Generation changes of Polish adolescents self-image (cohorts 1987 versus 2001)

Renata Modrzejewska, Wanda Badura-Madej

Summary

Aim of the study. To compare the self-image of adolescents over fifteen years in Poland (1987 versus 2001).

Material and methods. Participants were 1872 school students aged 16 to 17 years randomly selected from high school in Kraków (university town). Self-image was measured by the Offer Self-Image Questionnaire. MANOVA, ANOVAs and CFA were applied as statistical methods.

Results. Between 1987 and 2001 self-image changes toward a more positive self perceptions in 2001. Boys described themselves better on most scales. Girls score better on vocational and educational goals and superior adjustment.

Discussion. Based on the results of population studies on adolescents' self-image, it can be claimed that within nearly 15 years, 17-year-olds' self-image improved. Thus, the hypothesis was confirmed that adolescents' self-image in subsequent birth cohorts had changed. A similar conclusion had been drawn by Offer in studies quoted earlier.

Conclusions. Self-image changes over time. It is influenced by macrosocial conditions. The research confirm 5-factor model of self-image structure of the questionnaire and its inter-generational and inter-cultural stability.

self-image / gender difference / epidemiological study / Poland

Developing a self-image is one of the basic development tasks of the adolescence period. A realistic, coherent self-image is considered to be one of the determinants of mental health [1]. Negative self-image is associated with a variety of psychological problems such as depression or conduct disorders [2].

In the literature, there is a debate as to what makes up the essence of self-image; whether it is the psychological dimension, or a multidimensional construct based on various aspects of the developing personality.

In his population study (non-treated population), Offer initiated the view of self-image as one consisting of several dimensions of psychological functioning: Psychological Self – PS, Social Self – SS, Sexual Self – SxS, Familial Self – FS and Coping Self – CS. He did not think about the relationship between these dimensions, and thus about their factor structure. He focused more on the influence of social and cultural factors and transgenerational changes (over time).

In-depth analysis of adolescent self-image depends largely on the ability to apply appropriate methods of measurement and on the development of methods of statistical analysis

The main obstacle to resolving this controversy was the traditional statistical methods that were used before and were unable to discover the hidden structure of the construct. To give a satisfying answer to the question of types versus dimensions, structure discovering methods should be used (e.g. factor analysis), rather than

Renata Modrzejewska[1], Wanda Badura-Madej[2]: [1] Department of Child and Adolescent Psychiatry; Jagiellonian University Medical College; [2] Department of Health Psychology, Jagiellonian University Medical College. **Correspondence address:** renatam@cm-uj.krakow.pl

methods that impose structure on the data (e.g. cluster analysis) [3].

Investigating self-image, its variability is important in the discussion of mental health norm in adolescence because of the rapid development taking place in that period (in biological, psychological, social terms).

The problem of norm and pathology in adolescent psychiatry has been discussed for many years. In addition to the biological plane, in psychiatry, the assessment of the health status or norm requires the assessment of the psychosocial dimension that is difficult to define in a standard, easy-to measure formula. The discussion included ways of understanding norm in the following terms: statistical, sociological, transcultural, psychological and developmental [4].

In development psychiatry, the problem of norm and pathology is particularly complicated due to the adolescence period. It is assumed that adolescence is a cultural phenomenon. It can be stormy, with anxiety, fear, sadness, a sense of being lost in the world or in a harmonious, nonconfrontational manner, and, only in extreme cases, cause the appearance of mental disorders. The latter approach has been presented by the researchers of large representative groups of adolescents, and the frame of reference is the statistical norm. A representative of this approach was Daniel Offer who opposed the extrapolation of phenomena observed in clinical populations onto a non-treated population [1, 2, 5, 6].

In the 1970s, an examination of adolescence in clinical terms was presented by Masterson, one of America's leading adolescent psychiatrists. He believed that in adolescents with well-developed defence mechanisms, the "normal" ones, psychological difficulties do not become more severe than subclinical [7].

Dario Bacchini and Fabrizia Magliulo [8] followed Offer's concept and analyzed changes in self-image in a seven-year interval They found a self-image deterioration on the morale scale, an improvement in the scales of family relationships, emotional health and superior adjustment.

