

Body Image Disturbance and Dissatisfaction, Scorn and Stigma in Severely Obese Individuals, a Case-Control Study

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Abstract

Background: The obesity rate is rising. The aims of this study were to elucidate the connection among body image disturbance and dissatisfaction, scorn and stigma in severely obese individuals using a case-control method. **Method:** The study group consisted of 112 individuals receiving permanent disability pensions primarily for obesity. The controls were selected by random sampling. The controls were matched with the subjects by place of residence, gender, age, the time since the pension was granted and occupation. Psychiatric interviews and psychological assessments were conducted with all participants. The results were analyzed via chi-squared tests (χ^2 -tests) and percent distributions. The subject and control groups were compared via paired t-tests. Conditional logistic regression analysis was also conducted. **Results:** In the Draw a Person test, we found disorganization of the body image to some degree in the subject group. Some significant differences were found between the Machover index and the wholeness index. The Rorschach variables obtained some differences in the responses between the subject and control groups. Obesity was a problem in all age groups. In the study group, half of the participants thought that they were obese. Most of the participants had endured scorn and contempt directed at them due to being overweight. **Conclusions:** We believe that our study provides a novel and necessary overview of the connection among body image disturbance and dissatisfaction, scorn and stigma.

Keywords

Body Dissatisfaction, Body Image, BMI, Draw a Person, Machover Index,

Obesity, Overweight, Rorschach Variable, Scorn, Stigma, Weight Misperception, Weight Perception, Wholeness Index

1. Introduction

The biological and psychosocial backgrounds of obesity have been studied extensively. However, not many studies have been conducted on the psychiatric problems related to obesity, such as disturbances in body image, dissatisfaction, and the scorn and stigma due to obesity.

1.1. Body Image

According to Bruch [1], body image is a fluid concept based on all the sensory and mental perceptions that are integrated in the central nervous system. Bruch considered feelings of control and possession of one's body to be essential elements of body image. Body image refers to one's physical, emotional, and interpersonal view of his/herself. In obesity, disturbances in body image occur, especially among individuals who become obese during childhood and adolescence. The development of a disturbed body image in an obese child depends on his/her parents' attitudes toward obesity [1]. According to Powers, the emotional aspect of body image is the sum of all the attitudes one has about his/her body [2]. According to Stunkard [3], only two factors are involved in obesity. The first of these factors is hyperphagia (overeating); at least one time in his/her life, each obese individual has consumed far more calories than he/she has expended. The other main finding among obese individuals is the presence of a disturbed body image. This is a more common finding among individuals who have been obese since adolescence.

Stunkard and Mendelson [4] showed that the development of body image disturbance depends on three factors: the age at the onset of obesity, the presence of emotional disturbance, and negative attitudes expressed by others toward obesity during childhood and adolescence. Such obese individuals judge the entire world on the basis of various weights. Stunkard and Mendelson [4] also proposed that a disturbed body image of this type requires intensive psychotherapy; the individual cannot be cured otherwise. Stunkard and Burt [5] observed that a disturbed body image was most common among individuals who had been obese in childhood. Stunkard and Wadden [6] found that body image disturbance rarely remits spontaneously. They examined several overweight persons before and after antiobesity surgery. The disturbance was most commonly found in individuals with childhood onset of obesity. According to Adami *et al.* [7], after surgical methods in postobesity individuals with adult-onset obesity, body image perceptions were very similar to those of controls, while in those with early-onset obesity, body image perceptions were abnormal. Rand and Stunkard [8] [9] found that the disturbances in body image of

obese individuals were lessened over four years of psychoanalytic therapy.

Wardle *et al.* [10] found that early-onset obesity has an adverse effect on body image, which is independent of current BMI. Moreover, early-onset obesity increases the risk of body dissatisfaction, which, in turn, impairs self-esteem [7].

1.2. Dissatisfaction

Dissatisfaction with one's own weight is very common. Here, we investigated dissatisfaction with one's own weight in individuals with obesity.

According to Crawford and Campbell [11], the average BMI at which women considered themselves to be overweight was significantly lower than that for men and was well within the acceptable BMI range. The results of the study by Pingitore *et al.* [12] indicated that satisfaction with body weight and shape decreased as BMI increased in both genders. Women, however, showed significantly greater body and weight dissatisfaction than men in most weight categories. Leonhard and Barry [13] demonstrated that the discrepant scores were significantly different among the groups of females. Subjects agreed on judgments of hypothetical normal male and female figure sizes; men in different BMI groups agreed upon a figure representing their size and felt that their desired size was attainable. Obese and very obese females underestimated their size and felt that their desired size was unattainable. The disparity between ideal body weight and real body weight is the source of emotional and physical distress for many women. This dissatisfaction with one's own body can lead to situations and behaviors that reduce the health and life quality of a woman [14].

