

# **The psychosocial interdependencies of life events and their relationship with chronic diseases**

Doctoral Theses

**Gábor Szabó**

Semmelweis University  
Mental Health and Health Studies Doctoral School



Supervisor: Dr. Piroska Balog, University Assistant Professor, Ph.D.

Prof. Dr. Mária Kopp, University Professor, M.D., D.Sc. †

Reviewers: Dr. András Ittész, University Associate Professor, Ph.D.

Dr. Győző Pék, University Associate Professor, Ph.D.

Chairman of final examination committee:

Prof. Dr. László Tringer, University Professor, M.D., C.Sc.

Members of final examination committee:

Dr. Annamária V. Komlósi, University Associate Professor, Ph.D.

Dr. Emma Birkás, Ph.D.

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# 1 INTRODUCTION

## **General model**

The topic of my research is the relationship between major *life events* resulting in stress and *chronic diseases*, which I analyze within the framework of a biopsychosocial model. The publication of the Holmes-Rahe life event questionnaire in 1967 has been followed by numerous scientific debates. After the historical overview of these *methodological approaches*, the different generations of life-event-questionnaires and the Hungarian life events scales I place the research topic in the framework of psychosomatic theories. Following these I discuss the latest results of the relationship between life events and diseases. Finally, I examine three personal characteristic factors, *early attachment problems*, *adult attachment styles*, and *coping styles*, which can play a role in the development of numerous chronic diseases.

## **Life events**

Holmes and Rahe developed the later widely known Social Readjustment Rating Scale (SRRS), the so-called Life Events Scale. According to the original concept any change, which occurs in the life of a person, needs accommodation, which causes different weight of stress depending on the features of the life event, thus likely to lead to different illnesses. They wished to know how much the different life events weigh in the development of stress and the illnesses caused by them.

The items tried to cover all those positive and negative life events which can influence the subject's physical and psychological state. The list included the *major life events influencing the usual course of life*. Considered as such are changes occurring in *the state of health, at work, in financial circumstances, at home, in the family, in the personal way of life and in social relationships*. The scores between 0 and 100 were developed based on previous researches, and have become known as Rahe's LCU scores. Rahe and his colleagues described the stress caused by life events with only one number, the total LCU scores. According to this original concept each life event can cause stress to a lesser or greater extent, being even a positive or a negative one, since the new situation results in new solutions, readjustments therefore a kind of higher level of adaptability.

Paykel, the major critic of Rahe's approach, has chosen the solution of subjectively evaluating each life event, in which the individuals had to evaluate how disturbing, stressful the life event was for the average individual on a scale from 0 to 20. A great number of authors have criticized clearly interpreting positive life events as stress. According to their opinion the same interpretation cannot be attributed to positive and negative life events. Other studies assumed a distorting effect when recalling life events, and they have found that the earlier the life event was which the subjects had to describe the less they could recall from the life events that had actually happened.

### **Psychosomatic theories**

Traditional psychosomatic approaches differentiate four major trends: *psychophysiological*, *psychodynamic*, *system theoretic* and *sociopsychosomatic* trends.

The psychophysiological approach emphasizes the relationship between the *physiological* processes and the physical reactions. Pavlov, who was the forerunner of this, showed in his experiment conducted with guinea pigs that in case the histamine and antigen intake had been previously connected with audio stimulus, asthma attack could be induced by audio stimulus as conditioned stimulus. This trend includes János Selye's stress conception as well. The *psychodynamic* approach starts with Freud's conversion model, who believes to recognize the dynamics of psychic forces behind somatic symptoms. The *system theoretic* approach emphasizes the role of the family and close relationships as a system, while the *sociopsychosomatic* approach underlines the role of the wider social environment and events. According to this categorization Rahe's life events theory can also be included in the latter one.

