PREVALENCE AND DETERMINANTS OF WEIGHT MISPERCEPTION AMONG ADULT FEMALES IN BASRAH CITY

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Abstract

Background : Background: Body weight and its perception are important aspects of health and constitute a significant role in physical and mental well-being.

Aims: To estimate the prevalence of body weight misperception among adult females in Basrah city and to show the main determinants that affect their weights, perception.

Materials and Methods: This is a cross–sectional study conducted during the period from the 2nd of January to the 1st of December 2020 on a sample of adult females who attended primary health care centers in the city center of Basrah Governorate/South of Iraq, 400 adults agreed to participate and   completed the interview. The researchers designed and used an interview questionnaire, all females who included in the study were interviewed, their weights and heights were measured.

Results: The study showed that about half of the studied females 211(52.7%) misperceived their body weights. The association between body weight misperception and age was highly significant (p=0.001), there is no significant association with the other studied characteristics.

Conclusions : The study showed that approximately half of the studied females misperceived their body weights. Females tend to perceive their weights accurately as their ages increase. Highest percents of weight misconception are for obese females who misperceived themselves as overweight and then for underweight ones who misperceived their weights as normal. Recommendations: Comprehensive intervention programs for women could be devised to raise self-awareness of their weight status, to overcome weight misperception, and to prevent obesity and its related health risks

Introduction

Concerns with body weight are common, and particularly relevant for women. Unfortunately, the concepts of normal weight, underweight, overweight and obesity, as defined by body mass index (BMI), are poorly understood by the general publications and perceived weight status is often discordant with actual body weight[1&2]. Self-perception of body weight reflects an individual's awareness of body weight status in relation to their actual body weight [3] .People who perceived their weight status inaccurately were more likely to engage in extreme or unhealthy weight management practices [4&5]

With the growing focus on body size and appearance, discrepancies between actual body weight measured as body mass index (BMI) and peoples' own perceptions of their body weights have also become a matter of interest [6]

According to previous studies from the United States of America and Canada, the proportions of weight misperception were approximately 20% and 30% among men and women, respectively.[7&8]

Korean study reported that approximately 40% of the total study population incorrectly perceived their weight status when compared with actual BMI status, which indicates a substantial difference in weight misperception across countries.[9]

There is a constitutional evidence accumulated within the last decade indicating that body weight concerns, misperception, and/or eating disturbances are fairly widespread among young Arab women.[10&11]

Several factors have been associated with weight misperception .There is a prior evidence showing that the thin-ideal and body dissatisfaction have disproportionately affected more women than men .[12&13]

In a study of middle-aged Korean women, the participants had a negative reaction to their realistic body, which was linked with stress and depression during menopause in women in their 50s .[14,15]

There are few studies suggest that types of marital relationships may influence weight evaluation. Entering marriage is associated with weight gain, particularly among women. This suggests that individuals may perceive their bodies differently and vary in their desired weights in harmony with their marital status.[16]

Weight perception could be affected by one's comorbidity like diabetes, given the association between overweight and obesity and chronic diseases.[17]

Socioeconomic disparities exist in weight status and behavioral outcomes. It has been suggested that perception of weight status is more likely to be determined by using those around us as a reference rather than by using clinical recommendations. [18] Nevertheless, other studies asserted that socioeconomic status differences in women's body dissatisfaction were rather small.[19&20].

Unjustified slimming may be the result of an ideal female figure promoted in the media. The media has given women a very narrow ideal body shape to emulate. In particular, recent studies have examined the relationship between the internet use and the body perception . [21&22]

Stress appears to have a greater effect on weight gain among individuals who are already overweight. [23]. During menopause, women experience declining hormone levels and loss of muscle mass, which can lead to difficulty in managing weight, and thus a negative assessment of body weight [24].

 No data are available regarding weight misperception among the adult population in Basrah. This study aimed to estimate the prevalence and the determinants of body weight misperception among adult females in Basrah city.