Intergenerational self-image changes in adolescents can occur both as part of individual dimensions (differences in levels and variances) and in relationships between them (correlations, factor structures). Analyses of correlations be-

tween different dimensions of the self-image and studies of the factor structure of the self-image are carried out in connection with the improvement measurement tools and make it possible to draw conclusions about the similarity of self-image factor structures in different adolescent populations (generalizability problem). When researching self-image in adolescents, there is no information about the similarity of factor structures in different birth cohorts.

Hypotheses regarding the self-image structure were examined in confirmative factor analyses of the OSIQ questionnaire scales. Lindfors et al [9] compared the match of 3 self-image structure models to empirical data. The first model investigated was the single-factor model which assumes the existence of a general factor (Self-Image factor) [10–12]. Model 2 [13] distinguished 4 factors (1. Anxious Self – scales: Emotional Tone, Social Relationships, Emotional Health, 2. Sexual Attitudes, 3. Family Relationships, 4. Coping Self – scales: Emotional Tone, Body Image, Mastery, Vocational and Educational Goals, Superior Adjustment). Model 3 (14) included a 5-factor solution: (1. Personality Anxious Self – scales: Impulse Control, Emotional Tone, Body Image, Mastery, Emotional Health, 2. Social Relationships, 3. Sexual Attitudes, 4. Family Relationship, 5. Social Conscience – scales: Vocational and Educational Goals, Superior Adjustment). Scale M (Mastery) was related to the first factor only. Lindfors et al. modified model 3 by relating the Mastery scale both to the first factor and to the fifth factor unlike in model 3, when the M scale (Mastery) was related to the first factor only [9]. That model was tested in self-image studies of Finnish adolescents. It turned out that model 4 is better suited to empirical data than previous three models.

AIM

Assuming that adolescence is a process heavily coloured by social and cultural factors and that psychological characteristics of adolescents are of no universal value, studies were undertaken aimed at comparing the self-image of adolescents over fifteen years in Poland. It is worth stressing that in the selected period from 1987 to 2001, Poland saw significant political, social and

economic changes related to political transformation. The analysis regarded both factor structures and arithmetic mean values in individual scales representing the self-image dimensions.

MATERIAL AND METHODS

1752 school students aged 16-17 took part in studies carried out in 1987 and 2001, whose results have been included in the current calculations (subjects have been passed over who skipped more answers in the OSIQ questionnaire than is permitted by the calculation procedure). The 1987 sample included 312 boys and 318 girls, and the 2001 sample – 475 boys and 647 girls. In both samples, population proportions of adolescents from all school types were maintained (layered draw).

Measures

Self-image was measured by the OSIQ International Version (13, 8). The OSIQ-International is a self-report personality questionnaire for adolescents which assesses 10 dimensions of self-image: Impulse Control (S1), Emotional Tone (S2), Body Image (S3), Social Relationships (S4), Sexual Attitude (S5), Family Relationships (S6), Mastery (S7), Vocational and Educational Goals (S8), Emotional Health (S9) Superior Adjustment (S10). 130 OSIQ items (full 12-scales version) were translated into Polish [16], only 99 of them (10 scales) were included in the International Version. Each item has six alternative responses (from 1 = "Describes me very well" to 6 = "Does not describe me at all"). A low raw score of the scales reflects a positive self-image and a high raw score, a negative self-image. In our study, the row scores were reversed, so that the higher the score, the better the self-image.

Statistical analyses

The point of departure for the analysis of factor structures was assumed to be 4 self-image models described in literature, obtained in self-image studies using OSIQ.

SPSS 14.0 was used in basic statistical analyzes and SEPATH of STATISTICA 7.1 was used in CFA. If at least 80% of the scale items were completed by the participants, missing values were replaced with the means of scales item true (or: non missing) values. In order to compare raw score levels in boys' and girls' OSIQ scales in 1987 and 2001, two-factor MANOVA and ANOVAs were carried out. In CFA variance-covariance matrix was analyzed and maximum likelihood was the estimation method. The comparative fit index (CFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA), Akaike's information criterion (AIC) and χ^2/df ratio were used. Factors were allowed to correlate and no correlated errors between variables were allowed in CFA models.

