesity as a sign of good living while 264 (84%) perceived it as not being good (Fig. 4). While 65% believed there is a medical treatment 33% said “no” and 2% did not know. On the other hand, only 17% believed there is a surgical treatment for obesity while 82% said there was none and 1% did not know (Fig. 5).

Most participants agreed that the right approach towards prevention of overweight and obesity was by creating public awareness and education (303, 94%) and that obesity should be taught in schools (305, 96%) while the least patronized ideas were heavy taxes on makers of fast foods and sugary drink (93, 29%) and banning fast foods and sugary drinks (174, 54%); (Fig. 6). Ninety five percent put the burden of prevention on the individual while 3% felt prevention was not individual-based. The government and community had the least role assigned as 54% and 42% felt it was meant to play a role in prevention (Fig. 7).

4. DISCUSSION

Obesity (and overweight) is on the increase in the locality of this research as shown by a prevalence of 63% (36% overweight and 27% obesity). This increase in prevalence is relatively high, when compared to other studies from the same area [3]. Such astronomical increase could be attributed to the fact that only females were recruited for this study and more were of mid age as both factors are known to influence body size negatively [3]. The study among Kalabari’s of the Niger-Delta had a mean BMI of 30 on study adults aged 20-70 yrs [4]. The increase is even more worrisome when compared to works from other urban areas in Nigeria; a prevalence of 4.2% (Desalu) [5] for obesity in the city of Jos Nigeria had increased to 21.4% (Puepet) [6] in a follow up study done in 2002. The prevalence in Ilorin urban was 35.1% for overweight and 9.8% for obesity [5]. The current prevalence of 36% for overweight and 27% for obesity though high, is still less than that for some advanced countries of the world, the USA has a prevalence for obesity of 34% [7]. This high prevalence in the USA has plateaued because of the perception of obesity and overweight as an illness [7].

Forty seven participants (14.6%) perceived their parents as obese; 97% of these 47 participants thought it was their mother that was obese while 2.6% of them saw their fathers as obese. Fifteen participants (4.7%) perceived their children as obese (Fig. 8). Among those who had obese children 86% had only one child affected; the rest had 2 affected children.

In the current study, the findings that both mean and median BMI scores, as well as median BMI class were all in the overweight range calls for attention. Additionally, more than two-thirds of mothers were overweight or obese and nearly one-third were obese. These are dangerous trends that must be addressed. Almost one-fifth of the mothers said they had not heard of the word obesity or overweight and less than one-fifth correctly defined obesity/overweight in lay terms. This is inspite of the fact that 9 out of every 10 study subjects had secondary or tertiary education. This reveals the near-total absence of awareness creation / health education on this subject and underscores the grave need for urgent steps to be taken.

Majority not knowing that age is a contributory factor to obesity is likely to result in poor weight management as the mothers advance in age