Interpersonal relations in childhood and adolescence are important for consistent body dissatisfaction. The influence of family and peers is important for reducing body dissatisfaction without depending on the media [15] [16].

In the research of [17], it was found that female university students value their own ideal body weight as being lower than their real body weight. Most of the female students possessed body image disturbances and dissatisfaction with their own weight. Individuals who had undistorted body images had better nutritional situations.

1.3. Scorn and Stigma

The rate of obesity is rising. The stigma of obesity seems to be maturing and spreading globally [18]. The experience of being fat-shamed results in chronic pressure, which affects millions of individuals [19]. Overwhelmingly, individuals who are obese start to believe, internalize and project the stigma of obesity as others do [20]. Prospective research has found that adults who have experienced discrimination due to their weight have a 2.5 times greater risk of becoming obese. The fact is, those who have gained weight experience true difficulty in losing weight [21].

Research has shown that social rejection and isolation causes psychosocial stress [22]. This situation can lead to obese individuals having individuals with

similar situations within their social networks [23] [24]. This situation starts developing during childhood. [25] [26] [27] found that negative weight bias influences choices and that this bias occurs in everyday life. In working environments, females become objects of discrimination [28]. Additionally, low income is involved in many aspects of quality of life [18] [29] [30]. [31] researched the relationship among self-esteem, guilt and shame, which were found to be connected to body and weight status. They found that women had statistically high levels of shame and guilt regarding their own weight.

Psychosocial stress is possible in childhood because of school bullying. Social relations could also be causes of stigma. What peers eat and take an interest in can result in obese individuals having small social networks, which relates to the fact that individuals with obesity are also very lonely [31] [32].

The aims of this study were to elucidate the connection among body image disturbance and dissatisfaction, scorn and stigma in severely obese individuals. Considering the background information presented above, we found that this association has not yet been fully investigated. This was a case-control study.

2. Materials and Methods

The participant sample consisted of individuals living in southern Finland, each of whom was receiving a permanent disability pension primarily due to obesity. One hundred and fifty-two individuals met these criteria. Nineteen had been granted a temporary pension and were excluded from the sample. Participants who died or no longer received a pension were also excluded. The study group consisted of 112 patients (81 women and 31 men). The control group was selected from the same area and consisted of individuals receiving a disability pension due to a different primary illness. The controls were matched with the subjects according to place of residence and sex. The matching process also considered age, the time that the pension was granted and occupation. The occupations of the controls were either the same as the subjects or were unknown. The controls were selected by random sampling. Because male subjects constituted a small group, many controls were selected to ensure a reliable analysis [33].

The male and female controls were selected separately. Three controls were selected for each female subject, and five controls were selected for each male subject to obtain more reliable results. As mentioned previously, this study was a case-control study. For the interview, we aimed to include at least two controls for each female subject and three for each male subject. Overall, the study enlisted 510 individuals, including 112 subjects and 398 controls [33].

Three letters inviting individuals to participate in the study were sent to each subject and each control. The letters were discreetly worded and emphasized the confidentiality of the study. Most individuals who did not participate in the study indicated their reasons for refusal in writing. These letters are available upon request [33].

The basic characteristics in the study and control groups is shown in the **Table 1**.

Table 1. Basic characteristics of the study participants.

