A Case Study of the Impact of Overweight on Body Image and Self-Esteem in a Population of Moroccan Adolescents and Adults

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Abstract

Context: According to WHO, obesity or overweight are risk factors of psychological disorders and quality of life deterioration.

Objective: Evaluating the impact of overweight on body image and self-esteem in a population of Moroccan adolescents and adults.

Method: The study was carried out on 288 subjects (150 men, and 138 women), aged on average 34,86±0,82 years [15 -76]. Over weight was measure dusing the Body Mass Index (BMI), body image was evaluated using the Physical Appearance Comparison Scale (PACS), and self-esteem was evaluated using the Rosenberg Self-Esteem Scale (RSES).

Results: 43,28 % (n= 103) of subjects had a normal body weight, 25,63% (n=61) were overweight and 16,81% (n=40) were obese. 66,67% (68/102) of over weight subjects reported having compared their physical appearance to others. However, 60,46 % (78/129) of thosewith normal BMI also reported having compared their appearance to others some times or often. Among obese subjects, 73,68% (42/57) tend to compare their physical appearance to others some times or often. In terms of self-esteem, 85,3% (n=209) have a low to verylow self-esteem, 13,1% (n=32) have a moderate self-esteem and 1.6% have a high self-esteem. However, only 15,13% (28/185) of subjects with normal BMI had a moderate to high self-esteem.

A negative correlation was found between PACS and RSES (r= -0,139) and statistically significant correlations were found between BMI and both PACS (r= +0.125) and RSES (r= -0.189).

Conclusion: Consequently, it is recommended to establish multi-disciplinary programs for management of over weight among adolescents and adults, to mainstream the care received and reduce the pressure they experience.

Keywords: *Obesity, BMI, Body Image, Self-esteem, Prevalence, Morocco.*

Introduction

According to WHO (2016), obesity is considered a chronic disease due to its negative impact on general health. In adults, there are reference values to define overweight and obesity, according to the value of the Body Mass Index (BMI). We talk about overweight when BMI is greater than or equal to 25 kg/m2, and about

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obesity if BMI isgreaterthan or equal to 30 kg/m2[1]. Age and sex are alsotakenintoaccountwheninterpreting BMI[2] values. The prevalence of overweight and obesityamong adolescents has doubledworldwidesince the end of the seventies up untilbeginning of the first decade of 2000.

Obesity can cause severalpsychologicalimpairments like low self-esteem and body image[3]

Dissatisfaction: The psychologicaldistressamong obese subjectsisoftenlinked to social stigma, lack of self-esteem and dissatisfaction with body image. Manystudies have demonstratedthatoverweight or obese adolescents are at higherrisk of developinglow self-esteem, body image issues and low performance in social and sport activitiesleading to a lack of socializing[4-7].

Body image islinked to the individual's perception of hisown body, influenced by the socio-cultural contextwherehe grows[8]. It issubject-specific and impacts self-esteem9 significantly. Self-esteem and the physicalelementitislinked to are indicators of individuals' mental health[9]. This health issue may have seriouspsychological and social consequences on adolescents' school performance and the way and frequency of their social interactions, whichmay last till theiradult life [10].

Material and Method

Study Sample: The studywascarried out on 288 participants (n=288), 51,9% (n=150) males, and 47,8% (n=138) females. The averageageamongsubjectsis 34,86 ± 0,82 years [15,76]. It wascarried out in big Moroccancitiesex.:Tangier, Rabat, Casablanca, Fez, Marrakech, Agadir and Oujda, the studysample has been selectedrandomly to ensurehomogeneity and representativity.

Method: The studyused BMI, defined as ratio of weight in kilograms by the body area in square meters (kg/m2). According to WHO body weight classification, for normal body weight, BMI is 18.5-25 kg/m2, for overweight BMI is 5-30 kg/m2, and for obesityitis ≥30 kg/m2.

Furthermore, the studyused the 5-items Physical AppearanceComparisonScale (PACS), whichassesses the tendency of individuals to compare theirphysicalappearance in five social situations. Subjects report how oftenthey compare theirphysicalappearancewithothers on a scale of 1 to 5:where 1 meansnever and 5 meansalways. Total scores range from 5 to 25, wherehigher scores indicate a strongtendency to compare one'sappearancewithothers.

In addition, the impact of obesity on self-perception wasmeasuredusing the Rosenberg scale of self-esteem (Rosenberg 1965), whichmeasuresoverall self-esteem. It comprises tenstatements to whichsubjectsneed to express theirlevel of agreement on a scalesimilar to "Likert" scalefrom 1-4, where 1 means "totallyagree", to 4 meaning "totallydisagree".

Statistical Analysis: To verify the participants' understanding of the test'selements, a preliminary one wascarried out on twelvesubjects, no aberrations noted. The validity of the criterion of simultaneity of the PACS and the self-esteemwasstudied by analyzingtheir association with the BMI.