### **The latest results of the relationship between life events and diseases**

#### *Psychiatric disorders*

The relationship between life events and depression is analyzed by only few wide range epidemiologic studies however the role of life events fulfilled in depression is not completely clear. It is questionable, how real the results will be when examining psychiatric patients. In the researches of the retrospective kind Paykel, as well, emphasizes the distorting effect of recalling in case of psychiatric patients, mainly because of guilty conscience, depressive mood, paranoid and schizoid visions, as well as theories of illnesses. These factors especially have to be taken into account in case of

depression. Therefore Faravelli and his colleagues conducted epidemiologic researches to examine in life events prior to psychiatric disorders in Sesto Fiorentino. They found in their research that there were 4 times more life events in the last year in case of psychiatric patients. Thus, although the 6.4 times odds ratio shown by Brown and Harris proved to be an exaggeration as life events prior to depression, Faravelli's results basically supported the earlier examinations conducted on clinical population.

#### Kidney Diseases

A rather limited secondary literature can be found on the relationship between kidney diseases and life events. Najem and his colleagues examined the hypothetical correlation between kidney stone complaints and negative life events in the matched sample of 200 ill and 200 healthy individuals. The examination proved that among kidney stone patients these kinds of life events occurred in a significantly higher number than among the controls. Similar results were reached by Denis and his colleagues ten years later. Rounds and Israel see chronic kidney disease as a negative life event itself, when the patient needs to adjust to significant changes and feeling of loss. Possemato and his colleagues approach the issue in a similar way, when considering kidney transplant as a stressful life event, following which it is not rare that posttraumatic stress-syndrome occurs among patients.

#### Diabetes

The latest researches examining the relationship between diabetes and life events showed significant results regarding type I and type II diabetes mellitus.

Worrall-Davies showed in his earlier research that negative life events can result in changing the blood sugar level in the case of children with *diabetes type I*. Sipetic and his colleagues' study examining children with diabetes type I connected development of the disease with the parents' problems at work and parents' personal problems, as well as with problems between child and parents, and with parent-parent. Djarova and his colleagues connected diabetes type I with the life events of the previous year: the birth or adoption of a sibling, experiencing losses like the illness of parent or sibling, or them being taken to hospital, or their death. Virk and his colleagues proved in an extensive longitudinal epidemiologic study that the life events experienced by the pregnant mother are connected to the unborn child's diabetes type I later on.

According to Cai and his colleagues' research individuals suffering from *diabetes mellitus type II* accounted a higher number of and more serious negative life events than the members of the control group. Raikonen, Pyykkonen and their colleagues have shown, in a 15-year-long social cohort research, that negative life events connected to work and financial situation play a role in the development of diabetes type II.

### Tumors

In secondary literature researches connected to breast cancer rule the stress connected diseases and researches connected to this type of disease were the most convincing. Peled and his colleagues proved the higher risk causing effect of the occurrence of 2 or more life events. Justenhoven and his colleagues emphasized the role of divorce and death of spouse, as well as, with less emphasis, life events connected to work and financial situation as proof for the multifactor feature of breast cancer. While the Copenhagen City Heart Study attributed the seeming relationship between life events and breast cancer to lifestyle factors.

### Liver diseases

Secondary literature on the relationship between liver diseases and life events is extremely poor. The researches analyzing the etiology of the disease basically associate liver disease with infections, poisoning, life style and alcoholism.

### Gastric and duodenal ulcers, Crohn's disease

In secondary literature the question is raised regarding the correlation between life events and the course and etiology of gastrointestinal diseases (IBD: Crohn's disease and colitis ulcerous), the IBS (irritable bowel syndrome) among the diseases of the digestive system. The authors' opinion is quite controversial in relationship with the influencing role of life events in the case of *Crohn's disease*: while some of the researchers ( Z. Kovács and F. Kovács, Vidal and his colleagues, Von Wietersheim and his colleagues, North and his colleagues, Gilat and his colleagues, Gerbert) have not found any evidence, others have found that the correlation can be proved (Mawdsley and Rampton, Bradesi and his colleagues, Pace and his colleagues, Paar and his colleagues). According to the majority of the researches regarding gastrointestinal diseases (Haug and his colleagues, Jain and his colleagues, Magni and his colleagues, Hui and his colleagues, Levenstein and his colleagues, Piper and his colleagues,

Thomas and his colleagues) life events do not play a proven role in the development and the reoccurrence of these diseases. At the same time Piper and his colleagues have found that from each life event it is only the move of residence that occurred more frequently among ulcer patients than among the healthy controls. According to Hui and his co-authors those are not the life events themselves or the number of them which play a role in the recurrence of the disease, but their negative perception. The other mainstream of scientific interest is the supposed difference between IBD and IBS, which is not supported by research results.

