

Self-evaluation among adolescents with mild obesity

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Summary

Aim: The purpose of the study was to learn about the self-evaluation of adolescents with simple obesity. Knowledge of patient self-evaluation related to some of their features is important in the course of treatment and rehabilitation, particularly the psychological rehabilitation of individuals with simple obesity at varying stages of adolescence. External appearance and physical features are of particular importance in childhood and early adolescence. They determine the acceptance or rejection by a peer group and the social status within the group and hence can lead to psychological traumas and complexities.

Material and method: The survey encompassed 75 females and 150 males diagnosed with simple obesity (experimental group E) and 75 non obese females and 90 non obese males (control group C) in three age groups: 12, 14 and 16 years. The degree of obesity was specified with the aid of percentile height-weight charts. Body mass that was documented above 95 percentile was considered obese. The fatty tissue, the thickness of skin and fatty folds on the abdomen, above the triceps muscles of the arm and under the shoulder blades were measured. The self-evaluation survey was conducted by means of a list containing 31 pairs of contrasted adjectives which characterized features of outward appearance, physical features, psychological features and psychosocial features. The adjectives were selected by the authors. The results were subjected to the statistical research method U - test for two structure components.

Results: Generally young obese individuals tend to attribute themselves to more socially disapproved features than is the case with their non obese counterparts. In young people with simple obesity features of external appearance and physical features are more evident than psychological and psychosocial ones. The greatest differences in self-evaluation between both groups of sex and the E/C groups are observed at the age of 14. Obese females and obese males alike are more often willing to attribute to themselves pejorative features in relation to self-evaluation than their non obese female friends. Obese males in all cases proved to be more critical than their female friends. In comparisons between the youngest male subgroups and middle female subgroups the least number of quantitative and qualitative differences was observed.

Discussion: In accordance with the accepted assumption self-evaluation of obese and non obese young people differed qualitatively and quantitatively from the self-evaluation of non obese young people. In the literature reviewed by the authors this problem has been treated mostly in a general manner. Hence, our findings may prove to be useful in rehabilitation procedures.

Conclusion: With maturity, self-evaluation becomes increasingly developed and more critical which might demonstrate the need for early psychotherapy of young individuals' obesity in order to minimize the psychological consequences associated with this condition.

Key words: Physical, psychological and psychosocial features, outward appearance, simple obesity, self-evaluation, adoles-

Introduction

Simple obesity is a condition of civilized societies. 5-20% of the world's population during adolescence [1] and 5-10% of all young people in Poland suffer from it. In children and young people about 95% of the obesity is identified as simple obesity. It results from an imbalance between the supply and consumption of energy products [2, 3]. An excessive and calorie-rich diet coupled with decreased physical activity that characterizes contemporary society's lifestyle makes for the surplus of metabolized nutritive substances to accumulate in the organism in the form of adipose tissue [4, 5, 6].

In treating this form of obesity, normally a low calorie diet and increased energy expenditure in the form of physical activity is recommended [7, 8, 9]. However, effective treatment of obesity in young people involves proper motivation, strong will and endurance. Knowledge about the condition alone is insufficient to facilitate change.

The problem of obesity in children and youngsters should not be ignored. According to W. Klish [10], obesity diagnosed early, at the age of 12, only serves to set the course for obesity in later years. In M. Konstanski and E. Gullone's [11] and W. Klish's [10] opinion the common complication subsequent to child and adolescent obesity is low self-esteem, negative self-image and difficulties in adaptation to social groups. In approximately 10% of the population, they experience depression. A. Kępiński [12, 13] points that any "being different", in this case being obese, can cause psychological traumas and difficulty in healing psychological complexes. Also T. A. Wadden and A. J. Stunkard [14] report on the social and psychological consequences of obesity. In W. Klish's [10] opinion obese individuals should be included in psychiatric or psychological care during and after weight reduction. This hypothesis is supported by the authors' own findings [15].

Hypotheses

In this report we intend to present the results of testing the following research hypotheses:

- self-evaluation in obese young people is qualitatively different than the self-evaluation of non obese young people;
- sex is a differentiating factor in self-evaluation both within groups of obese and non obese young people;
- age is also a differentiating factor within self-evaluation.

The group

The sample consisted of two groups: an experimental group (E) and a control group (C). Two subgroups of sexes (females, males) and three subgroups of age (12, 14, 16 year-olds) have been separated in each of them. Group E included 75 obese females (25 respectively in every individual age subgroup) and 150 obese males (50 respectively at every individual age level). The control group (C) was composed of 75 females (25 respectively in each age subgroup) and 90 males (30 respectively in each age subgroup).

