ORIGINAL ARTICLE
AWARENESS REGARDING OBESITY AMONGST GENERAL PHYSICIANS OF KARACHI

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Background: Obesity is considered a disease and one of the fastest growing global threats. In Pakistan General Physicians (GPs) are approached first in case of any disease thus their knowledge and practices regarding obesity are very important to assess. Our objective was to assess the knowledge and practices of GPs regarding obesity and management. **Methods:** This was a cross-sectional study conducted among GPs of Karachi. 140 GPs from 17 towns of Karachi were selected by convenience sampling. Data was analyzed using SPSS-16. **Results:** Total 140 GPs with mean age of 46.1±11.1 years were included in the study. Among them 90 (64.3%) were males and 40 (28.3%) were females. Awareness was assessed regarding factors related to obesity and knowledge was compared on basis of qualification and knowledge update. Significant difference was found for insufficient physical activity (p=0.001) and social problems (p=0.02). On the basis of knowledge update, stress and anxiety (p=0.013) were found to be significant. Significant difference was found in readings for BMI (p=0.038) and waist circumference (p=0.000) to label patient obese. Among several lifestyle modifications advised, significant difference was found for increase fibre in diet (p=0.006), low fat intake (p=0.003), low carbohydrate intake (p=0.02). **Conclusion:** Overall awareness regarding obesity was fair among GPs, while certain gaps were found in criteria for labelling patient obese. Significant difference in knowledge of GPs was found among those GPs who update their knowledge and who did not.
Keywords: Obesity, General Physicians, BMI, Karachi

INTRODUCTION

World Health Organization (WHO) has classified obesity as a disease and also one of the fastest growing threats to the populations and countries alike; it is in fact replacing the traditional health concerns of under nutrition and infectious diseases.[1] Prevalence of obesity has shown a steady rise in the last two decades and has reached 2–10% in the developing countries.[2] According to WHO, 1% men and 3.6% women are obese (BMI>30) in Pakistan.[3] Due to lack of physical exercise, inadequate eating habits, industrialization and unhealthy life style modifications, a dramatic rise has been seen in the incidence and prevalence of obesity in both developed and developing parts of the world over the past decade. Obesity is now considered a significant health hazard because it plays a key role in development of diabetes, dyslipidemia and hypertension which are all important risk factors for cardiovascular diseases.[4]

The new recommendation for BMI in Asian populations defines BMI greater than 23 overweight. Cut off for BMI needs to be lower in Asians as compared to US and European populations[5] as several epidemiological studies have shown that Asians have higher amounts of body fat at lower BMI compared to western populations[6] but the percentage of distribution of body fat varies at different BMI in different populations due to environmental as well as physiological factors[7]. This is probably one of the reasons for higher prevalence of CVD risk factors at lower BMI in Asian populations compared to western world.[6] This has become a great cause of concern for expert consultation and has lead to think if this high body fat percentage at lower BMI in Asians has increased risks of cardiovascular disease and its associated risk factors.[7] According to WHO recommendations, BMI greater than 25 Kg/m^2 is defined as overweight but this is based on data from western populations.[8]

Studies have proven that obese patients are at a higher risk of CVD but there is a lack of knowledge among GPs due to lack of awareness regarding the associated physiological mechanisms determining the risk.[9–11] Around 60% of the general population considers high BMI as a risk factor instead of abdominal obesity. This is because majority of the population are more concerned about how much they weigh and even health professionals concentrate more on weight rather than waist circumference.[12]

In Pakistan, around 75–80% of the population visits GPs in case of any disease or ailment[13] so it is very important to assess their knowledge regarding management of obesity and also its risk factors. Therefore, main objective of this study was to assess the awareness of GPs regarding BMI classification, risk factors leading to obesity and different life style modifications to control obesity.

MATERIAL AND METHODS

It was a descriptive cross-sectional study carried out from August 2011 to September 2012. This study was conducted among General Practitioners (GPs) of Karachi. Total 140 GPs from different towns of Karachi were included in the study and data were collected through convenience sampling technique. Doctors working in private practice were selected while those working in tertiary care hospitals, and also who did not give consent were not included in the study.