RESULTS

Adolescents' self-image in 1987 and 2001

To answer the question whether or not changes have occurred in self-image structure, a comparison of correlation coefficient matrices and a confirmative factor analysis was used. GLS discrepancy function in SEPATH was used to compare OSIQ scales intercorrelations in 1987 and 2001 population for equality. Significant statistical differences were found between correlation matrices from both samples (GLS chi-square =156.06, df = 45, p < 0.001) [Tab. 1, Tab. 2 – *next page*].

A difference was found between the 1987 and 2001 samples as far as match with model 4 is concerned (ML chi-square = 408.82, df=54, p < 0.001). All indices show a better match of model 4 with data in the 2001 sample than in the 1987 sample [9].

Correlation coefficients between scales related to individual factors in model 4 are higher in the 2001 sample than in the 1987 sample, which points to greater self-image coherence in the later generation.

The match of the remaining three models 1, 2 and 3 with empirical data is also better in the 2001 sample than in the 1987 sample. In both samples, Model 4 matches the data better than do models 1, 2 and 3 (Tab. 2). Data in the table show an identical order of models 1-4 as far as

Table 1. OSIQ scale intrecorrelations in 1987 (N=630) and 2001 (N=1242) samples

OSIQ scale	Sample	IC	ET	BI	SR	SX	FR	M	VE	EH
ET	1987	0.527**								
	2009	0.652**								
BI	1987	0.436**	0.564**							
	2009	0.580**	0.729**							
SR	1987	0.336**	0.650**	0.454**						
	2009	0.441**	0.626**	0.545**						
S	1987	0.196**	0.323**	0.327**	0.404**					
	2009	0.175**	0.279**	0.270**	0.419**					
FR	1987	0.281**	0.319**	0.242**	0.189**	-0.080*				
	2009	0.467**	0.509**	0.477**	0.308**	0.035				
M	1987	0.348**	0.348**	0.303**	0.360**	0.277**	0.178**			
	2009	0.554**	0.613**	0.574**	0.518**	0.276**	0.479**			
VE	1987	0.229**	0.064	0.062	0.098*	-0.164**	0.418**	0.231**		
	2009	0.377**	0.336**	0.304**	0.344**	0.084**	0.464**	0.465**		
EH	1987	0.542**	0.697**	0.564**	0.588**	0.347**	0.268**	0.401**	0.053	
	2009	0.663**	0.714**	0.674**	0.575**	0.265**	0.474**	0.585**	0.322**	
SA	1987	0.245**	0.315**	0.205**	0.420**	0.103*	0.265**	0.439**	0.403**	0.319**
	2009	0.392**	0.454**	0.385**	0.537**	0.321**	0.353**	0.555**	0.501**	0.473**

OSIQ = Offer Self-Image Questionnaire; IC = impulse control; ET = emotional tone; BI = body image; SR = social relationships; SX = sexual attitudes; FR = family relationships; M = mastery of external world; VE = vocational/educ. goals; EH = emotional health; SA = superior adjustment.

$*$ $p < 0.05$, $**$ $p < 0.01$ (two-tailed).

Table 2. Fit indices for confirmatory factor analyses of the OSIQ scales

	χ^2	df	p<	χ^2/df	RMSEA	SRMR	CFI	AIC
Criterion 1987				< 2.50*	< 0.06	< 0.05	>0.95	
Criterion 2001				< 3.38*	< 0.06	< 0.05	>0.95	
Model 1								
1987	484.91	35	0.0001	13.85	0.151	0.100	0.728	0.878
2001	617.45	35	0.0001	17.64	0.140	0.070	0.879	0.693
Model 2								
1987	415.30	31	0.0001	13.40	0.141	0.090	0.819	0.775
2001	542.11	31	0.0001	17.49	0.136	0.063	0.894	0.622
Model 3								
1987	271.33	28	0.0001	9.69	0.119	0.076	0.885	0.544
2001	299.92	28	0.0001	10.71	0.101	0.047	0.944	0.373
Model 4								
1987	216.11	27	0.0001	8.00	0.107	0.063	0.911	0.455
2001	192.21	27	0.0001	7.11	0.081	0.036	0.966	0.262

OSIQ = Offer Self-Image Questionnaire; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; CFI = comparative fit index; AIC = Akaike's information criterion. * χ^2/df < 1+ N/400, for 1987 sample (N1 = 630): χ^2/df < 2.50 and for 2009 sample (N2 = 1242): χ^2/df < 3.38.

match is concerned in both samples: model 1 < model 2 < model 3 < model 4.

