

# Eating behavior and body image perception: an epidemiological study on Italian Adolescents

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**Abstract.** In order to identify some of the psychological-environmental factors behind an unbalanced diet or incorrect eating habits which may be connected to the onset of eating-behavior disorders. A sample of 4550 teenagers (2221 males and 2329 females) aged between 12,3 and 18,9 years (mean age =  $14.49 \pm 3.8$ ), was consecutively recruited taken from several secondary schools and high schools. The Pisa Survey for Eating Disorders (PSQ), a questionnaire aimed at evaluating both eating habits and self-perception of body image, was administered. Answers given to some items have highlighted a recurrence of cognitive distortions, an excessively rigid self-perception of body image as well as frequent, often daily, dysfunctional eating habits. The PSED questionnaire has proved itself to be a useful and easy-to-use tool. It helps to reveal maladjusted behavior and to evaluate probable risk factors connected with the development of eating and emotional disorders.

**Key words:** Eating behavior, body image, adolescence, diet, eating disorders, epidemiological study.

## Introduction

The search for food is a behavior pattern aimed at satisfying primary physiological needs. These needs are essential for the survival and conservation of the species. According to Maslow's pyramid model (1), satisfying primary needs (physiological and concerning safety) is the foundation on which all further needs can be built. Next come social needs (to be loved, to belong, to be appreciated and to achieve) and once these have been met, there are still higher aspirations (self-needs, the need for transcendence).

The satisfaction of physiological needs, such as hunger, is therefore a necessary step towards achieving the satisfaction of social and personal needs.

Nutrition is, furthermore, one of the behavior patterns controlled by neurological and physiological mechanisms responding to negative feedback, which correspond to the sensations of hunger and satiety. In

more evolved societies, not necessarily only western cultures, the search for food is relatively independent from strictly biological needs and is controlled rather by other factors such as contextual stimuli such as time, the sight of a laden table, the smell and sight of food etc. (2).

Therefore in a society where, thanks to better living conditions, one can easily find food, it is easy for the quantity and quality of food to pass into second place. This means that other factors condition eating habits, for example the appearance and presentation of food, or hedonistic factors such as a preference for tasty or spicy foods or even socio-cultural factors which include invitations to lunch, dinners, business dinners and receptions etc. Amongst others, De Castro and De Castro (3) have noticed a direct correlation between the amount of eaten food and the number of people present at the table, concluding that the higher the number of people at the table, the higher the tendency to overeat.

A recent epidemiological study on a sample of 1055 adolescent subjects, has revealed the reality of how this group of young people examined, shows a significant tendency towards physiologically abnormal eating behavior and a high frequency of compensatory behavior, together with a noticeable feeling of discomfort and general refusal towards their own body (4).

In 2000, a national study, the "Health Behavior in School Aged Children", was carried out in seven provinces around Venice, Italy. It examined the relationship between the self-perception of one's own body image and the presence of eating disorders in a sample of about 4800 young aged between 11 to 15 years. The discrepancies emerged between the objective (BMI) and subjective indices (questionnaire) suggest that Venetian young people have a distorted idea of body image. A positive feeling about one's own body appearance resulted relatively low: while the boys would like to see themselves bigger and more masculine and consider themselves too thin, the girls have an idea of long slender beauty and consider themselves too fat (5).

In the case of adolescents, the need to meet a standard body image based on values shared by peer groups is probably of such crucial importance because only puberty does cause such radical and visible body changes. (6). The correlation between the refusal to accept their own body and dysfunctional eating behavior has already been described in literature (7-11), in the same way the role of family, friends and the media as socio-cultural factors can contribute towards the construction of distorted ideas of body image, so much so that adolescents are pushed to modify their looks, seeking new methods or increasing those already used (12-15). Resorting to rigid diets or excessive physical exercise with the aim of modifying body shape and image is often followed by inevitable relapses into abnormal eating behavior (binging) and irregular eating habits (eating between meals at any time of day or night) which in some cases are remedied using coercive methods such as mechanically induced vomiting or the use of laxatives. These dramatic results can go further to consolidate the conviction of having an inadequate body, which then triggers off further desperate attempts to compensate as a vicious circle (16-19).

