

Eötvös Loránd University of Science
Faculty of Education and Psychology

DOCTORAL (PH.D.) THESIS BOOKLET

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**INTERRELATIONS AMONG POSITIVE MENTAL HEALTH,
MENTAL ILLNESS SYMPTOMS AND FAMILY FUNCTIONING
IN AN ADOLESCENT-PARENT DYAD SAMPLE**

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Budapest, September, 2013.

I. Introduction¹

*'We cannot even really know what causes neurotic suffering until we have an idea of what causes real health. This we have only begun to investigate.'*²

The main aim of the doctoral dissertation was to confirm a new viewpoint, moreover a new approach of the mental health in the current Hungarian scientific discourse and psychological practice. This new attitude is the conception of **positive mental health**. We have made an attempt to operationalize this construction in a Hungarian adolescent-parent dyad sample. The research was built on the concept of the **Two Continua Model of Mental Illness and Health** (Keyes, 2002a, 2002b; Keyes and Haidt, 2002). This model approaches that mental health and mental illness are not the opposite ends of a single measurement continuum. Mental health and mental illness form two distinct but closely related continua. The creator of the model, Corey L. M. Keyes lays down (Keyes, 2002a) that mental health is not equal to the absence of mental illness, it is a more complex phenomenon. The dissertation aimed to map the nature of this broader and multiple construct and its connections with the symptoms of mental illness while we also considered aspects of family functioning. The psychological state of adolescents can not be analyzed without everyday settings such as family and peer-relationships, therefore our work also studies the social effects, mainly the perceived family characteristics.

The study emphasizes one of the central themes of psychology, the topic of mental health. We point out that even though investigating mental health is an essential issue nowadays, a lot of unanswered questions exist (Delle Fave, 2006; Bok, 2008). For example, what does 'functioning well' exactly mean? Can we measure or diagnose mental health? Are there levels of psychological fitness? Can we find variances in the contents of mental health at different ages, life periods or cultures? What kind of family relationships can supremely support the development of mental health? What enhances mental health, moreover psychological flourishing? What is the exact relation among mental health and mental illness symptoms? What are the risk and the protective factors of positive mental health? The dissertation focuses particularly on these questions.

Investigating components of positive mental health is very insistent, because several researchers (eg. Seligman, 2011) declare that the new measure of prosperity is the general well-being and its components (eg. positive emotions, positive relationships and a life full of meaning) not (only) material needs and the gross domestic product (GDP). Many economists reveal that it is the last generation who lives better than their parents. Seligman (2011) says that it may be true from the aspect of money, but not from the aspect of general well-being.

There is another reason for the necessity of systematic monitoring of the components of mental health and its relationships with mental illness symptoms: its implications for prevention and therapy.

¹ I gratefully thank my supervisor, Prof. Dr. Attila Oláh for the time, help, patience and encouragement that he has steadily provided for my work. I would also like to express my appreciation to Dr. Gyöngyi Kökönyei for her precious comments and her friendly assistance.

² Erik Erikson, 1950, p. 93; quote Vaillant, 2003, p. 1373.

II. Theoretical background

The study of mental health is not a new focus in the field of psychology. The analysis of mental illness had always implied what should be considered normative or healthy.

However modern theories of mental health have exceeded the earlier conceptions which suggested that mental health equals normality. New theories of mental health conceptualize and measure human well-being in different ways, but all of them are agreed that psychological health is more than the absence of mental illness (Wang, Zhang and Wang, 2011).

On the other hand mental health takes an important part in significant psychological theories which forms models about human development, emotions and the quality of life (eg. Engel, 1977, 1982; Kobasa, Maddi and Kahn, 1982; Lazarus and Folkman, 1984; Rogers, 1985; Scheier and Carver, 1985, 1992; Emmons, 1986; Taylor and Brown, 1988; Antonovsky, 1994; Erikson and Erikson, 1997; Goleman, 1997; Allport, 1998; Ryan and Deci, 2000; Erikson, 2002; Maslow, 2003; Salovey, Mayer, Caruso and Lopes, 2003; Frankl, 2005; Fromm, 2008).

It is worth mentioning that for a long time mental health has not turn up in a positive meaning in psychiatry and psychology.³ Naturally, the term was used in psychology, but rather as an equivalent to the 'negative pole': mental illness or rather the antonym of mental illness. Vaillant (2003) reviewed how mental health had turned up and had become important in psychiatry and psychology as autonomous scientific construct. Vaillant (2003) pointed out that the first **empirical researches of positive mental health** had started in the seventies.

Furthermore, since the turn of the millennium numerous models have appeared which wanted to operationalize and assess positive mental health (eg. Greenspoon and Saklofske, 2001; Ryff and Singer, 2002; Seligman, 2002; Wissing and Van Eeden, 2002; Keyes and Waterman, 2003; Peterson and Seligman, 2004; Fredrickson and Losada, 2005; Diener and Biswas-Diener, 2008; Suldo and Shaffer, 2008; Angner, 2010; Durayappah, 2011; Seligman, 2011). Despite this development the conceptual clarification of positive mental health has not been concluded. There are rival existing models. Most theories describe some aspects of mental health only.⁴

The **positive psychological approach of mental health** represents a separate aspect. Martin Seligman and Mihaly Csikszentmihalyi (2000) outlined the declaration and the aims of the new stream in 2000. The main purpose of positive psychology was to study abilities which help people and society not only in survival but also in resilient development and mental flourishing. Positive psychology marks positive health as a new research field (Seligman, 2008). **Positive health** is a kind of mental and physical state which goes beyond the pure absence of illness and reflects three kinds of independent variables: biological, subjective, and functional. Each of these segments can be quantifiable, and the combination of these can be used to predict health targets like mental health, health costs, prognosis or longevity (Seligman, 2008).

The creator of the Two Continua Model of Mental Illness and Mental Health, mentioned above, the social psychologist Corey L. M. Keyes agrees with the theoretical frame of positive psychology. He has worked up a theoretically grounded and complex mental health model since 2002 (Keyes, 2002a). Excellent psychometric results came into light during the

³ Its bases can be that mental health is more difficult to define than mental illness. Furthermore, the content of positive mental health is considerably subjective and based on judgements about its worth.

⁴ In the theoretical background of the doctoral dissertation we fully summarize the history of the research and the definitions of mental health. In addition we systematically review the descriptive models of subjective well-being.

widespread empirical testing of the theory (eg. Keyes and Waterman, 2003; Keyes, 2006, 2009a; Keyes, Wissing, Potgieter, Temane, Kruger and van Rooy, 2008; Keyes and Michalec, 2010; Westerhof and Keyes, 2010; Yin, He and Fu, 2013). The **Two Continua Model of Mental Illness and Mental Health** (also known as Dual-Continua Model of Mental Illness and Mental Health, Keyes, 2002a, 2002b) provides the conceptual and methodological basis of the doctoral dissertation. The model regards mental health as a syndrome which is constituted by symptoms – for the analogy of mental illness. According to this model the state of mental health, like that of an illness, is indicated when a set of symptoms are present at a specific level and for a specified duration. Furthermore, this state of health coincides with distinctive cognitive and social functioning. Keyes (2013) says that researchers must move toward the operationalization of **mental health as a syndrome constituted by symptoms of the subjective well-being** if they want to study the levels of 'real' mental health.

From the middle of the nineties Keyes began to identify the components of mental health. In this work he respected the earlier theories and researches on the subjective well-being, and he integrated two longstanding traditions: the hedonic and eudaimonic trends. While the hedonic tradition concerns feelings of happiness, the eudaimonic tradition focuses on optimal human functioning both in the individual and in the social life (Keyes, 1998).