Research methods

Methods used in anthropology and pediatrics. The following criteria were used to select the group. The proportion of mass and body height was referred against a weight-height percentile chart [16] establishing a percentile index that corresponded with the studied proportion. If the value was higher than 97 percentiles the subject was identified as obese and included in the experimental group. They also went on for further examination. The examination process consisted of taking the detailed standard pediatric history data of the individual, together with a standard pediatric examination. Those two procedures were aimed at selecting young people with simple obesity. In the control group there were pupils with weight-height proportions ranging from 25 to 75 percentiles on the weight-height chart. In addition measurements of the fatty folds on the abdomen, under the shoulder blade and above the triceps muscle of the arm were taken.

The self-esteem of the groups selected in this fashion was investigated through the use of the self-esteem/self-evaluation survey.

Self-esteem/self-evaluation survey. This survey was obtained via a list consisting of 31 pairs of contrasted adjectives that characterized: external appearance, physical features, psychological and psychosocial features. The adjectives were selected by the authors. The subjects' task was to highlight the feature in each pair which he/she believed to be their own.

The overall reported results were subjected to the statistical research method test Mann-Whitney U for two structure components (percentages) [17].

Results

External appearance features

An analysis of the self-evaluation results for features of external appearance leads to the following general conclusions (table 1):

- Obesity is a factor that differentiates self-esteem both qualitatively and quantitatively. On the whole, obese young people are willing to attribute to themselves more socially disapproving traits than is the case with those deemed to be non obese. The additional factors that differentiate self-evaluation are the sex and age.
- In comparisons of male E/C subgroups related to parallel comparisons within the female subgroups there are a larger number of features differentiating male subgroups from females.
- The smallest number of qualitative and quantitative differences in self-esteem occurs when comparing the youngest male subgroups and the middle female subgroups.
- Relatively the largest number of differences in self-esteem is noted when comparing the oldest male subgroups and the youngest female subgroups.

The comparison of the obese young people's subgroups that differed with regard to sex and age are demonstrated to the following findings:

- The largest difference in the frequency of self-evaluation results is noticed in com-

comparisons between the groups of obese 12 year – olds; the males attribute themselves socially approved traits definitely more often than females. To a larger extent they attribute to themselves “manliness” than females “femininity”.

The comparison between control male and female age sub groups allows one to draw the following conclusions:

- The largest differentiation of self-evaluation is at the age of 14. Males significantly more often attribute socially approved features to themselves. The youngest males less frequently attribute themselves the “manly” feature than their female peers attribute “feminine”; this situation is radically diverted in middle age groups (14 years).
- Females in all age subgroups describe themselves as “fat”.

The presented findings show that the course of developmental psychological processes in young people, including gradual maturity and the changes in self-concept in the youngsters with simple obesity across the 12, 14 and 16 year old bands, applies particularly to the females; social environment, maturation, sexual development and the acquisition of life experience all have an impact upon it.

Physical features

The study of the outcomes of statistical comparisons produces the following overall inferences (table 2):

- In comparisons of the male subgroups (E/C) the most qualitative and quantitative differences have been observed in the middle age subgroup (14 years).
- Obese males, regardless of their age tend to attribute to themselves significantly more negative characteristics than their non obese peers.

The comparisons of female groups (E/C) illustrate the biggest qualitative differences in self-evaluation results in the youngest subjects; with age a decline in quantity and strength is observed.

- Obese females and obese males alike tend to attribute to themselves pejorative self-evaluation features more often than their non obese female colleagues.
- Physical features appear to vary within female subgroups to a smaller extent than their male counterparts.
- The qualitative and quantitative differences in self-evaluation turned out to be few; that is, they referred to only a few of the applied stimuli,
- Obese males in all cases of difference proved to be more critical than females; they described themselves using negative adjectives.

The comparison of self-evaluation between male and female subgroups suggests that:

- The youngest groups difference is the least pronounced; younger males attribute positive traits to themselves more often than the females;
- 14 year-old-males in relation to 14-year-old females more often refer to typical male features (“strong”, “tough”) although they characterize themselves less often than females as “healthy” and “active”,
- In comparisons between the subgroups of 16 year olds this tendency is maintained

in principle, only males consider themselves as more “unhealthy” and at the same time more “noisy” than females.

