

Illusions and Biases in Psychological Well Being: An 'Onion' Theory of Happiness

Janusz Czapinski

Institute for Social Studies
University of Warsaw

Paper presented at the working meeting of ISR (The University of Michigan) and ISS (The University of Warsaw) on Reconciling Collective and Self-interest In Emerging Democracies, Ann Arbor (USA), December 15-18, 1991.

Introduction

One of the most fascinating revolutions that has been going on for several years in psychology is a departure from normative models of human rationality and mental health. For a time, social psychology was trailing in this movement but today it is in the front line and even more than other disciplines accentuates the adaptive functions of some illusions and biases in cognitive and affective processes. To illustrate it I will give two examples only. First, Markus and Zajonc's chapter on social cognition in the last edition of the *Handbook of Social Psychology* is to a large extent devoted to listing and describing the various biases and heuristics in human reasoning that violate classical normative models of rationality (Markus and Zajonc, 1985); second, Taylor in her recent book entitled *Positive Illusions* presents robust evidence against these theories which consider accurate perceptions of reality as a critical component of mental health (Taylor, 1990). The basic assumption of the emerging paradigm states that only in a special and very limited class of circumstances human functioning fits the normative models of rationality but without taking a position that in most conditions people behave in a stupid or unadaptive manner. Rather, they behave as agents, and not as unbiased observers. And also, they have to look for a compromise between realism (valid perceptions of reality) and positive illusions concerning possible states of reality.

I would like to focus on this compromise in the area of psychological well-being. We know that people's behavior and outcomes of the behavior are influenced by their feelings and evaluations. Changing one's feelings and evaluations should improve or

deteriorate the performance. Why not exaggerate positive feelings and evaluations if they seem to lead to better results than negative feelings and evaluations? On the other hand, we know that people's feelings and evaluations depend in turn on the outcomes of their behaviors and on other objective life circumstances: if something goes wrong a person should feel worse. Both beliefs have been supported by a large body of empirical data. Actually, the tendency to exaggerate positive feelings and evaluations - I will call it positivity bias - seems to be universal and very persistent. We can consider it as a norm in human functioning. Although there are not many empirical data showing how beneficial the positivity bias is, there is no evidence that it might be harmful (Veenhoven, 1990). As to the second belief, the literature on the negativity effect implies that painful life events and circumstances have greater impact on a subject than pleasant events and circumstances (for review see Peeters & Czapinski, 1990). In order to feel happy, people do not need any special objective improvements in their lives, but unhappiness is usually a result of a misfortune (Czapinski, in press). Considering both regularities together, we can hypothesize that the source of psychological well-being is internal and a source of ill-being is external, or in other terms: positivity bias is an output phenomenon anchored in a subject and negativity effect is an input phenomenon anchored in objects. An additional argument for the internal source of the positivity bias is that life disasters usually have short-term effects on subjective well-being. Most victims of negative life events recover psychologically in several months even when the objective situation has not improved (as it is the case of the terminally ill patients or bereaved persons).

The compromise between the subject-anchored positivity bias and the object-anchored negativity effect in psychological well-being is often neglected by researchers. This oversight leads to one of the two myths. The myth which is popular among philosophers says that happiness is an entirely subjective phenomenon and does not depend at all on external circumstances (see Tatariewicz, 1962/1979). An opposite myth is popular among ordinary people and especially among social scientists. It accentuates a strong direct link between life circumstances and psychological well-being: anybody whose life is miserable has to be unhappy, pessimistic, depressive, and

if somebody wants to be happy, he or she must achieve something extra valuable. However, studies on psychological well-being for several decades have been showing that only up to 10 percent of variance on happiness measures can be explained by all important objective social indicators like gender, age, social-economic status, family status, life events etc. (Andrews & Wrthey, 1976; Campbell, Converse & Rogers, 1976; for review see Veenhoven, 1984). Nevertheless, still most researchers keep looking for objective predictors of PWB hoping that they may have more luck and will ultimately discover the influential external sources of happiness. Maybe they will. At the same time the investigators tend to completely ignore a very important problem: what is the cause and what is the effect in the relationship between PWB and objective social indicators including income, marriage, unemployment, some life events, health etc. For instance, after many years of investigating, we still do not know what is the real meaning of the positive correlation between unemployment and depression: does it mean that people who have lost their jobs will eventually become more depressed, or the other way round, that people who score higher on depressive are more likely to lose their jobs, or perhaps depression and the probability of losing job are both determined by a third factor.

I am not claiming that people should stop believing in the external nature of their personal happiness. This would be dangerous since the illusion of progress seems to be one of the main sources of creativity and transgression conceived as going beyond the limits of what has been so far accomplished and experienced. On one hand, the lack of strong long-term effects of external events on PWB allows people to survive and get out of bad life circumstances but on the other hand, the belief in such effects encourages them to go beyond the limits of the known and achieved. I have refused this belief only as a researcher but not as a lay person. I am also convinced that these philosophers who claim that human happiness is entirely independent of the objective indicators of the quality of life make a lot to improve the conditions of their own lives.

The 'onion' theory of happiness, developed by me and my Belgian friend, dr Guido Peeters, was thought as an attempt to order empirical data on PWB along two principles: the positivity bias and the negativity effect But before I describe the theory, let me illustrate some biases and illusions above mentioned with the findings that we have

collected during the last years, mainly in Poland. To make the reception easier I have distributed copies with parts of our questionnaire with measures to which I will refer. For the time being, please ignore the division of the measures into three groups named WILL-TO-LIVE, GENERAL WELL-BEING, and DOMAIN-SATISFACTIONS.

Universality and persistence of Illusions In PWB

1) Figure 1 presents a summary of the data gathered in three countries: the USA, Belgium and Poland. There are scores on several measures of PWB, all transformed into the common scale ranging from 0 (negative pole) through 50 (neutral point) to 100 (positive pole). In all samples scores on all measures are positively biased. Please notice that on some measures the cross-national variance (Poland against both other countries) is smaller (Will-to-Live, Suicide Thoughts and Optimism) and on some other measures the variance is greater (Cantril Present and Cantril Future). This difference between measures will be important when I describe the 'Onion' model.

2) Figures 2(a) and 2(b) show scores concerning unrealistic optimism, or more precisely - the percent departure from realistic judgments as measured by Weinstein Scale, here named OPTIMISM: the extent to which subjects underestimate the probability of the negative life events happening to them in comparison to the probability of the same events happening to an average person of the same age and gender. Figure 2(a) presents the level of unrealistic optimism by life cycle and life stress in the sample of adult Poles. Whereas in the low stress condition substantial differences occur between the married and the unmarried, divorced and widowed groups, the married subjects being the most optimistic, in the high stress condition all groups are equally optimistic. It implies that: a) the effects of different sources of ill-being are not additive (they do not sum up), and b) there seems to be an absolute bottom line beneath which the positivity bias can not drop, regardless of life circumstances (on this measure the threshold is about 20 % above the point of the realistic estimation).

The above conclusions have been supported by the data collected on the sample of over 4000 adolescents (see Figure 2(b)). Here family status has substituted for the life cycle variable: orphans, half-orphan living with mothers or with fathers only and

respondents living with both parents. It can be seen that family status differentiates the index of unrealistic optimism only when life stress is low. The lowest unrealistic optimism is manifested by half-orphans living with their mothers and experiencing high stress, but still it is more than 20 % above the point of the realistic estimation.

3) The most amazing and firm confirmation of the universality and persistence of the positivity bias is shown in Figure 3. The whole sample of Polish adults from the '91 survey was divided into four groups according to the level of depressive symptoms measured by Beck Depression Inventory. In the USA the score over 17 would be sufficient for hospitalization. In Poland the norms are shifted upwards, but even in our country the top scoring group should be considered highly depressed. As you can see in Figure 3, all groups including highly depressed people manifest the unrealistic optimism and even in the highest division the illusion is of more than 20% above the border of realism. We have not found any trace of unrealistic pessimism in any subpopulation, no matter how disadvantaged that subpopulation was.

4) Positivity bias, however, is not equally universal and persistent on all dimensions of PWB. Let me show some data concerning the illusion of progress. On Cantril's ladder, subjects were asked to evaluate their present life, their life as it was 5 years ago, and their life as they expected to be after 5 years (these judgments are named in the questionnaire CANPRES, CANFUT, and CANPAST, respectively)- If the present life is perceived as a better one than the past life we will be talking about 'retrospective progress illusion'. If the future life is expected to be better than the present life we will be calling it 'prospective progress illusion'. We call it illusions because many studies have shown a high stability of PWB across time for populations and individuals as well (Costa & McCrae, 1990; Costa, McCrae & Zonderman, 1987; Costa et al., 1987). For instance, Americans score on Cantril's ladder for present life was 6.6 in '60s (Cantril, 1965) and 6.7 in '70s (Gallup, 1976/1977). In general, most individuals and most populations manifest substantial progress illusion of both kinds: retrospective and prospective. Figure 4 shows progress illusions in the sample of Polish adults in '89 and in '91. It can

be seen that '89 both illusions were very strong. In '91 only the prospective progress illusion remains unchanged but the retrospective progress illusion has been replaced by the opposite illusion of 'the lost paradise'. This finding suggests that at least one kind of progress illusions may depend on social changes. After the enthusiasm due to the victory over the communist regime, Poles had started experiencing more and more disadvantages of the period of transition to democracy, and looking backward less critically. An additional support for this reasoning is the second rank of the ex-communists in the last parliamentary election.