Keyes' integrative and multidimensional model of subjective well-being rests on three foundations: **emotional well-being (hedonic tradition)** together with **psychological well-being** and **social well-being (eudaimonic tradition)** (Keyes and Waterman, 2003, see Figure 1).⁵

Keyes (1998, 2002a) argue that it is also important to analyze the optimal social functioning in individual life in the terms of people's social embeddedness, social engagement or social integration. This viewpoint is substantial because people have not only private but also social tasks in their lives.

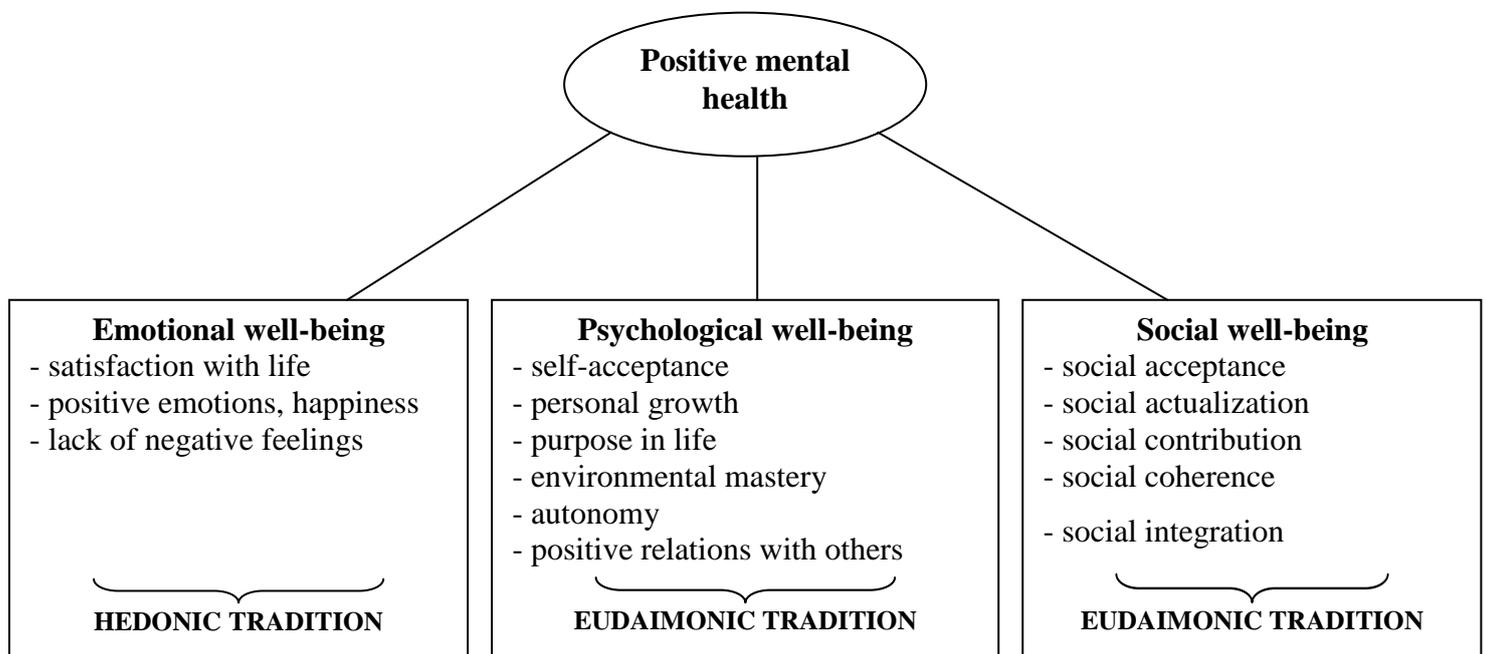


Figure 1 Components of positive mental health according to Keyes and Waterman (2003)

⁵ The doctoral dissertation reviews the contents of the certain components of subjective well-being in detail.

Keyes (2002a) highlights that not everyone with a low subjective well-being experiences psychopathology. Therefore he has improved his model and the Two Continua Model of Mental Illness and Mental Health states that positive mental health is related, but different from mental illness (Keyes, 2005a). The continuum of mental health was influenced by the presence or absence of mental illness symptoms and vice versa. If we look at the two dimensions from a broader aspect, three levels of mental health and two states of mental illness emerge (Figure 2). This theory can take hold of the evaluation of psychosocial functioning with great subtlety.

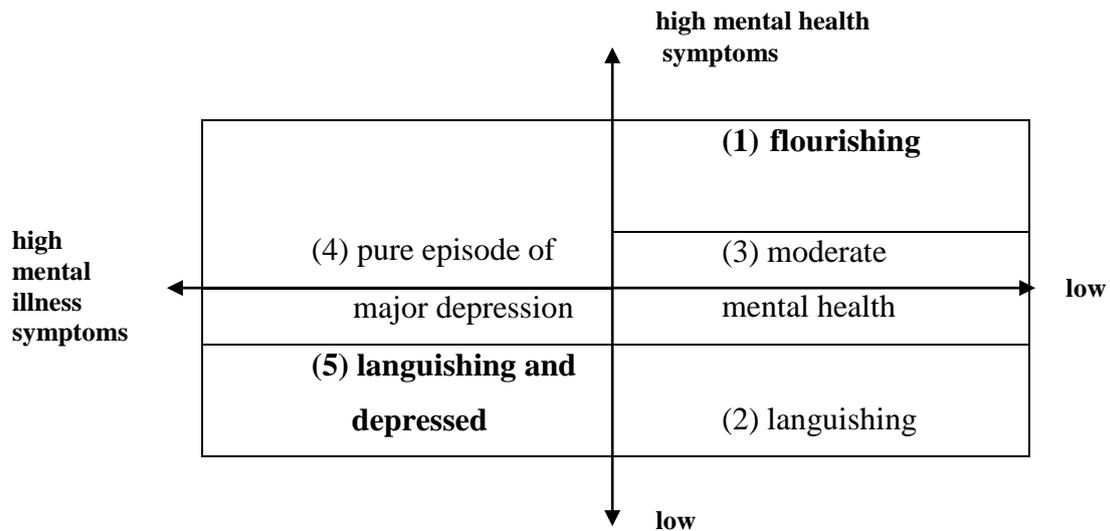


Figure 2 The Two Continua Model of Mental Illness and Mental Health with the diagnostic categories (Keyes, 2002b, p. 302)

According to the model the level of mental health should differentiate the level of functioning among individuals free of, and those with a mental illness (Keyes, 2013).

Individuals who can be characterized as **mentally completely healthy** has the most effective psychosocial functioning. They live high level of emotional, psychological and social well-being and they are free of problems of mental illness. Keyes (2002a, 2005a) has promoted a new term, a metaphor for labeling this state: they were called **flourishing** persons (1). People who have low level of emotional, psychological and social well-being called **languishing** persons (2). Although they are not depressed, they can be characterized as having incomplete mental health.

The **moderate mentally healthy** persons (3) are between the states of flourishing and languishing. They do not reach the state of flourishing, but they are not languishing as well. Although they are free of symptoms of mental illness, they only have moderate values on the levels of mental health stages.

Furthermore, there are individuals with incomplete mental health (eg. they fit the DSM criteria for major depression). Some of them have at least moderate or even higher levels of subjective well-being. They are classified as having a **pure episode of mental illness** (4).

Lastly, there are individuals who have got **mental illness** which is combined **with a languishing** state at the same period (5). They are in the worst psychosocial status: they have complete mental illness. They are not only mentally ill, but also have the lack of mental health. They have not got protective well-being factors for coping with life and mental illness problems. This constellation has the worst prognosis. Keyes and Lopez (2002) designate this group as **floundering**.

According to this taxonomy it can be possible to elevate a succession about the optimal psychosocial functioning in life, while the mental state of a person can be evaluated jointly in the mental health and mental illness dimensions. Figure 3 summarizes the **stages of psychosocial functioning**, where signs indicate stages from negative outcomes (left side of the figure) to positive outcomes (right side of the figure) (Keyes, 2005a).

