

## Coping with overweight strategies, self-esteem and body-esteem in the context of transactional analysis

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### Summary

**Objective:** The aim of this study was to analyze the ego-state of obese people in terms of transactional analysis and to determine the relationship between coping with overweight strategies, Ego-structure, global self-esteem, and body self-esteem levels.

**Methods:** One-hundred-seventy-one overweight and obese adult females were examined by a general practitioner and a specialist in obesity management. The ego-state, global self-esteem, and body self-esteem were assessed using the Ego State Questionnaire (ESQ), the Coopersmith Self-Esteem Inventory, and the Body-Esteem Scale, respectively.

**Results:** Participants were divided into three subgroups: A – no attempts at weight loss currently (35.1%), B – self-attempted weight loss (33.9%), C – professional obesity treatment (31.0%). Age, education level, professional status, marital status, and number of children, along with the onset of being overweight/obese were similar in all subgroups. Subgroups B and C statistically and significantly made frequent attempts at weight loss ( $p < 0.001$ ) and experienced yo-yo effect ( $p < 0.001$ ) more than subgroup A. Effective weight loss attempts were observed significantly more often in subgroups C ( $p < 0.001$ ). Only mean lies scale results were significantly higher in subgroups A and C compared to B ( $p < 0.05$  and  $p < 0.01$ , respectively). While self-esteem, sexual attractiveness, weight concern, physical condition and ego-states were similar in all study subgroups.

**Conclusions:** Structure of the Ego-states, self-esteem and body-esteem did not influence the strategies of coping with overweight. Self-esteem is related to spontaneous Ego-child and Ego-adult levels, while the sense of sexual attractiveness is affected only by Ego-spontaneous child.

**Key words:** transactional analysis, self-esteem, body-esteem, obesity, body mass reduction, psychological aspects.

## Introduction

The self-concept refers to a set of beliefs, personal attitudes, and perceptions about oneself [1]. It influences, among others, health related behaviors and shapes lifestyle [2]. The transactional analysis is the model of self-concept, introduced by Eric Berne in 1958 [3]. This concept is based on the idea of three concurrent ego states: Ego-Child, Ego-Parent, Ego-Adult. Each of the Ego-states are characterized by a particular set of beliefs, emotions, and behavior and are responsible for social interactions.

Ego-Child state is characterized by impulsivity, emotionality, expressivity, irrational behavior, and a self-centered attitude. In the Ego-Child state, three subdivisions are distinguished: the Adapted Child (dominance subordination, obedience, social withdrawal, and seeking approval), the Creative Child (predominance of sensibility, curiosity, vivid imagination, and introversion) and the Spontaneous Child (predominance of impulsivity, egocentrism, undisciplined, manipulation of others). The Ego-Parents state is characterized by set of values, norms, orders, prohibitions, and obligations. This is a set of norms, but includes subjective judgments which are often irrationally shaped by external factors, especially parental behavior. In the Ego-Parents state, two substrates are distinguished: Critical Parent (traditionalism, emotional detachment, criticizing, disciplining) and Caring Parent (predominance of empathy, support, care, reward). The Ego-Adult state is characterized by mostly logical, constructive conditioning, focused on the present. This state is responsible for analyzing reality, estimating the possible solutions, and make rational decisions as well as assertive relationships with oneself and others.

The excessive body mass can be crucial for the self-concept. Especially age of obesity onset, experience associated with obesity and weight loss, and any experiences with one's own body. The results of previously published studies reveal that obesity decreases self-body acceptance, self-respect, self-esteem, self-efficacy levels [4] and lifestyle, which in obese subjects may promote or hinder the weight loss and maintenance [5].

The aim of this study was to analyze the Ego of obese people in terms of transactional analysis and to determine the relationship between the choice of weight loss strategies, the Ego structure, global self-esteem, and body self-esteem levels.

## Materials and methods

One-hundred-seventy-one overweight and obese adult females. The inclusion criteria included: age 18 years or more,  $BMI \geq 25 \text{ kg/m}^2$ . The exclusion criteria included pregnancy, hormonal disturbances and mental illness.

The study procedures were performed during random visits to their general practitioner or first visit in the outpatient obesity management clinics. Body mass and height were measured and body mass index (BMI) was calculated according to the standard formula.