Data collectedwereanalyzed by SPSS (ver.20). Resultswereexpressed in average± standard deviation (SD) for quantitative variables, and in frequency for qualitative variables. Multiple correlations analyses werecarried out like X^2test with 5 % error and ANOVA (one way).

Results

Socio-demo graphic and anthropometric characteristics: The studywascarried out with 288 subjects, 52,8% (n=150) are males, and 47,9% (n=138) are females. Averageageamong males is 33,5±1,09 years [16,76],andamongwomenis35,79±1,20years[15,71].The test of Fisher hasn'tdemonstrated a significantdifference in agebetweengenders (Fisher=1,98; p<0,16). The distribution per age groups shows that 63,2% (n=182) are adults, and 36,8% (n=121) are adolescents (15-25 y.o). The distribution per schoolattainment shows that 58% (n=167) are universitygraduates vs. 42% (n=121) reachingsecondaryschool. However, across all single subjects, 52,19% are adolescents and 45,05% are adults.

The average BMI of participants is 26,04±6,30, [15,61:75,12]. The difference of average BMI acrossgender groups isstatisticallysignificant, (males; 24,68±4,92 vs. females; 27,53±7,10); t (286) =3,98, p<0,000) (Table 1).

Table 1: Sociodemo graphic and an thropometric characteristics of participants

Variable	Value	Sample size (N=288)	Percentage
Gender	Male	150	52,1
	Female	138	47,9
Level of studies attained	Secondary	121	42
	Graduate	167	58
Age category	Adolescent	106	36,8
	Adult	182	63,2
BMI	Normal	129	44,79
	Overweight	102	35,42
	Obese	57	19,79

Study of the Physical Appearance Comparison Scale: The distribution of scores per percentiles, shows that 34,7% (n=100) of subjects have answeredrarely or never to the statement of "I compare myappearance to the appearance of others", while 43,1% (n=124) have answeredsometimes, and 22,2% (n=64) answeredoften.

The tests of Chi Square show statisticallysignificant associations between the PACS and variables like:sex, highestlevel of studiesachieved, age and BMI, for which the p-values are respectively: (p<0,66) (p<0,047), (p<0,032) and (p<0,013).

From the point of view of the level of studiesachieved, the rate of people havingreachedsecondaryschool, and thosewithuniversitydegreeswho have reportedthattheyoften compare theirappearance to others are respectively 26,45% and 19,16%. Amongstthosestudy participants whoreportedcomparingtheirappearance to othersonlysometimes, 35,54% have reachedsecondaryschool vs. 48,50% who are universitygraduates.

In terms of age group, among adolescents (n=103), 51,46% reportedcomparingtheirphysicalappearance to otherssometimes, while 22.33% reporteddoingitoften. However, amongadults (n=179) 21,23% reportedcomparingtheirphysicalappearance to othersoften vs, 39,11% of thosewhodiditsometimesonly. With regards to the distribution of PACS and BMI, the Chi square test confirmed a significant association betweenbothvariables(Chisquare=8,45;51,46%).Indeed, the rates of overweight and obesityamong participants whoreportedcomparingtheirphysicalappearance to othersoften, are respectively 19,61% and 35,09%. Although 47,6% of overweight participants and 38,6% the obese have reported doing it only some times, the tendency to compare one's physical appearance to others is much more accentuated among obese subjects (73,68%) than among over weigh tones (66,67%). Now, among obese subjects (n=57), 14 females and 7 males reported comparing their physical appearance to others often, while among those who reported doing it some times, 13 were females and 9 were males (Table 2).

Table 2: Association of the PACS score withsex, level of studiesattained, age and BMI

Variable		PACS Score "I compare myphysical appearance to others"			Total	X^2 (p value)
		Rarely	Sometimes	Often		
		(n=100)	(n=124)	(n=60)		
Sex	Male	54	64	32	150	0,12 (p<0,66)
	Female	46	60	32	138	
Level of studies achieved	Secondary	46	43	32	121	5,45 (p<0,047) *
	University	54	81	32	167	
Age	Adolescent	28	53	25	106	4,58 (p<0,032) *
	Adult	72	71	39	182	
BMI	Normal	51	54	24	129	8,46 (p<0,013) *
	Overweight	34	48	20	102	
	Obese	15	22	20	57	

*: Significant difference with 5% margin of error

The study of Rosenberg scale of self-esteem (RSES): The distribution of scores obtained shows that 85,3% (n=209) had a low to verylow self-esteem,13,1% (n=32) had a moderate self-esteem and 1.6% (n=4) had a high self-esteem. The Chi-squared test shows a significant association between self-esteem and variables like:level of studiesachieved and BMI, with p-values (p<0,016) and (p<0,023) respectively. Indeed, 90,78% of subjectshadachieveduniversitystudies vs. 77,88% whohadreachedsecondaryschool, all of whichhad a low to verylow self-esteem. 85,36% of overweightsubjects and 92,85% of the obese had a low to verylow self-esteem (Table 3).