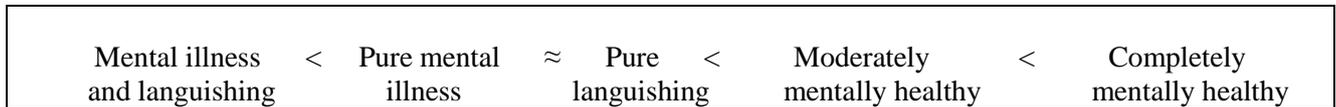


Figure 3 Predictions of psychosocial functioning by the complete state model of mental health (Keyes, 2005a, p. 541)

Since the publication of the model (Keyes, 2002a) there have been several empirical evidences which verify the justification of the two continua model. For example, in these researches it was pointed out that languishing is a risk factor in the development of major depression episode (Keyes, 2002a; Keyes, Dhingra and Simoes, 2010), while flourishing functions as a source of resilience, because it works as a protective factor during transitional periods (eg. crisis) (Keyes, 2005a, 2007). Furthermore, flourishing reduces the risk of cardiovascular diseases (Keyes, 2004), respectively it is a protective factor against chronic physical diseases in elderly people (Keyes, 2005b).

All these results have significant practical consequences. First of all, the promotion of mental health should be the object of substantial treatment. Moreover, when mental illnesses are examined, besides the identification of protective and risk factors, researches should be made to assess the characteristics, lifestyles and social contexts of mentally healthy youths, adults and olds. If we can understand the etiology and nature of flourishing, we should use this findings in prevention and psychological treatments for promoting competencies in mentally ill and/or languishing patients (Keyes, 2007).

Development of mental health is based on the following salutogenic principles (according to Keyes and Lopez, 2002; Provencher and Keyes, 2013):

- (1) It is important to combine the diagnosis and the treatment on the strength of the Two Continua Model of Mental Illness and Mental Health (Keyes, 2002a).
- (2) Reducing mental illness symptoms is only the first step in therapy.
- (3) **Therapeutic focus** should be directed to the **optimal human functioning**.
- (4) Psychological prevention and intervention, and health promotion should be built into the lives of families and schools.
- (5) Clients are active seekers of their health and personal changes: it suggests that individuals intentionally engage in their processes of growth and the client variables support the changing process. This new viewpoint focuses more on the strength of the patients than on their limitations or weaknesses.
- (6) The scientific and therapeutic spotlight should trend towards the active ingredients of human potentialities and human strength like altruism, charm, respect or mindfulness.

Up to this point the Two Continua Model of Mental Illness and Mental Health has been verified in numerous populations (eg. among adolescents, adults, elderly adults and in different cultures). Keyes has worked out a questionnaire for measuring the three-factor well-being structure, called Mental Health Continuum Short Form adult version (Keyes, 2002a; Keyes, Wissing, Potgieter, Temane, Kruger and van Rooy, 2008) and adolescent version

(Keyes, 2006, 2009a). In the doctoral dissertation we have started the Hungarian adaptation process of both scales with the permission of Corey L. M. Keyes.

III. Methodology

III. 1. Aims and hypothesis

According to the theoretical background and empirical results, summarized below, our main **aims** are the followings in the doctoral research:

- (1) On the strength of the Two Continua Model of Mental Illness and Mental Health (Keyes, 2002a) we would like to introduce the measurement of the emotional, psychological and social components of positive mental health in the Hungarian mental health researches beside simply map the symptoms of mental illness. This step enables to provide a more complex description of mental health.
- (2) One of our main goals is to adapt the Mental Health Continuum Short Form and the Adolescent Mental Health Continuum Short Form into Hungarian and test the measurement properties of these questionnaires.
- (3) We would like to test the new mental health model (Two Continua Model of Mental Illness and Mental Health) considering the family life and functioning. As far as we know, this aspect has not appeared in the international literature up to this point.
- (4) In connection with our goal mentioned above we have started the adaptation of a new, easily usable family questionnaire called Family Perception Scale (Tiffin, Kaplan and Place, 2011) with the permission of the authors. This questionnaire depicts a lot of aspects of family functioning simultaneously.
- (5) The main aim of the doctoral dissertation was the exploration of the factors which determine (facilitate or set back) mental health and subjective well-being (emotional, psychological and social well-being) in an adolescent-parent dyad setting. Our study wanted to model the complex connections of the factors which affect positive mental health while we considered – involving parents in the research setting – the approach of the ecological system theory (Bronfenbrenner, 1979).

Built on these aims the main **hypotheses** were the following:

- (1) We presumed both **questionnaires** (Mental Health Continuum Short Form and Family Perception Scale; both the adult and the adolescent versions) were **reliable and valid** measurements and the **factor structure** would be verified in the Hungarian samples. All questionnaires have been based on a firm theoretical and empirical background. Furthermore, in both cases the translation process contained back-translation and we finalized the Hungarian versions following the recommendations of the authors.
- (2) The operationalization of the complex mental health model has opened the door to investigate the **psychosocial characteristics of the different mental health stages** (eg. flourishing or languishing status). In accordance with earlier research findings (eg. Keyes, 2006, 2009a; Venning, Elliott, Kettler and Wilson, 2013) and the **categorical approach of positive mental health** (Keyes, 2002a) we hypothesized that the flourishing adolescents and adults (parents), who had got many symptoms of mental health, had the fewest mental and behavioural problems (eg. Suldo and Shaffer, 2008; Lamers, Westerhof, Bohlmeijer, Klooster and Keyes, 2011) and the best coping capacity (eg. Örkényi, Koszonits, Vajda and Kállainé Harangi, 2005) compared to moderately mentally healthy and languishing individuals. In

addition, we presumed that the state of flourishing was a **protective factor** against different risk-taking behaviours (eg. misuse of alcohol or drugs), and simultaneously it heightened some attitudes and habits which connected to health (Keyes, 2006, 2009a) and the active and prosocial forms of leisure time.

(3) We also hypothesized that there were no **gender differences** in the distribution of the categories of positive mental health as the earlier studies (eg. Westerhof and Keyes, 2010; Khumalo, Temane and Wissing, 2012) detected no discrepancy among men and women in this aspect. Similarly, in accordance with some earlier findings (eg. Keyes, Wissing, Potgieter, Temane, Kruger and van Rooy, 2008) we supposed that **age** had no connection with positive mental health status in the adult population. At the same time we presumed – in virtue of Keyes adolescent-research (Keyes, 2006) – that younger teenagers (middle school groups) would report higher degree of subjective well-being than older adolescents (high school groups) and adults.

(4) Another hypothesis was that there was a positive correlation between high complex subjective well-being and the healthy and balanced **family functioning** (eg. caring for each other, constructive problem solving, sharing responsibility) (Tiffin, Kaplan and Place, 2011) or the complexity of the family (Csikszentmihalyi, Rathunde and Whalen, 1993/1997). At the same time we did not suppose that features of family structure (eg. marital status of parents, position among siblings) would show any connection with complex subjective well-being. A number of earlier and subsequent researches (eg. Wenk, Hardesty, Morgan and Blair, 1994; Fomby and Cherlin, 2007) found that the quality of family relationships (eg. stability, emotional closeness with parents or support from parents) was more relevant in the development of mental health than the forms of the family structure.

(5) As family members actively affect each other (McMunn, Nazroo, Marmot, Boreham and Goodman, 2001), we assumed that there were many intercorrelations between mental health, coping capacity and family perception among adolescents and their parents. At the same time, if we compare **adolescents' experiences to their parents' observations** we supposed that there were significant differences in several segments of family perception between adolescents and their parents.