Data were collected through structured and self administered questionnaire. Verbal informed consent was taken before taking information. The data were analysed using SPSS-20. For the categorical variables frequencies and percentages were taken out and mean and standard deviation for numerical variables. Chi-square was applied for finding association between categorical variables and $p<0.05$ was taken as significant.

RESULTS

Total 140 GPs with mean age of 46.1±11.1 years were included in the study. Among them 90 (64.3%) were males and 40 (28.3%) were females. Most of the GPs graduated from Dow Medical College 46 (32.9%) and Sindh Medical College 45 (32.1%) while rests of them were from different medical institutes of Pakistan. For 83 (59.3%) doctors it had been more than 10 years since graduating and practicing while 76 (54.3%) did have Post-Graduation qualifications (Table-1).

Table-1: General information regarding GPs (n=140)

Parameters		No.	%
Gender	Male	90	64.3
	Female	40	28.6
Institute of Graduation	Dow Medical College	46	32.9
	Sindh Medical College	45	32.1
	Liaquat Medical College	22	15.7
	Baqai Medical College	3	2.1
	Chandka Medical College	8	5.7
	Others Medical Colleges	11	7.9
Years Since Practicing	Less than 10 years	46	32.9
	More than 10 years	83	59.3
Postgraduate Qualification	Yes	76	54.3
	No	53	37.9
Daily OPD	10–20 patients	41	29.3
	21–30 patients	58	41.4
	31–50 patients	17	12.1
	>50 patients	19	13.6

Awareness of GPs was assessed regarding different factors related to obesity and their knowledge was also compared on the basis of qualification and knowledge update. Table-2 illustrate various factors and the column of postgraduate qualification is further divided into 'yes' for having postgraduate qualification and 'no' for simple graduation. Similarly Knowledge update column is further divided into 'yes' for those who update their clinical knowledge and 'no' for those who did not. In our sample 76 (54.3%) GPs were have postgraduate qualification and of all GPs 104 (74.3%) were regularly update their knowledge and the sources for medical knowledge updates were Medical Journals 104 (74.3%), Internet 101 (72.1%), CME 48 (34.3%) and Pharmaceutical Literature 39 (27.9%).

General practitioners were asked about the risk factors leading to obesity and most common risk factors identified were insufficient physical activity, lack of energy balance and genetic factor. Comparison of knowledge about risk factors of obesity on the basis of post graduate qualification showed some significant differences. Significant difference was found for insufficient physical activity (p=0.001) and social problems (p=0.02). Similar significant difference was found for stress and anxiety (p=0.013) on the basis of knowledge update.

GPs were asked about the cut-off value of systolic and diastolic blood pressure to label obese patient as hypertensive and 130.2±12.5 mmHg was found as mean systolic blood pressure and 86.5±8.5 mmHg was found mean diastolic blood pressure to label obese patient as hypertensive. Cut-off values on the basis of which patient was labelled as obese were BMI more than 25 m^2/Kg as stated by 62 (44.3%) GPs and waist circumference more than 85 Cm as stated by 33 (23.6%) GPs. Significant difference was found in readings for BMI (p=0.038) and waist circumference (p=0.000) to label patient obese in those GPs who update their knowledge.

Obesity is a risk factor for various diseases so GPs were also asked about the life style modifications that they advised to obese patients. Among several advises significant difference was found for increase fibre in diet (p=0.006) between graduates and post graduates. Similarly difference was found significant for low fat intake (p=0.003), low carbohydrate intake (p=0.02) and increase fibre in diet (p=0.009) between those who updated their knowledge and those who did not. Although obese patients were advised regarding their healthy life style activities but only 17 (12.1%) patients regularly follow life style modifications while 107 (76.4%) sometimes and 14 (10%) never follow any modifications.

Along with life style modifications, 132 (94.3%) GPs also advised their obese patients about the complications of obesity. To screen obesity related complications, proportion of GPs advised their patients to visit doctor at least once annually is 60 (42.9%), 6 monthly is 62 (44.3%) , only once after diagnosis of obesity is 12 (8.6%) and not at all is 3 (2.1%).

In order to counteract obesity, one of the options available was weight loss. Of total 140 doctors, 66 (47.1%) regarded a weight loss between 5–15% as optimal, 38 (27.1%) agreed with a weight reduction of

more than 15% while the majority 91 (65%) mentioned a weight loss to the normal BMI as ideal. Other treatment modalities/management strategies were as follows- from the total of 140 doctors questioned, most of the doctors, 53 (37.9%) agreed that inclusion of a spouse or relative in management would be beneficial.