#### Rheumatic disorders

Some authors (Conway and his colleagues, Carette and his colleagues) have not found any relationship between rheumatic disorders and life events. On the other hand, Peterson and his colleagues showed higher number of life events in the background of disability due to old age hip fracture happened while falling. Herrmann and Schölmerich showed higher number of life events in the background of young age chronic arthritis.

#### Cardiovascular diseases, cerebrovascular diseases, high blood pressure

The majority of the researches on *acute events (heart attack, stroke)* (Leifheit-Limson and his colleagues, Kornerup and his colleagues, Sparrenberger and his colleagues, Tosevski and Milovancevic, Rafanelli and his colleagues, Tao and his colleagues, House and his colleagues) have found correlation with previous serious life events. The latest researches (Steptoe and his colleagues, Kriegbaum and Brydon, Engstrom and his colleagues) have supported the relationship between *circulatory diseases* and negative life events as well. Numerous researches emphasize the role of the mediating factors. According to Twisk and his colleagues coping strategies, personality type A, the self evaluation and way of life (e.g. smoking) of the individual play an important role, while according to Surtees and Ingham these are the adaptation ability to the consequences of life events and the sense of coherence. Apples and Mulder have shown that vital exhaustion is accounted as a major risk factor, independent from depression, of myocardial heart attack. Balog and Purebl have shown the influence of depression and vital exhaustion on cardiovascular diseases in a national sample, while Kopp and his colleagues have found risk factors in the back background of high blood pressure like chronic stress, control loss and depression.

### Allergic diseases, asthma

The researches analyzing allergic diseases have found major negative life events in the background of diseases occurring among children (Herbert and his colleagues, Bockelbrink and his colleagues, Sandberg and his colleagues), and among adolescents and young adults (Turyk and his colleagues, Kilpelainen and his colleagues). Some of the researches conducted among adult asthma patients have proved the relationship between negative life events and asthma (Lietzen and his colleagues, Loerbrok and his colleagues) while some researches emphasize the mediating role of living conditions in the effect of life events (Archea and his colleagues, Wright).

### **Early attachment, adult attachment and coping styles**

The theoretical basis of analyzing *early attachment* is provided by Bowlby's first working model, Harlow's experiment on mother deprivation with rhesus monkeys, the hospitalization phenomenon described by Spitz, Ainsworth's strange situation study and Hofer's rat experiments on the development of stress self-control.

Bartholomew and Horowitz designed a four category *adult attachment* model to represent the relationship between adult and early attachment. Based on the positive or negative self-views and others measuring the anxiety and avoidance dimensions they have categorized the subjects according to Secure, Anxious, Avoidant, Mistrustful types.

I have used Folkman and Lazarus's cognitive transactional model from *coping* theories in my research.

## **2 OBJECTIVES**

- 1 I wish to report on the Hungarian characteristics which are attributed to the subjective evaluation of each life event.
- 2 In order to establish a methodological approach of stress-inducing life events, I wish to evaluate the appropriate usage of available life event indexes that had been constructed in different ways.
- 3 I intend to examine the general illness-risk raising effect of chronic stress in the relationship between life events and diseases, as well as I wish to provide an overview of how much life events influence the risk of certain chronic diseases.

- 4 Finally, I wish to analyze how important a role the personality factors like the damage of early attachment, the adult attachment styles and the coping styles fulfill in the relationship between life events and chronic diseases.

#### HYPOTHESES

- 1 I presume that the traditional weight systems attached to life events (LCU scores) developed by Rahe and his research group, as well as their numerous revised variations do not give reliable results.
- 2 I try to prove that the life event indexes constructed using the number of negative life events, especially when analyzing a limited number of such events, are just as reliable as the indexes formed with specific subjective weights as Paykel suggested.
- 3 My hypothesis is that basically only negative life events cause stress and reduce the quality of life in the long run.
- 4 When analyzing the distorting effect of life event recollection, I assume that there is a significant difference between recalling the life events experienced during the previous year and those ones that occurred earlier.
- 5 I presume that in the relationship between life events and disease, chronic stress is a general risk-increasing factor that can influence any chronic disease.
- 6 I presume that personal and environmental factors such as early and adult attachment patterns and coping styles play a relevant role in the relationship of life events and chronic diseases.

