

Recognition of overweight and obesity by patients and medical practitioners and their practices related to weight reduction; a cross-sectional study

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Abstract

Introduction: Accurate perception of weight by overweight/obese patients and the acknowledgment of their excess weight by medical practitioners are pivotal in managing obesity. This study aims to assess knowledge, perception and practices related to weight reduction among overweight/obese patients and the recognition of their overweight status and interventions by medical practitioners.

Methods: This descriptive cross-sectional study interviewed 317 overweight/ obese patients during their first visits to general medical clinics at the University Hospital of Kotelawala Defence University. A structured questionnaire assessed their demographic characteristics, comorbidity, knowledge, perception and practices related to weight reduction. Recognition and management of overweight/ obesity by medical practitioners were evaluated through recall of previous six-month consultations and review of medical records.

Results: Among the study participants, 163 (51.4%) were obese and 154 (48.6%) were overweight. Only 63 (19.9%) patients knew the meaning of BMI, and 306 (96.5%) could not define the ideal BMI for a Sri Lankan adult. Less than half (45.4%) considered overweight/obesity a medical problem. Body weight misperception observed among 92 (59.7%) overweight and 150 (92.0%) obese participants. Of the 267 participants who reported being evaluated by another medical practitioner in the previous six months, 102 (38.2%) were told the diagnosis of overweight/obesity. However, weight status was

documented only in seven (2.6%) patient records. Nonetheless, 110 (41.2%) patients had received weight reduction advice during previous consultations, and 68 (61.8%) had attempted to lose weight.

Conclusions: Low comprehension of the term BMI and misperception of body weight among the studied population is concerning. Patients who received weight reduction advice from medical practitioners were more inclined to lose weight. However, acknowledgment and intervention of the excess weight status of overweight /obese patients by medical practitioners were largely inadequate.

Key words: obesity, overweight, body mass index, knowledge, recognition

Introduction

The epidemic of overweight and obesity presents a major challenge to healthcare systems globally. The World Health Organisation (WHO) estimates that the worldwide prevalence of obesity has nearly tripled since 1975.¹ In the latest estimate in 2016, 1.9 billion adults were overweight, among whom over 650 million were obese.² A community-based Sri Lankan study revealed that 25.2%, 9.2%, and 26.2% of the adult Sri Lankan population are in the overweight, obese, and centrally obese categories, respectively.³

Being overweight and obese is one of the key risk factors for many non-communicable diseases

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(NCDs), such as type 2 diabetes, cardiovascular disease, liver disease, cancer, dyslipidemia, osteoarthritis, pulmonary diseases, and mental health problems.⁴ NCDs are the leading cause of death worldwide. Each year, 15 million adults die from NCDs globally, and more than 85% of these premature deaths occur in low-middle-income countries.⁵ This has created a 'double burden' of disease that threatens to overwhelm the health services of many resource-poor countries.⁶ Obesity is preventable; effective treatment can reverse or improve obesity-associated complications. Thus, recognition of overweight and obesity as a health problem is an essential key factor in the management of obesity related NCDs.

The WHO describes obesity as the most visible but neglected public health problem.⁷ Many studies conducted in various healthcare settings in Western countries found that obesity was notably under-diagnosed, and lifestyle counseling was infrequently provided, even for diagnosed patients in ambulatory care settings.⁸

Recognition of overweight and obesity as a health problem largely depends on the knowledge, perception, and attitudes of both patients and health care providers (HCP). The role of HCP is crucial in diagnosing weight problems and providing initial counseling. Although obesity has been extensively studied, there is a paucity of published data on the recognition and documentation of obesity as a medical problem and subsequent management recommendations by medical practitioners in different clinical settings. Understanding weight perception by patients and their beliefs, as well as the response of medical practitioners, is instrumental in developing interventions to address obesity.

Therefore, this study aimed to describe how frequently overweight/obese patients are recognized and managed by medical practitioners and to explore the knowledge, perception, and actual use of weight control interventions by patients attending general medicine clinics of a university hospital.