Psychosocial features

Statistical comparisons between the male E/C subgroups disclosed that (table 3):

- most of qualitative and quantitative inter-group differences are to be observed among the youngest males; the obese respondents view themselves in positive terms definitely rarer than their non obese friends,
- at the ages of 14 and 16 years the number of qualitative differences definitely decreases. Obese males from the middle group tend to assess themselves in positive terms, at age of 16 the frequency of the given type choices depends on their quality.

The comparison of female E/C subgroups results in the following conclusions:

- The youngest obese females, are willing to describe themselves in pejorative terms more often than their non obese friends; in the middle group there is only one statistically significant difference (the obese respondents describe themselves as “sociable”) while 16 year-old obese subjects appear to try to assess themselves realistically by attributing to themselves both positive and negative features.

Among subgroups of obese males and obese females the number of qualitative and quantitative differences increase with the age of the subjects.

Generally males are less willing to describe themselves in positive terms than females.

The comparison between male and female control groups disclose the following regularities:

- In the youngest group (12 years) some positive features (“pleasant”, “kind”, “honest”, “truthful”) are chosen significantly more often by the males and certain (“sociable”, “obliging”) by the females. Males from the middle group point out negative features definitely more often than females. This phenomenon is maintained also in comparisons of self-evaluation between the oldest subgroups although this fades somewhat in relation to features such as “honest” and “obliging”.

Our findings lead us to conclude that once obese young people notice the unfavorable results (unaesthetic) of external appearance they are unable to show sufficient strong will to fight the obesity through increased physical activity and a low calory diet. We would associate this phenomenon with the somewhat slower development of the will and psychosocial personality traits when compared with the level of perception and criticism.

Psychological features

The results of the comparisons of male E/C subgroups presents as follows:

- Obesity and the age of the subjects have proven to be the factors that differentiate self-evaluation; the youngest obese males tend to assess their self-esteem in positive terms definitely rarer than their non obese peers. In the middle age group obese

young people “display their inner image” attributing to themselves the traits that are not apparent in immediate observation (e.g. “good”, “gifted”, “careful”). In the middle groups, the features that did not differentiate the youngest subgroups (e.g. “assertive”, “careful”) begin to do so, while in the oldest obese young people, the polarization of self-evaluation has been observed which, in our opinion, is associated with the attempts at realistic self-evaluation. (Table 4)

Somewhat different regularities have been noted in the following comparisons between the female E/C subgroups. It turned out that:

- The youngest obese females evaluate themselves in positive terms less often than their peers although, unlike 12-year-old males, they point to the possession of a positive feature (being “well-balanced”). The self-evaluation of obese 14-year-old females alters radically as they attribute to themselves positive features of self-evaluation definitely more often than their non obese peers; obese respondents from the oldest age subgroup tend to take a critical view of themselves more often than they highlight their positive traits (such as “good”, “assertive”).

The comparisons of self-evaluation between obese males and obese females yielded the following results:

- Gender is the factor that most differentiates the self-evaluation results of obese subjects at age of 14; in the youngest and the oldest group differences are not as evident as in the middle group. Males from the youngest group describe themselves as “brave” and “well-balanced”, less often than females yet more often as “open”. In the middle group males describe themselves more often to be “gifted”, “brave” than females do and as “wise”, “patient” and “cheerful” less often than females. The oldest subjects consider themselves to be “good”, “well-balanced” though consider themselves less often to be as “assertive” as the females do. Table 4.

The comparisons between control males and females subgroups disclosed that:

- the largest differences characterized comparisons between the self-evaluation of the middle age groups while the least marked differences referred to the comparisons between the youngest subgroups, with average differences being a feature of the oldest groups;
- The youngest males consider themselves to be “good” and “without hang-ups” more often than females of their age but considered themselves to be “gifted” and “well-balanced” less often;
- Male subjects from the middle group emphasize the possession of positive features that are relatively difficult to evaluate directly such as: “gifted”, “brave”, “open” “patient” and at the same time they highlight “wise”, “good”, “well-balanced”, “careful” less frequently, which are in turn the features that females attribute to themselves;
- On the whole, in the oldest group, males attribute positive features to themselves less often than is the case with females. Table 4.

Summary and discussion

On the whole, the empirical research results positively verify the hypotheses stated in the beginning.