Progress illusions depend also on other factors like age. As we can see in Figures 5(a) and 5(b) the most striking increase in the assessed value of life from past to future was manifested by young Poles up to 30. People over 40 manifested in '91 (Fig. 5(b)) a gradual decrease in happiness from past to present, and from present to future.

5) Now I would like to present data concerning a popular belief that negative life circumstances have strong and long-lasting effects on PWB. After Deutch (1960), I will call this illusion the 'pathetic fallacy'. Let's check if and to what extent do the observers overestimate the impact of negative life events on PWB of victims. The results presented in Figure 6 come from the surveys which were conducted in Poland by The Center for Public Opinion Studies twice in '90. Respondents were asked to evaluate the economic situation of their own families. They also estimated the percent of Polish families living in extremely bad economic conditions. Black bars show the percentage of respondents who evaluated their own economic situation as extremely bad and light bars indicate the percentage of Polish families who in the opinion of respondents live in extremely bad economic conditions. The second estimation is almost twice as high as the percentage of people who actually considered their own economic situation as extremely bad. The subsequent figures (7, 8, and 9) present other manifestations of the pathetic fallacy related to the Gurin's scale of happiness (the scale HAPPY in the questionnaire). Subjects evaluated on this scale their own lives and were also asked to estimate how many people from different populations would say that they were very happy or quite happy. The estimations have been collected from the samples of Polish adolescents and

adults for peers, Poles and Americans. In all conditions the estimated values were almost twice as low as actual percentages of those who rated themselves as very happy or quite happy, and they were only marginally affected by the respondents' happiness scores.

6) Not only do people believe that negative events have strong and long-lasting effects on PWB but they also consider the magnitude these effects to be proportionally related to the severity of the events. This implies that subjects should expect a linear relationship between the adversity of life circumstances and psychological ill-being. Results in Figure 10 support this prediction. Patients suffering from more severe illness are seen as less happy than those treated for less severe disorders, whereas the judgments of own well-being made by the patients themselves are the same regardless of the kind of disease and they are in all groups significantly higher than the estimations made by observers. Pearman i Uhlman (1988) have found similar effects when physicians were asked to estimate the subjective well-being of their patients.

Another example relates to the effect of life cycle (see Fig. 11 (a)). Although objectively, the single persons are only a little bit less happy than married people, the observers tend to exaggerate this difference, underestimating the well-being of single persons in comparison to the married ones.

Results displayed in Fig. 11 (b) concern the effects of childlessness. They are particularly interesting since the social stereotype contradicts the actual relationship. In the USA as well as in Poland people think that children are the main source of happiness (c. f. Herzog at al., 1982) whereas several studies have shown that childless people are in fact happier than people who have children (for review see McLanahan & Adams, 1987). This contradiction should diminish the pathetic fallacy related to parents' well-being and enlarge it in regard to nonparents' well-being. The set of data support this prediction: having children decreases happiness of subjects but in opinion of observers it has a positive effect on their well-being.

The 'onion' theory of happiness

Any general model of PWB should be able to account for several empirical findings which has been replicated in numerous studies all over the world. Among those findings two are very consistent: 1) the positivity bias and 2) the negativity effect. Most people, regardless of the particular life circumstances, are happy, satisfied with their lives and optimistic but at the same time they are more sensitive to negative than to positive events. How can we reconcile these two apparently contradictory sets of results? One possibility would be to assume that the negativity effect on PWB is ephemeral, and therefore that the affective impact of negative events is so momentary that people may manifest the positivity bias most of the time, irrespective of the amount and intensity of negative life events. But then it would be difficult to understand how could people effectively cope with the evil if they would immediatly deprive it of its aversive meaning and maintain the illusion that nothing is wrong with their lives. There is, however, a possibility of another approach which I and dr Guido Peeters from The Catholic University of Leuven (Belgium) have taken. Our 'onion' theory of happiness is based on a simple assumption: PWB is not a unitary construct but a complex structure consisting of several levels, relatively separated from each other. Some levels are more and some are less susceptible to the influence of external factors, just like onion peals, hence the metaphor. The deepest layer of an onion, its core, is more protected against humidity and frost than its surface peals. There is another interesting analogy between an onion and PWB: when some of its peripheral layers get impaired, the onion may regenerate if only its deeper layers remain intact.

You may have noticed in the earlier presented data that on some measures the positivity bias was more universal and persistent than on other measures. The unrealistic optimism, for instance, was manifested even by respondents scoring high in depression and seemed to be protected much more against bad life circumstances than the progress illusion. Presumably these two measures refer to different layers of the onion structure of PWB. The unrealistic optimism could relate to the deeper layer, while depression and evaluation of life as a whole could relate to the more peripheral layers of PWB. If this is correct then the negativity effect should manifest itself more intensely and

longer on the surface layer than on the deeper layers. Positivity bias should be more persistent and more universal on the deepest layer and less stable and less general on the surface layer. We think that the deepest layer of PWB is an internal source of positivity bias and is responsible for the behavioral (conative) component of the attitude towards one's own life. In a sense, this layer may be viewed as the most general motivation to live, to cope with obstacles and to improve life conditions. We call it 'WILL-TO-LIVE' (abbreviated as W-T-L). A high W-T-L is a guarantee of optimism and active coping with life events even in traumatic and hopeless situations. A weak W-T-L may lead in particular life circumstances to suicide, long-lasting apathy and pessimism. However, it does not mean that negative affects and evaluations are the symptoms of the low W-T-L or a change from the positivity to the negativity bias. The WILL-TO-LIVE layer is not a domain of affective or evaluative processes. It may influence these processes but can not be identified with or characterized by them. The W-T-L comprises the biological forces attuned to the preservation and development of life. Feelings and evaluations are attributes of the more peripheral layers corresponding to affective and cognitive components of an attitude in the ABC model. Affective and evaluative components of attitudes towards life as a whole are henceforth referred to as GENERAL SUBJECTIVE WELL-BEING (abbreviated as GWB). Similar affective and evaluative components of attitudes towards specific life domains are referred to as DOMAIN SATISFACTIONS (ab. DS). GWB is an intermediate layer between W-T-L and DS. Each layer is directly linked only with the adjacent layer but may have indirect impact on the more remote layer. As to the external factors, we assume that they influence directly only the most peripheral layer of DOMAIN SATISFACTIONS yet some of them, those which depend on individual motivation, might be the effects of W-T-L. For instance, we can hypothesize that climbing a social ladder is partly an effect of the general life motivation. Intermediate layer of PWB is influenced by DS and W-T-L. Therefore, a negative impact of bad life circumstances is exerted primarily on domain satisfaction level from where it can affect GWB which, however, at the same time is influenced by the positively biased W-T-L. In the result the negativity effect on the level of GWB is weaker and more transitory than it would be expected on the basis of the traditional commonsense model of PWB as

a unitary construct. This may help in understanding the data on psychological well-being which we can find in the literature. For instance, objective social indicators are so poor predictors of PWB because PWB is usually measured by scales referring to its deeper layers; people overestimate the impact of life events on PWB because they assume that PWB is one-dimensional and directly linked with external factors; the majority of people score high on happiness scales because these scales refer to the deeper layers of PWB. The 'onion' model also explains why people who live in bad conditions (Poles for example), and who complain on many aspects of their lives (peripheral layer of PWB), remain quite satisfied with life as a whole (deeper layer of PWB).

Preliminary empirical test of the 'Onion' Theory of Happiness

In order to empirically test the 'onion' model of PWB we had first to operationalize the three layers. The main and still unresolved problem we came across was to find the measure of W-T-L. By definition it should be free of affect which would make it overlapping with measures of more peripheral layers. In order to fulfill this criterion we should remove all language-based tools because it is inconceivable to find an affect-free wording of a question which would refer to the will to live. Nevertheless in the absence of a better idea, we have decided to use verbal scales of W-T-L. However, any evaluative loadings are responsible for their overlap with the GWB scales and thereby decrease their validity and act against our model.