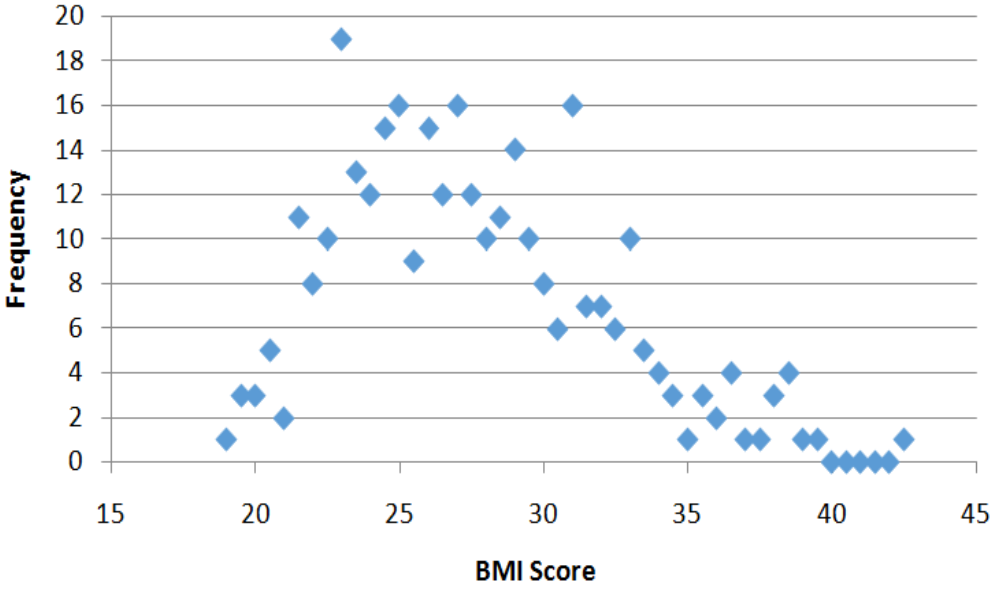

Fig. 1a. Frequency distribution of mother's BMI

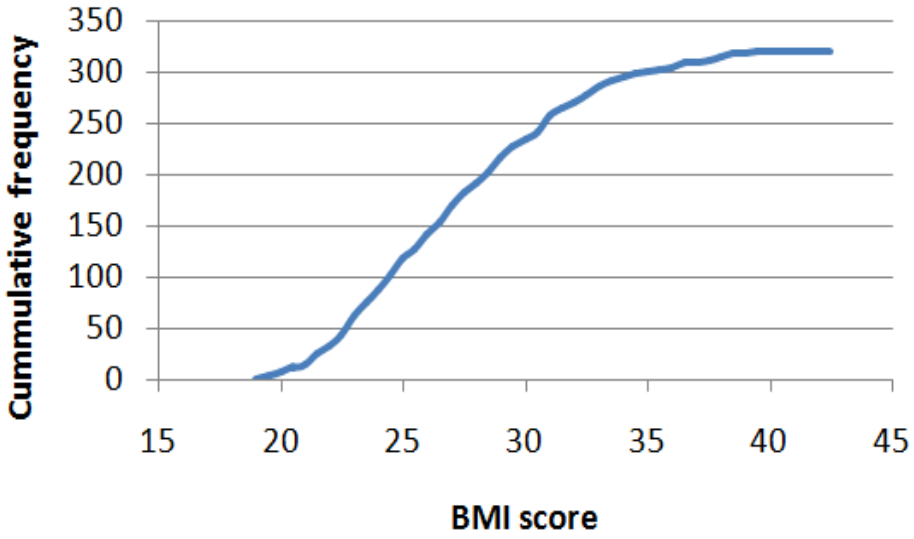

Fig. 1b. BMI cummulative frequency

when basal metabolic rate decreases resulting in rising positive energy balance. An attitude of indifference will result in poor eating habits and other contributory lifestyles to obesity. Almost half of the mothers studied said they were indifferent to obesity/overweight (Fig. 4).

When a mother is unaware of availability of health services for the management of obesity, she is not likely to seek medical attention if she is obese. Therefore, even those who are not indifferent to obesity need to know that there is conservative (medical) treatment for obesity to be able to seek help in health facilities. But in the current study, about a third did not know that medical management for obesity is available and almost four-fifths did not know that surgical management is also available.

High number of the participants was able to associate complications with obesity/overweight; with as many as 74% associating it with diabetes mellitus and 71% associated it with heart disease while 77% agreed it could cause hypertension

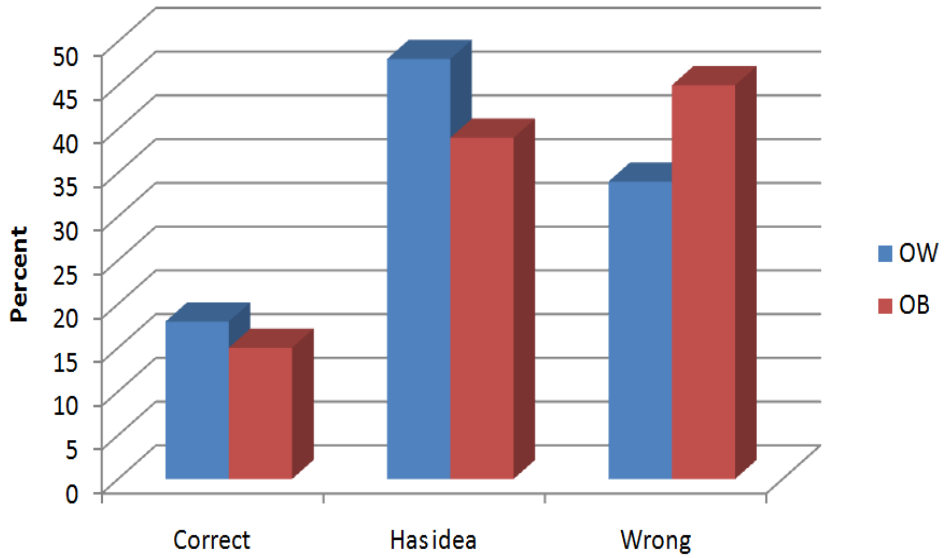

Fig. 2. What is obesity (OB) and overweight (OW)