In a way consistent with the accepted assumptions, self-evaluation within the obese differs qualitatively and quantitatively from the self-evaluation among the non obese young people. Furthermore, the quantity and intensity of these differences is dependant upon the type of features evaluated. In the literature available to the authors this problem has been treated mostly very generally [10, 11, 18].

External appearance and physical features are more evident than psychosocial and psychological features. Young people are aware, through the “social mirror”, relatively early on of these features, particularly those socially disapproved or not consistent with the gender role. We would like to emphasize the impact of social factors on the development of self-evaluation which is sex dependant as has been mentioned in the literature by M. Żebrowska [19]. Females enter adolescence about one year earlier than males [19, 20, 21] thanks to which their evaluation of themselves should also acquire a sense of realism [22].

An interesting regularity has been noted within the evaluation of one’s own features of sex. Obese males regard themselves to be “manly” less often than their non obese peers. Marked differences in the evaluation of these features were observed in the middle group. In the case of comparisons between female groups we observe a qualitatively parallel phenomenon, but this appears only in the youngest group. The comparison between the male and female E groups provides evidence that 12-year-old females emphasize their “femininity” significantly more often than males do. The comparison of male and female control groups shows that males from the youngest and middle groups describe themselves as “manly” significantly less often than females describe themselves as “feminine”.

Gender is the factor that determines the age at which one enters adolescence. Early adolescence is characterized by hypercriticism which retreats to give way to a realistic perception of the world [18, 19, 22]. One could have expected that this regularity would be universal. Yet, our own findings show that criticism/realism within evaluations depends upon gender, age and, above all, the type of features subject to self-evaluation. For example, in self-evaluation comparisons between E/C male groups (features of external appearance) the obese respondents, are very critical of themselves regardless of age, while only females from the youngest group (E/C comparisons) show distinct hypercriticism; the criticism level is less in the middle age group and higher at the age of 16. The comparisons of male and female E groups are evidence that the youngest obese males attribute to themselves positive features significantly more often than their obese female peers.

With sexual development self-evaluation becomes more mature and critical which indirectly may indicate the need for early psychotherapy amongst obese youngsters. Males in the control groups of 12-year-olds, and particularly 14-year-olds when compared with the females, evaluate themselves definitely more positively; in the oldest groups the evaluations even out and become more realistic.

The self-evaluation related to psychosocial features presents itself in a slightly different way. The youngest obese males (comparison between E/C groups) attribute themselves traits that have socially negative connotations more often than their peers, in the middle group the number of differences in self-evaluation rapidly decreases, while 14-year-old obese subjects assess themselves in positive terms more often than their peers: the oldest subjects' self-evaluation takes on realistic characteristics. The results of comparisons between female E/C groups are analogous.

Obese males in relation to obese females in all the age subgroups definitely more often attribute themselves features that are socially disapproved of. While, in comparisons between male and female control groups, males, and particularly 14- and 16-year-olds, attribute themselves by negative self-evaluative features much more often than females.

The conclusion that can be drawn upon the basis of the given examples is that obesity causes more remarkable decreases in self-evaluation amongst males than is the case with females; the mechanisms of protecting one's ego appear also to be different in females and males. Males tend to generalize extreme self-evaluation; in the middle group they are particularly willing to attribute themselves socially approved features significantly more often, while the male groups of 12- and 16-year-olds display a critical or hypercritical attitude towards themselves. Females seem to act more rationally and apart from admitting their negative traits they try to balance them through the pointing out of those positive features they feel they possess.

Earlier emotional maturity and personality development amongst females could account for these differences.

These findings support the view that the age of 14 is critical in the forming of most self-evaluation features [15, 23]. At this age self-evaluation differs most significantly within the groups (E/C) selected for the survey as well as in the groups divided on the basis of sex. This differentiation manifests itself both with reference to the sign of self-evaluation (positive-negative) and the frequency of the choices.

At the age of 14 the principles of gender roles strengthen; in males of this age one notes the additionally associated manifestations of perversity and rebellion against the established patterns and norms of behavior in society.

In this light psychological rehabilitation is of special importance when one considers that a prolonging of obesity during adolescence disturbs the maintaining of a good state of health and disrupts the psychophysical condition.

Conclusions

- Obesity is a factor that differentiates self-evaluation amongst obese and non obese youngsters in relation to external appearance, physical, psychological and psychosocial features;
- In simple obesity, gender is also a factor that differentiates self-evaluation in relation to groups of features considered. Obese males and females differ from each other in their approach to obesity. Subjects from the control groups are to a greater extent governed by the principles of gender roles that are expected within the social groups they are willing to identify with.