In total more than 20 measures were chosen. Two scales were used as measures of the WILL-TO-LIVE (in the enclosed questionnaire they are named SUICITH and WILLIVE). On the basis of the factorial structure of the data collected in the pilot studies we added a third measure, the Weinstein's scale of unrealistic optimism (OPTIMISM) which was primarily thought to measure 'general well-being'. A battery of GWB measures consists of Gurin's scale of happiness (HAPPY), Cantril's Self-Anchoring scale (CANPRES, CANFUT, and CANPAST), Hopelessness Scale by Beck et al. (HOPELESS), Beck Depression Inventory (DEPRESSION), Joy of Life scale (JOY), Life Satisfaction Scale by Andrews and Withey (LIFESAT), Bradburn's Scale of Positive and Negative Affects (not included here). With respect to the DOMAIN SATISFACTION layer we used

several (from 10 to 15) 7-point scales asking subjects to indicate how (dis)satisfied they are about the particular domains of their lives (e. g. children, family, friends, health, house or flat, goods and services they can get, the present state of their country, income etc).

The first empirical test of OTH was conducted in the cross-national design. Its results already have been published (Czapinski and Peeters, 1990/1991), and they are available from the authors. Today, I want to concentrate on new data collected in the survey study run on the nation-wide sample of adult Poles (above 18). I will be also referring to one old result which has not been published yet. Let me start with the latter.

OTH predicts unequal stabilities for the three layers of PWB: the most stable layer being W-T-L and the least stable - the domain satisfactions which are related to the rapidly changing aspects of life. The test-retest correlations with the interval of two months in the period of political changes in Poland ('89) based on the data from a small sample of journalists (see Table 1) suggest that, indeed, the W-T-L indices are the most stable, while some domain satisfactions scores are the least stable. It seems understandable that unstable measures include satisfaction from the state of the country (the decline of communism), market (inflation, richer offer), finances (inflation, changes in the income structure), friends (changes in social relations and evaluative criteria), and to the smaller extent from work (changes in the social prestige of various occupations), and from personal accomplishments (changes in the criteria of life success and failure).

OTH assumes that the W-T-L layer is biologically rooted and not susceptible to the influences of external factors or of the peripheral layer of domain satisfactions. It also assumes that the GWB is influenced by external factors only indirectly through the layer of domain satisfactions. Therefore, it can be expected that external factors are the best predictors of domain satisfactions and the worst predictors of W-T-L, and that the particular domain satisfactions are better predictors of GWB than of W-T-L. That is exactly the pattern received in my study. The whole set of the multiple regression coefficients fits the assumed pattern of effects. Fig. 12 shows that for all groups of external factors as predictors, the amount of variance explained increases gradually from W-T-L measures to domain satisfaction measures. It is also evident that domain satisfactions are much better predictors of GWB than of W-T-L measures.

Three groups of the most objective predictors: demographic variables consisting of gender, age, place of living, marriage and children, social-economic status indices including education, income, unemployment and housing, and social support variables including church attendance, number of friends, relationships with relatives and permanent partner account together for no more than 3 % of the variance on W-T-L scales, from 6 to 11 but usually less than 10 % of variance on GWB scales, and from 9 to 23, usually more than 10 % of variance on domain satisfaction scales. Domain satisfactions, taken as independent variables, explain about twice as much more variance on W-T-L measures than on GWB measures.

In order to check a more dynamic model of PWB we used structural equations analysis. Several patterns of linkages between the three layers of PWB and external factors are permitted by the 'onion' model. Some of them were tested. In every variant two fit indices were computed, one with the Maximum Likelihood solution based on the normal distribution theory, and the other with the Reweighted Generalized Least Square solution based on the elliptical distribution theory (BentJer, 1985). For our data The Maximum Likelihood-based index seems less valid than the Generalized Least Square-based index, because the latter does not require that kurtosis of all variables in equations equals zero, and kurtosis for all PWB measures did differ from zero.

For technical reasons we had to reduce the number of variables in the model. Therefore, we chose randomly a sample of three domain satisfactions, satisfaction from the family, finances, and sex life (FAMSAT, FINSAT, and SEXSAT respectively), and three external factors which were the best predictors for these satisfactions ('maintaining the relationships with relatives' ab. RELATIVES, INCOME, and MARRIAGE, substituted in some variants by 'having a permanent PARTNER').

Figure 13(a) presents the first model we analyzed. Observed variables are shown in rectangles and latent variables: W-T-L, and GWB in circles. Linkages between measures of GWB and the theoretical concept of GWB as well as linkages between measures of W-T-L and the theoretical concept of W-T-L varied, although most of them were of a reasonable magnitude. It suggests that not all measures are equally valid, but generally they seem to tap the relevant concepts adequately. In this model we assumed two-way

linkages between domain satisfactions and GWB and a unidirectional path from W-T-L to GWB, and from external factors to the relevant domain satisfactions. There were closed any direct relationships between W-T-L and all other variables but one (GWB), and between GWB and external factors. Chi-square and Bentler-Bonett fit index show that the model fits our data very well.

In the second model (Fig. 13(b)) we assumed a direct impact of W-T-L not only on GWB but also on external factors all of which might depend on subject's motivation. This model fits our data even better than the previous one which suggests that W-T-L is to some extent responsible for some objective life circumstances like having or not having a permanent partner, and maintaining or not maintaining relationships with relatives. In this way W-T-L has indirect effects on domain satisfactions and further on GWB. The Nonsignificant magnitude of the path from W-T-L to income may indicate that income in Poland is still not a function of individual motivation.

The third model was the same except that a partner has been substituted by marriage (Fig 13(c)). Although the fit becomes less good now, the whole set of relationships is fully comparable to the set obtained in the previous model.

The last two models (Fig. 13(d) and 13(e)) assumed that not only W-T-L directly influences GWB, but that also GWB has a direct effect on W-T-L. However, the change of unidirectional link into two-way path between W-T-L and GWB did not improve the fit index. Actually the index was less good.

These findings support hypotheses implied by the 'onion' theory of happiness. The GENERAL PSYCHOLOGICAL WELL-BEING seems to be influenced directly by WILL-TO-LIVE and indirectly through DOMAIN SATISFACTIONS by objective life circumstances. WILL-TO-LIVE is independent of objective life circumstances but has an impact on some of them. A strong will to live increases the chances to find a partner and to maintain relationships with relatives.

The above analyses were made on cross-sectional data, and therefore any causal-effect relationship we have got from them must be viewed guardedly, because it might be an artificial result of statistical tricks. In order to avoid this trap we have started a big panel study on a nation-wide sample of 2700 families (over 4000 adult Poles). We intend

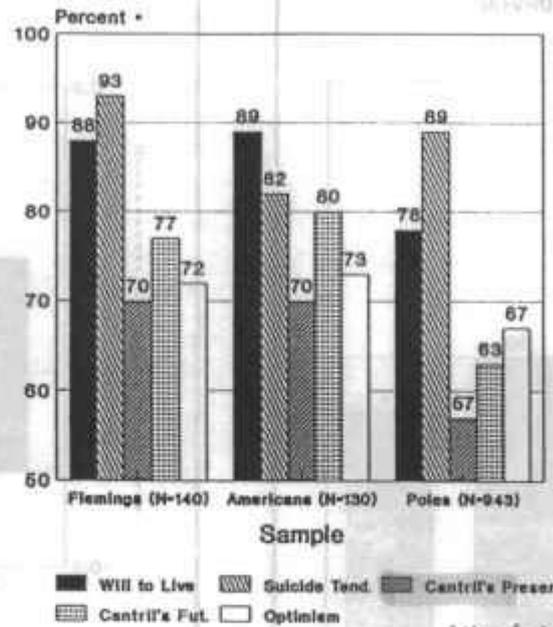
to repeat measurements on the same subjects twice or three times (depends on the research grant). The first measurement has already been completed, and we hope that in a year after we have collected data from the second measurement as well we will be able to answer more reliably to what extent the different aspects of psychological well-being depend on objective life circumstances, and to what extent objective life circumstances depend on different aspects of psychological well-being.