It should also be said that only model 4 shows a satisfactory level of match with empirical data as far as CFI and SRMR are concerned, and that only in the 2001 sample and with the model's insufficient match as far as index χ^2/df is concerned and poor match (< 0.1) as far as RMSEA is concerned.

The results obtained in confirmative factor analyses (CFA) argue more for a similarity of OSIQ factor structures in both generations compared, despite model match differences found between them.

Adolescents' self-image in 1987 and 2001 – a comparison of OSIQ scale averages

Tab. 3 compares results of two-factor MANOVA and ANOVA's concerning differences between the 1987 and i 2001 adolescent groups and between sexes in OSIQ scale raw score averages. Their level in individual scales in both birth cohorts and sexes is illustrated by Charts 1 and 2.

ly relations (cohort effect in ANOVA irrelevant). [Fig. 1, Fig. 2 – *next page*].

The girls described themselves much more positively than the boys as far as educational and professional goals were concerned as well as higher adaptation, i.e. ego strength, while the boys scored higher on the remaining dimensions, except for social relations (irrelevant sex effect in ANOVA).

Both in MANOVA and in ANOVAs essential cohort x sex interactive effects are missing.

DISCUSSION AND CONCLUSIONS

Based on the results of population studies on adolescents' self-image, it can be claimed that within nearly 15 years, 17-year-olds' self-image improved. Thus, the hypothesis was confirmed that adolescents' self-image in subsequent birth cohorts had changed. A similar conclusion had been drawn by Offer in studies quoted earlier [1].
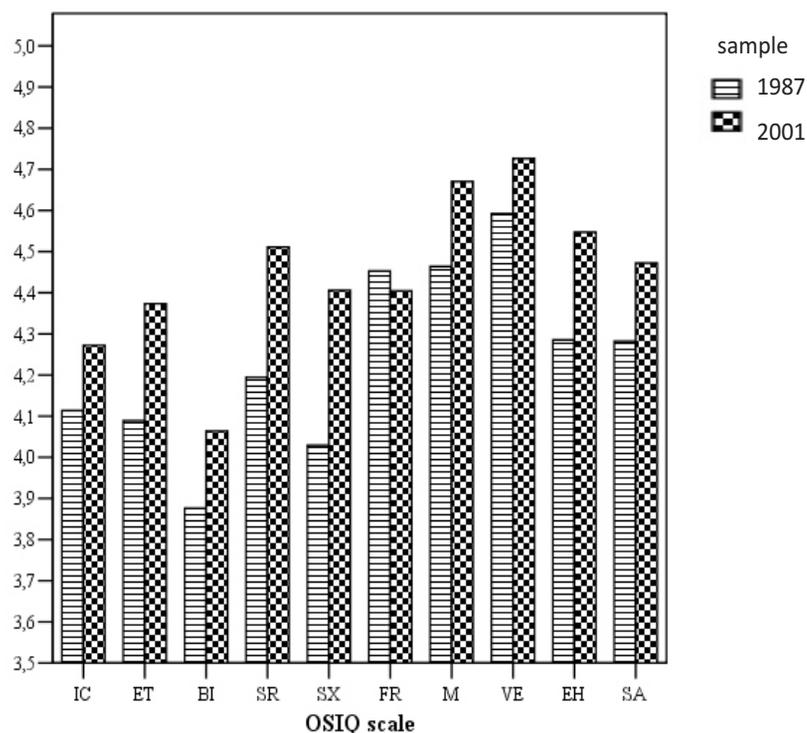
Table 3. OSIQ scales – MANOVA and ANOVAs: main and interaction effects of birth cohort and gender