	Study group	Control group	Significance (χ^2 -test)
Marital status	n = 112	n = 262	p = 0.0894
Unmarried	10.7%	15.7%	
Married	62.7%	59.6%	
Widowed	14.7%	13.5%	
Divorced	6.7%	10.7%	
Common law marriage	5.3%	0.6%	
Occupational category	n = 22 (m) n = 53 (f)	n = 66 (m) n = 112 (f)	p = 0.901 (m) p = 0.5930 (f)
Technical, scientific, sociological, and artistic work	m = 0% f = 0% total = 0%	m = 0% f = 4.5% total = 2.2%	
Accounting and clerical work	m = 4.5% f = 5.7% total = 5.1%	m = 1.5% f = 2.7% total = 2.1%	
Commercial work	m = 4.5% f = 17.0% total = 10.8%	m = 4.5% f = 10.7% total = 7.6%	
Agriculture, forestry, and fishing	m = 0% f = 7.5% total = 3.7%	m = 3.0% f = 7.1% total = 5.1%	
Transport and communication work	m = 27.3% f = 7.5% total = 17.4%	m = 24.2% f = 4.5% total = 14.3%	
Industrial work	m = 50.1% f = 17.0% total = 33.5%	m = 48.6% f = 21.4% total = 35.0%	
Service work	m = 13.6% f = 45.3% total = 29.5%	m = 18.2% f = 49.1% total = 33.7%	
Total	m = 100% f = 100% total = 100%	m = 100% f = 100% total = 100%	
Social classification	According to Bruun's social classification (Bruun K. Social class division, fin, 1954)		p = 0.050 (m) p = 0.936 (f)
I = First social class	4.2%	2.3%	
II = Second social class	12.5%	17.7%	
III = Third social class	50.0%	57.7%	
IV = Fourth social class	33.3%	22.3%	

Figure 1 shows the amount of participants and the distribution of gender.

BMI was calculated as weight (kg) divided by height (m²). According to the WHO guidelines, the weight categories were defined as follows: overweight, BMI 25 ≤ 29; obese, BMI 30 ≤ 34; severely obese, BMI 35 ≤ 40; and morbidly obese, BMI > 40. In this material the body mass index is larger in the study group than

the control group. In the paired T-test the value of p is 0.000 and the $p < 0.001$ is statistically highly significant. **Figure 2** shows these results.

Due to the age-standardisation of the study subjects and controls, there were no considerable differences in age. The majority of the study subjects fell within the age group of 60 - 64 years, cf. **Figure 3** below.

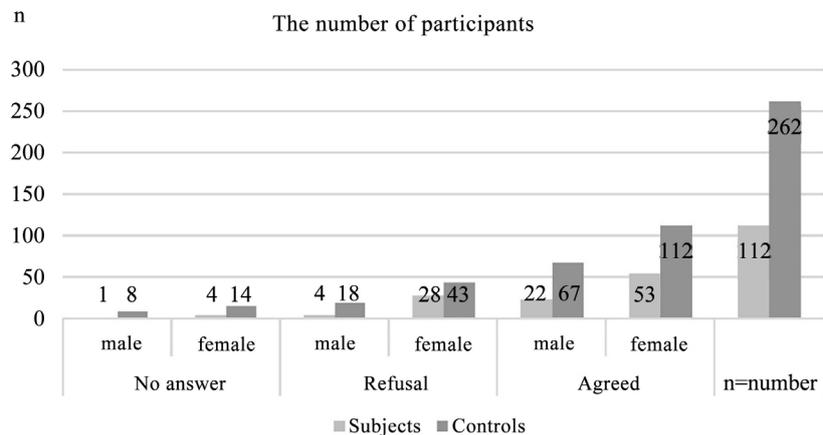


Figure 1. Study overview.

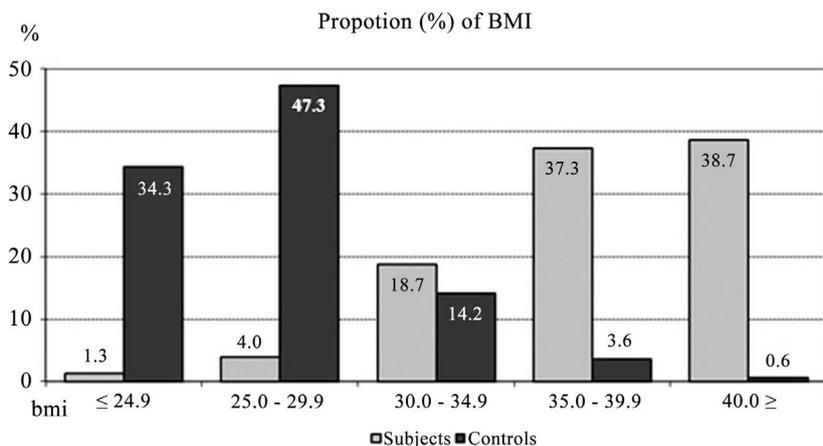


Figure 2. Body mass index values of the subjects and controls in the study group.