Methodology

This descriptive cross-sectional study was conducted in general medicine clinics of the University Hospital, Kotelawala Defence University, from January 2020 to August 2022. Standard anthropometric measurements of all patients attending general medicine clinics were carried out by trained nursing officers adhering to the WHO guidelines.⁹ The height measurements were taken to the nearest 0.1 cm, and the body weight was measured to the nearest 0.1 kg

using a stadiometer with a scale. Waist and hip circumference were measured using a non-stretchable standard tape to the nearest 0.1 cm. Waist measurements were obtained over the unclothed abdomen midway between the iliac crest and the lower rib margin at the end of normal expiration. Hip circumference was measured over light clothing at the level of the widest diameter around the buttocks.

The WHO BMI cut-off values for Asians were used to define overweight (BMI 23-27.5 kg/m²) and obesity (BMI >27.5 kg/m²).¹⁰ Central obesity was defined as a waist circumference >90 cm for males and >80 cm for females, according to the international cut-offs recommended by WHO.¹¹ Patients with obesity/overweight attending the clinics for the first time were invited to participate in the study and informed written consent was obtained. All consented patients were recruited consecutively using the clinic attendance register as the sampling frame.

An interviewer-administered structured questionnaire gathered information on basic demographics, comorbidity, knowledge of overweight/obesity and BMI as a measurement of obesity, and body weight perception of the study participants. Body weight perception was described as underweight, correct weight, and overweight. Weight control measures used by the participants were assessed. Details about the diagnosis of overweight/obesity and weight reduction interventions suggested by a medical practitioner during previous consultations within six months were recalled by patients. Records of previous medical assessments were reviewed to verify the details and to ascertain whether the medical practitioners had documented the patient's weight status as a medical problem and the weight management plans. Adherence to the weight reduction interventions recommended by the medical practitioner and the reasons for non-adherence were evaluated.

The sample size was calculated for the primary objective of assessing weight perception among the participants. According to Johnson et al., weight misperception was observed among 25% of the people with overweight/obesity.¹² With an estimated prevalence of 25% and 5% precision, the calculated sample size was 289. The target sample size was 320 after allowing for missing data of 10% of the respondents. Ethics approval was obtained from the Ethics Review Committee of Kotelawala Defence University before the commencement of the study.

Data analysis

The data were analysed using Statistical Package for the Social Sciences (SPSS) version 26.0.

Descriptive statistics were performed. Categorical variables were presented as frequencies and percentages. The Shapiro-Wilk test was used to assess the distribution normality of data. The Chi-square test determined the association between weight perceptions and the attempts to lose weight. A p-value less than 0.05 was considered significant.

Results

During the study period, 317 overweight/obese

patients with a median age of 55 years (IQR 47-63) were enrolled. The highest proportion were females (71%), and more than half of the study population were obese (51.4%) per the WHO BMI criteria. Of the study participants, 213 (94.7%) females and 75 (81.5%) males were centrally obese. The majority of the patients (92.1%) had obesity-related comorbidities, and diabetes was the most frequent medical condition observed among them. Socio-demographic data and baseline characteristics of the study population are summarised in Table 1.

Table 1. Sociodemographic data of the study population

<i>Variables</i>		<i>Overweight (N=154)</i>	<i>Obese (N=163)</i>
Age	18-39 years	12 (42.9%)	16 (57.1%)
	40-59 years	82 (45.3%)	99 (54.7%)
	≥60 years	60 (55.6%)	48 (44.4%)
Gender	Male	51 (55.4%)	41 (44.6%)
	Female	103 (45.8%)	122 (54.2%)
Marital status	Married	138 (47.9%)	150 (52.1%)
	Single	7 (58.3%)	5 (41.7%)
	Divorced/Widowed	9 (52.9%)	8 (47.1%)
Educational level	No formal education	1 (50.0%)	1 (50.0%)
	Primary	23 (42.6%)	31 (57.4%)
	Secondary	118 (49.8%)	119 (50.2%)
	Tertiary	11 (45.8%)	13 (54.2%)
Employment status	Employed	57 (50.9%)	55 (49.1%)
	Unemployed	86 (47.0%)	97 (53.0%)
	Retired	11 (50.0%)	11 (50.0%)
Obesity related Comorbidities*	Yes	143 (49.0%)	149 (51.0%)
	No	11 (44.0%)	14 (56.0%)
Central obesity	Yes	128 (44.4%)	160 (55.6%)
	No	26 (89.7%)	03 (10.3%)