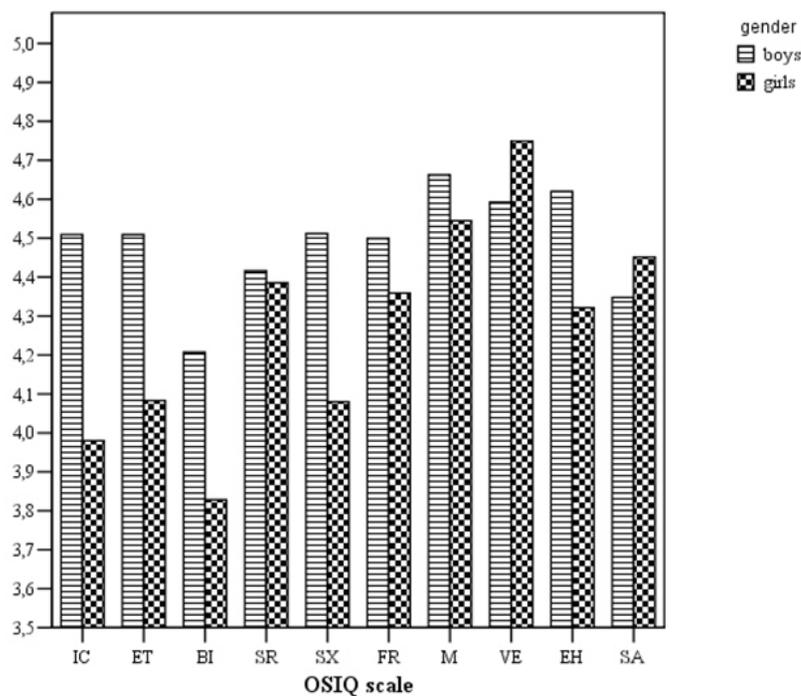| Effect	Cohort		Gender		Cohort x Gender	
MANOVA	λ Wilks'a= 0.91F(10, 722)=160.99; p< 0.0005		λ Wilks'a= 0.75 F(10, 722)=580.92; p< 0.0005		λ Wilks'a= 0.99F(10, 1722)=10.28; p< 0.235	
ANOVA	F(1,1731)	Sig0.	F(1,1731)	Sig0.	F(1,1731)	Sig0.
Self-image dimension						
Impulse control	210.302	0.000	1770.407	0.000	0.727	0.394
Emotional tone	450.279	0.000	840.500	0.000	0.934	0.334
Body image	260.805	0.000	870.018	0.000	0.267	0.606
Social relationship	590.394	0.000	10.403	0.236	0.003	0.956
Sexual attitudes	1100.420	0.000	1530.606	0.000	20.573	0.109
Family relationships	0.688	0.407	80.057	0.005	30.478	0.062
Mastery of external world	350.300	0.000	110.061	0.001	0.774	0.379
Vocational and educational goals	110.528	0.001	170.817	0.000	0.638	0.424
Emotional health	610.040	0.000	750.326	0.000	0.027	0.869
Superior adjustment	390.049	0.000	110.166	0.001	0.704	0.402

OSIQ = Offer Self-Image Questionnaire.

A comparative analysis of adolescents self-image in 1987 and 2001 indicates changes towards a more positive self perception in 2001 (cohort's significant main effect in MANOVA). This conclusion applies to all self-image dimensions in the Offer questionnaire, except for fami

In the period described, a significant change of economic and demographic factors occurred in Poland: The national income and the per capita income increased, and the education system changed, the proportion of adolescents aged 14 to 18 in the overall population grew. Thus, Offer's observation proved correct, that as nation

Figure 1. Means of the OSIQ scales in 1987 and 2001 samples (reverse raw scores in 1 – 6 item answer range, high score shows positive self-image).
IC = impulse control; ET = emotional tone; BI = body image; SR = social relationships; SX = sexual attitudes; FR = family rela-
tionships; M = mastery of external world, VE = vocational/educ. goals; EH = emotional health; SA = superior adjustment.

Figure 2. Mean values of the OSIQ scales for boys and girls (reverse raw scores in 1 – 6 item answer range, high score shows positive self-image).
IC = impulse control; ET = emotional tone; BI = body image; SR = social relationships; SX = sexual attitudes;
FR = family relationships; M = mastery of external world, VE = vocational/educ. goals; EH = emotional health; SA = superior adjustment.

al income and per capita income grows, self-image improves, as well as attitudes towards sexual issues change from traditional to more liberal. A claim can be ventured that in the 1990s, in the period of Poland's political transformation, the social conditions, which involved more risk but at the same time greater challenges and opportunities, had a positive effect on the developing beliefs about oneself.