References

- Andrews, F. M. i Withey, S. B. (1976). Social indicators of well-being: Americans' perception of life quality. New York: Plenum.
- Bentler, P. M. (1985). Theory and Implementation of EQS: A Structural Equations Program. Los Angeles: BMDP Statistical Software, Inc.
- Campbell, A, Converse, P. E. i Rodgers, W. L. (1976). The quality of American life: Perceptions, evaluations, satisfactions. New York: Russal Sage Foundation.
- Cantril, H. (1965). The pattern of human concerns. New Brunswick, NJ: Rutgers University Press.
- Costa, P. T. i McCrae, R. R. (1990). Personality as a lifelong determinant of well-being. W: C. Malatesta, C. Izard (red.), Affective processes in adult development and aging. New York: Sage.
- Costa, P. T., Jr., McCrae, R. R. i Zonderman, A. B. (1987). Environmental and dispositional influences on well-being: Longitudinal followup of an American national sample. British Journal of Psychology

- Czapinski, J. i Peeters, G. (1990/1991). The onion theory of happiness: Basic concepts and cross-cultural test. W: N. Bleichrodt i P. J. D. Drenth (red.), Contemporary issues in cross-cultural psychology. Amsterdam: Swets & Zeitlinger B. V., pp. 196-206.
- Deutsch, M. (1960). Pathetic Fallacy: An observer error in social perception. Journal of Personality, 22, 317-332.
- Gallup, G. H. (1976-1977). Human needs and satisfactions: A global survey. The Public Opinion Quarterly, 40, 459-467.
- Herzog, R., Rodgers, W. i Woodworth, R. (1982). Subjective well-being among different age groups. Ann Arbor, MI: Institute for Social Research.
- Markus, H., and Zajonc, R. B. (1985). The cognitive perspective in social psychology. In G. Lindzey and E. Aronson (Eds), Handbook of Social Psychology. Vol. 1, New York: Random House, pp. 137-230.
- McLanahan, S. i Adams, J. (1987). Parenthood and psychological well-being. Annual Review of Immunology, 5, 237-257.
- Pearlman, R. A i Uhlmann, R. F. (1988). Quality of life in chronic diseases: Perceptions of elderly patients. Journal of Gerontology, 43, 25-30.
- Peeters, G. (1971). The positive-negative asymmetry: On cognitive consistency and positivity bias. European Journal of Social Psychology, 1, 455-474.
- Taylor, S. E. (1989). Positive illusions: Creative self-deception and the healthy mind. New York: Basic Books.
- Tatarkiewicz, W. (1962/1979). On Happiness (in Polish). Warszawa: PWN.
- Veenhoven, R. (1984). Conditions of happiness. Dordrecht: Reidel.
- Veenhoven, R. (red.) (1990). How harmful is happiness? Rotterdam: Universitaire Pers Rotterdam.

Fig. 1. Positivity Bias in Well-Being



• Mean distance (in %) from negative to positive pole of scale

Valid HAPP 3.1

Fig. 2(b) Unrealistic Optimism Polish Adolescents (N=4243)