* Following were considered as obesity-related comorbidities – Type 2 diabetes mellitus, dyslipidaemia, hypertension, non-alcoholic fatty liver disease, stroke, transient ischemic attack, ischemic heart disease, peripheral vascular disease, malignancies (colon, breast, endometrial) osteoarthritis, diastolic dysfunction, obstructive sleep apnoea, polycystic ovarian syndrome, anxiety and depression

Patients' knowledge

In the assessment of the knowledge on obesity/overweight, 63 (19.9%) participants were aware that BMI is used to determine the ideal body weight of a person, and 43 (14.0%) knew that it is calculated based on weight and height. Only a minority (3.5%) of patients could correctly define the ideal BMI for a Sri Lankan adult. Less than half of the participants (45.4%) considered overweight/obesity a medical problem. Nonetheless, 295 (93.1%) of them reported that it is important to lose weight.

Patients' weight perception

Body weight misperception was observed among 92 (59.7%) overweight participants, where 70 (45.5%) believed their weight was correct, while 22 (14.3%) thought they were underweight. Moreover, 150 (92.0%) obese patients misperceived their weight. Eight (4.9%) of them thought they were underweight, 28 (17.2%) believed their weight was within the correct range, and 114 (69.9%) estimated them to be overweight. Of the centrally obese patients, 76.7% misperceived their body weight. Body weight misperception was significantly higher among obese patients than the overweight group ($p < 0.001$).

Recognition of overweight/obesity by medical practitioners

Two hundred and sixty-seven patients reported being evaluated by a medical practitioner within six months before enrolling in this study. Of them, 139 (52.1%) had been evaluated by specialists, and 128 (47.9%) were assessed by medical officers. Majority ($N=257$, 96.3%) were evaluated in the ambulatory setting, where 176 (68.5%) were assessed in the private sector, and 81 (31.5%) were seen in outpatient departments of the Government hospitals. The diagnosis of overweight/obesity was verbally communicated to 102 (38.2%) patients by the medical practitioners, where 14.3% of overweight and 44.2% of obese patients were told about their weight status during previous consultations. However, overweight/obesity was documented as a medical problem only in seven patient records (2.6%).

Considering the methods used for the diagnosis of overweight/obesity, 21 (20.6%) medical practitioners had determined the weight status merely by the appearance of the patient. Standard anthropometric measurements (weight and height) were used in less than half (48.1%) of the study participants in assessing

Table 2. Weight perception stratified by participants' characteristics

Variables		Body weight perception		
		Correct	Incorrect	P value (Significance)
Age	18-39 years	9 (32.1%)	19 (67.9%)	0.313
	40-59 years	45 (24.9%)	136 (75.1%)	
	≥60 years	21 (19.4%)	87 (80.6%)	
Gender	Male	16 (17.4%)	76 (26.2%)	0.093
	Female	59 (78.7%)	166 (73.8%)	
Education	No formal education	0 (0%)	2 (100%)	0.715
	Primary	13 (24.1%)	41 (75.9%)	
	Secondary	58 (24.5%)	179 (75.5%)	
	Tertiary	4 (16.7%)	20 (83.3%)	
BMI category	Overweight	62 (40.3%)	92 (59.7%)	<0.001
	Obese	13 (8.0%)	150 (92.0%)	
Central obesity	Yes	67 (23.2%)	221 (76.7%)	0.647
	No	8 (27.5%)	21 (72.4%)	

their weight status by the medical practitioners. Nonetheless, 110/267 (41.2%) patients reported receiving weight reduction advice during previous consultations; among them, 46.6% were obese patients, and 22.1% were overweight patients. With regards to the comorbidities, less than half of the patients with diabetes (38.7%), hypertension (36.9%), dyslipidaemia (38.4%), and ischemic heart disease (48.3%) had received weight reduction advice from medical practitioners previously.