Materials and methods

This is a cross-sectional study conducted during the period from the 2nd of January to the 1st of December 2020 on a sample of adult females attended primary health care centers in the city of Basrah governorate, which is located in the south of Iraq, 443 females were asked to participate in the study, 400 of them agreed to participate and completed the interview, the remaining 43 either disagreed to participate or did not complete the interview. The six primary health care centers included in the study were chosen randomly by using simple random sampling technique.

The researcher visited each primary health care center about five times during the study period. Females who visited the primary health care centers seeking any type of medical care rather than antenatal care or postpartum care were invited to participate in the study, and then were interviewed to answer the questions included in a questionnaire designed for the study purpose. Weights were measured using a calibrated electronic weighing device, females were barefooted, wearing light clothes, weights were measured in kilograms(kg) and approximated to the nearby 0.1 kg. Heights were measured for barefooted females using a measuring scale on a perpendicular surface and measured by meter (m). Body Mass Index/BMI (kg/m2) defined as (weight in kilograms divided by the squared height in meters) was measured for each participant female. Actual weight statuses of the participants were classified using body mass index (BMI) values. Participants with BMI values of less than 18.5 kg/m2 were classified as underweight, those between 18.5 and 24.9 as normal weight, those with BMI between 25 and 29.9 as overweight, and those equal to or greater than 30 were classified as obese. [23]

For perceived weight statuses, participants were asked about the weight class they considered themselves to be in which was classified as the participant described their weights (very/somewhat)thin, normal, somewhat fat, very fat that are corresponding to (underweight, normal ,overweight or obese) respectively. If the perceived weight status of an individual did not match the actual BMI weight status, she is considered to misperceive her weight.

Data regarding age, educational level, occupation, marital status, self-evaluated income, history of any chronic disease(s), being menopausal/postmenopausal, smoking, history of stress at the last 12 months and history of obesity among first degree relatives were collected.

Statistical package for social science (SPSS) version 26 was used for the analysis of data. Chi-square value of less than 0.05 was significant.,

Results

The mean age of the studied adult females was 37.9 years, highest percents 32.5% and 30% aged 19-29 and 30-39 years respectively . Minority of the studied females (4.5%) were illiterates, those with primary education formed 12.5% and the highest percents (41%) and (42%) had secondary school and college education respectively. More than half of the participants were housewives (53.3%). Highest percentage of the studied females were married (54%) and 32.3% were never married. About half of the participants evaluated their income as medium. More than three quarters of the studied sample were free from having any chronic disease (77.8%), 61.7 % experienced more than usual stress in the last 12 months, history of obesity among first degree relatives was positive in 27.5%, and the majority were nonsmokers (Table I).

Table I: Characteristics of the studied adult females

		Character	Number	%
A/ Sociodemographic characteristics	Age groups/years	19-29	130	32.50
		30-39	120	30.00
		40-49	59	14.80
		50-59	50	12.50
		≥60	41	10.20
		Total	400	100.0
	Education	Illiterate	18	4.50
		Primary	50	12.50
		Secondary/intermediate	164	41.00
		College/institution	168	42.00
		Total	400	100.0
	Occupation	Housewife	213	53.2
		Employed	91	22.8
		Student	29	7.20
		Others	67	16.8
		Total	400	100.0
	Marital status	Never married	129	32.2
		Married	216	54.00
		Divorced	16	4.00
		Widow	39	9.8
	Self-evaluated income	Total	400	100.0
		Low	56	14.00
		Medium	194	48.5
		High	150	36.5
		Total	400	100.0
B/ History of chronic diseases		No	311	77.8
		Yes	89	22.2
		Total	400	100.0
C/ Stress at the last 12 months		Less than usual	15	3.8
		At an average level	138	34.5
		More than usual	247	61.7

	total	400	100
D/ Smoking History	Smokers	14	3.5
	Non-smokers	366	91.5
	X-smokers	20	5.0
	total	400	100.0
E/ Obesity among 1st degree relatives	No	290	72.5
	Yes	110	27.5
	total	400	100.0

Mean BMI of the participant females was 25.1 kg/m^2. Based on BMI measurement,s about half of the females (51.3%) had normal body weight Overweight and obese females . constituted 34% and 12.3% respectively, while only 2.4% of the participants were underweight (Table II)

Table II: Distribution of the participants by actual weight status according to BMI