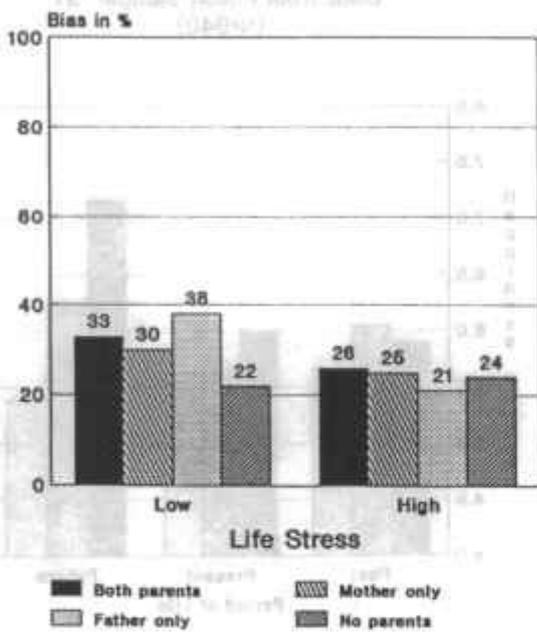
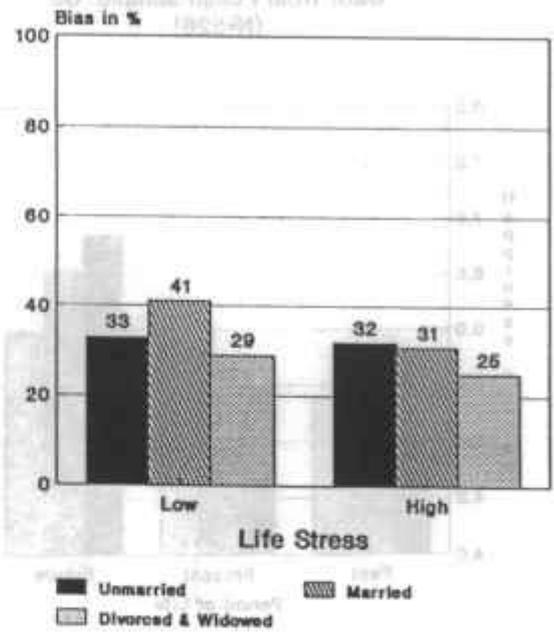
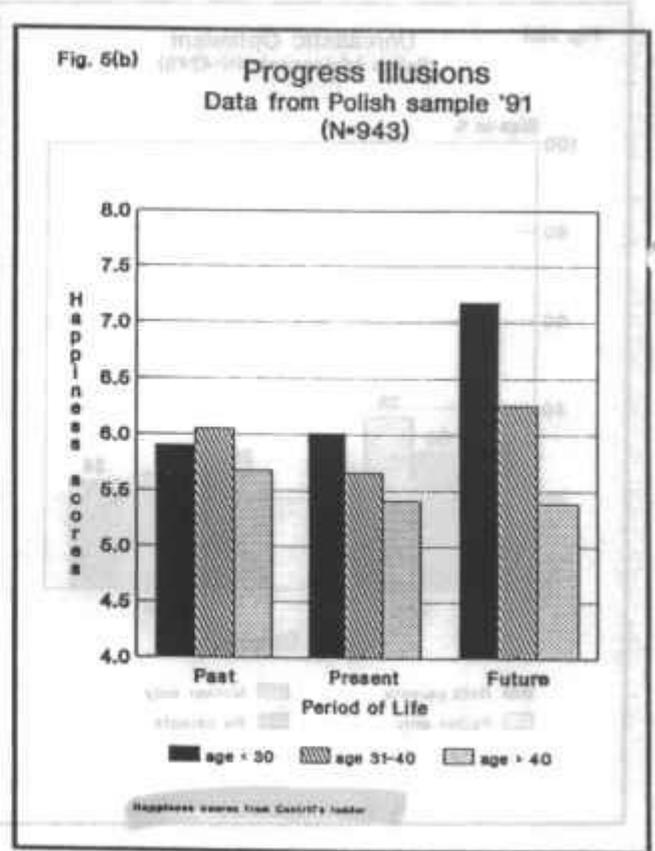
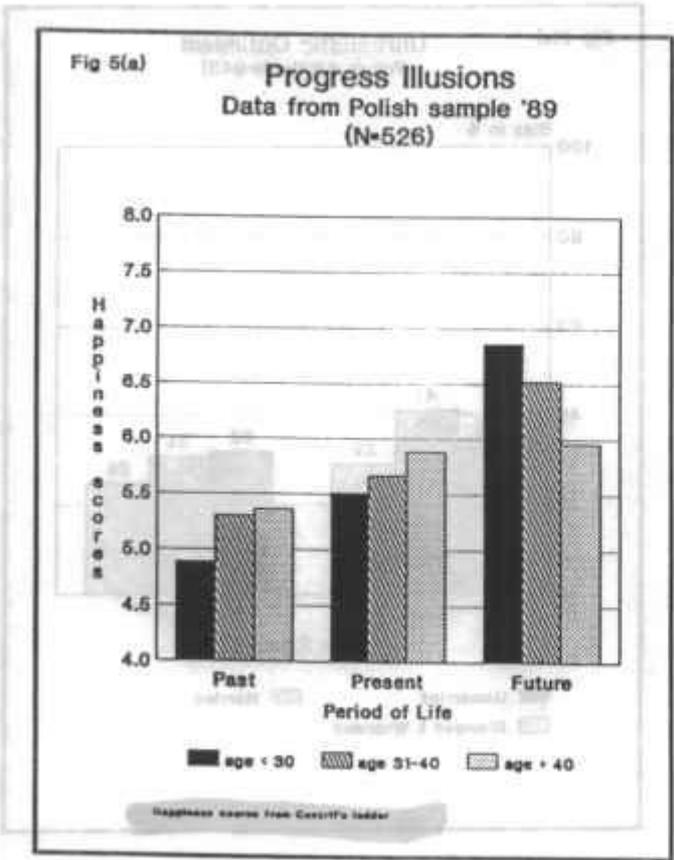
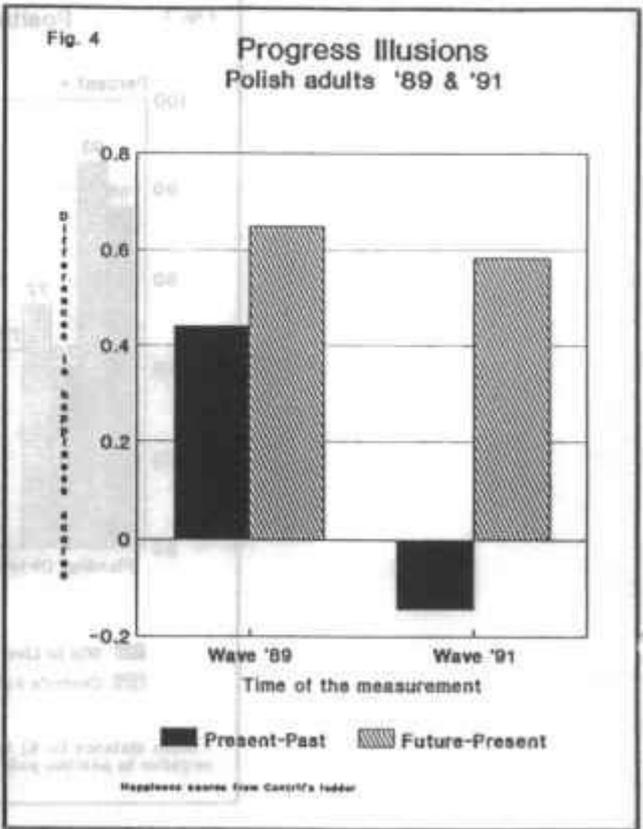
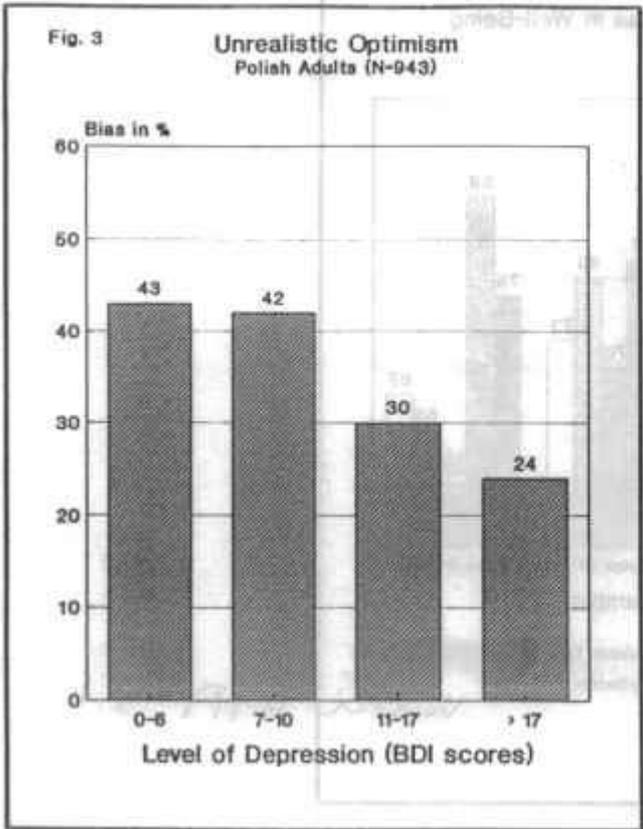
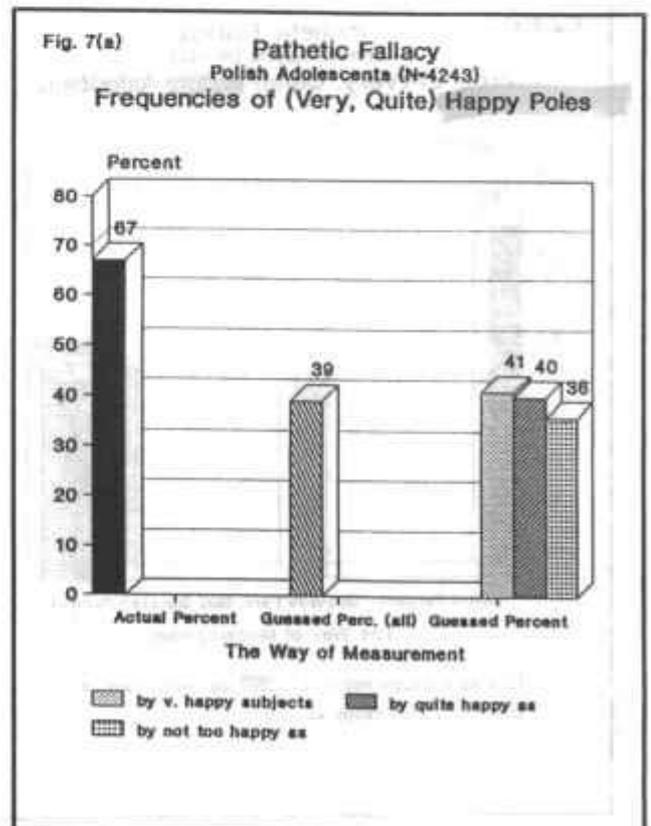
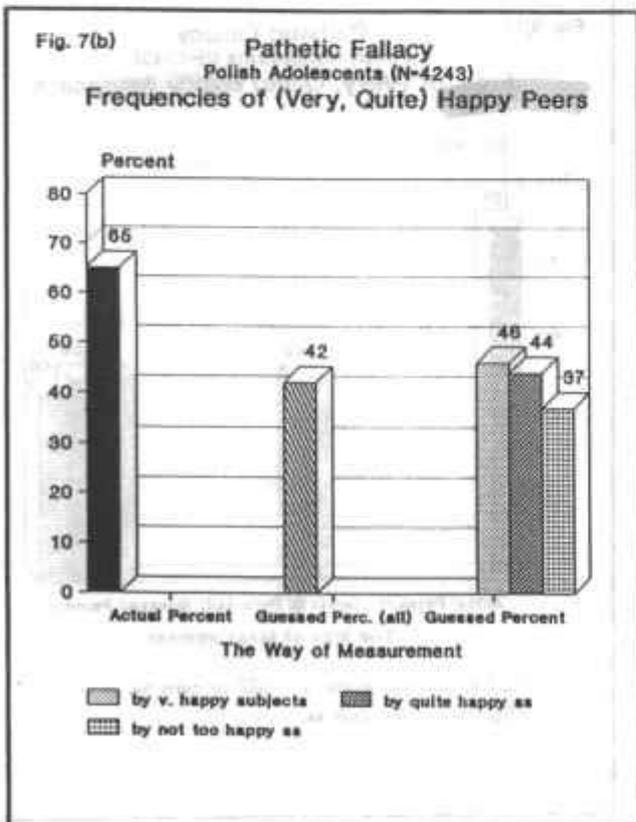
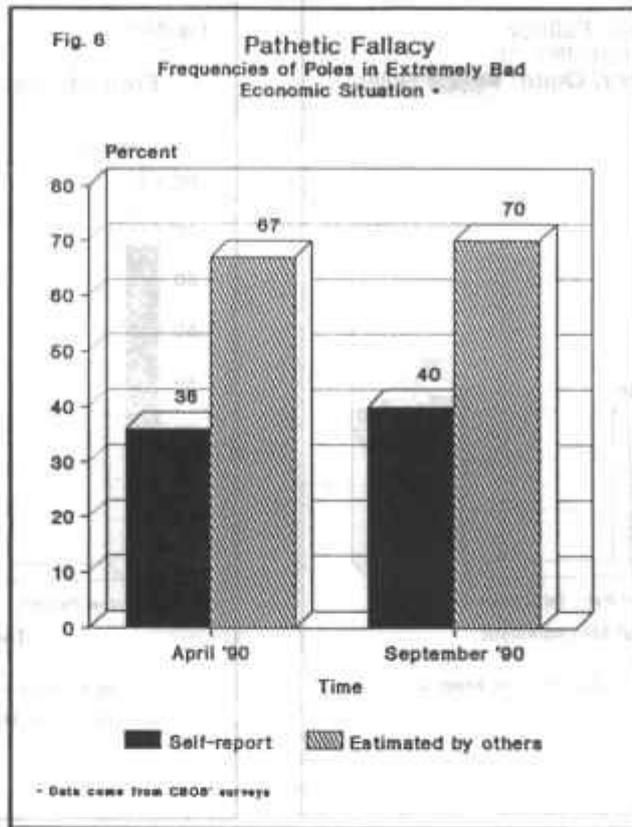
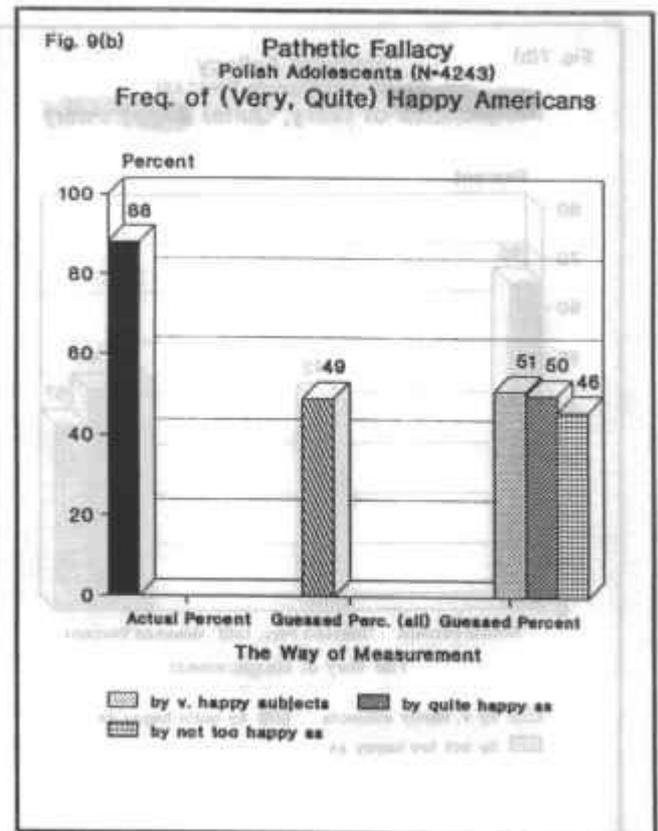
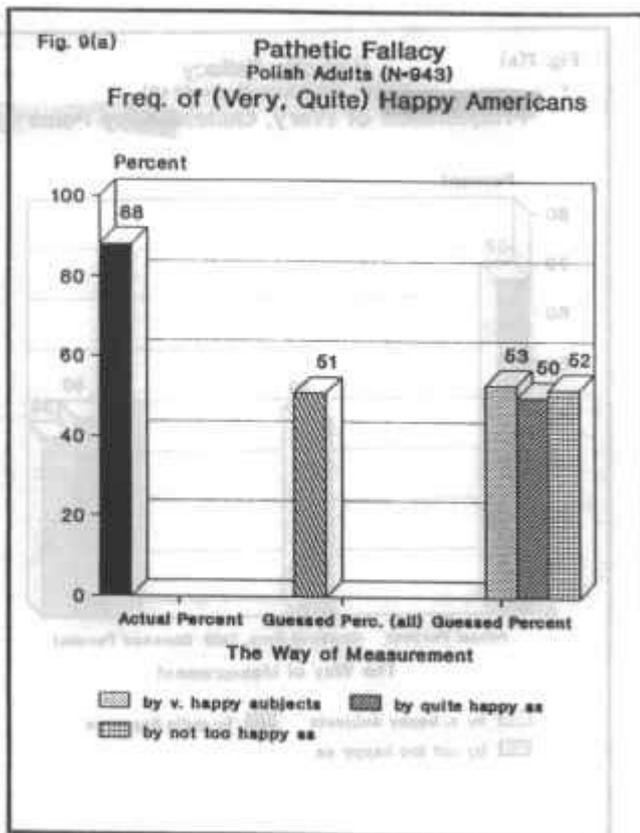
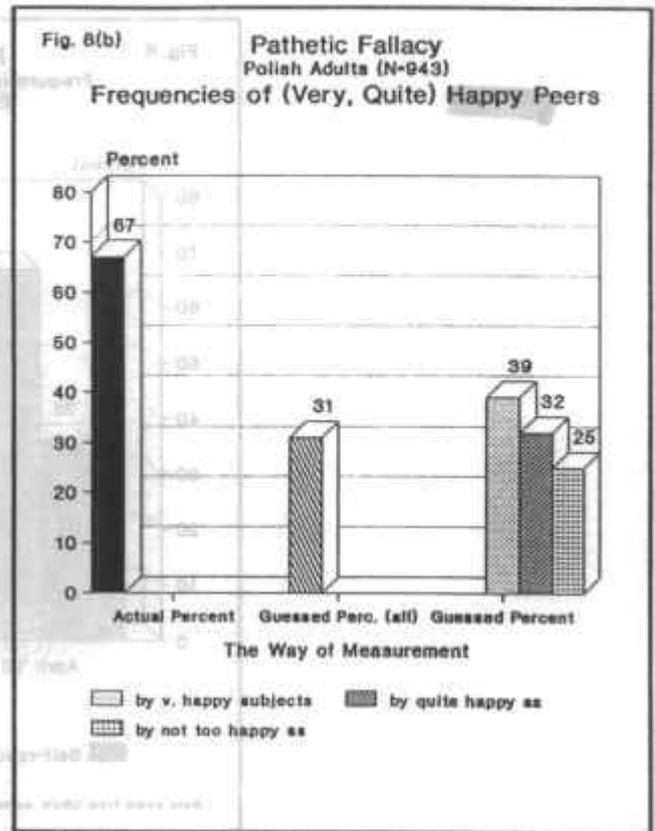
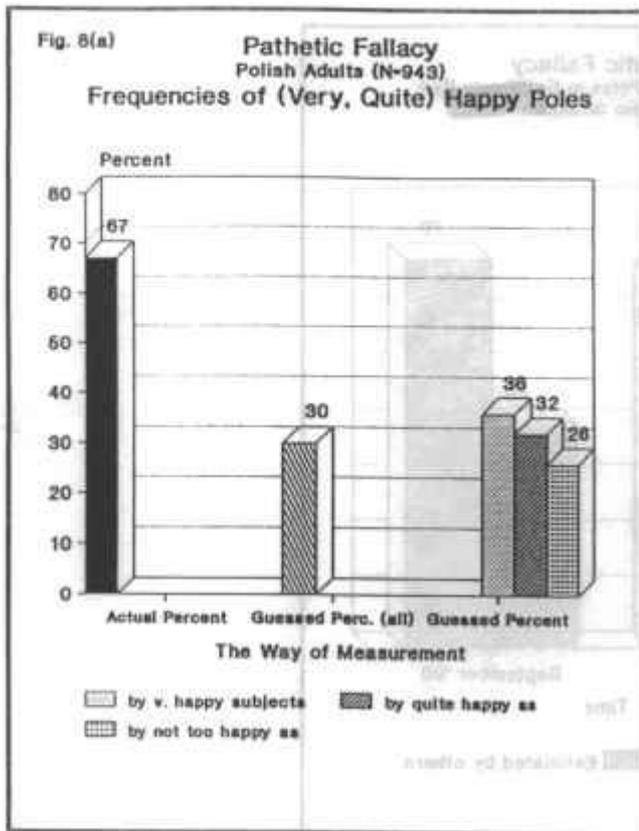