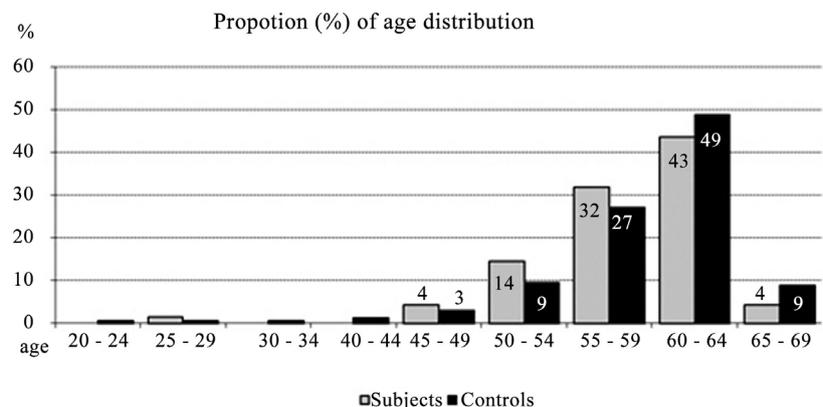


Figure 3. The age distribution of the study group.

2.1. Occupations

The standard occupational classifications of the Social Insurance Institution (1982) were used.

2.2. Psychiatric Interview

All subjects and controls were interviewed using structured psychiatric forms. During each interview, attention was drawn to the development of obesity, in addition to how much the individual would like to weigh and how satisfied he/she was with his/her weight. Specifically, we paid attention to the kinds of memories and recollections the respondents had about the scorn and contempt directed at them because of their weight.

Psychological Tests

The Draw a Person test: The Machover index [34] measures distortions pertaining to perceptions of the human body. The higher the index value, the more distorted the perception. In regard to the integrity of the perception of the human body, this index is based on the Kalliopuska and Siimes index [35], which measures the integrity of an individual's perception of the human body. The higher the index value, the more integrated the perception. Separate variables were also used for various features of the drawings, such as type, size, gender, and general impression of the developmental degree of the perception of the body.

The Rorschach test: The Rorschach test is a projective diagnostic personality test consisting of ten cards with inkblot designs. Klopfer's scoring methods and other scoring systems were applied [36]. The method applied by [37] was used. The variable that was used on the Rorschach record forms was the barrier-penetration index, which measures body image boundaries. A large number of barrier responses indicates that an individual has an established picture of his/her own body and that he/she is able to cooperate with this well-integrated self-esteem. A low number of barrier responses indicates that the boundaries of the body of an individual are poor and he/she is working as other individuals say. A large number of penetration responses also indicates penetration of the body.

2.3. Statistical Methods

The statistical methods used in this study included percentage distributions, t-tests, means and a conditional logistic linear model. Because the material was matched, it was analyzed not only with figures and percentages but also by calculating the means for the subjects and controls using a matched control approach; these two classes were then compared using paired t-tests. Variables for which statistically significant results were detected were further analyzed using the logistic linear model. The results that remained significant after the logistic linear analysis were assessed to determine risk ratios and the upper and lower confidence limits. The statistical analyses were performed on a computer using SPSS, the Statistical Package for the Social Sciences (for Windows 18/Windows,

Chicago, IL, USA). The conditional logistic analyses were performed with the GLIM program [38]. The GLIM analysis is quite straightforward, provided that the data are arranged in a convenient individual-by-individual format, which typically corresponds to the method of compilation. The major advantages of this technique is that it is easy to use and has inherent flexibility; thus, to make the most of this advantage, it is recommended that all the data for each individual be attached to this program whenever possible. The observations in each set were case matched with 0 - 5 controls. Hence, because these observations could be considered counts, the error distribution could be considered as following a Poisson distribution, and the link function could be considered the logarithmic function. Thus, the model is a special form of a log-linear model. The linear predictor in the systematic part of the model for each observation is a (linear) function of the observed exposure variables for each individual, plus a constant (set) term, which may vary between matched sets. In the literature, concerning the analysis of case-control data, this model is termed "conditional logistic regression" (a description of the data analysis that may be misleading to those familiar with generalized linear model terminology). These groups were used for the statistical analysis. Although the group of subjects would have remained small with this method, missing controls were replaced by the nearest controls. The matched control approach meant that the data from some of the subjects who had agreed to participate were excluded from the statistical analysis because a control was not available for them. In some cases, multiple specific variables were lacking, which further reduced the number of observations available for comparison [39]. A difference between the groups was considered highly statistically significant when the probability (p) of error in rejecting the null hypothesis was < 0.001 (***), statistically significant when p was < 0.01 (**), and nearly statistically significant when p was < 0.05 (*).