The Ego-state, global personal self-esteem, and body self-esteem were assessed using the self-reported scales:

- Ego State Questionnaire (ESQ) – it contains 60 questions, with answers scale from 0 to 3 (0-never, 1-rarely, 2-often, 3-always), total of points is calculated for five dimensions: Critical Parent, Caring Parent, Adult, Adapted Child, Spontaneous Child, Creative Child.
- The adult version of Coopersmith Self-Esteem Inventory – it contains 58 statements; the examined indicates at each statement, whether it applies to her or not; one point is for each diagnostic response; eight statements creates lie scale, that assesses the desire to improve self-esteem; total score determines the overall self-esteem.
- Body-Esteem Scale – it contains the designation of 35 parts and functions of the body; the examined defines her feelings to each aspect on a scale of 1 to 5 (1-strongly negative feelings, 5-strongly positive feelings), total of points is calculated for three dimensions; in the case of women, there are: sexual attractiveness, weight concern, physical condition. For the purpose of the statistical analysis, the obtained results were divided into three categories based on the degree of acceptance of a part or function of one's body: low (strong negative feelings and moderate negative feelings), medium (no feeling one way or the other), high (moderate positive feelings and strong positive feelings).
- Response time was not limited. Additionally, the doctor completed survey included questions on socio-demographic data (age, education level, professional status, marital status, and number of children), history of obesity development, and treatment (beginning of the overweight and obesity, previous weight loss attempts and their effects). The study was approved by the Bioethics Committee of Medical University of Silesia in Katowice (KNW-0022/KB1/136/I/08) and all study subjects gave their informed consent for participation in the study.

### *Statistical analysis*

Statistical analyses were performed using STATISTICA 9.0 PL (StatSoft Polska, Krakow, Poland) software. Distribution of variables was evaluated by the Shapiro-Wilk test. Data are presented as mean values  $\pm$  SD or median values with interquartile range in brackets. Homogeneity of variances was assessed by the Levene test. All the results were considered as a statistically significant with a  $p$  value below 0.05. The following statistical methods were used: the one-way multivariate analysis of variances with Duncan post-hoc test, the multivariate linear regression model, the multivariable logistic regression model, the F test and determination coefficient  $R^2$ .

### **Results**

The mean age of the study group was  $44.0 \pm 14.2$  years, mean body mass was  $91.1 \pm 13.4$  kg, body mass index (BMI) range was from 26.5 to  $48.7 \text{ kg/m}^2$  (Me: 32.5,  $Q_1 = 30.4$  and  $Q_3 = 35.9$ ). 82.5% study women had secondary or higher education

levels, 62.0% were professionally active, 59.1% lived with their spouse and 73.7% gave birth for at least one child.

Most respondents identify the onset of their obesity in adulthood, 70.2% above 20 years of age, 69% had a history of at least one weight loss attempt, but 49.7% were mostly ineffective, which meant no loss of body mass. 44.4% had a yo-yo effect.

On the basis of reported strategies selected to coping with overweight, the study group was divided into three subgroups: A-no attempts at weight loss currently (35.1%), B-self-attempts at weight loss (33.9%), C-professional obesity treatment (31%). The age, structure of the education level, professional status, marital status, and number of children were similar in all subgroups. Body mass and BMI values were significantly higher in subgroup C than in subgroups B and A ( $p < 0.001$ ). The socio-demographic characteristics of study subgroups are presented in Table 1.

**Table 1. The socio-demographic characteristics of study subgroups and history of obesity and weight reduction attempts. Data presented as mean values  $\pm$  SD or median values with interquartile range in brackets.**

	No current attempts at weight loss Subgroup A N=60	Self-attempts of weight loss Subgroup B N=58	Previous professional obesity treatment Subgroup C N=53	Statistical significance p values
Age [years]	44.6 $\pm$ 14.7	41.0 $\pm$ 14.5	46.6 $\pm$ 13.0	0.10
Body mass [kg]	89.5 $\pm$ 10.9	85.9 $\pm$ 8.0	98.6 $\pm$ 17.0	<0.001
BMI [kg/m <sup>2</sup> ]	32.0 (30.5/35.4)	30.9 (30.1/33.2)	35.9 (32.0/39.2)	<0.001
Education level [%]				
Basic and vocational	21.7	8.6	22.6	0.19
Secondary	53.3	58.6	43.4	
Higher	25.0	32.8	34.0	
Professional status [%]				
Manual labor	21.7	19.0	17.0	0.62
Desk job	38.3	50.0	39.6	
Unemployed	40.0	31.0	43.4	
Living with spouse [%]	55.0	62.1	60.4	0.72
Number of children [%]				
None	25.0	32.8	20.7	0.09
One	11.7	19.0	30.2	
Two or more	63.3	48.2	49.1	
Beginning of obesity [%]				
< 20 years	25.0	31.0	34.0	0.22