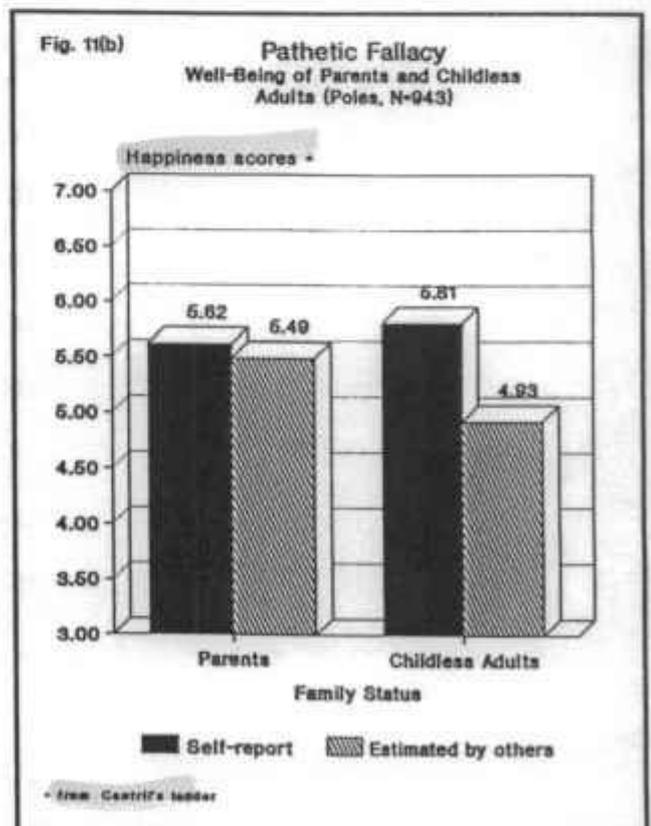
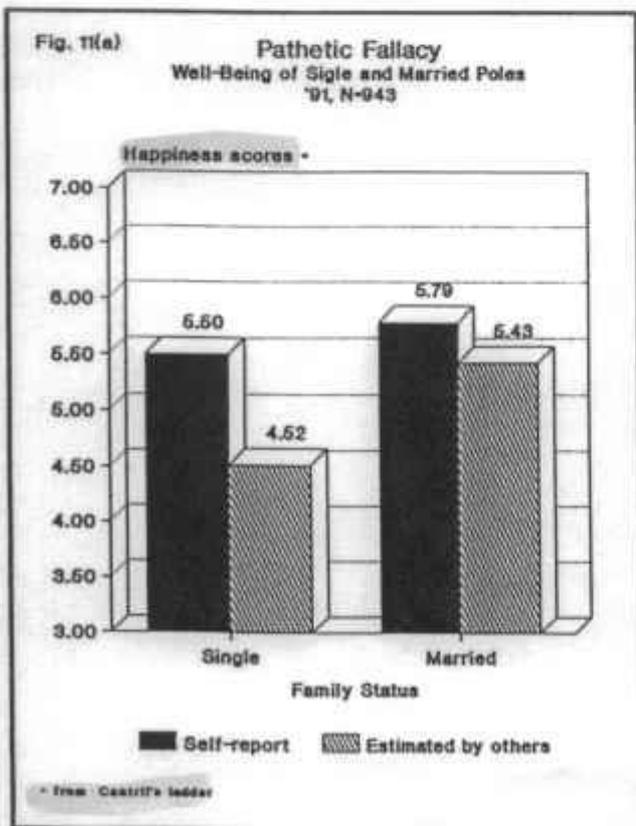
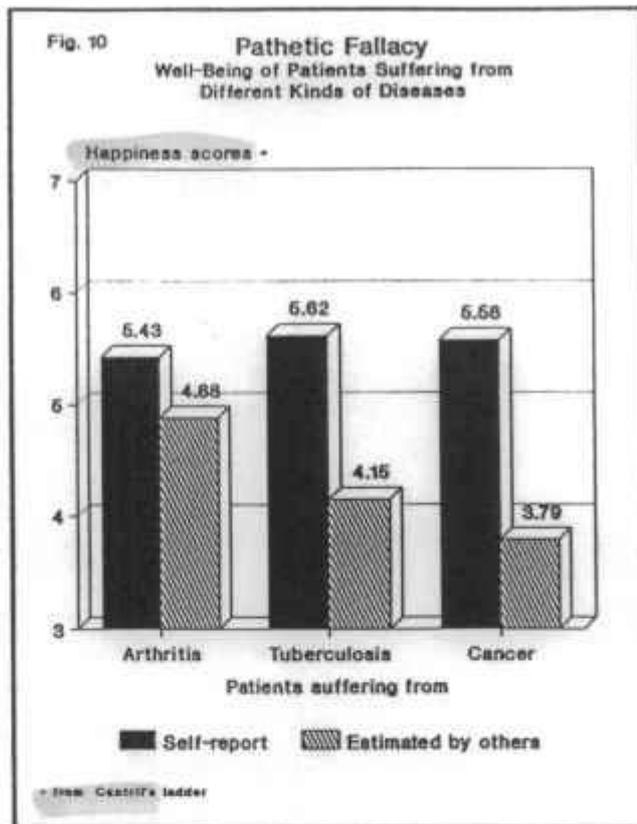
Fig. 2(a) Unrealistic Optimism Polish Adults (N=943)