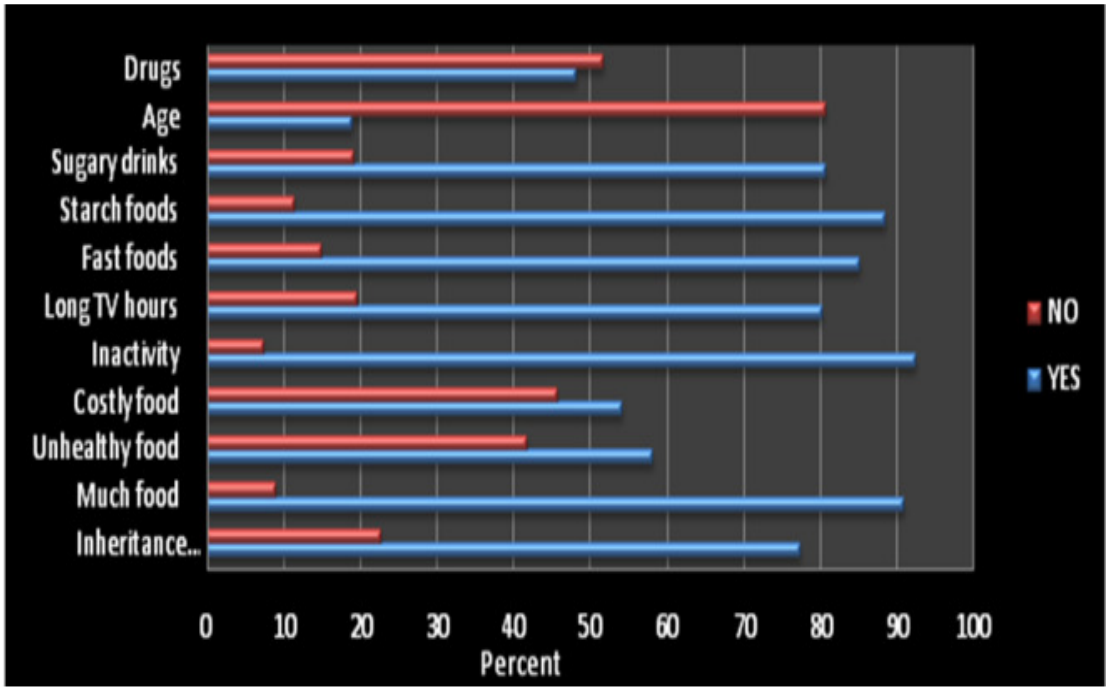

Fig. 3. What factors contribute to obesity/overweight?

amongst others. A study done to ascertain complications among obese persons in a Nigerian rural area showed that the most common complication among obese participants was hypertension [8]. While many of the participants had head knowledge of the complications of overweight/obesity they did not perceive themselves as overweight/ obese hence could not have seen themselves at risk of such complications. The level of education was not associated with their perceiving themselves as overweight or obese. Only very few respondents (8%), perceived overweight /obesity as evidence of good living. A few also perceived it as socially desirable. The low social desirability should be encouraged and reinforced as this will help

reduce the prevalence of obesity, thereby reducing its complications. A similar study in Kano Nigeria had 15.5% of participants perceiving obesity as socially desirable, yet 82% of those who were obese did not identify themselves as such [9]. Most participants had a positive perception of obesity and overweight as seen in the high percentage that saw it as socially undesirable; as a serious disease, can lead to other diseases that can lead to death. This differed from the study by Lliyasu et al. [9] which saw that being Igbo, primary education and older age were positively related to positive view on obesity. The difference, despite the fact that majority of the study population were of Igbo extraction, may be because of the high level of educated women enrolled in this study. Similarity in this study and that of Iliyasu was in the discordance between perceived and measured BMI.