## Materials and methods

Over a five-year period (1995-2000) 4550 adolescents (2221 males and 2329 females) aged between 12.3 and 18.9 years (mean age =  $14.49 \pm 3.8$ ), from various secondary schools and high schools from the provinces of Livorno, Lucca, Parma, Pisa and Siena, were examined.

All subjects answered, among others, the Pisa Survey for Eating Disorders, a questionnaire used to measure behavioral aspects and self-perception of body image, as well as providing information concerning eating habits, which may or may not be considered dysfunctional by means open and closed questions (15).

To be more precise, the following areas have been investigated using the PSED:

1. Interpersonal relationships (emotional and sexual relationships, social contacts).
2. Body image (relationship with one's own body, level of satisfaction with body image, partial and global perception of one's own body).
3. Eating behavior (diets, bingeing, induced vomiting and use of laxatives).
4. Physical activity (type and frequency of activities carried out).

The PSED questionnaire also presents items in diverse forms:

- Yes/No answers to specific statements
- Questions with two or more alternative answers
- Answers with a specific value (corresponding to: frequency, level of satisfaction, level of intensity) concerning certain situations.

The questionnaire was administered to groups and full filled in by each student during normal lesson time, in the presence of the class teacher and two qualified psychologists, one male and one female.

## Results

The results refer to the analysis of the answers given to some items taken from the questionnaire; these were the areas concerning 'body image' and 'eating habits'. Results referring to the whole sample and tho-

se referring to male/female comparisons were analyzed separately (Tab. I, Appendix 1).

Item 7: "From an aesthetic point of view, how do you see your body now?". 28% of the sample expressed a negative opinion (awful = 8% and ugly =20%) concerning their own body.

Item 9: "Have you ever had a weight problem in the past?" 36% of the sample gave an affirmative answer.

Item 10: "Have you ever considered yourself overweight?". 42% of the sample said that at some point they had felt overweight.

Item 11: "Have you ever considered yourself too thin?". 45% of the sample admitted they had felt too thin at some point during their life.

Item 12: "How do you feel about your body?". 45% of the sample were dissatisfied with the appearance of their body (dissatisfied = 35% and disgusted = 10%).

Item 13: "How do you feel about your weight?" Only 30% of the sample considered their weight suitable. 56% of the subjects desired to lose weight (I really should lose weight = 23% and I should be a little slimmer = 33%). The remaining 14% aimed at putting on weight (I really should put on weight = 4% and I should put on a little more weight = 10%).

Item 15: "Have you ever been on a diet?", 45% of the sample had already been on a diet.

Item 16: "Are you following a particular diet at the moment?". 38% of the subjects were at the time of answering, on a diet.

Item 18: "Do you think you eat in an irregular fashion?". 67% of the sample reported an irregular eating pattern.

Item 30: "At present, how often would you say you overeat?". 47% of the sample admitted occasional bingeing. In total, 21% of the sample admitted to 'bingeing' at least once a day (once a day = 15 % and more than once a day = 7%).

Item 36: "Do you ever make yourself sick?". Vomiting occurred among the subjects with a frequency of 18%.

Item 36(a): "If yes, how often?". Twenty-seven per cent of the whole group reported vomiting. Those vomiting at least once a day came to 16 % (every day = 13% more than once a day = 3%).

Item 37: "In general what do you do to cause vomiting?". The number of subjects turning to coercive remedies (particular food=10%, particular drink=5%, other substances=2% and mechanically=4%) came to 21 %, which is greatly higher than the percentage of spontaneous vomiting (7%).

#### *Male/female comparisons*

Item 7: "From an aesthetic point of view, how do you see your body now?". The aesthetic opinion expressed by the boys concerning their body was on the whole positive, ('satisfactory' = 46%, 'good-looking' = 31% and 'very good-looking' =5%).