(6) Most of the researches which were engaged in studying connections of family life and mental health had published correlational results. Only few studies (eg. Diener and Diener McGavran, 2008) took on to reveal complex associations among variables. Therefore we wanted to **explore the factors which determined adolescents' and their parents' positive mental health**. We set up two **complex path models** and tested these with path analysis. We expected that the positive mental health of adolescents was significantly determined by their personal characteristics (like emotional and behavioural problems, depressive symptoms and coping capacity) and, moreover the features of their micro-milieu (perceived family functioning and the quality of parents' positive mental health). More studies (eg. Huebner, 1991) revealed that the quality of child-parent relationship was a significant predictor of the subjective well-being of young people and also during the adolescence. Other studies (eg. Keyes, Myers and Kendler, 2010) pointed out that the correspondence between the psychological well-being of parents and children was severely strict without any reference to the family structure and socioeconomic features. Hence, similarly to the adolescent sample, we supposed that the parents' positive mental health was assigned by both intrapersonal (mental illness symptoms and coping capacity) and interpersonal factors (perceived family environment and parent-reported emotional and behavioural problems of the child) as well as the mental health status of the progeny.

III. 2. Research design, sample and procedure

Our questionnaire-based cross-sectional study had got the ethical permission⁶ and we examined self-report measure from a sample of adolescents (n=394) between the age of 12 and 20 and their parents (n=389). The sample was collected from Budapest, from some towns in Pest county and eastern Hungary and in addition, from some cities with Hungarian-population in Slovakia.

The mean age of the adolescents was 16.16 years (SD=1.89, range: 11-20 years). There were 155 boys (39.9%) and 239 girls (60.7%) in the adolescent sample. The mean age of the parents was 43.72 years (SD=4.61, range: 30-63 years), most of them were the mother of the child (n=338, 87.1%), together with 46 (11.9%) fathers, and the parental sample contained 1 foster-mother (0.3%) and 3 grandmothers as caregivers (0.8%) too.

The adolescents and their parents filled out a questionnaire booklet separate from each other in their home. After filling out the test battery they found an identical posy together and put the questionnaires into one envelope. The participation in the study was voluntary and anonymous. All of the individuals gave a permission to participate in our research.

III. 3. Measures

III. 3. 1. Measures in the adolescents' sample

Measure of mental health: the adolescent version of the Hungarian Mental Health Continuum–Short Form (Keyes, 2006; Keyes, 2009b); Cantril-ladder (Cantril, 1965).

Measure of mental illness symptoms: Child Depression Inventory (Kovacs, 1985; Rózsa, V. Komlósi, Kő, Vetró, Gádoros and Csorba, 1999); short Hungarian version of Child Behavior Checklist (CBCL) self-report version (Gádoros, 1996).

Measure of family environment: Family Perception Scale (Tiffin, Kaplan and Place, 2011); Complex Family Questionnaire (Csíkszentmihályi, Rathunde and Whalen, 2010).

Measure of coping capacity: Resilience Youth Developmental Modul (RYDM) (Constantine and Benard, 2001); Psychological Immune System Inventory junior version (Oláh, 1996, 1999, 2005).

Leisure Time Questionnaire (Páskuné Kiss, 2010) as an essential indicator of the psychosocial functioning.

III. 3. 2. Measures in the parents' sample

Measure of mental health: the adult version of the Hungarian Mental Health Continuum–Short Form (Keyes, Wissing, Potgieter, Temane, Kruger and van Rooy, 2008); Cantril-ladder (Cantril, 1965).

Measure of mental illness symptoms: Beck Depression Inventory short form (Beck, Ward, Mendelsohn, Mock and Erbaugh, 1961; Kopp, Skrabski and Czakó, 1990); short Hungarian version of Child Behavior Checklist (CBCL) parent-report version (Gádoros, 1996).

Measure of family environment: Family Perception Scale (Tiffin, Kaplan and Place, 2011).

Measure of coping capacity: Psychological Immune System Inventory (Oláh, 1996, 1999, 2005).

III. 4. Main research findings

We used the SPSS Version 17.0 and the Mplus Version 6 (Muthén and Muthén, 1998-2010) statistical softwares for the statistical analysis.

⁶ Ethical permission was provided by the Research Ethics Committee of Eötvös Loránd University of Science (number of registry: 2012/4).

III. 4. 1. Hungarian adaptation of the Hungarian Mental Health Continuum–Short Form – adolescent version

Presentation of the questionnaire: the Mental Health Continuum–Short Form (adolescent and adult versions), which was devised by Corey L. M. Keyes (Keyes, 2002a, 2009a; Keyes, Wissing, Potgieter, Temane, Kruger and van Rooy, 2008), is a self-report, multidimensional scale for the operationalization of the components of positive mental health. It contains 14 items which cover 3 well-being domains: 3 items refer to the emotional well-being, 6 items to the psychological well-being and 5 items to the social well-being. Respondents have to rate the frequency of each feelings (each sentences) in the past month on a Likert-type scale from never to every day. The summary of the scores can be performed in two ways. First, we can compute a mean score, where the higher scores indicate higher levels of emotional well-being, psychological well-being, social well-being and overall positive mental health (global subjective well-being indicator). Secondly, there is an opportunity to give a categorical 'diagnosis', because Keyes (Keyes, Wissing, Potgieter, Temane, Kruger and van Rooy, 2008) gave the criteria of flourishing, moderate mental health and languishing. Flourishing is characterized by high levels of at least one hedonic well-being measure and six measures of positive functioning. On the other hand, languishing is indicated by low levels of at least one hedonic well-being factor and at least six measures of eudaimonic well-being measure. Moderate mental health is defined by the results that do not fit to the criteria of flourishing or languishing.

Confirmatory factor analysis was computed to discover the factor structure of Mental Health Continuum–Short Form in the Hungarian adolescent population. The three-factor-structure (emotional, psychological and social well-being) was confirmed by our research similarly to the results of Keyes (2009a). Fit indices indicated a good fit of the three-factor model as suggested by the criteria (Table 1).

Table 1 Fit indices of the three factor model of Hungarian Mental Health Continuum–Short Form (adolescent version)

	χ^2	df	p	CFI	TLI	RMSEA	SRMR	AIC
Three factor model	199.152	74	0.000	0.922	0.904	0.066 (0.055-0.077)	0.055	17235.191

The global scale and the subscales had relatively high internal consistencies (Cronbach α : 0.72-0.88). Intercorrelations among the subscales and the global scale were significant and positive ($r=0.53-0.90$), as we expected. The degree of the correlational coefficients showed the justification of the dissociation of the subscales.

Construct validity, both the convergent and the discriminant validity of the measurement was also verified. Positive mental health correlated positively and modestly with the satisfaction with life, coping capacity and resilience (convergent validity). On the other hand, positive mental health correlated negatively and modestly with depressive symptoms, furthermore internalizing and externalizing problems (discriminant validity).

III. 4. 2. Hungarian adaptation of the Mental Health Continuum–Short Form – adult version

In the parental sample ($n=389$) we also tested the adult version of the Mental Health Continuum–Short Form with confirmatory factor analysis and the three-factor model showed

acceptable fit as well. The descriptive fit indices supported the latent factorial structure (Table 2).

Table 2 Fit indices of the three-factor model of Hungarian Mental Health Continuum–Short Form (adult version)

	χ^2	df	p	CFI	TLI	RMSEA	SRMR	AIC
Three factor model	227.751	74	0.000	0.918	0.900	0.073 (0.062-0.084)	0.053	16462.023

Corresponding with our expectations the three subscales (emotional, psychological and social well-being) showed strong significant correlations with the total score of the scale ($r=0.78-0.89$), while the three subscales were in significant moderate correlations with each other ($r=0.52-0.63$), which result confirmed the separateness of these factors.

Furthermore, internal reliability was high for the total scale, as well as for the subscales (Cronbach α : 0.75-0.89).

The bivariate correlations of the total score of the scale with corresponding validation measures of indicators of positive functioning (satisfaction with life, coping capacity) ranged from low to moderate, naturally in a positive way (convergent validity). The discriminant validity of the measure was also strengthened: mental health correlated with depressive symptoms negatively.