The study protocol was approved by the ethics committees of Hesperia/Aurora Hospital (Community Psychiatric Hospital in Helsinki) and Lapinlahti Hospital (Psychiatric Clinic of Helsinki University)/Psychiatric Centrum of Helsinki University. Informed consent was signed by the individuals, and the ethical principles of the Declaration of Helsinki were followed throughout.

Refusal

The results of the individuals who refused personal interviews were removed from the register. Thirty-seven individuals refused to participate, namely, nine men and 28 women. The mean age of the men who did participate in the study was 59 years, and the mean age of the women was 61 years. Thirty-one individuals in the group had a primary school education, whereas 34 had no vocational education of any kind. The individuals who refused to participate in the study were as poorly educated as those who did; the age distribution and gender distribution were also identical (Figure 1). Of the women, 65% (53) of the subjects and 68% (111) of the controls agreed to participate in the study; among the men,

74% (23) of the subjects and 71% (66) of the controls agreed to participate, yielding a total of 253 participants. One of the male subjects could not be contacted for follow-up, and one female subject withdrew from the study before the psychological test. In addition, one of the female controls refused to continue the interview after the first few questions.

3. Results

At the start of the pensions, the mean weight of the subjects was 106.6 kg, and the corresponding mean weight of the controls was 70.2 kg. **Figure 4** shows the body mass distribution between study and control group.

Of the female subjects, 20.5% had been overweight during childhood. Most of them (72.7%) had become more overweight as adults. Of the male subjects, 42.1% had gained excess weight during childhood, and 52.6% had as adults. Of the female controls, only 26.0% had been overweight during childhood. Of the male controls the same number were 22.9%. **Table 2** shows these important numbers.

Table 2. Weight measurements of the different BMI groups in the study and control group.

		Women					
BMI		<24.9	25 - 29.9	30 - 34.9	35 - 39.9	>40	Total
In childhood	case		11.1%	22.2%	22.2%	44.4%	20.5%
	control	16.7%	55.6%	16.7%	11.1%		26.09%
In adolescence	case					100.0%	4.5%
	control	55.6%	22.2%	11.1%	11.1%		13.04%
In adulthood	case		3.1%	31.3%	34.4%	31.3%	72.7%
	control	23.8%	52.4%	21.4%		2.4%	60.87%
Total case			4.5%	27.3%	29.5%	36.4%	100.0%
Total control		57.1%	37.8%	3.1%	2.0%		100.0%
		Men					
BMI		<24.9	25 - 29.9	30 - 34.9	35 - 39.9	>40	Total
In childhood	case		12.5%	25.0%	37.5%	25.0%	42.1%
	control	12.5%	50.0%	25.0%	12.5%		22.85%
In adolescence	case	100.0%					5.3%
	control			100.0%			2.85%
In adulthood	case			10.0%	60.0%	30.0%	52.6%
	control	7.7%	53.8%	30.8%	7.7%		74.3%
Total case		5.3%	5.3%	15.8%	47.4%	26.3%	100.0%
Total control		36.5%	42.9%	19.0%	1.6%		100.0%

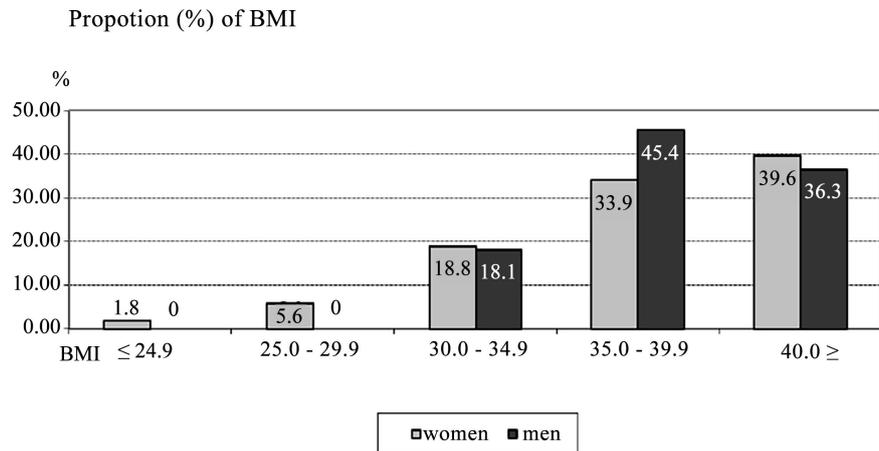


Figure 4. Body mass index values of the subjects in the study group.