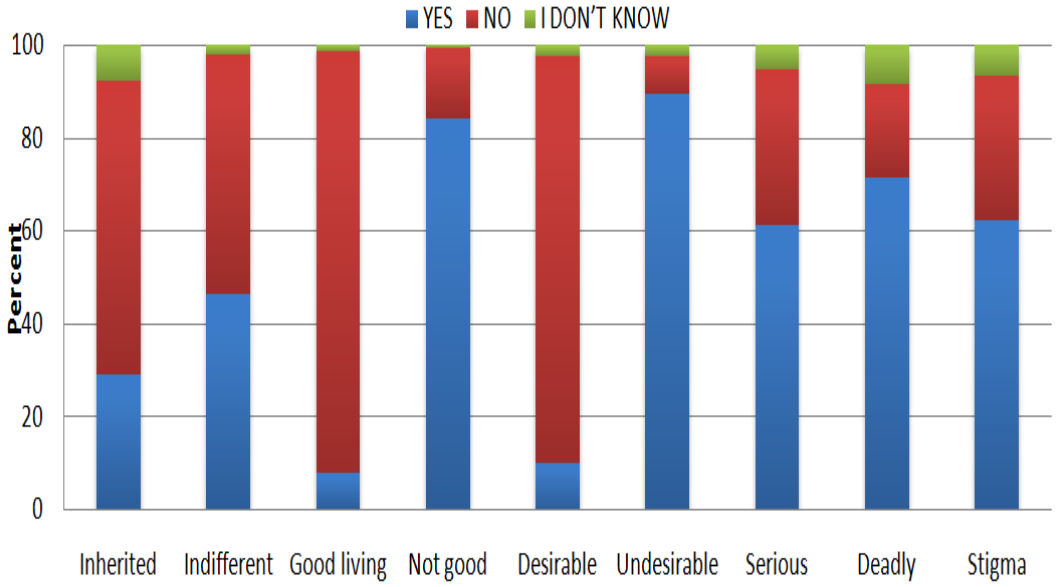

Fig. 4. How do you see obesity (OB)/ overweight (OW)?

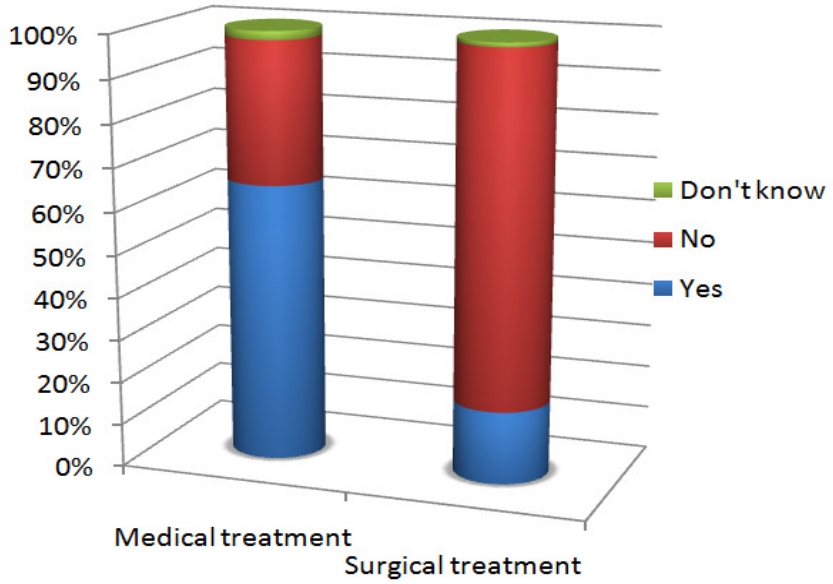

Fig. 5. Does it require medical / surgical treatment?