Behavioural therapy with 49 doctors (35%) and drug management with 51 doctors (36.4%) were also popular management options. However, psychotherapy was not nearly as popular amongst the doctors as majority of them 117 (83.6%) disagreed and only a small proportion 23 (16.4%) gave it a pass.

Table-2: Knowledge of GPs regarding obesity on the basis of postgraduate qualification and knowledge update [n (%)]

	Postgraduate Qualification n (%)			Knowledge Update n (%)			Total
	Yes	No	*p*	Yes	No	*p*	n (%)
Risk factors leading to Obesity							
Lack of energy balance	72 (51.4)	50 (35.7)	0.470	93 (66.4)	29 (20.7)	0.171	122 (87.1)
Insufficient physical activity	80 (57.1)	50 (35.7)	0.001	96 (68.6)	34 (24.3)	0.668	130 (92.9)
Genetic factor	68 (48.6)	47 (33.6)	0.513	84 (60)	31 (22.1)	0.471	115 (82.1)
Stress, anxiety and depression	54 (38.6)	36 (25.7)	0.491	73 (52.1)	17 (12.1)	0.013	90 (64.3)
Hormonal problem	55 (39.3)	31 (22.1)	0.06	60 (42.9)	26 (18.6)	0.123	86 (61.1)
Underlying medical problem	46 (32.9)	33 (23.6)	0.919	60 (42.9)	19 (13.6)	0.608	79 (56.4)
Social problems	42 (30)	19 (13.6)	0.02	47 (33.6)	14 (10)	0.511	61 (43.6)
Cut-off Values BMI to Label Patient Obese							
More than 22 m^2/Kg	2 (1.4)	5 (3.6)		5 (3.6)	2 (1.4)		7 (5)
More than 23 m^2/Kg	15 (10.7)	12 (8.6)		20 (14.3)	7 (5)		27 (19.3)
More than 24 m^2/Kg	17 (12.2)	14 (10)	0.324	25 (17.9)	6 (4.3)	0.038	31 (22.1)
More than 25 m^2/Kg	37 (26.4)	25 (17.9)		49 (35)	13 (9.3)		62 (44.3)
Don't know	10 (7.1)	3 (2.1)		5 (3.6)	8 (5.7)		13 (9.3)
Cut-off Values Waist Circumference to Label Patient Obese							
80 Cm	10 (7.1)	6 (4.3)		12 (8.6)	4 (2.9)		16 (11.4)
More than 85 Cm	21 (15)	12 (8.6)		26 (18.6)	7 (5)		33 (23.6)
More than 90 Cm	17 (12.1)	14 (10)	0.876	26 (18.6)	5 (3.6)	0.000	31 (22.1)
More than 100 Cm	16 (11.4)	15 (10.7)		28 (20)	3 (2.1)		31 (22.1)
Don't know	17 (12.1)	12 (8.6)		12 (8.6)	17 (12.1)		29 (20.7)
Life Style Modifications Advised to Obese Patients							
Exercise	81 (57.9)	57 (40.7)	0.095	103 (73.6)	35 (25)	0.429	138 (98.6)
Low fat intake	76 (54.3)	53 (37.9)	0.385	100 (71.4)	29 (20.7)	0.003	129 (92.1)
Low carbohydrate intake	45 (32.1)	30 (21.4)	0.581	50 (35.7)	25 (17.9)	0.02	75 (53.6)
Low salt intake	49 (35)	32 (22.9)	0.459	63 (45)	18 (12.9)	0.268	81 (57.9)
Decrease Meat consumption	37 (26.4)	21 (15)	0.232	40 (28.6)	18 (12.9)	0.226	58 (41.4)
Weight reduction	66 (47.1)	40 (28.6)	0.062	81 (57.9)	25 (17.9)	0.309	106 (75.7)
Increase fibre in diet	63 (45)	33 (23.6)	0.006	65 (46.4)	31 (22.1)	0.009	96 (68.6)
Quit smoking	56 (40)	35 (25)	0.229	72 (51.4)	19 (13.6)	0.07	91 (65)

DISCUSSION

Our research was on awareness regarding obesity amongst GPs of Karachi. Results of our study showed that majority of the GPs were males and did graduation from two leading public medical colleges of Karachi. More than half of the GPs in our study had experience of more than ten years and postgraduation qualification.