3.1. Body Image

3.1.1. Results of the Psychological Tests

In this study, we used psychological tests to estimate the disturbances in body image.

Regarding the results of the Draw a Person test, we found some differences in the Machover and wholeness indices. The findings are presented in **Table 3** and **Table 4**.

On the basis of the means for the indices measuring the wholeness of the body image reflected by the Draw a Person test, there were, in fact, no differences between the subjects and controls. The drawings of both the subjects and the controls showed some unclarity and inaccuracy in the figures. In both groups, there were relatively many drawings of abnormal sizes. Similarly, in both groups, it was rather common that the gender of the figure in the drawing could not be determined. Abnormal and grotesque figures were somewhat common among the drawings of both groups, although the level of disturbance in body image, as measured by the Machover index, remained low [34].

The findings of the Draw a Person test are classified into six groups in **Table 4**. In all, 11.4% of the participants in the study group did not want to perform this test. The ages of the human figures approached statistical significance. Regarding the question of the perception of bodily proportions, 50% of the participants in the study group exhibited poorly proportioned findings.

Body perception according to the Rorschach test. The mean number of barrier responses was 1.92 among the subjects and 1.75 among the controls. The mean number of penetration responses was 1.38 among the subjects and 1.72 among the controls. The values measuring the firmness and permeability of the boundaries of the body by means of barrier and penetration indices revealed no significant differences between the subjects and the controls.

3.1.2. Dissatisfaction

Thirty-one percent of the subjects and 50% of the controls said they were fully

satisfied with their present weight, but 53% of the subjects and 46% of the controls reported having occasional weight problems. When asked whether being overweight constrained their human relationships, 30% of the subjects gave affirmative responses. Expectedly, the corresponding figure among the controls was very low. These results finds out from **Table 5**.

3.1.3. Scorn and Stigma

The attitude of the subjects' spouses toward overweight was positive in the case of 17% of the subjects and 7% of the controls. A negative attitude on the part of the spouse was found to be the case in 11% of the subjects and 7% of the controls.

Table 6 shows that seven percent of the subjects reported that being overweight had been a problem even before they reached school age. Being overweight at the school age was a problem for 10% of the subjects. Sixty-one of the subjects had been subjected to derision because of being overweight, but 33% had not. Six percent of the subjects could not give a positive or negative answer to this question. Fifty percent of the subjects regarded themselves as being grossly obese. Five percent of the subjects and 40% of the controls regarded their weight as normal, while 4% of the subjects regarded themselves as considerably underweight.

Table 3. Results of the Machover index and the wholeness index.

Variables	Study group	Control group	Statistical significance χ^2	Statistical sign. paired t-test	Risk ratio	95% confidence limit
Machover index	n = 70	n = 157				
• Means	3.98	4.31				
• In the point position				p = 0.0300	3.3	1.9 - 5.7
• The missing division				p = 0.0447	0.3	0.1 - 0.8
The wholeness index	n = 70	n = 157				
• Means	17.35	18.02		p = 0.290		
• Differences between the groups			p = 0.0571			
• In the drawing of lines			p = 0.0839			

Table 4. Results of the Draw a Person test.

Variables	Study group	Control group	Statistical sign. χ^2
Distribution of the types of drawings	n = 77	n = 176	0.2013
• No drawing	11.4%	5.6%	
• Stick figure	8.5%	5.6%	

Continued

• Snowman, ghost, Santa Claus	5.6%	5.1%	
• A mere head	1.4%	6.8%	
• No abnormality	73.6%	67.0%	
• A baby	-	1.1%	
Distributions of the human figures	n = 70	n = 157	0.6975
• Small	24.3%	22.3%	
• Large	5.7%	8.9%	
• Normal	70.0%	68.8%	
Age of the human figures	n = 70	n = 157	0.0572
• Age could not be determined	47.1%	32.5%	
• A child	14.3%	12.1%	
• An adult of the same age as the person examined	38.6%	55.4%	
Perception of bodily proportions	n = 70	n = 157	0.2436
• Poorly proportioned	50.0%	38.2%	
• Averagely proportioned	35.7%	42.7%	
• Normally proportioned	14.3%	19.1%	

Table 5. The point in life when obesity was acknowledged in the study group and the control group.