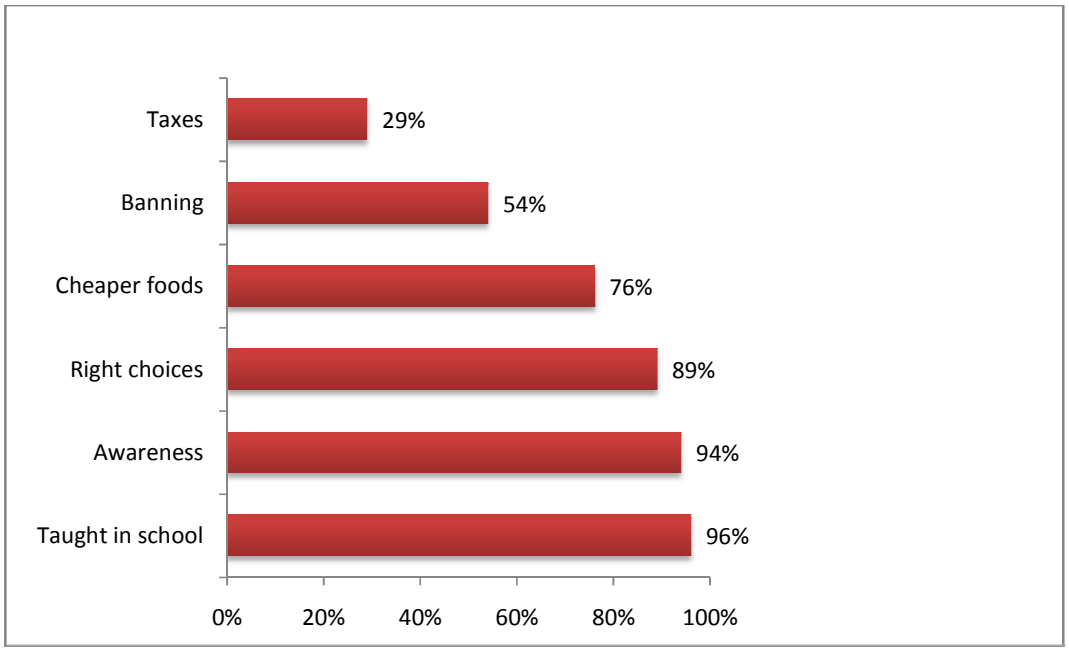

Fig. 6. How is obesity / overweight prevented - (Yes answer)

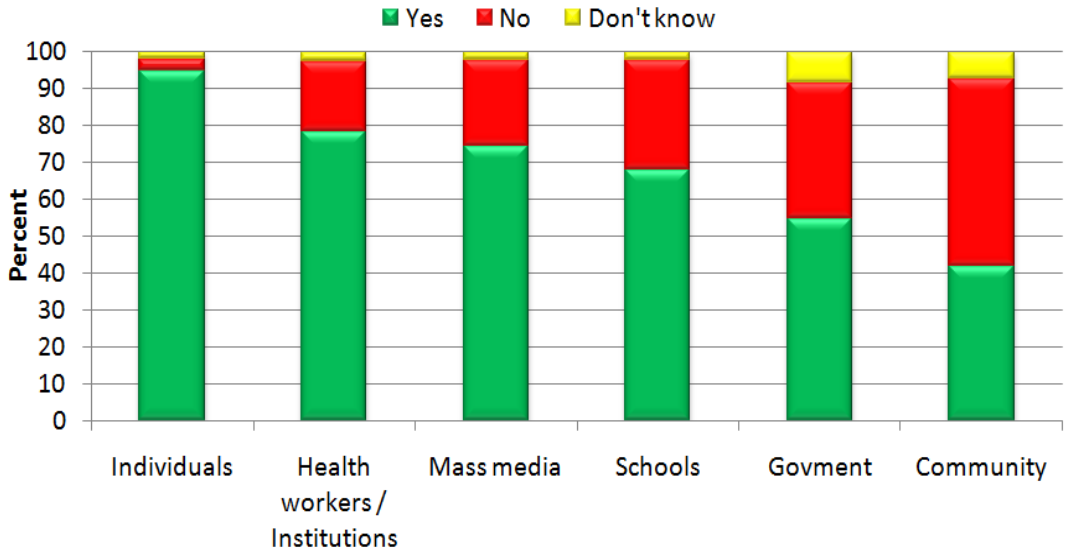

Fig. 7. Whose responsibility to prevent obesity?

Sixty two percent associated overweight/obesity to stigmatization while half of that did not associate it to stigmatization (Fig. 3). This negative societal attitude towards obesity may also be a reason why many females try to stay trim but this may work against the society as documented by Puhl et al. [10] in their paper, Fighting obesity or obese persons [12]. Puhl had concluded that in framing messages in public health campaigns to address obesity, certain types of messages may lead to increased motivation for behavior change among the public, as others may be perceived as stigmatizing and instill less motivation to improve health [10]. This clearly shows that stigmatization may not always make people stay trim but may result in fat people ignoring such unfriendly attitude and gestures and remain fat. When the factors that

contribute to overweight/obesity were considered, most participants agreed that lack of physical activity had the greatest input in becoming obese while the second most likely attributed cause was taking more food than required. This showed that even though the participants were not able to discern their sizes correctly, they could advice others appropriately on preventing overweight/obesity.

Most preventive strategies are not yet in place in the country such as awareness creation, individual right food choices, weight issues being taught in schools and making healthy foods cheap. Other measures such as banning certain foods and heavy taxation, though helpful, are also controversial. In our study, most participants disagreed with banning and heavy taxation but agreed with all other measures (Fig. 6).