III. 4. 3. Hungarian adaptation of the Family Perception Scale

Introduction of the scale: Family Perception Scale (Tiffin, Kaplan and Place, 2011) is a relatively short (29 items long) self-report questionnaire which characterizes the **quality of family functioning** on the whole and also from several aspects. It has got 5 dimensions and a **communication index**. The **Nurture** subscale (6 items) assesses the affection and concern for family members and the ability to communicate with care. The **Problem solving** subscale (7 items) measures the ability to solve practical problems and disputes in the family. **Expressed emotion** subscale (6 items) assesses the degree to which the family environment is perceived either pleasant and friendly or hostile and critical. **Behavioural boundaries** subscale (5 items) covers the behaviour-regulation of the family. Finally, the **Responsibilities** subscale (5 items) assesses the ability of the family members to take and share responsibility for practical tasks and the degree of encouragement for taking responsibility they give each other. Total score indicates the salubrity of the family functioning and environment in general. The measurement can be used among adolescents and adults as well.

In our study a five-factor-structure model stood out both in the adolescent (Table 3) and the parental (Table 4) samples, likewise in the original English version. However our five-factor-models showed only moderate fit to the data in both samples. Some items of the Behavioural boundaries subscale had poor loading on their factor both in the adolescent and the parental samples. Therefore, further researches are needed to analyze the factor structure of the Hungarian version of the Family Perception Scale.⁷ It is worth considering reviewing the items which have got poor factor loadings regarding content and stylistic aspects.

⁷ In a subsequent representative research (n=1613) we have started a further examination of the factor structure of the Family Perception Scale. This study is at the data evaluation process at present.

Table 3 Results of the confirmatory factor analysis of the Family Perception Scale (adolescent version)

	χ^2	df	p	CFI	TLI	RMSEA	SRMR	AIC
Five factor model	749.140	367	0.000	0.877	0.864	0.051 (0.046-0.057)	0.063	25363.673

Table 4 Results of the confirmatory factor analysis of the Family Perception Scale (adult version)

	χ^2	df	p	CFI	TLI	RMSEA	SRMR	AIC
Five factor model	661.294	367	0.000	0.886	0.874	0.045 (0.040-0.051)	0.057	20632.463

The high Cronbach α values of the global scale both in the adolescent sample (0.90) and in the adult sample (0.88) indicated the reliability of the measurement. The internal consistencies were also high in the case of four subscales, but the internal reliability of the Behavioural boundaries subscale was not good (in the adolescent sample Cronbach α was 0.51; in the adult sample Cronbach α was 0.50).

We analyzed the convergent validity in the adolescent sample. According to our results there were low ($r=0.267$) and moderate ($r=0.723$) significant correlations among global scales and subscales of measures which assessed family environment (Family Perception Scale; Complex Family Questionnaire; Family connection subscale of Resilience Youth Developmental Modul).

III. 4. 4. Categorical approach of the positive mental health – flourishing, moderate mental health and languishing among adolescents and their parents

On one hand the categorical diagnosis (flourishing, moderate mental health and languishing) (Keyes, 2006) was applied to the data to obtain the estimates of the prevalence of mental health categories both in the adolescent and in the parental (adult) samples. On the other hand, we quantified the distribution of the categorical diagnosis according to different psychological and sociodemographic variables (eg. risk-taking behaviour).

Based on the diagnostic criteria, the data revealed that 39.3% of the young people were flourishing, 54.6% were moderately mentally healthy, and 6.1% were languishing. These estimates are quite similar to those found by Keyes (2006, 2009a) in the American youth sample. In our adult sample 39.3% of the parents were flourishing, a little bit more than the half of them (53.5%) were moderate mentally healthy, while 7.2% were languishing. These percentages are almost identical to the Hungarian adolescents and similar to the results of Chinese adults (Yin, He and Fu, 2013).

We did not point out gender differences among the teenagers ($\chi^2=2.272$, $p=0.321$), meanwhile the rate of flourishing individuals showed significant reduction in the light of age ($\chi^2=10.997$, $p=0.027$). Adolescents (36.3%) and postadolescents (33.0%) experienced flourishing mental health state in a much smaller rate compared to preadolescents (53.4%). In contrast, the rate of moderates and languishing individuals kept growing with age. The latter case requires enhanced attention because the diagnosis of languishing was given three times more often to adolescents (7.0%) than to preadolescents (2.3%). This state of mental health implies that all the three subjective well-being areas are below the average functioning. The rate of the incidence of languishing remains stable during postadolescence and even among adults (7.2%). Furthermore, while the complex subjective well-being of adolescents did not show

any connection with the variables of family structure (eg. numbers of brothers or sisters, marital status and qualification of parents), it was connected to the quality of family functioning. Flourishing adolescents perceived their family 'the most healthier' ($F=41.593$, $p=0.000$).

All categories of psychosocial functioning (eg. number of friends, feelings of loneliness), health behaviour and risk-taking behaviour indicated significant correlations with the status of positive mental health. Our findings supported the hypothesis that flourishing teenagers were functioning better than moderately mentally healthy and languishing ones. For example, the results showed that youths diagnosed as flourishing had the most friends, the lowest level of feelings of loneliness and that they exercised the most in their leisure time, they judged their physical health as the best and had the optimum coping capacity. The rate of substance use and the psychological and behavioural problems were at the minimum in their sample. In contrast the languishing adolescents showed the worst quality of life.

The parents represented analogous results. Flourishing adults evaluated their physical health as the best and indicated the fewest depressive symptoms. It is underlined that mental health status and marital status were not significantly connected to each other.

III. 4. 5. Comparing adolescents and their parents' experiences

We compared the experiences of the adolescents and their parents in the observed fields. If we used the same questionnaire⁸ in both groups, we also used paired samples t-test (Mental Health Continuum–Short Form; Cantril-ladder, Family Perception Scale). In cases where the construction was gauged by different measures (eg. depressive symptoms, psychological immun capacity), we applied correlational matrices.

There was no significant difference between the adolescents and their parents in the scale of positive mental health ($t=1.433$; $p=0.153$; Cohen- $d=0.09$), similarly in the psychological ($t=0.952$; $p=0.342$; Cohen- $d=0.06$) and social well-being subscale ($t=1.623$; $p=0.105$; Cohen- $d=0.10$). The value of Cohen- d also showed negligible effect. At the same time the adolescents showed significantly higher values than their parents in the emotional components of subjective well-being (emotional well-being ($t=4.414$; $p=0.000$; Cohen- $d=0.28$) and the satisfaction with life ($t=5.815$; $p=0.000$; Cohen- $d=0.33$), however it worths to mention that the effect sizes were small.

There also existed discrepancies between the youngsters and their parents in the perception of family as we expected it in the light of the puberty's psychological processes. According to these trends, adolescents evaluated the functioning of their family more negatively both generally ($t=7.915$; $p=0.000$; Cohen- $d=0.42$) and in most aspects than their parents. Adolescents described their family less democratic, less friendly, less constructive in problem solving, less organized with transparent rules and less clear in communication than their parents. At the same time teenagers perceived a more critical and hostile atmosphere in their family than their parents. There is only one dimension of family functioning where significant distinction between adolescents and their parents cannot be proved and that is sharing responsibility in the family. It points that both teenagers and their parents evaluate the quality of personal responsibility and similarly share the tasks in their family.

According to the correlational results, correlations between the self-perception and the parent-report of internalizing and externalizing symptoms (CBCL self-report and parent-report versions) were significant, positive and moderate ($r=0.426$, $p<0.001$). In contrast, after Bonferroni-correction, frequencies of parental and adolescent depressive symptoms were not

⁸ In this cases the two versions of the measures (adolescent and adult) differed only in the first-name basis. Both the instructions and the items were identical.

interrelated with each other ($r=0.120$, $p>0.05$). There were no any intercorrelations among the coping capacities of adolescents and their parents ($r=0.085$, $p>0.05$).