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20 – 30 years	25.0	22.4	35.8	
> 30 years	50.0	46.6	30.2	
Weight loss attempts [%]				
None	30.0	0	5.7	
Once	25.0	13.8	17.0	< 0.001
More than once	45.0	86.2	77.3	
Effects of weight loss attempts [%]				
Ineffective	71.7	44.8	30.2	
Yo-yo effect	25.0	53.5	56.6	< 0.001
Effective	3.3	1.7	13.2	

BMI – body mass index Subgroups B and C statistically and significantly made frequent attempts at weight loss ( $p < 0.001$ ) and experienced yo-yo effect ( $p < 0.001$ ) more than subgroup A. Effective weight loss attempts were observed significantly more often in subgroups C ( $p < 0.001$ ), than in subgroups A and B. While the ineffective weight loss attempts were observed significantly more often in subgroups A than B and C ( $p < 0.001$ ) – Table 1.

The substate of Ego-states, self-esteem, sexual attractiveness, own weight concern, and physical condition were similar in all study subgroups (Table 2). Only mean lies scale results were significantly higher in subgroups A and C than B ( $p < 0.05$  and  $p < 0.01$ , respectively).

**Table 2. Mean psychological tests results in study subgroups and distribution of analyzed psychological characteristics. Data presented as mean values  $\pm$  SD.**

	No current attempts at weight loss Subgroup A N=60	Self-attempts of weight loss Subgroup B N=58	Previous professional obesity treatment Subgroup C N=53	Statistical significance p values
Critical parent	15.3 $\pm$ 3.0	15.6 $\pm$ 3.2	15.5 $\pm$ 2.3	0.82
Caring parent	19.8 $\pm$ 4.1	19.3 $\pm$ 4.4	18.4 $\pm$ 3.8	0.16
Adult	18.8 $\pm$ 3.5	18.6 $\pm$ 2.9	18.4 $\pm$ 4.0	0.88
Adapted child	14.8 $\pm$ 4.2	14.9 $\pm$ 4.0	14.4 $\pm$ 3.3	0.84
Creative child	14.9 $\pm$ 3.6	15.2 $\pm$ 3.8	15.4 $\pm$ 4.0	0.81
Spontaneous child	18.4 $\pm$ 3.7	18.4 $\pm$ 3.5	18.4 $\pm$ 3.6	0.99
Self-esteem	32.6 $\pm$ 9.4	33.3 $\pm$ 8.6	33.2 $\pm$ 7.5	0.90
Lies scale	2.4 $\pm$ 1.4	1.9 $\pm$ 1.1	2.7 $\pm$ 1.4	< 0.01
Sexual attractiveness	45.2 $\pm$ 7.1	47.2 $\pm$ 6.9	46.4 $\pm$ 9.1	0.34

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Weight concern	22.6±8.1	22.2±6.7	20.8±7.9	0.42
Physical condition	28.2±7.2	28.7±5.6	28.3±6.8	0.90
Self-esteem [%]				
Low	56.7	53.4	62.3	
Medium	30.0	32.8	26.4	0.92
High	13.3	13.8	11.3	
Weight concern [%]				
Low	46.7	43.1	54.7	0.46
Medium	53.3	56.9	45.3	
Physical condition [%]				
Low	8.3	3.4	3.8	0.42
Medium	91.7	96.6	96.2	

Distribution of self-esteem, own weight concern, and physical condition were similar in all study subgroups (Table 2). 96.7% women in subgroup A and all (100%) in subgroups B and C had medium sexual attractiveness values.

The results of multivariable logistic regression models procedure revealed that as perceived level of sexual attractiveness increases there are low levels of weight concern, and the Ego subset Caring Parent decreases the likelihood of weight loss (Table 3).