Practices related to weight reduction

Overall, 150 participants had attempted to reduce weight. Of the 110 patients who reported receiving weight reduction advice during previous medical consultations, 64.5% (n=71) had attempted to lose weight. Thirty-nine (38.2%) had not followed the medical advice. Among the weight reduction interventions offered by the medical practitioners, pharmacotherapy and surgery were considered in a

small proportion of patients 11 (4.1%). The distribution of attempts to lose weight is summarised in Table 3 according to patient characteristics.

We analysed the association between baseline and demographic characteristics of patients and their attempts to lose weight. The BMI category showed a significant association with weight reduction attempts, as more obese patients had taken measures to lose weight than overweight patients (58.3% vs. 35.7%, $p < 0.001$). Similarly, the patients who received medical advice on weight reduction had attempted to reduce weight than their counterparts ($p < 0.001$). A significant association was observed between education level and the weight reduction attempts of the patient, where more patients in the higher education categories had attempted to lose weight ($p = 0.003$). Although younger patients tended to use weight reduction measures more frequently than older patients, the association was statistically not significant.

Table 3. Weight reduction attempts stratified by participants characteristics

		<i>Taken measures to lose weight</i>		
		Yes	No	<i>P value Significance</i>
BMI category	Overweight	55 (35.7%)	99 (64.3%)	<0.001
	Obese	95 (58.3%)	68 (41.7%)	
Education level	No formal	0 (0.0%)	02 (100%)	0.003
	Primary	16 (29.6%)	38 (70.4%)	
	Secondary	117 (49.4%)	120 (50.6%)	
	Tertiary	17 (70.8%)	7 (29.2%)	
Age	18-39 years	21 (75.0%)	7 (25.0%)	0.008
	40-59 years	83 (46.1%)	98 (53.9%)	
	≥60 years	46 (42.6%)	62 (57.4%)	
Gender	Male	44 (47.8%)	48 (52.2%)	0.908
	Female	106 (47.1%)	119 (52.9%)	
Weight perception	Correct	36 (48.0%)	39 (52.0%)	0.892
	Incorrect	114 (47.1%)	128 (52.9%)	
Weight reduction advice given previously	Yes	71 (64.5%)	39 (35.5%)	<0.001
	No	79 (38.2%)	128 (61.8%)	

Table 4. Methods used by medical practitioners for the recognition of overweight/obesity in patients

<i>Methods used to recognise overweight/obesity</i>	<i>Frequency (%)</i>
Visual judgment based on appearance	21 (20.6%)
By measuring weight only	28 (27.4%)
By measuring weight and height	49 (48.1%)
By measuring waist or hip circumference	4 (3.9%)

Discussion

Our study revealed an alarmingly high rate of body weight misperception among patients with obesity and overweight. Only a minority knew about the concept of BMI. Less than half of the patients seen by a medical practitioner recently were told the diagnosis of overweight/obesity. It is concerning that the majority of the patients with obesity-related non-communicable diseases (NCDs) had not received weight reduction advice. This is particularly important since patients who were advised to lose weight had attempted weight loss more than those who were not informed about weight reduction interventions.

Overall, the body weight perception was poor in the studied group, where more than half of the overweight patients and 92% of obese patients perceived their weight status inaccurately. Reiterating the findings of previous studies, the inaccurate perception increased with higher BMI.^{13,14} The participants showed a clear tendency of underestimating their weight and such misconceptions would not only prevent them from attempting to lose weight but will also put them at a higher risk for unhealthy routines that may lead to weight gain.

This study demonstrates a lack of understanding of BMI, a surrogate marker commonly used to define obesity among patients. Thus, the body weight misperception could reflect their limited knowledge of BMI. Evidence supports that body weight misperception is common among people lacking insight into their BMI category.¹³⁻¹⁵ A correlation has been shown between the patient's ability to identify their overweight status and their desire to lose weight.^{16,17} Thus, the patients' insufficient knowledge of BMI and body weight misperception are particularly concerning for their weight reduction attempts. Our finding highlights the importance of explaining the BMI, its calculation, and

interpretation to the patients and correcting their perception of body weight to achieve weight reduction targets.