The finding of a proportion of respondents who had obese parents and or obese children has implications in the paediatric population. This is because studies have shown both genetic and environmental factors associated with obesity in families [2]. Additionally, poor perception of obesity in such parents puts their children at even additional risk for obesity and its associated complications.

The enormous task of halting the rising prevalence of obesity in both children and adults, as well as reversing the trend need to be appreciated, not only by the individual but also by families, educational institutions, health institutions, governments, international agencies, food industry and the global community [11]. Although obesity sometimes runs in families, part of the family trends have been attributed to environmental rather than genetic factors such as similar eating habits, lifestyle, perception and attitude. This puts children of obese parents at higher risk of obesity either in childhood or later in adulthood. In the current study, a proportion of mothers said their parent(s) and/or child (ren) were obese. Rising childhood obesity attributed to eating habits, inactivity, video/computer gaming, poor school environment that does not allow for exercise require policy changes as well as knowledge and attitudinal changes.

Of all the participants who were overweight /obese (63%) only 19% of them knew beforehand that they were overweight/obese despite the fact that about half of the participant had tertiary education. This may explain the fact that the society from which participants are drawn may not perceive obesity/overweight as harmful and that few persons cared to quantify their body size or know their BMI. This low knowledge of body size is expected to influence their children whom they may not perceive as overweight or obese. These children are most likely to indulge in the same attitudes and diet that result in excessive body size including sedentary life style. It is also known that obese parents especially mothers pass it on to their children [12,13].

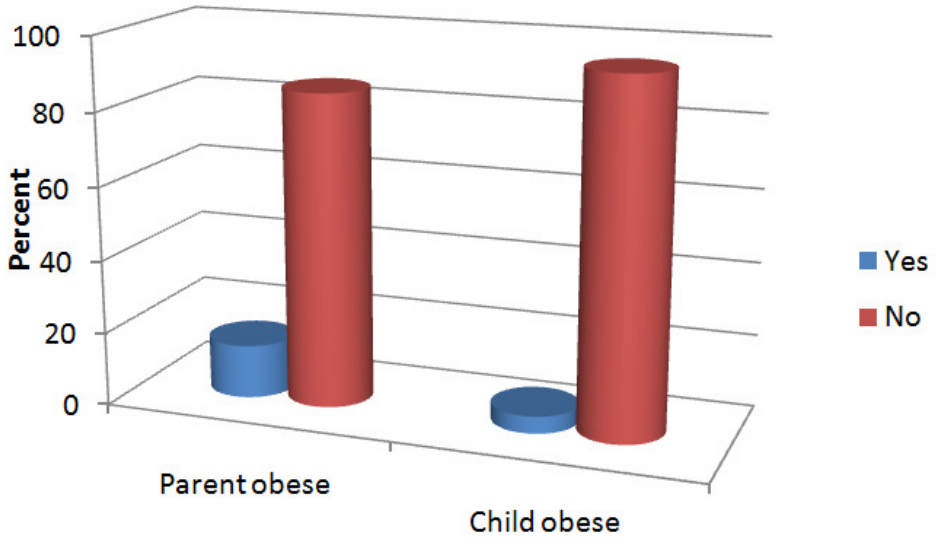

Fig. 8. Parent, child obese?

The responsibility for tackling obesity should be shared by all –Individuals/families, health sector, education sector, mass media, governments and communities. However, our study population gave less responsibility to the government and community. Studies have also shown that nutrition and physical activity interventions in school settings are effective in achieving weight reduction [14].

Reinforcing good or positive attitude has helped the incidence of obesity to plateau in the USA between 2003 and 2004 as well as 2009 and 2011 [15]. The attitude of the society must be directed in such a way that the prevalence of overweight and obesity will be on a downward trend or at worst arrested. This has even become more important in a country with a developing economy and a larger middle class. The medical bill for an obese person cost on the average an extra 1429 dollars in the USA [16]. Huge costs will be saved by reducing the prevalence of overweight/obesity. The impact of such preventive measures will not only reduce the prevalence of obesity in the adult population, but is likely to have an indirect effect on the paediatric population.

5. CONCLUSION

Knowledge/awareness of body size is low while prevalence of overweight/obesity is high in the studied population when compared to earlier studies in other urban cities. Additionally, a proportion of mothers also had obese parents and children. Perception and knowledge of causative factors, disease severity and preventive measures are adequate but can be improved upon. This will likely not only help reduce obesity prevalence among adults but also among children. It will therefore be difficult to reverse the rising incidence trends of overweight/obesity without extensive appropriately worded awareness creation and sustained preventive strategies in the population studied.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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