Table 3. Results of multivariable age adjusted logistic regression with Brant test

Parameter	Ordinal logistic regression					Brant test	
	OR	- 95% CI	+ 95% CI	z	p	$\chi^2$	p
Sexual attractiveness	1.056	1.009	1.105	2.35	< 0.05	0.30	0.58
Weight concern	0.947	0.899	0.997	-2.06	< 0.05	0.01	0.96
Caring Parent	0.925	0.866	0.988	-2.30	< 0.05	0.20	0.65
Model	-	-	-	-	-	5.52	0.24

OR – odds ratio

CI – confidence interval

$\chi^2$  – chi-square

Z – Wald statistic

p – statistical significance

Simultaneously the results of multivariable age adjusted linear regression showed, that BMI values are inversely proportional to education level, weight concern, and Ego Adapted Child subset, while directly proportional to lies scale (Table 4).

Table 4. Results of multivariable age adjusted linear regression in study group.

Parameter	$\beta$	- 95% CI $\beta$	+ 95% CI $\beta$	t	p
<b>BMI</b>					
Weight concern	-0.205	-0.300	-0.110	-4.26	< 0.001
Education level	-3.940	-5.858	-2.023	-4.06	< 0.001
Lies scale	0.727	0.267	1.187	3.12	< 0.01
Adapted child	-0.243	-0.445	-0.041	-2.37	< 0.05
Constant	43.580	38.634	48.524	17.40	< 0.001
Model	1.15	R <sup>2</sup> =0.2621	F=11.19		< 0.001
<b>Self-esteem</b>					
Adapted child	-1.065	-1.327	-0.803	-8.03	< 0.001
Adult	0.413	0.179	0.648	3.48	< 0.001
Spontaneous child	0.476	0.180	0.772	3.18	< 0.01
Physical condition	0.229	0.068	0.390	2.80	< 0.01
Constant	25.754	16.720	34.789	5.63	< 0.001
Model	1.34	R <sup>2</sup> =0.5873	F=70.41		< 0.001
<b>Sexual attractiveness</b>					
Physical condition	0.405	0.249	0.560	5.21	< 0.001
Spontaneous child	0.569	0.250	0.889	3.58	< 0.001
Weight concern	0.206	0.049	0.362	2.64	< 0.01
Constant	19.765	15.984	23.549	10.49	< 0.001
Model	1.53	R <sup>2</sup> =0.4411	F=83.81		< 0.001

BMI – body mass index

$\beta$  – regression coefficient

CI – confidence interval

VIF – variance inflation factor

The second multivariable, age adjusted, linear regression model showed that self-esteem level is inversely proportional to Ego Adapted Child presence and directly proportional to Ego Spontaneous Child and Ego Adults levels. Additionally, sexual attractiveness level is directly proportional to physical condition, weight concern, and Ego Spontaneous Child level (Table 4).

## Discussion

The size of study subgroups of women choosing specific weight loss strategies was comparable. We did not observe differences in socio-demographic characteristics of these subgroups. However, subjects choosing professional obesity treatment were more obese and had a history more effective weight loss attempts. The results of pre-

viously published studies revealed that women seek professional help especially due to psychological consequences of obesity and they have shown greater determination to obtain weight loss [6]. Moreover, it was suggested that the factors that determined the choice of specific weight loss strategies are subjective interpretations of body size [7]. Therefore, on the basis of our results we hypothesized that women that choose professional obesity treatment have a realistic assessment of the severity of their problem with obesity.

There were no differences in Ego-state, self-esteem, sexual attractiveness, weight concern, and physical condition between study subgroups. However, multivariable analysis revealed that the occurrence of features of the subset Ego-Caring Parent decreases the likelihood of weight loss. As was mentioned above, the state Caring Parent is characterized by predominance of empathy, support, and care. Therefore, people with a predominance of this feature are prone to self-indulgence, and have less incentive to take actions requiring effort, such as weight loss. Additionally, they will be more inclined to look for excuses and external factors as the cause of their obesity. This is partially confirmed by results of previously published studies. Said results revealed that the obese frequently have an external locus of control [8], lower self-control mechanisms [9] and decreased sense of self-efficacy [10]. These features, among others, may cause excessive food consumption and indulgence in various types of food temptations. The features characterized by Ego-state Caring Parent foster this attitude and behavior. Furthermore, it was shown that strong Ego Spontaneous Child has a negative impact on the effectiveness of weight loss therapy, while the Ego-state Adult promotes weight loss [11].

We also observed that BMI values and self-esteem level of the women in the study were inversely proportional to Ego Adapted Child level. The results are in accordance with the characteristics of Ego Adapted Child include subordination, obedience, social withdrawal, and seeking approval. It seems that when properly employed, these personality features in psychotherapy may augur well in achieving effective weight reduction, although there is still a need to work on improving self-esteem.