The percentage of positive answers came to 82%. However the percentage of negative opinions is not to be overlooked [18% ('ugly'= 14% and 'awful'= 4%)]. Among the girls a positive opinion of their own body [61% (satisfactory = 40%, pretty= 18% and beautiful = 3%)], despite being a higher percentage than the negative opinions on body image [39% (ugly=24% and awful=15%)], were however a lot lower than the corresponding percentages among males (63% in females as opposed to 82% in males).

Furthermore, in the female group, we see a greater imbalance in the percentages relating to extreme opinions (awful=15% and beautiful=3%), which in the male group is almost the same (awful = 4% and very good-looking = 5%).

Item 9: "Have you ever had a weight problem in the past?". The percentage of girls who refer to having had a weight problem in the past is far higher than in the male group (47% as opposed to 30%). What stands out is the fact that almost half the girls have had, or claim to have had a weight problem.

Item 10: "Have you ever considered yourself overweight". The percentage of females who claim to have felt overweight at some time (61%) is noticeably higher than the percentage among boys (19%).

Item 11: "Have you ever considered yourself too thin?" In this case, the number of subjects who claim to have felt too thin is higher amongst the boys (57% males as opposed to 23% females). This imbalance is a similar and coherent inversion of item 10.

Item 12: "How do you feel about your body?". Although the percentages of females who resulted relatively satisfied [47% (satisfied = 41%, very satisfied =

4% and happy=2%]) and those who resulted dissatisfied [53% (dissatisfied=37% and 'disgusting'=16%)] concerning their own body are slightly uneven, the percentages referring to extreme opinions are decisively more significant ('disgusting'=16% and happy=2%). Compared to the female values, the boy's statistics for extreme opinions are noticeably more similar ('disgusting'=7% and 'happy'=5%).

Furthermore, in the male sample, the percentage of boys satisfied with their body [75% ('satisfied'=45%, 'very satisfied'=25% and 'happy'=5%)] is significantly higher than the percentage of boys dissatisfied with their appearance [25% ('dissatisfied'=18% 'disgusting'=7%)].

Item 13: "How do you feel about your weight". In the comparison between males and females, males are on the whole more satisfied with their weight (48% as opposed to 21% females). What is more, compared to the boys, the girls have a higher tendency to diet (32% as opposed to 10% males), and a higher needs to be slimmer (35% as opposed to 24% males).

Item 15: "Have you ever been on a diet?" The percentage of girls who have dieted at least once is significantly higher than the corresponding percentage of boys (60% females, 19% males).

Item 16: "Are you following a particular diet at the moment?" The number of girls who reported to be following a particular diet is higher than the number of boys (62% females, 38% males). This is perfectly coherent with Item 15.

Item 18: "Do you think you eat in an irregular fashion?". The occurrence of irregular eating habits is more frequent among the girls than among the boys (66% females, 58% males).

Item 30: "At present, how often would you say you overeat?". The proportion of females who admit to 'binging' is higher than the proportion of males (57% females, 37% males). In the female sample, 'binging' at least once a day resulted for 18%. In the male sample, the frequency of the same behavior was around 8%.

Item 36: "Do you ever make yourself sick?". Vomiting had a higher occurrence among the females than among the males (39% females, 18% males).

Item 36(a): "If so, how often?". The percentage of girls who vomit at least once a day came to an alar-

ming 22% ('once a day'=14% and 'more than once a day'=8%). Within the male group, vomiting at least once a day was reported by 11% of the boys ('once a day'= 8% and 'more than once a day'=3%).

Item 37: "In general what do you do to cause vomiting?". The boys who forced vomiting were 6% while the females numbered 33%. Furthermore 1% boys and 6% of the girls exercise 'mechanical vomiting'.

## Discussion

The data obtained from the present study allows us to confirm that all too often self-perception of body image among adolescents does not coincide with the body desired. Two different tendencies emerged: while girls aim for a longer, slimmer body shape, boys, in general apart from having at some time felt overweight like their female peers, admit also to feeling too thin.