BMI status	No.	%
Underweight	10	2.4
Normal	205	51.3
Overweight	136	34.0
Obese	49	12.3
Total	400	100.0

The highest percent of the studied females (39.3%) perceived themselves as overweight. Self- perception of the body weight as normal formed 28.4%, underweight females constituted 22%, while percent of the females who perceived

themselves as obese was 10.3%.(Table III)

Table III: Distribution of the sample by body weight self-perception and the actual body weight status

Classification of actual body weight according to BMI kg/m²	Body weight self-perception								Total	
	Obese		Over weight		Normal		Under weight			
	No.	%	No.	%	No.	%	No.	%	No.	%
Under weight	0	0.0	0	0.0	4	40.0	6	60.0	10	100.0
Normal	2	1.0	49	23.9	74	36.1	80	39.0	205	100.0
Over weight	15	11.0	85	62.5	34	25.0	2	1.5	136	100.0
Obese	24	49.0	23	46.9	2	4.1	0	0.0	49	100.0
Total	41	10.2	157	39.3	114	28.5	88	22.0	400	100.0

Results showed that 47.3% of the sample perceived their weight status correctly. More than half of studied females (52.7%) misperceived their weights. Those who underestimate their weights form 35.2% , while those who overestimate their weights constitute 17.5%. (Table IV)

Table IV: Distribution of the study sample according to body weight self-perception

Weight perception	No.	Percentage%
Accurate	189	47.3
Underestimation	141	35.2
Overestimation	70	17.5
Total	400	100.0

In the present study , more than half of females within the age group 19-29 years had body weight misperception 67.7% .Other age groups 30-39years ,40-49years ,50-59 years and 60-69years ,were having misperception percent of 47.5% ,45.8%,40% and 46.3% respectively . It is noticed that weight misperception decrease as age increase, but slightly return to increase at age group 60-69years. There is highly significant association between presence of body weight misperception and age of the adult females (p =0.001). No significant association was found between body weight misperception and all other characteristics.(Table V)

Table V: Association of body weight self-perception accuracy with characteristics of the study participants

Characteristics		Accuracy of self-body weight perception		Total		p-*value
		Correct perception Total(189) % (no.) .	Incorrect perception Total(211) % (no.)	(no.)	%	
Age/years	19-29	32.3 (42)	67.7 (88)	(130)	100.0	
	30-39	52.5 (63)	47.5 (57)	(120)	100.0	
	40-49	54.2 (32)	45.8 (27)	(59)	100.0	
	50-59	60.0 (30)	40.0 (20)	(50)	100.0	0.001
	60-69	53.7 (22)	46.3 (19)	(41)	100.0	
		X^2=18.065				
Educational level	Illiterate	50.0 (9)	50.0 (9)	(18)	100.0	
	Primary	46.0 (23)	54.0 (27)	(50)	100.0	
	Secondary	43.9 (72)	56.1 (92)	(164)	100.0	0.664
	College	50.6 (85)	49.4(83)	(168)	100.0	
		X^2=1.578				
Occupation	Housewives	45.5 (97)	54.5 (116)	(213)	100.0	
	Governmental employer	50.5 (46)	49.5 (45)	(91)	100.0	0.056
	Students	27.6 (8)	72.4 (21)	(29)	100.0	
	Others	56.7 (38)	43.3 (29)	(67) 100.0		
		X^2=7.555				
Marital status	Never married	38.8 (50)	61.2(79)	(129)	100.0	
	Married	51.4 (111)	48.6 (105)	(216)	100.0	0.113
	Divorced	43.8 (7)	56.3 (9)	(16)	100.0	
	Widow	53.8 (21)	46.2 (18)	(39)	100.0	
		X^2=5.975				
Self-evaluated income	Bad	37.5 (21)	62.5 (35)	(56)	100.0	
	Medium	49.0 (95)	51.0 (99)	(194)	100.0	0.288
	Good	48.7 (73)	51.3 (77)	(150)	100.0	
		X^2=2.487				
Chronic disease	No	48.7 (145)	51.3 (166)	(311)	100.0	
	Yes	49.4 (44)	50.6 (45)	(89)	100.0	0.639
		X^2=0.220				
Smoking	Non-smoker	46.7 (171)	53.3 (195)	(366) 100.0		
	Smoker	50.0 (7)	50.0 (7)	(14) 100.0		