We did not detect statistical differences in self-esteem and sexual attractiveness levels between the subgroups of the study. However, it should be emphasized that low self-esteem levels were shown in over half of the study women in line with previously published data [6, 12]. It was found that low self-esteem in obese women is significantly associated with cultural factors. The unambiguous and idealized standards of appearance and beauty for women in Western culture are the important factors decreasing self-esteem in obese women. It has also been shown that lean subjects are perceived as physically attractive. In turn physical attractiveness is equated with character traits such as ambition, self-control, and self-esteem [13]. Additionally, in women, low body mass is an important determinant of happiness [14]. Thus it seems, negative body image is the main factor that lowers self-esteem. Low self-esteem determines psychological, social, professional, and family aspects of life. Strategies for coping with stress in obese subjects with low self-esteem frequently are based on emotions and are not conducive to effectively managing the discomfort situation [15].

In our study, self-esteem level was directly proportional to levels of Ego Spontaneous Child and Ego Adults. Additionally, sexual attractiveness level was directly proportional to Ego Spontaneous Child level. It is an interesting observation, because the Ego-state Spontaneous Child is characterized by impulsivity, lack of control, and susceptibility to external stimuli. It is partially explained by the results of previously published studies, revealing an association between self-esteem level and emotional expression [16]. But the complete explanation of these compounds would require individual analysis and testing for what extent this feature is supported by Ego-state Caring Parent. The assessment of partnerships and partners nutritional status surveyed women could also be helpful in clarifying this association. Previously published studies showing that decreased self-esteem is caused by society stigmatization indicates that this factor should be taken into consideration [17].

We hypothesized that positive effect Ego-Adults (characterized by the most logical, constructive condition, focused on the present) on self-esteem may be associated with social status and good partner relationships. On the other hand, focus only on the present may be a defense mechanism against their admission to the awareness of the potential consequences of obesity. It was shown that Ego-Adults are not guaranteed sufficient control of negative beliefs, emotions and behaviors.

It was shown that weight concern affect sexual attractiveness, sexual functioning and sexual satisfaction in women [18]. It is caused by the great discomfort due to negative opinion and judgments of the other, or negative social comparison in the appearance aspects [6, 13-14]. In line with these data our results revealed that higher level of weight concern was positively correlated with higher sexual attractiveness and lower BMI. However, the weight concern level was similar in all study subgroup and not influenced the choice of weight loss strategies.

The interesting result obtained in our study is lower mean lies scale results among women with their own attempts at weight loss compared to no attempts at weight loss and seeking professional obesity treatment. Furthermore, in multivariable age adjusted linear regression model that included independent variables such as education level, weight concern, and Ego Adapted Child and lies scale levels revealed that BMI is directly proportional to lies scale and inversely proportional to remaining variables. Therefore we hypothesized that tendency for self-deception is the important factor delaying perception of the problem of obesity and seeking professional help. In turn the features of education level and Ego Adapted Child may be the favorable factors reducing the tendency to self-deception. These results are the basis for the hypothesis that potential psychotherapy strategies to increase the effectiveness of weight loss should extend beyond supporting of one's attractiveness by women while increasing their self-criticism.

So far there is a lack of data concerning Ego-state in obese subjects, in the context of transactional analysis. Our study is the first association assessment between Ego-state and choosing specific weight loss strategies. Our results suggest that use of transactional analysis in psychological diagnosis of obese subjects is a new important strategy in health promotion. This hypothesis is supported by the results of previously

published studies that demonstrate the use transactional analysis in therapy improves interpersonal communication between medical staff and patients [19].

The limitations of our study are the size of study subgroups and the lack of analysis of partner relationships, nutritional status of partner, and parents as well as social status. Additionally the transactional analysis is a very individual and personalized approach. Thus the attempt to translate its impact on the population is associated with incomplete reflection, compounded by influences on body mass and strategies of coping with overweight.

### Conclusions

1. Structure of the Ego-states, self-esteem and body-esteem did not influence the strategies of coping with overweight.
2. Self-esteem is related to Ego Spontaneous Child and Ego Adults levels, while the sense of sexual attractiveness is affected only by Ego Spontaneous Child.
3. Our results suggest that transactional analysis is an important tool that could improve the effectiveness of strategies to achieve weight reduction

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