MULTIPLE REGRESSIONS ON WELL-BEING
ADULTS '91, N = 943

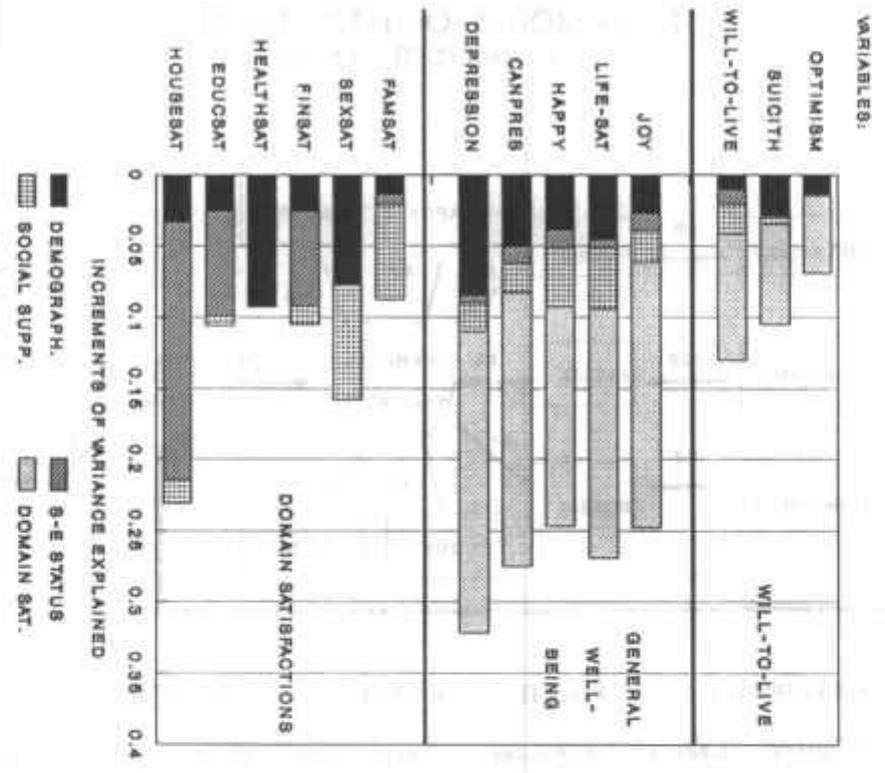
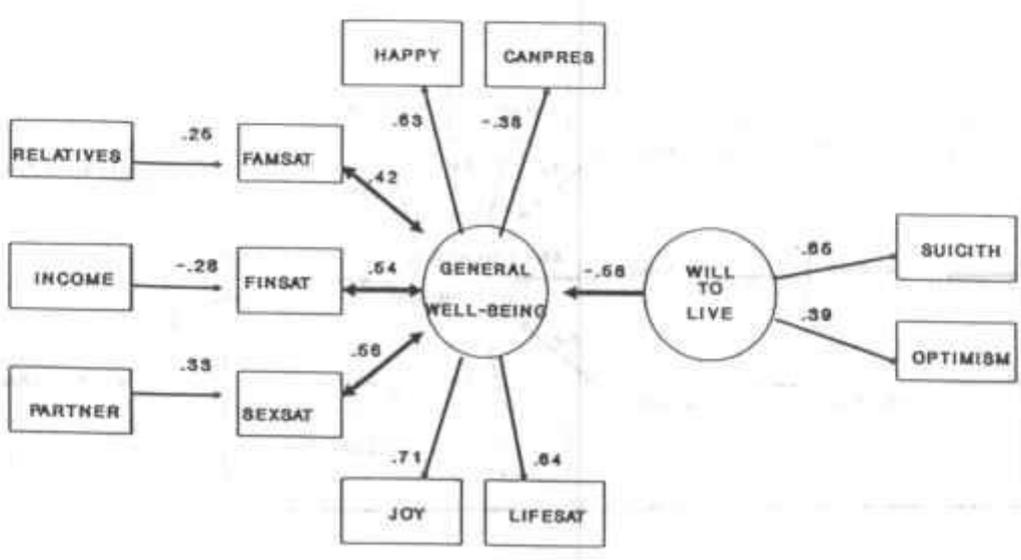


FIG. 12

Fig. 13(a)