### 3 METHODS

#### **The description of the sample**

The sample is based on the extensive database recorded during the Hungarostudy 2002 (HS2002) epidemiologic and Hungarostudy Epidemiological Panel (HEP2006) follow-up studies, which examined the over 18 Hungarian population.

The sample of 12 668 persons is representative according to gender, age, education and residence. The HEP2006 follow-up study was conducted in two phases: in 2005 and 2006 and it contains the follow-up data of 4527 persons. A further 493 persons took part in the survey, who had not in the study of 2002. The sample of 5020 persons created this way is representative too according to gender, age and education.



## **Applied means of measurement**

### *Life events*

I used the Hungarian adaptation of the Life Events List included in Rahe's Shortened Stress and Coping Questionnaire of 56 items based on the original Holmes–Rahe's Social Readjustment Rating Scale (SRRS). During the Hungarian adaptation 27 items were added into HS2002, while 16 life events, based on the results of 2002 and 15 of which being the same as the ones appearing HS2002, which proved to be the most important according to their effect, were added to HEP2006.

In the 2002 survey the subjects had to answer the question whether the given life event had happened to them *in the last 5 years*. In case of a positive answer, they had to put it on a scale from 1 to 10 according to *degree of the emotional effect*. In the *HEP2006 survey* they had to answer the question if the given life event had happened to them *in the previous 3 years and in which year exactly*.

### *Diseases*

In HEP2006 16 diseases were asked about. The subjects had to answer if they had been treated as out patients or in hospital in the past 1 year.

Because of the low item number of the given categories I developed 10 disease groups: 1 – psychiatric disorder, 2 – kidney disease, 3 – diabetes, 4 – tumors, 5 – liver disease, 6 – gastric and duodenal ulcers, other disease of the digestive system, 7 – rheumatism and other muscle and bone disease, 8 – cardiovascular and cerebrovascular disease, high blood pressure, 9 – allergy, asthma and other respiratory disease, 10 – accident (transport, work, home). I analyzed the cardiovascular diseases in details as well. I created 3 groups: cardiovascular diseases, cerebrovascular diseases, high blood pressure.

### *Quality of Life*

I used the Beck Depression Inventory and the shortened version variations of the WHO Well-being Index recorded in HS2002 and HEP2006.

### Early and adult attachment, social support and coping

We had retrospective data in order to measure *early attachment* where I used the following question: “Have you been away from your family for a long time (at least 1 month) because of hospital, institution?”

In order to measure *adult attachment* I used the Hungarian adaptation of Bartholomew’s Relationship Questionnaire. I created the dichotomized variables on the basis of the 4 adult attachment styles: Secure, Anxious, Avoidant, Mistrustful medians and worked with them further on.

I used the 22 item shortened and adapted to the Hungarian sample variation, by Kopp and Skrabski, of the 66 item *Ways of coping* questionnaire developed by Lazarus and Folkman. The preliminary main component analysis of these resulted 4 factors was: Cognitive restructuring, Stress-reduction, Problem-analyzing and Passive coping. I divided the scales into low and high zones according to the median scores of the examined sample and I worked with these further on.

#### **The descriptive statistics of life events**

After the descriptive statistics I compared the frequency indexes of occurrence of the 15 life events appearing in both surveys 1, 2, 3 and 8 years prior to 2006 with MANOVA (with Pillai’s Trace, Bonferroni and Sidak Test) to examine the distortion effect of recalling.

#### **Subjective stress scores**

I used Spearman’s rank correlation method to compare the average scores of the subjective Hungarian stress indexes, given from 1 to 10 by the subjects in HS2002, with the LCU scores of 1967 Holmes and Rahe and with the revised 1977 and 1995 scale by Miller and Rahe.