Apart from changes, certain permanent tendencies in adolescents' self-image emerged. One of them is that a more positive self-image remains in boys than in girls. Boys score better on most scales which describe the various aspects of the self-image. Exceptions include educational goals, professional goals and higher adaptation – better scores in girls. Offer's research showed that the evaluations of parental relations over time remained at a similar level both in boys and in girls [5]. The same regularity was found in Polish studies.

Our research also points to (confirms) intergenerational and intercultural stability of the 5-factor self-image structure.

REFERENCES

1. Offer D, Ostrov E, Howard KI. The Mental Health Professional's Concept of Normal Adolescent. Archives of General Psychiatry 1981a; 38, 2: 149–152.

2. Offer D, Ostrov E, Howard KI. The Adolescent: A psychological Self-Portrait, Basic Books, New York, 1981b.

3. Hankin BL, Fraley RC, Lahey BB, Waldman ID: Is depression best viewed as a continuum or discrete category? A taxometric analysis of childhood and adolescent depression in a population-based sample. J Abnorm Psychol, 2005; 114, 96–110.

4. Orwid M. red. Zaburzenia psychiczne u młodzieży. Warszawa: PZWL, 1981.

5. Offer D, Ostrov E, Howard KI, Atkinson R. The Teenage World: Adolescents' Self-Image in Ten Countries, New York: Plenum Publishing Corporation, 1988.

6. Modrzejewska R, Badura-Madej W. Zmiana obrazu siebie w populacji młodzieży w późnej fazie adolescencji na przestrzeni 15 lat – badania porównawcze. Psychiatr Pol, 2008; 42: 683–693.

7. Masterson Jr JF, Washburne A. The symptomatic adolescent: psychiatric illness or adolescent turmoil? Am J Psychiatry, 1966; 122: 1240–1248.

8. Bacchini D, Magliulo F. Self-Image and Perceived Self-Efficacy During Adolescence. Journal of Youth and Adolescence 2003; 32: 337–350.

9. Lindfors K, Elovaino M, Sinkkonen J, Aalberg V, Vuorinen R. Construct Validity of the Offer Self-Image Questionnaire and Its Relationship with Self-Esteem, Depression, and Ego Development. Journal of Youth and Adolescence 2005; 34: 389–400.

10. Offer D, Ostrov E, Howard KI, Dolan S. A manual for the Offer Self-Image Questionnaire for Adolescents, Michael Reese Hospital and Medical Center, Chicago, 1989.

11. Korhonen V, Laukkanen E, Peiponen S, Lehtonen J, Viinamäki H. Effect of major depression on the self-image of adolescent boys and girls. J.Youth Adolesc. 2001; 30: 697–706.

12. Laukkanen ER, Shemeikka SL, Viinamäki HT, Polkki PL, Lehtonen JO. Heavy drinking is associated with more severe psychosocial dysfunction among girls than boys in Finland. J. Adolesc. Health 2001; 28: 270–277.

13. Laukkanen E, Halonen P, Aivio A, Viinamäki H, Lehtonen J. Construcy validity of the Offer Self-Image Questionnaire in Finish 13-year-old adolescence: Defference in the self-images of boys and girls. Nord. J. Psychiat. 2000; 54: 431–435.

14. Patton W, Noller P. The Offer Self-Image Questionnaire for Adolescents: Psychometric properties and factor structure. J. Youth Adolesc. 1994; 23: 19–41.

15. Offer D, Ostrov E, Howard KI. A manual for the Offer Self-Image Questionnaire for Adolescents, Michael Reese Hospital and Medical Center, Chicago, 1982.

16. Badura-Madej W. Raport z resortowego programu naukowo--badawczego: Ocena zależności miedzy obrazem siebie a zaburzeniami psychicznymi u młodzieży i opracowanie technik poprawy diagnostyki zaburzeń psychicznych 1986–1990 Instytut Psychiatrii i Neurologii Warszawa, 1990.