This apparent contradiction can be explained by the fact that boys would like to have a lean body (and hence thinner) while at the same time desiring a more robust and muscular constitution (and hence fatter).

The frequency of dysfunctional eating behavior throughout the whole sample was an alarming 67% and even more worrying is the percentage referring to the daily frequency (once a day) of 'binging' and above all of vomiting. In general girls, compared to their male peers, tend to fall more into this abnormal behavior and furthermore they resort more frequently and more seriously to coercive remedies of evacuation, e.g. vomiting or laxative abuse .

This epidemiological study, despite being carried out on a sample group which could not be considered representative of the Italian adolescent population as a whole, and despite being carried out in different moments, undoubtedly underlines how deep rooted and deep felt is the lack of confidence concerning one's own body image within the population examined. This discomfort with one's own body perception cannot have anything but obvious repercussions in life. This phenomenon has already been well described in literature, but all the operators involved in this study were stuck by its proportions, which were far greater than any expected. This was even more veritable con-

cerning the part of the study dealing with eating habits and possible compensatory behavior; in fact it is extraordinary in its dramatic proportions, how an ever-increasing percentage of the young population appears to consider certain solutions of hyper-compensation, such as bingeing and self-induced vomiting or drinking and eating in an irregular fashion as almost normal or fashionable behavior.

This study has concentrated above all on psychological and nutritional aspects and has therefore not used other auxological and anthropometric indices, such as weight, height or body mass index (BMI) or others, which may have helped to ascertain in a more objective manner the entity of the cognitive distortions relative to self-perception of body image. Despite this however, the study has enabled us to measure the scale of this teenage problem and to quantify the alarming diffusion of 'coping' strategies which are definitely not adaptive, giving us reason to encourage politicians and administrators, the body of teachers and all professionals and scholars in this sector to carry out adequate and urgent measures of an informative-educational nature in order to prevent further dramatic developments in this area, through systematic intervention for prevention and treatment, based on concrete knowledge of the phenomenon.

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## APPENDIX 1

Tab. 1: PSED, chosen answer, whole sample and male/female comparison

N.	Content	Item	Level	% M	% F	% Tot
7	From an aesthetic point of view, how do you see your body right now?		Awful	4	15	8
			ugly	14	24	20
			satisfactory	46	40	47
			good-looking	31	18	22
			very good-looking	5	3	3
9	Have you ever had a weight problem in the past?		yes	30	47	36
			no	70	53	64
10	Have you ever considered yourself overweight?		yes	19	61	42
			no	81	39	58
11	Have you ever considered yourself too thin?		yes	57	23	45
			no	43	77	55
12	How do you feel about your body?		disgusted	7	16	10
			dissatisfied	18	37	36
			satisfied	45	41	41
			very satisfied	25	4	9
			happy	5	2	4
13	How do you feel about your weight?		I really should loose weight	10	32	23
			I should be a bit thinner	24	35	33
			OK	48	21	30
			I should put on a little weight	14	10	10
			I really should put on weight	4	2	4
15	Have you dieted in the past?		yes	21	60	45
			no	79	40	55
16	Are you following a particular diet at the moment?		yes	16	47	38
			no	84	53	62
18	Irregular eating patterns.		yes	58	66	67
			no	42	34	33
30	Binging frequency		never	62	42	49
			once a week	19	27	20
			more than once a week	11	13	9
			once a day	7	10	15
			more than once a day	1	8	7
36a	Vomiting frequency		never	82	61	72
			occasionally	4	5	4
			once a week	2	4	3
			more than once a week	1	8	5
			once a day	8	14	13
			more than once a day	3	8	3
37	How is vomiting caused?		It doesn't happen	82	61	72
			spontaneously	12	6	7
			particular food	2	18	10
			particular drink	2	7	5
			other substances	1	2	2
			mechanically	1	6	4