#### **The total stress scores of life events and quality of life**

I have calculated the total stress scores in different ways. I used the LCU scores given by Rahe and his colleagues in 1967, 1977 and 1995, the average scores of subjective weights from the HS2002 survey, the one closest to Paykel’s method, the total score of the individual life events weighed with subjective scores of HS2002, and the simple number of the life events happened to the subject. I formed a variation containing all life

events and one containing only the negative ones using the data of both 2002 and 2006 for every indicator.

I compared the life-event indicators calculated in 12 ways in both surveys with the WHO Well-being Index and Beck Depression Inventory. I tested the correlations with Kendall-tau beta analysis.

### **The relationship of negative life events and chronic diseases**

First, I filtered out the individuals who, according to the HS2002 survey, were substance users or had serious alcohol problems, in order to eliminate the distorting effects of these conditions.

I used only the negative life events in comparing with the diseases. In order to filter out the tautology I omitted the *major personal injury or illness* life events. Thus finally I worked with the *dichotomized* variables based on the total scores according to the medians of the 7 negative life events left for the previous 1, 2, 3 and 8 years. I tested the relationship between life events and the analyzed 10 groups of illnesses (as well as the detailed data of cardiovascular diseases) with logistic regression, where the dependent variable was the *dichotomizing variable of the occurrence of the disease*. When calculating the logistic regression first I always included these variables in order to *control them with gender, age, education and socioeconomic status* and in the end I included the dichotomized variable of the occurred negative life event into the model.

In order to filter out the comorbidities of diseases I formed and used the variable *if they had been treated with diseases other than the given one following the gender, age, education, and socioeconomic status*. Finally, I again included the dichotomized variable of the occurred *negative life events* into the model.

### **Analyzing Early Attachment, Adult Attachment, and Coping**

I analyzed these background factors in the way that I also included the different indicators of early and adult attachment as the last independent variable into logistic regression, which was calculated on the between negative life events and chronic diseases.

## **4 RESULTS**

The answers given to life event questionnaires mirror such subjective experience quality, that are not always in tune with the life events that in fact happened, the

emotional state and distorting effects of recalling are mixed in them. At the same time they reliably measure the subjective stress experienced by the individual.

According to my results, if we wish to filter out the distorting effect of recalling, it is worth analyzing the effect of life events within the last one year and the ones earlier than one year too as well since significant differences appear in recalling them. When analyzing the subjective, individual evaluation of life events it is recommended to use a minimum 5- maximum 10-point-scale to measure the items for methodological reasons, because Paykel's original 20-point-scale proved to be less reliable. I detected that only the negative life events cause long term deterioration in the quality of life, the positive life events are probably taken as challenges by the subjects. For this reason to measure the individually experienced stress, unlike Rahe's original idea, only the indicators formed from the negative life events are the most sensitive.

The different weight systems (LCU scores) developed for the life events proved to be extremely sensitive to the given social and economic environment, values, approaches; therefore their interpretation in other time and culture is methodologically questionable. Furthermore, especially when analyzing few life events, the life event indicators developed with the number of life events are as reliable as the ones formed with the unique subjective weights recommended by Paykel.

Several studies were made to analyze the relationship between life events and different diseases; in the case of many disease groups I found that the results are extremely inconsistent. One of the reasons of these inconsistencies is that the comorbidity of the diseases is significantly high and it is not evenly taken into account and filtered out in the different research designs.

The increased number of negative life events for the past 1, 2, 3 and 8 years shows direct or indirect relation with all the 10 disease groups I examined: psychiatric disorders; kidney diseases; diabetes; tumors; liver diseases; gastrointestinal diseases, ulcer and other diseases of the digestive system; rheumatic disorders and other muscle and bone diseases; cardiovascular and cerebrovascular diseases, high blood pressure; allergy, asthma and other respiratory diseases; accidents. I found the relation measured with the highest odds ratio of 2.0–3.3 times with psychiatric disorders, yet these results must be treated carefully, since this is the disease group where it is the most difficult to filter out the degree of distortion in recalling life events. The possible interpretation of

the high comorbidity of the diseases may be a complex model which also contains the *traditional biomedical* physiological, physical mechanisms of action, the *psycho-social vulnerability* developed due to the non-specific effect of stress through the weakening of the immune system and the *psycho-social self-destructing circle* based on social relations and illness behavior.