III. 4. 6. Analysis of the complex associations between the studied variables

We refined and modeled the relationships between the observed variables with using multiple regression analysis, mediation analysis and structural equation modeling.

To examine the effects of predictor variables of positive mental health, we applied multiple regression analysis. According to our results, the positive mental health of adolescents was significantly determined by depressive symptoms, coping capacity, perceived family functioning and the quality of parents' positive mental health ($F=69.824$, $p<0.000$, $R^2=0.509$). The model explained 50.9% of the variance of the positive mental health scores which was a strong overall fit. According to our expectations, variables which were under control (gender, age, perceived economic status, qualification of parents) were not statistically significant in the aspect of the prediction of positive mental health.

We also explored the effects of predictor variables of parents' positive mental health. Results revealed that parental depressive symptoms, coping mechanisms and the quality of childrens' positive mental health had significant determining power ($F=54.632$, $p<0.000$, $R^2=0.373$) in the aspect of predicting parental positive mental health. All these variables accounted for 37.3% of the variance of the parental subjective well-being which was a robust explained variance. In the parental sample the controlled variables (the influence of gender, age, educational level, marital status and perceived economic status) did not relate significantly to the variance of positive mental health scores. At the same time, the parental perceived family functioning did not add significant determining power to the predictability of parental positive mental health. This result was the opposite of our preliminary expectation, but it is worth to mention that the perceived family quality was a variable which related to the heterogeneity of the parental positive mental health in the significance level 0.1% (stand. $\beta=0.102$, $p=0.071$).

According to the results of the correlations and the multiple linear regression analysis we managed to identify mediator variables in the relation of perceived family quality and the personal positive mental health.

According to our mediation analysis, the coping capacities of the adolescents (Sobel $z=8.35$, $p=0.000$, $R^2=56.7\%$), the depressive symptoms of the adolescents (Sobel $z=9.49$, $p=0.000$, $R^2=55.3\%$), the self-perceived internalization and externalization problems (Sobel $z=8.95$, $p=0.000$, $R^2=41.4\%$), and the parental positive mental health (Sobel $z=2.88$, $p=0.003$, $R^2=4.0\%$) mediated the relationship between the family functioning and the positive mental health.

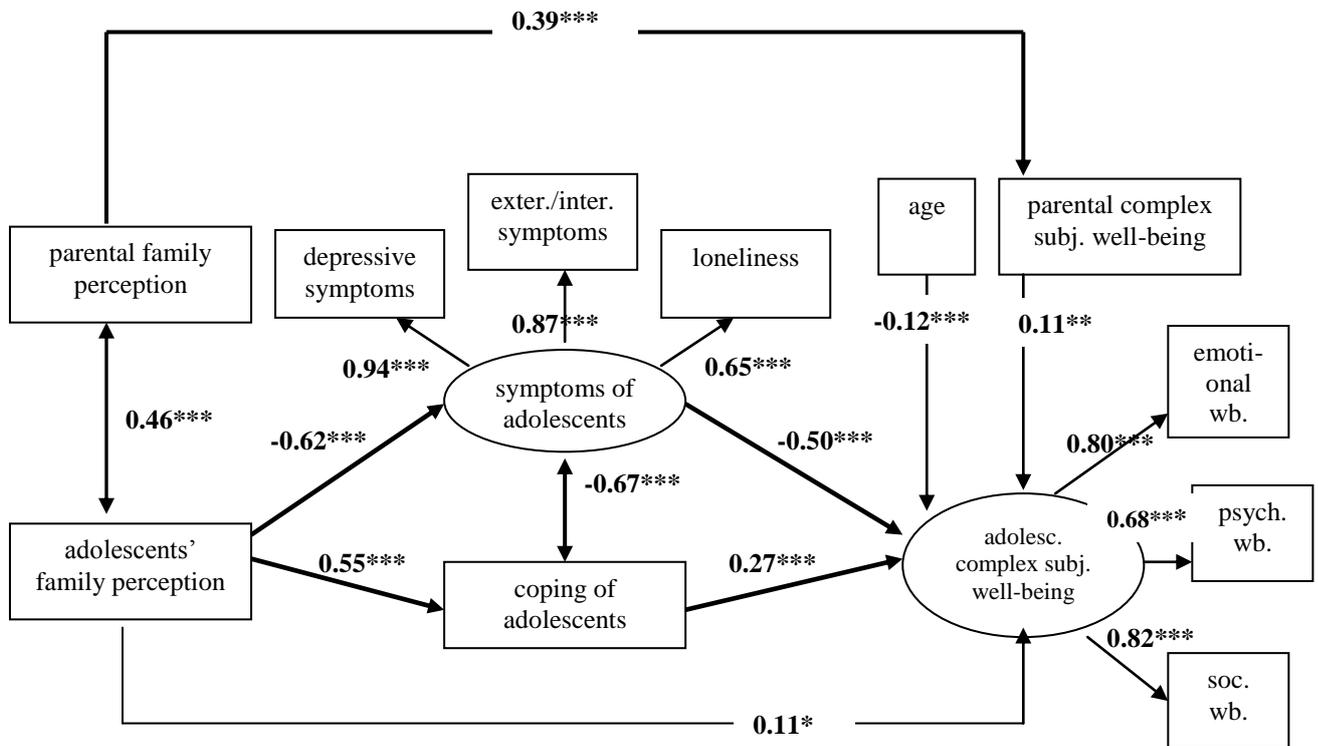
The mediation pathways were the following in the parental sample: parental coping (Sobel $z=8.29$, $p=0.000$, $R^2=66.9\%$), parental depressive symptoms (Sobel $z=7.01$, $p=0.000$, $R^2=44.9\%$), children's positive mental health (Sobel $z=2.34$, $p=0.019$, $R^2=5.5\%$), and the children's internalizing and externalizing symptoms perceived by the parent (Sobel $z=2.80$, $p=0.005$, $R^2=1.3\%$) mediated the correspondence between the perceived family features and the individual positive mental health.

Finally, in the light of these previous results we could test the complex relationships among the measured constructs with Structural Equation Modeling (SEM, eg. Kline, 2011). Pathway analysis opened the door to verify our theoretical model, the relationships between the constructs in the light of each other, moreover we could estimate not only direct, but indirect effects (Kline, 2011).

We ran two pathway models, one through the adolescents' data, and another through the parents' sample. Our a priori models were reinforced. The model fitted well considering the fit indices in both cases; in adolescents: $\chi^2=81.740$, $df=39$, $p=0.0001$; RMSEA=0.053

[CI₉₀=0.037-0.069]; CFI=0.975; TLI=0.967; SRMR=0.037; and in the parental sample: $\chi^2=72.259$, df=29, p=0.0000; RMSEA=0.062 [CI₉₀=0.044-0.080]; CFI=0.954; TLI=0.934; SRMR=0.045).

In the adolescents' sample (Figure 4) the model included the following significant pathways: the perceived family functioning by the adolescents, which determined the youngsters' complex subjective well-being through direct and also indirect effects (through coping capacity and (the lack of) symptoms). The favourable family functioning enhanced the emotional, psychological and social well-being of the teenagers, besides, it could intensify complex subjective well-being components in a way that it enhanced the coping capacity (β of indirect effect is 0.150, p<0.001) and reduced the symptoms of mental illness (β of indirect effect=0.310, p<0.001). Additionally, the age of adolescents (the younger ones had higher level of subjective well-being), and the subjective well-being of the parents also directly affected the subjective well-being of young people. We can read out from the pathway model (Figure 4) that the parental family perception influences the parental complex subjective well-being (the value of indirect pathway of parental family perception \rightarrow parental complex subjective well-being \rightarrow adolescent's complex subjective well-being is $\beta=0.042$, p<0.002). The whole model explained great heterogeneity (69.8%) of the adolescent's complex subjective well-being ($R^2=0.698$, p=0.000).