	Study group n = 74	Control group n = 176	Statistical significance χ^2
How does the respondent describe his/her present weight?			p = 0.0000
very underweight	4.1%	0%	
somewhat underweight	1.4%	5.7%	
normal	5.4%	40.3%	
slightly overweight	39.2%	43.8%	
heavily overweight	50.0%	10.2%	
How does the respondent feel about his/her weight and existence?			p = 0.0002
perfectly satisfied, no problems	30.7%	50.3%	
occasional problems with the size of his/her own body	53.3%	45.8%	
continual feelings of inferiority because of his/her own looks and appearance	9.3%	4.0%	
the respondent continually feels utterly unfit and is unsatisfied with himself/herself	6.7%	0%	

Table 6. Scorn and stigma in the study and control group.

	Study group n = 74		Control group n = 176		Statistical significance χ^2
	yes	no	yes	no	
Has being overweight ever been a problem?					
before school age	7.1%	92.7%	0.6%	99.4%	p = 0.0111
when at school age (7 - 17 years)	10.0%	90.0%	1.1%	98.9%	p = 0.0033
during youth (16 - 20 years)	14.3%	85.7%	2.3%	97.7%	p = 0.0008
What kinds of memories and recollections does the respondent have about the scorn and contempt directed at him/her because of his/her being overweight as an adult??	Study group n = 74		Control group n = 176		p = 0.0000
	61.4%	32.9%	12.0%	62.7%	
Many		0%		0.6%	
Cannot say		2.9%		3.6%	
Does not want to talk about it		2.9%		1.2%	
The respondent has not been overweight		0%		19.9%	

4. Discussion

4.1. Statement of Principal Findings

At the start of the pensions, the mean weight of the subjects was 106.6 kg. Body mass index values of most women were ≥ 40 . On men group the body mass index value were 35.0 - 39.9. In both subject groups (men and women) many were overweight during the childhood.

The level of disturbance in the body image was measured by the Machover index. We found statistically significant differences in terms of the point position and the missing division.

The wholeness index mean values were similar between the groups; however, the chi-squared test showed that there was a significant difference between the groups. Some degree of body image disorganization was found among the subjects in the Draw a Person test.

The number of barrier responses pertaining to body image firmness was slightly low among the subjects. The distributions of the responses to the barrier and penetration responses given by both the subjects and the controls were similar.

Obesity had been a problem for some of the subjects in childhood and for some in adolescence. In this study, obesity was a problem in all age groups; between the study group and the control group, there was a statistically significant difference. Half of the participants in the study group thought that they were obese. In the study group, 1/3 of the individuals were perfectly satisfied with

their weight. A large part of the study group described the scorn and contempt directed at them for being overweight. The partners did not have any negative comments to say about obesity.

4.2. Strengths and Weaknesses

The undisputed advantage of this study was its nonselective sample of severely obese individuals. The subjects were not obtained from a diet group, as with most obesity research, which also augmented the validity of the study. This study concentrated on a group of individuals receiving disability pensions due to obesity. All the subjects were interviewed individually, which tends to improve the reliability of a study. The interviews were conducted such that the interviewer did not know whether the individual was a subject or a control. This double-blind approach increased the validity of the study. The study group was successfully matched with the control group. The occupational and social statuses in both groups were nearly identical. The influence of the subjects' life situations was minimized because the members of the control group had also been receiving a pension for the same duration. The fact that the controls were selected by random sampling from data from the Social Insurance Institution of Finland added value to the findings. Researchers who have studied the psychopathology of obesity [1] [40] have stated that, with respect to a considerable proportion of obese individuals, we know only what the statistics tell us. It can be said that the material studied here was also, at least in part, a sample that is not often the object of research.

4.3. Strength and Weakness in Relation to Other Studies, Particularly Any Differences in the Results

4.3.1. Body Image

Stunkard and Wadden [6] found that obese individuals have body image disturbances, with Adami *et al.* [7], Hill and Williams [41] and Buddeberg-Fischer *et al.* [42] being of the same opinion. According to Sarwer *et al.* [43], the vast majority of obese women demonstrate body image dissatisfaction related to their obesity, with almost half reporting the greatest dissatisfaction with their waist or abdomen compared to other body regions. On average, they reported significantly more body image dissatisfaction than the controls.