The recognition rate of overweight/obesity by medical practitioners was low and its documentation as a medical problem was highly deficient (2.6%) in our study. Furthermore, standard anthropometric measurements were used in less than half of the patients to determine their weight status, and in 20% of patients, the diagnosis was solely based on visual identification by the medical practitioner. It is evident that visual judgment of weight status can be inaccurate and may result in underestimation of the weight of overweight and obese patients.¹⁸ Thus, healthcare professionals should not rely solely on visual judgments when assessing patients' weight status.

Weight reduction is a crucial factor in achieving treatment goals for various obesity related NCDs, such as diabetes and hypertension. It is concerning that more than half of obese/overweight patients with diabetes, hypertension, and IHD had not received weight reduction advice from medical practitioners during their previous consultations. Given that medical practitioners were aware of the patient's disease status, under recognition of overweight and obesity is most likely attributable to the fact that excess body weight is not perceived as a clinically significant problem by them. This phenomenon of obesity "hiding in plain sight of the physician" has also been highlighted in other studies.^{8,19} Underdiagnosis of obesity by all provider types was observed in a community health centre in the USA. The rate of diagnosis of overweight/obesity in patients by Specialists and Residents was 46% and 17%, respectively.²⁰ According to a German study, the recognition and management of overweight and obesity were largely deficient in primary care, where only 39% of obese persons receive weight reduction advice from their healthcare professionals.²¹

Medical practitioners have cited numerous barriers to accurate diagnosis and documentation of overweight/obesity. In addition to the time pressure and the effect of concurrently more acute and severe somatic conditions, provider/patient concerns about weight stigma were also reported as a barrier to diagnosis and documentation of obesity.^{22,23} Although the possible factors are not reflected in our study, these barriers could explain the poor recognition rates of obesity/overweight among our study participants.

Evidence suggests that individuals who receive adequate advice and weight reduction counseling from a healthcare professional are more likely to attempt weight loss than those who do not receive this advice.^{24,25} Corroborating previous data, 61.8% of patients in our study who were enforced on weight reduction interventions by medical practitioners have attempted to lose weight. Despite medical advice, nearly 40% of patients who did not participate in any systematic behavioural intervention reported a lack of emphasis by medical practitioners on the importance of losing weight as the main reason for non-adherence. This prompts a call for more effective weight counselling by healthcare providers.

A search for factors associated with actual weight reduction attempts by the patients revealed a significant association between BMI category and education level with the attempts to lose weight. Although age did not play a significant role, it is noteworthy that younger patients participated in weight reduction interventions more frequently than older patients. In contrast to previous studies, our findings failed to demonstrate a significant association between body weight perception and the desire to lose weight among surveyed patients.²⁶

There are several limitations in our study. It is a single-centre, hospital-based study. Therefore, our findings cannot be extrapolated to the wider community. Misperception would likely be even greater in the community. As the details of previous consultations and diagnosis of obesity were inquired from the patient, recall bias is another limitation. Since recall ability decreases over time, we reduced the recall period to the last six months to minimize the effect of recall bias. We verified the documentation of obesity using medical records to minimize the effects of recall bias further. However, this study managed to identify both patients' perspectives of their weight status and clinicians' approach to overweight/obesity. Through this, we were able to explore associations between them. Comprehensive assessments of these aspects related to obesity/overweight have not been published in literature from this part of the world.

Conclusions

In conclusion, the acknowledgment of overweight/obesity status by both patients and clinicians is largely inadequate. Even simple advice by clinicians seems to promote weight loss attempts among patients. Thus, recognising the excess weight status of patients using standard anthropometric measurements and effective weight reduction counselling by medical practitioners is of utmost importance, and its incorporation into medical care should be optimised. Healthcare institutions should implement measures that trigger clinicians to look for obesity/overweight and manage obesity as a medical problem.

Author declaration

Availability of data and material: The supporting data and material of this study are available from the corresponding author on reasonable request. Patient's de-identification will be maintained in sharing the data.

Competing interests

The authors declare that they have no competing interests.

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Ethics approval

Ethics approval for this study was obtained from of the General Sir John Kotelawala Defence University (RP/2019/14).

Author contribution

Conceptualization: DG; design of research study: DG, NDS, JM; data acquisition: DG, GS, FA, data analysis: DG, NDS, FA, writing the manuscript: DG, NDS, FA, JM, GS. All authors contributed and approved the final draft of the manuscript.

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