- Simple obesity leads to the development of a more generalized and negative concept of self in males than in females.
- Age differentiates self-evaluation. 14 years of age is of particular interest. At that age the differences within gender groups and selected groups of obese and non obese youngsters emerge most clearly. While, depending on the type of self-evaluated features an evident differentiation within self-evaluation is noted in the two genders.

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Table 1
Self-esteem survey results. Outward appearance features. U-test values that characterize inter-group comparison

Outward appearance features	Inter-group comparison											
	Boys EC			Girls EC			Boys Cab EC			Girls Cab EC		
	Age	U	Signif.	Age	U	Signif.	Age	U	Signif.	Age	U	Signif.
1M	13.0	5.6	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
2M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
3M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
4M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
5M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
6M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
7M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
8M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
9M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
10M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
11M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
12M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
13M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
14M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
15M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
16M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
17M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
18M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
19M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**
20M	13.0	3.2	**	14.9	5.6	**	13.8	4.2	**	14.1	5.6	**

Legend: * significance level p=0.05, ** significance level p=0.01

Table 2

Self-esteem results. Physical features. U-test values that characterize inter-group comparisons

Physical feature	Inter-group comparisons															
	Boys GC				Girls GC				Boys Cab GC				Girls Cab GC			
	14J	16J	18J	19J	14J	16J	18J	19J	14J	16J	18J	19J	14J	16J	18J	19J
Age	5.61	3.33	4.43	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61
Weight	-1.60	3.33	1.80	-1.80	3.33	-1.80	-1.80	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Height	-5.00	-3.33	-1.80	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33
Face	5.00	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Teeth	-3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Upper lip	1.33	-3.33	-1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Chin	-5.00	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33
Smile	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Adria	-3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Arche	4.00	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Body	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33	-3.33
Upper lip	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Chin	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33

Legend: * significance level p=0.05, ** significance level p=0.01

Table 3
Self-esteem survey results. Psychosocial features. U-test values that characterize inter-group comparisons

Psychosocial features	Psychosocial features											
	Boys EC				Cabs EC				Boys Cab EC			
	M	SD	U	p	M	SD	U	p	M	SD	U	p
Age	12.1	0.4	149	0.001	12.1	0.4	149	0.001	12.1	0.4	149	0.001
Gender	0.4	0.5	149	0.001	0.4	0.5	149	0.001	0.4	0.5	149	0.001
Physical	-0.3	0.4	149	0.001	-0.3	0.4	149	0.001	-0.3	0.4	149	0.001
Unpleasant	0.3	0.4	149	0.001	0.3	0.4	149	0.001	0.3	0.4	149	0.001
Family	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001
Unhappy	0.1	0.4	149	0.001	0.1	0.4	149	0.001	0.1	0.4	149	0.001
Social	-0.3	0.4	149	0.001	-0.3	0.4	149	0.001	-0.3	0.4	149	0.001
Unacceptable	0.3	0.4	149	0.001	0.3	0.4	149	0.001	0.3	0.4	149	0.001
Men	-0.4	0.5	149	0.001	-0.4	0.5	149	0.001	-0.4	0.5	149	0.001
Unhappy	0.4	0.5	149	0.001	0.4	0.5	149	0.001	0.4	0.5	149	0.001
Friend	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001
Unpleasant	0.1	0.4	149	0.001	0.1	0.4	149	0.001	0.1	0.4	149	0.001
Unhappy	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001
Un	0.1	0.4	149	0.001	0.1	0.4	149	0.001	0.1	0.4	149	0.001
Cab	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001	-0.1	0.4	149	0.001
Unhappy	0.1	0.4	149	0.001	0.1	0.4	149	0.001	0.1	0.4	149	0.001

Legend: * significance level p=0.05, ** significance level p=0.01

Table 4

Self-esteem survey results. Psychological features. U-test values that characterize inter-group comparisons

Psychological features	Psychological features											
	Cable C				Cable B				Cable A			
	1997	2001	2004	2007	1997	2001	2004	2007	1997	2001	2004	2007
Wsp	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Coś	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
On	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Całkow	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Życie	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Współczesność	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uwaga	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Całkow	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Życie	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Współczesność	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uwaga	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Całkow	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Życie	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Współczesność	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uwaga	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Całkow	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Życie	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Przebieg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Współczesność	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uwaga	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Legend: * significance level p=0.05, ** significance level p=0.01