4.3.2. Dissatisfaction

A range of different methodologies have shown that the majority of women and girls perceive themselves as too fat and are dissatisfied with their body shapes [44]. However, Rand and Resnick [45] produced different results, with a large majority (87%) of their subjects considering their actual weight socially acceptable.

Heijens *et al.* [46] found that a high percentage of overweight kids experience teasing because of their weight. The history of teasing and social norms have an effect on body dissatisfaction. BMI appeared to have no effect. Moreover,

self-efficacy has an influence on beginning to eat healthy, and self-confidence should be heightened.

According to Demarest and Langer [47], body shape dissatisfaction was greatest for overweight women and was approximately the same for average weight women as it was for overweight men. Men of average weight and underweight women were fairly satisfied with their current shapes. Both men and women had distorted views of the shape that the opposite gender found most attractive.

Christensen [48] studied obesity in childhood. He found that parents who are living in cultural cities and who have higher education levels have children who are less overweight. The parents tend to overestimate their daughters' weight and they underestimate their sons' weight.

According to Carels *et al.* [49], weight bias among individuals who are attending weight-loss groups is associated with psychological maladjustment and a disturbance in their ability to obtain optimal health and well-being. Docteur *et al.* [50] found that severely obese individuals perceived themselves as being more corpulent than obese individuals.

This study (M.K.) focused on a group of adults. The study included a very heterogeneous group of women and men. In this study, there were few changes in weight status, and most of the persons had been obese for a very long time [1] [4]; 1/3 of the subjects were fully satisfied with their present weight [6] [51].

The results of the present study (M.K.) did not lend support to the theory that disturbed body image is more frequent among individuals who have been obese in their youth [5].

4.3.3. Scorn and Stigma

According to Brewis *et al.* [18], the mainstream U.S. society has negative views toward the overweight and obese. Mocking obese individuals is common in both institutional and interpersonal relationships. In particular, how other women perceive themselves to be judged by their weight and the opinions of people in their social networks affects them. This result (M.K.) was in line with the findings of Drewnowski and Yee [52]. Among the subjects, obesity had been a problem during pre-school age much more often than among the controls. This finding was in agreement with those of previous reports in the literature [4] [5].

Most studies have assessed the pathological changes in a rather vaguely defined variable, and there have been few theoretical or empirical attempts to improve the concept of "body image" or to develop more suitable alternatives. It has become increasingly clear that a distinction must be made between measures of body size perception and measures of body attitude or body satisfaction [53] [54]. The fact that these two groups of variables are often only weakly intercorrelated and that there is no theory of "body image" to explain this finding has led at least one group to conclude that the concept of "body image" is little more than a heading for research activities on perceptions, emotions and cognitions relating to one's own body [55] [56].

4.4. Meaning of the Study: Possible Mechanisms and Implications for Clinicians and Policymakers

According to Harriger and Thompson [57], there have only been a few studies that focused on the psychological causes of childhood obesity, specifically in terms of body image disturbance. Legenbauer *et al.* [58] measured various components to assess body image disturbances in obese individuals. In a group of individuals with binge eating disorders, the problems were bigger than in a group of obese individuals. Obesity prevention and treatment programs should take into consideration psychological, biological and behavioral factors to decrease obesity prevalence rates [59].

Researchers [32] found that the understanding of body size varies depending on BMI in the female group. This concept must be remembered when we choose effective treatments for overweight and obese young women.

Some researchers think that the stigma alone can largely explain the population [60].

4.5. Unanswered Questions and Future Research

We studied body image in a group of very rare, severely obese individuals. We have found that body image definitions and measurement methods are very different.

Pull and Aguayo [61] found that the currently available assessment instruments do not measure body image perception or body image attitudes in obesity. According to Karasu [62], psychological factors are neither primarily etiological nor even necessarily predominant in obesity. Cultural differences should be taken into account when managing obese and overweight individuals in the future [63]. In continuing research, we should be more often be researching the connection between psychiatric diseases and core weight.

5. Conclusion

We believe that our study provides a novel and necessary overview of the connection among body image disturbance and dissatisfaction, scorn and stigma. We hope that this overview will provide insights that will help to revise and update the current knowledge of obesity. Our findings prove that this research is very important. We believe that this study provides encouraging possibilities for research on the potential health effects of severe obesity and its development.

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Abbreviations

BMI: Body Mass Index.

SPSS: Statistical Package for Social Sciences Software.

WHO: World Health Organization.

χ^2 : Chi-Squared Test.