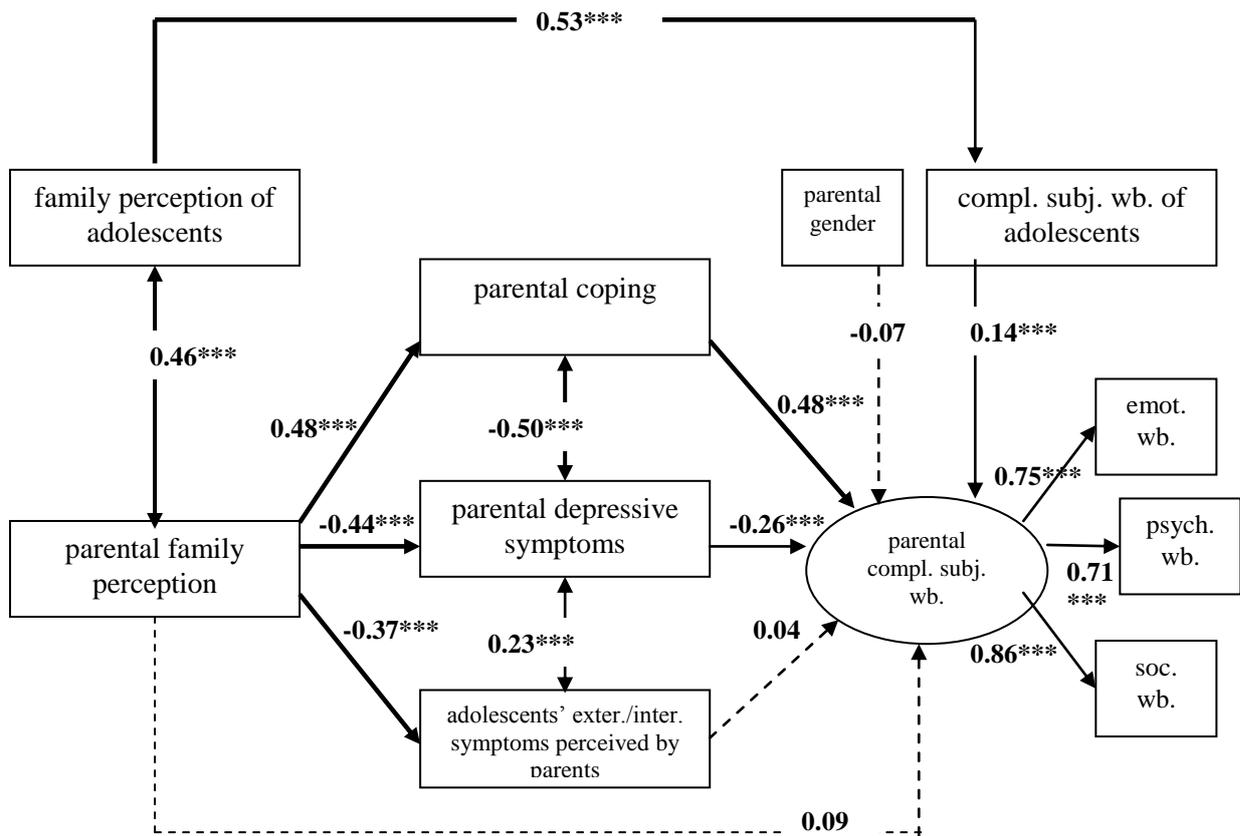
*p<0.05; **p<0.01; ***p<0.001

Figure 4 Pathway model including standardized coefficients in the adolescents' sample (n=394)⁹

Our a priori model which had been worked up to the parental sample was also verified, it fitted the data well (see the fit indices below) (Figure 5), but in this model the entered significant indirect pathways dissolved the direct relationship between parental family perception and parental complex subjective well-being statistically. Two psychological

⁹ Rectangles indicate the observed variables, while ellipses mark latent variables. Standardized regression coefficients (β) are indicated on the arrows. The significant regression paths are indicated with solid arrows, while non significant pathways are drawn by discursive.

constructs (parental coping and number of depressive symptoms) mediated between parental family perception and parental positive mental health. Parental family perception also affected how many symptoms of mental illness were detected at the parent by his/her children, but the latter only had indirect effect to the parental well-being: it affected the parental positive mental health negatively by deepening parental depressive symptoms. Furthermore, the adolescent subjective well-being affected the parental subjective well-being components, while the former was influenced by the adolescents' family perception. The whole model explained the great heterogeneity (52.9%) of the complex subjective well-being of parents who are raising adolescents ($R^2=0.529$, $p=0.000$).



* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Figure 5 Pathway model including standardized coefficients in the parental sample ($n=388$)¹⁰

III. 5. Summary

III. 5. 1. Discussion

The main aim of our research which was based on the reports of adolescent-parent dyads, was to introduce a new complex model of mental health into the Hungarian theoretical and

¹⁰ Rectangles indicate the observed variables, while ellipses mark latent variables. Standardized regression coefficients (β) are indicated on the arrows. The significant regression paths are indicated with solid arrows, while non significant pathways are drawn by discursive.

practical measurement and diagnostics. This model, the Two Continua Model of Mental Illness and Mental Health (Keyes, 2002a) regards the construct of mental health in a much more detailed way, than the former pathogenic paradigm in which mental health was considered as the absence of psychopathology (see eg. Manderscheid, Ryff, Freeman, McKnight-Eily, Dhingra and Strine, 2010).

Our study reinforced the validity of the Two Continua Model of Mental Illness and Mental Health (Keyes, 2002a) both in Hungarian adolescents' and adults' samples:

(1) First, it stood out that mental health and mental illness were distinct but correlated factors.

(2) Secondly we verified the three factor structure of positive mental health (emotional, psychological and social well-being), and the presence of three categories of positive mental health (flourishing, moderate mental health and languishing) in two Hungarian samples.

(3) Furthermore, according to the Two Continua Model we could identify such subtle categories like 'pure languishing' or 'mental illness combined with languishing'. According to our research and former studies this latter category indicates the worst prognosis (eg. Keyes, 2002a; Keyes and Waterman, 2003; Keyes, 2005a). The combined diagnosis of mental health and mental illness can forecast the level of psychosocial functioning in a much more precise way than the diagnosis which focuses only the symptoms of mental illness (Keyes, 2002b, 2005b).

As the researches have consistently proved that family life is one of the most dominant factors in the satisfaction with life (eg. Gohm et al, 1998; McMunn et al, 2001; Diener and Seligman, 2002; Brown, 2004; Diener and Diener McGavran, 2008), hence we have felt it necessary to discover the perceived family environment. For surveying this area we have introduced a new measurement into the Hungarian test base, the Family Perception Scale (Tiffin, Kaplan and Place, 2011). This scale can reflect to several features of and the entire family functioning (harmony or disharmony of the family environment). The Hungarian version of the scale has proved to be reliable and valid as a whole but one subscale (Behavioural boundaries) had got poor internal consistency and the original five factor structure had only moderate fit both to the adolescents' and the parents' data. Therefore we have started a further research to analyze the factor structure of the scale.

According to the correlational results, the healthier the family milieu are the better the mental health parameters of the family members, the stronger their stress tolerance and their adaptation are, and vice versa.