	X-smoker	55.0 (11)	45.0(9)	(20) 100.0	0.754
		X^2=0.565			
Stress	Less than usual	53.3(8)	46.7(7)	(15) 100.0	0.520
	At average level	43.5(60)	(78)56.5	(138) 100.0	
	More than usual	49.0(126)	51.0(121)	(247) 100.0	
		X^2=1.310			
Menopause	No	44.4(131)	55.6(164)	(295)100.0	0.056
	Yes	55.2(58)	44.8 (47)	(105) 100.0	
		X^2 =3.645			
Family history of obesity	No	45.9(133)	54.1(157)	(290) 100.0	0.367
	Yes	50.9(56)	49.1(54)	(110) 100.0	
		X^2 =0.815			

Discussion

Weight misperception is the over or under estimation of one's weight.In the present study, about   half of studied population (52.7%) misperceived their weight status which   is regarded as a high percent that needs attention because this finding may have public health implications, as weight status misperceptions are thought to be associated with a variety of health associated outcomes, such as weight loss intentions, physical inactivity and mental well-being problems.[25&26.] A study in Pakistan, found that 50% of population with weight misperception was reported, this is explained by the desired attitude for overweight or obesity in South Asian culture [27.] Similar results were reported by a study on young adults in China [28.]

Another study among undergraduate university students in Pakistan showed a high prevalence of body weight misperception (42.2%), [29] while a study done in Karachi found that about one-third of female university students misperceived their body weight. [30]

In Mexico, overall misperception in young adults was 36.9% [31] .In studies conducted in the United States of America on older individuals with mean age above 40, misperception was prevalent in (40.1%), these results agreed with the results of the present study. [32]

Korean studies found that about 40% of the total study population incorrectly perceived their body weights when compared with their actual BMI statuses. [14]

This study showed significant association between body weight perception and age of the participants, body weight perception differs in different age groups. Highest prevalence of misperception (67.7%) observed in young age groups (19-29 years) , misperception prevalence decreased as   age increased . Although a substantial percent of females in other age groups (30-39),(40-49),(50-59) and (60-69) years had body weight misperception , this percent   is relatively lower than that observed for younger generation but still remarkable. One reported possible explanation

is that women re-evaluate their criteria of the ideal body weight as a result of facing biological limitations in achieving that weight [33,34].

Age has been shown to be related to misperception of weight status in several studies [35-38], the strength of the associations between age and weight misperception was not strong in disagreement with this study. Assessment of body weight perceptions in this study is important because a majority of these females are married, parents or at child bearing age which is in turn can influence their children's perceived body weights in the future. However, Conversely, and in contrary with the other studies [39], no significant association was found between marital status and weight misperception in this study. Health status and presence of chronic disease was not significantly associated with body weight misperception in the present study, this result disagreed with studies on adolescents , college students and adults [40-42]. Comparing weights distribution according to BMI with their distribution according to weight perception, this study found an increase in overweight perception group as compared with percentage of actually overweight group, this increase is due to that normal weight and obese women misperceived themselves as overweight. This observation may reflects the fact that, those females are afraid from an increased weight and escape from the truth of obesity.

Results of other studies on young adults showed that misperception occur more in overweight and obese persons [43], in this study , the highest percent of overall misperception was in normal weight individuals, obese, underweight and overweight females respectively. The highest rate of misconception (46.9%) is observed among obese females who perceived themselves as somewhat fat (overweight) followed by the percentage of very thin (underweight) ones who perceived themselves as normal (40%).

Conclusions

The overall conclusions of this study were that approximately half of studied females misperceived their body weights. Females tend to perceive their weights accurately as their ages increase. The highest rates of misconception are reported among obese females who perceived themselves as overweight followed by the underweight ones who perceived themselves as normal.

Recommendation

Comprehensive intervention programs for women could be devised to raise self-awareness of their weight status, to overcome weight misperception, and to prevent obesity and its related health risks.

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