Table 3: Comparison of the RSES based on sex, level of studies, age and BMI

Variables		RSES			Total N	X^2 (p value)
		Low	Moderate	High		
		(n=209)	(n=32)	(n=4)		
Sex	Male	111	19	3	133	1,14 (p<0,58)
	Female	98	13	1	112	
Level of studies achieved	Secondary	81	21	2	104	8,30 (p<0,016) *
	University	128	11	2	141	
Age	Adolescent	81	9	1	91	1,60 (p<0,45)
	Adult	128	23	3	154	
BMI	Normal	157	27	1	185	11,35 (p<0,023) *
	Overweight	35	3	3	41	
	Obese	13	1	0	14	

*: Significant difference with a margin of error of 5%

The correlationanalysis by multiple correlationof variablesinvolved, shows that the PACS isnegativelycorrelatedwith the RSES (r=-0,139; p<0,030), demonstratingthatsubjectswith high PACS score have a low self- esteem and vice-versa. However, itwasdemonstratedthat BMI ispositivelycorrelatedwith PACS (r=0,125; p<0,038) and negativelycorrelatedwith RSES (r=-0,189; p<0,033). Age has not shownanysignificantcorrelationwith PACS and RSES, but remains in a significantcorrelationwith BMI with a correlation coefficient of r=+0,337 (p<0,000) (Table 4).

Table 4: Multiple correlationsbetween PACS, RSES, BMI and age.

Variables		PAC score	RSES Score	BMI	Age
PAC Score	Correlation of Pearson	1	-,139*	,125*	-,097
	Sig. (bilateral)		,030	,038	,106
Score RSES	Correlation of Pearson		1	-,189*	,046
	Sig. (bilateral)			,033	,472
BMI	Correlation of Pearson			1	,337**
	Sig. (bilateral)				,000
Age	Correlation of Pearson				1

* The correlation is significant with a p=value of 0.05 (bilateral).

** The correlation is significant with a p=value of 0.01 (bilateral).

Discussion

This study aimed to explore the relationshipbetweenobesity and self-esteem/body image amongMoroccan adolescents and adults of bothgenders (288 subjects). The rate of obese adolescents in our sample reached 9,71%.

However, in Canada and the US data show that more than the third of adolescents are considered overweight or obese6. The results of this study show a significant association between BMI and PACS (r=0,12; p<0,038), which explains the direct impact of weight on body image, which manifests by comparingone' physical appearance to others.

In addition, men and women differ clearly when it comes to self-assessment of their body, on average women perceive the mselves more as "fat" than men.

In terms of dissatisfaction with the body image, differences between genders are obvious;itincreases more among women than men as BMI increases. The particular focus of women on their weight comesf rom the collective perception of body image among women, linking body image satisfaction to slimness[11].

Female adolescents are more targetedthan males by media, vector of socio-cultural standards and ideals of beauty, where the ideal body is the one whichis slim[12,13]. The most unconfident individuals tend to compare their physical appearance to others most. Furthermore, the resultsconfirm the association between body satisfaction and self-esteem (r=0,139; p<0,03). This supported by previousresearch, demonstratesthat the level of body satisfaction isassociatedwith a high self-esteem[14-16] in bothgenders. In fact, scientific works which studied the correlationbetween body image satisfaction and self-esteem, confirm the strong association betweenboth, regardless of gender or age.

How body isperceivedis at the core of complex processes involving self-expression and self-assessment. More precisely, self-evaluation is imbedded in a common perceptive process, subjacent to self-esteem[17].

Manystudiesdemonstratedthat 50% to 75% of overweight adolescents exhibitlow self-esteem. Significantcorrelationwasfoundbetween PACS and RSES amongoverweight adolescents and adults (r=-0,139). Otherstudiesdemonstrated a disturbed body image and self-esteemamongoverweight and obese young people[18], where adolescents are more susceptible of both low self-esteem and body image issues compared to those with normal body weight[19]

Our results suggest that the need to besocially accepted, over coming shame, and excessive focus on physicalappearance are paramount to improving self-esteem. Theyclarify to what extent the entourage of overweightindividuals can influence their self-esteem, theirpsycheand attitudes. These results are of invaluablei nterest to social and public health decision makers, to improve the mental health of this growing population in Morocco.

Conclusion

This studyopened new avenues for a need to establishmultidisciplinary programs for obesity management, involving the expertise of a variety of healthcareprofessionalsbased on the psychological profile of each patient. Theysuggestthat the psychological dimensions related to body image and self-esteemcould condition the individual'srelationships, his social acceptation and integration. Body satisfaction seems to lead to higher self-esteemamongMoroccanfemales. In summary, the existing relation between body image and self-esteemdenotes the importance of restoring the deficient self-esteem, in body image disorders, by establishing an institutional program with a wholisticapproach to reconstitute the subjective value that obese subjectsassociate to their body.

Conflict of Interest: No

Source of Funding: No

Ethical Approval: The procedures were carried out in accordance with the recommendations of the Internal Ethics Committee of the Center for Doctoral Studies, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco. This procedure was examined and approved by the Committee.

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