GPs were asked about the risk factors of obesity and significant difference was found in knowledge of GPs with and without post graduation qualification related to physical activity (*p*=0.001) and social problems (*p*=0.02). Significant difference was also found related to stress and anxiety as risk factors of obesity in knowledge of those doctors who updated their knowledge. Literature regarding health benefits of physical activity in reducing obesity along with other benefits also pointed out that insufficient physical activity may be one of the major risk factors

for obesity.[14] Although social problems and psychological stress are known causative factors in the development of obesity as confirmed by a previous research[15] however study by Janssen I concluded that obesity itself might be a risk factor for social problems for example rejection by peers and getting bullied in school[16].

One of the important questions asked was whether the doctors were aware of the Body Mass index (BMI) cut-off before an individual is labelled as obese. BMI cut-off is a debatable topic since it varies from country to country but it is accepted that a value exceeding 23 Kg/m^2 is the threshold for Asians.[8] Study by Nanan DJ concluded that cut-off values of BMI to label person over weight and obese were 23 kg/m^2 and 25 Kg/m^2 respectively.[17] On the other hand results of our study showed cut-off values of BMI to label person obese were 23 Kg/m^2 and 25 Kg/m^2 by 19.3% and 44.3% doctors respectively. Significant difference (*p*=0.038) was found for

doctors who update their knowledge regarding cut-off value of BMI to label patient obese. But just knowing the value of BMI is not a very accurate estimate of obesity since the BMI might be elevated in individuals with little body fat for example in people with high muscle content like body builders or in those who have greater bone density. Thus another important consideration, waist circumference, must be taken into account.[12] We therefore questioned the doctors if they were aware of the cut-off value of waist circumference for labelling an individual as obese and here is what we obtained. Similar significant difference (*p*=0.000) was found in knowledge of doctors who updating their knowledge. Literature from a Japanese research stated that for Asians the cut-off points of waist circumference are greater than 85 Cm for males and greater than 90 Cm for females.[18] In our study we did not ask separately for males and females however 33% doctors in our study marked more than 85 Cm as cut-off value of waist circumference to label patient obese.

In the final part of our research, we asked about the different lifestyle modifications the doctors advise their obese patients. Majority of the doctors advised exercise (98.6%) and reduce fat intake in diet (92.1%) to their obese patients. It is a proven fact by various studies that exercise and reduced fat in diet is beneficial to control obesity.[19–21] A diet rich in fibre too can help reduce obesity or at least control it, possibly by making the individual feel satiated and thus reducing the consumption of more energy giving foods like fats and carbohydrates.[22,23] However, regarding this in our study significant difference was found among doctors who did not have postgraduate qualification (*p*=0.006) and who did not update their knowledge (*p*=0.009). For doctors who did not update their knowledge significant difference was also found in advising patients low fat and carbohydrate intake in diet to control obesity.

This study was first of its type in Pakistan that was found after detailed literature search. As this study was conducted at undergrad level so there was limitation of resources. Certain compromises were done in sample size and including subjects in study. Although study was aimed to cover GPs from all towns of Karachi but due to limited resources GPs were selected through convenience sampling technique and from accessible towns of Karachi. So results of this study cannot be generalised. However, this study may open new research avenues focusing GPs. This research also highlights the importance of knowledge update for GPs. So it is strongly recommended to arrange CMEs, Seminars and conferences for GPs to update their knowledge. As GPs are serving a large proportion of community so if even they did not have postgraduate qualification, it is mandatory for them to update their knowledge on continuous basis.

CONCLUSION

GPs who had postgraduate qualification and regularly updated their knowledge were of the opinion that lack physical exercise and social problems both were important risk factors for obesity. They also considered stress and anxiety as one of the key role players in obesity and its associated risk factors. Majority of the participants who updated their knowledge considered decreased fat and carbohydrate intake along with regular exercise and increased fibre in diet to be important components of life style modifications. Thus for prevention and early management of obesity, our GPs need to stay up-to-date.

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