According to our results there are no gender differences between the mental health of adolescents, but considering the age there are deviations. While more than half of the preadolescents (12-14 years old) can be rated as flourishing individuals, the rate of the languishing ones is infinitesimal (2.3%). These rates change during the 'classical' adolescence period: most of the teenagers exist in the moderately mentally healthy category (approx 60%) and the rate of the languishing ones (7%) rise to triple compared to the former period. These trends do not change further with age: adults show similar rates of percentages. We believe that entering into the adolescence the quality of complex subjective well-being deteriorates not only because of the thriving knowledge, the broadening breadth of view, the extension of social network or the difficulties which go hand in hand. Presumably, during adolescence the territories of well-being go through a change as well, due to the normative identity crisis. Teenagers supposedly work over the components of psychological well-being (self-esteem, positive relations with others, purposes in life, autonomy, possibilities of personal growth) and – in connection with this – also the factors of social well-being (eg. trust in others, sense of common fate, questions of social preciousness), because they are looking for new answers to their choice of career, friends, pair, ideology or religion. Take notice that in the conception of the Two Continua Model all well-being components represent a segment

or term of the mature identity (Erikson, 2002). Therefore the diagnosis and the prevention of positive mental health should be enhanced as much as the detection and the therapy of the symptoms of mental illness.

As languishing goes hand in hand with a significant psychosocial impairment, and flourishing is constantly identified as protective factor (eg. Keyes, 2002a, 2013), we examined what kind of individual and social functioning methods are correlated with the mental health categories. Generally speaking, flourishing adolescents have extensive friendships, they feel less lonely, more probably take regular exercises, they feel better physical and mental health state, less probably use adverse substances (mainly tobacco) and they have the best psychological immuncapacity. Flourishing teenagers also look for situations which offer social support much more actively and consider them more important, they more probably take part in prosocial activities in their leisure time than the moderate mentally healthy and the languishing ones. In contrast, languishing adolescents prefer the lonelier leisure time activities. This should sign that they have stronger tendencies toward the negative forms of rumination. This result brings up that we have to add the analysis of strategies of emotional regulation in the research of complex subjective well-being.

It is important that flourishing adolescents function better in several field of everyday life compared not only to the languishing ones, but also moderately mentally healthy teenagers. Therefore, it is not a negligible viewpoint to take mental health promotion and prevention into consideration for the moderately mentally healthy individuals.

The same trends show up among the parents. The flourishing adults feel physically more healthy in general, they report the fewest depressive symptoms or they do not report mood problems compared to the moderates and languishing ones. In turn, languishing state goes hand in hand with strong psychosocial weakening.

According to the paired sample analysis there are no significant differences between adolescent-parent dyads in their positive mental health state. At the same time, in the general satisfaction with life there is a significant difference as adolescents have got higher satisfaction. This result reveals that complex subjective well-being and satisfaction with life are different constructs. Positive mental health is a more complex phenomenon than the global index of satisfaction with life. In the concept of family perception the expected tendencies appeared. Adolescents – compared to their parents – perceive their family less effective in functioning both in general and also in several territories. We can explain these results considering the generational effects and the special changes of this period (Vikár, 1999). During adolescence teenagers – in a normative manner – test their autonomy and they try to slack the familiar connections.

It is worth to mention that the complex subjective well-being of adolescents and their parents showed low correlation, but after the Bonferroni-correction it is still remained significant, but we could not find significant correlation between the quantity of depressive symptoms, and in the coping capacity of teenagers and their parents. This result also strengthens that positive mental health and mental illness are distinct continua. Furthermore, the fact that there is no correlation among adolescents' and parents' coping capacities may refer to the fact that the personal psychological immunsystem is influenced by several other factors, and that regarding the coping capacity the ways parents influence adolescents impress through indirect pathways.

In our study we applied intrapersonal and interpersonal psychological and environmental variables which have been in the focus of the former and also in the current psychological literature, but the setting of our study (paired samples) and the results of patway models have brought new aspects.

We have worked up a theoretical paradigm about what kind of pathways family resources take effect on positive mental health. We have thought that it was important to reveal the

mediator pathways, because that made possible to identify factors with which professionals can facilitate the effective emotional and psychosocial functioning.

Among the adolescents we have experienced that the familiar environment (eg. nurture, problem solving capacity, sharing responsibilities), which helps in the birth of mature identity, affects the emotional, the psychological and the social well-being of the young people directly. At the same time it forms the complex subjective well-being in indirect pathways: by supporting the coping resources and reducing the symptoms of mental illness. Furthermore, parental complex subjective well-being also affects the mental health of adolescents, while parental positive mental health is influenced by family quality perceived by parents. These results highlight not only the interactive and reciprocal nature of the socialization, but also point out the straight and tight interfaces between adolescents and their parents (even during adolescence, see Csíkszentmihályi, Rathunde and Whalen, 2010), and it also rises the possibility that if we intensify parental complex well-being (eg. through workplace programs), we can achieve impacts on the mental health of adolescents. In addition, we enhance the importance of such interventions as they improve the personal subjective well-being by facilitating the familiar strength and coping capacity.

It is worth to note that in the parental sample we could not verify the direct impact of the family with the help of the pathway model in relation to family quality and the individual positive mental health. At the same time, we identified a few mediator variables (indirect pathways), eg.: coping capacity and freedom from symptoms of mental illness. Furthermore, the subjective well-being of the parents is affected by that of the adolescents. In the pathway model the amount of psychological symptoms parents experience at their adolescents was not a mediator path in relation to parental family perception and parental subjective well-being. So the other variables, which are simultaneously in the pathway model, may overwrite (eg. terminate) the direct impact of this variable to the positive mental health of the parents. Our model clarified that the amount and quality of psychological problems of the adolescents perceived by their parents, intensify the depressive symptoms of the parents which leads to the decrease of the subjective well-being of the parents.

Our results draw attention that we can intensify the adults' emotional, psychological and social well-being not only directly, but also through facilitating their coping capacity, reducing their depressive symptoms, or rather rising their own children's subjective well-being. What is more, these levels can help family resources contribute to the increasing of personal mental fitness.

The results of the pathway models would be a base for larger public mental health interventions, because it points out that individual and social prosperity, originated from the family (Buda, 2001) and mediated through the coping capacity, is based on positive mental health.

In conclusion, our results reinforce and refine such former studies (eg. Diener and Diener McGavran, 2008; Suldo, 2009; Saha, Huebner, Suldo and Valois, 2010) which demonstrated that both personal and familiar factors had got significant roles in the development of subjective well-being at the same time. In addition the familiar environment and the peers also influenced mental health indirectly, eg. by forming personality traits (Jaquez, Cole and Searle, 2004).

III. 5. 2. Limitations of the study

The findings of this study are limited by several methodological drawbacks. First, although our sample was relatively large and the data were originated from different geographical regions, it is not representative. On the other hand, because the adolescents and their parents

filled out the questionnaire booklet at home, it is possible that the members of the child-parent dyads influenced each other's answers. We tried to eliminate this possibility with the instructions. A further limitation was that we did not assess numerous parental variables (eg. quality of relation between parents: like communication, conflicts or satisfaction with parental relationship).

III. 5. 3. Further aims

In our further, partly inchoate researches, we would like to analyze the associations between positive mental health and other constructs. Up to this point we have not extensively studied constructs like emotional regulation, quality of peer relations or personality traits in the light of complex subjective well-being. We would also like to use not only questionnaires but other kind of measures as well (eg. interview, figure placement technique (Family System Test, Gehring and Wyler, 1986) in our research paradigm.

III. 5. 4. Practical implications

Positive mental health is a core concept for mental health prevention and promotion and also the salutogenic paradigm (Antonovsky, 1994), because it examines the causes and characteristics of 'good health'. The Two Continua Model of Mental Illness and Mental Health (Keyes, 2002a) is exceedingly convenient to ground multiple prevention and mental health-promotion programs with its clear theoretical background, measurable and empirical evidences. The doctoral dissertation with its results ends with a project to facilitate the reach of the positive mental health. Thinking in the terms of ecological validity we offer comprehensive guidelines for strenghtening certain well-being components.

Psychological and social well-being are achievements (Keyes, 1998), which also means that these are serious health components. Health does not exit without mental health; in turn mental health could not improve without continuous enhancement of the areas of subjective well-being.

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