ONION MODEL OF HAPPINESS
POLISH ADULTS '91, N = 943



EXTERNALS I LAYER II LAYER III LAYER

ML CHI-SQUARE = 19.862, DF = 14, P = .136 BENTLER-BONETT NORMED FIT INDEX = .991

ERLS CHI-SQUARE = 12.450, DF = 14, P = .672 BENTLER-BONETT NORMED FIT INDEX = .996

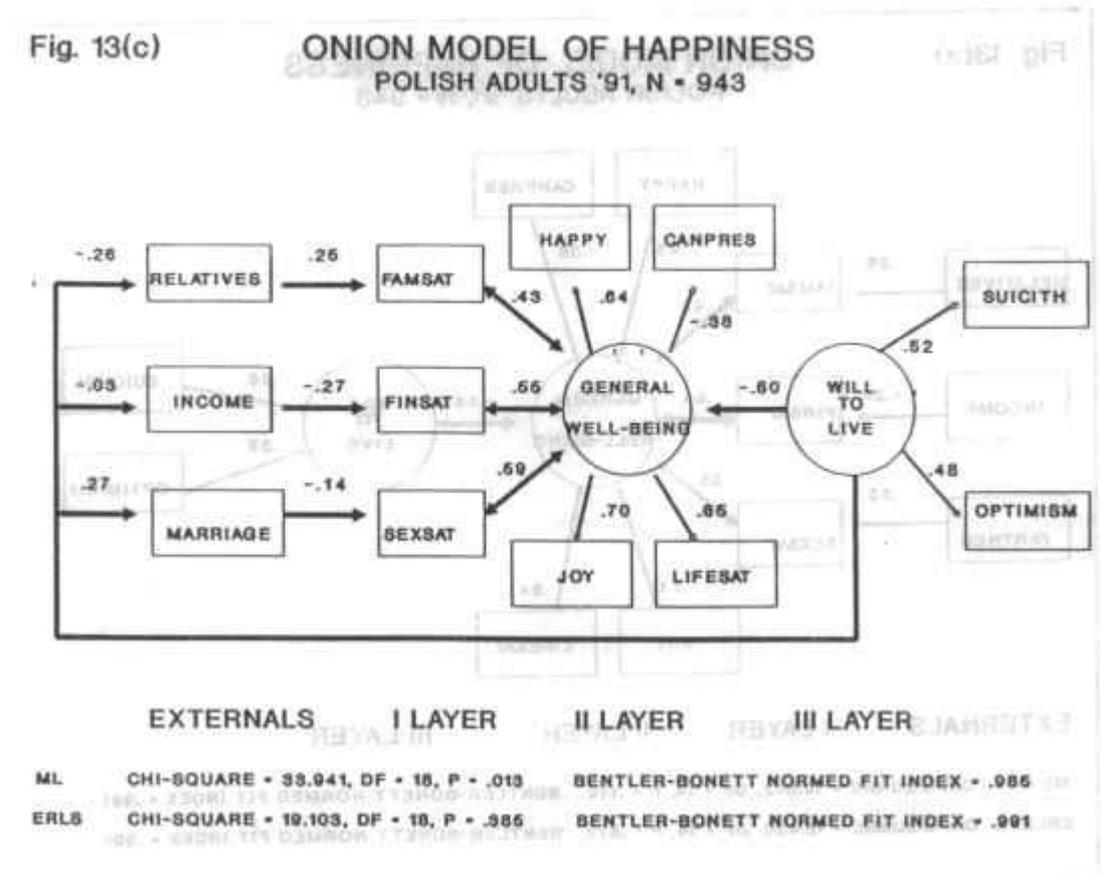
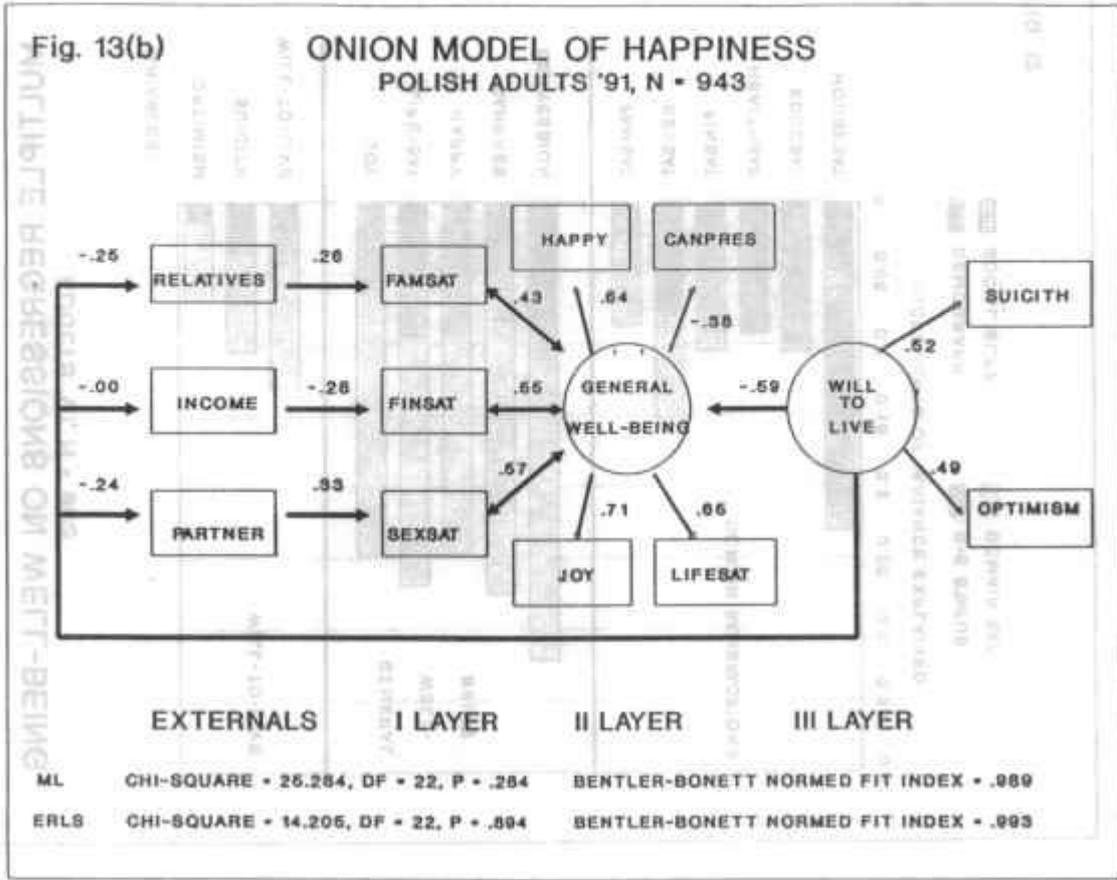
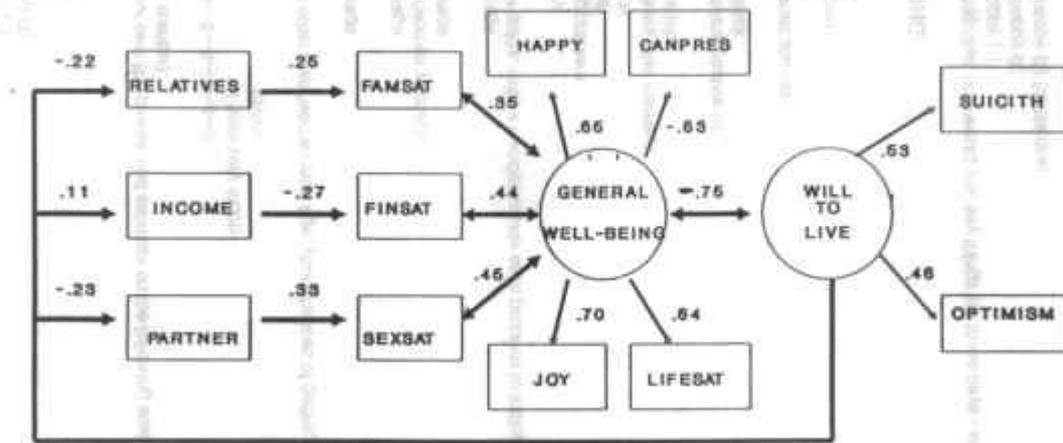


Fig. 13(d)

ONION MODEL OF HAPPINESS
POLISH ADULTS '91, N = 943

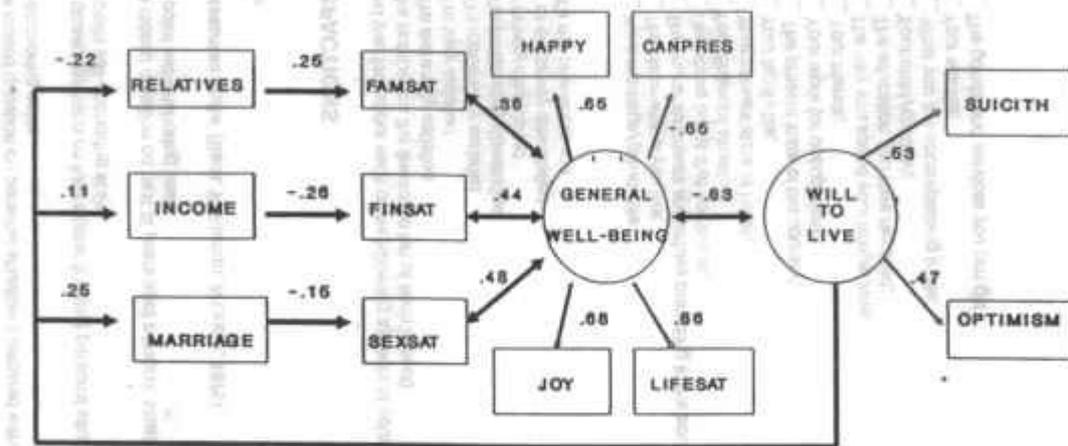


EXTERNALS I LAYER II LAYER III LAYER

ML CHI-SQUARE = 41.402, DF = 28, P = .05 BENTLER-BONETT NORMED FIT INDEX = .982
 ERLS CHI-SQUARE = 23.328, DF = 28, P = .716 BENTLER-BONETT NORMED FIT INDEX = .989

Fig. 13(e)

ONION MODEL OF HAPPINESS
POLISH ADULTS '91, N = 943



EXTERNALS I LAYER II LAYER III LAYER

ML CHI-SQUARE = 70.246, DF = 33, P = 0.001 BENTLER-BONETT NORMED FIT INDEX = .968
 ERLS CHI-SQUARE = 39.309, DF = 33, P = .208 BENTLER-BONETT NORMED FIT INDEX = .981