The damage of *early attachment* showed relationship only with tumors of examined chronic diseases. Mistrustful attachment style of adult attachment styles increases the risk factor of numerous chronic diseases. Thus the individual who feels uneasy and uncomfortable in the close company of others has a higher chance of becoming ill. A further risk raising factor of developing numerous chronic diseases is the *Passive coping mode* of the  *coping styles*, like taking tranquilizers or praying, which raise the risk of becoming ill in case of most chronic diseases.

## 5 CONCLUSIONS

In conclusion the most successful way of examining the relationship between the life events caused stress and chronic diseases is in a bio-psychosocial framework in which we can examine the individual as a complex holistic system being linked to themselves and their closer and more extended social environment. All the effective therapies, which try to fight the battle against the consequences of chronic stress can be based on this behavioral scientific approached basis.

## 6 ORIGINAL PAPERS

### PUBLICATIONS RELATED TO THE DISSERTATION

#### *Domestic learned publications*

##### *Book chapters (7)*

1. **Szabó G**, Rózsa S (2008) Negatív életesemények és személyiség. In: Kopp M (szerk.) *Magyar lelkiállapot 2008. Esélyerősítés és életminőség a mai magyar társadalomban*. Semmelweis Kiadó, Budapest: 66–72.
2. **Szabó G** (2008) Az esélyteremtés szintjei – életesemények, stressz és egészségi állapot. In: Kopp M (szerk.) *Magyar lelkiállapot 2008. Esélyerősítés és életminőség a mai magyar társadalomban*. Semmelweis Kiadó, Budapest: 477–485.

3. **Szabó G**, Rózsa S (2006) Az életesemények hatása az életminőségre. In: Kopp M, Kovács ME (szerk.) *A magyar népesség életminősége az ezredfordulón*. Semmelweis Kiadó, Budapest: 324–336.
4. Hegedűs K, Szabó N, **Szabó G** (2008) Az egészségügyi dolgozók életminősége, testi és lelki állapota. In: Kopp M (szerk.) *Magyar lelkiállapot 2008. Esélyerősítés és életminőség a mai magyar társadalomban*. Semmelweis Kiadó, Budapest: 335–340.
5. Hegedűs K, Zana Á, **Szabó G** (2008) Stresszkezelő módszerek az egészségügyi dolgozók halállal, haldoklással kapcsolatos attitűdjeinek javítására. A tanfolyamok hatásvizsgálata. In: Kopp M (szerk.) *Magyar lelkiállapot 2008. Esélyerősítés és életminőség a mai magyar társadalomban*. Semmelweis Kiadó, Budapest: 114–120.
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7. Zana Á, Hegedűs K, **Szabó G** (2007) Rítusok és szokások változásainak szerepe a társas kapcsolatok alakulásában. A mai magyar lakosság halálképe. In: Kopp M (szerk.) *Magyar lelkiállapot 2008. Esélyerősítés és életminőség a mai magyar társadalomban*. Semmelweis Kiadó, Budapest: 382–389.

#### *Articles of Journals (7)*

1. **Szabó G**, Szántó Zs, Balog P, Kopp M (2010) Az életesemények, a stressz és a megküzdés nemi különbségei. *Mental*, 11(4): 349–369.
2. Balog P, Székely A, **Szabó G**, Kopp M (2006) A Rövidített Házastársi Stressz Skála pszichometriai jellemzői. *Mental*, 2006, 7(3): 193–202.
3. Balog P, Dégi LCs, **Szabó G**, Susánszky A, Stauder A, Székely A, Falger P, Kopp M (2010) Magas vérnyomás vagy depresszió? Rossz házasságban másképp betegek a férfiak és másképp a nők. *Mental*, 11(4): 313–333.
4. Hegedűs K, Zana Á, **Szabó G** (2007) Az élet végi ismeretek oktatásának hatása a orvosok és az egészségügyi dolgozók halállal kapcsolatos attitűdjére. *LAM*, 17(2): 165–170.

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7. Zana Á, Hegedűs K, **Szabó G** (2008) A halálfélelem, a halál iránti attitűd és a mentális egészség kapcsolatának korosztályos összehasonlító vizsgálata. *LAM*, 18(4): 319–320.

### ***International learned publications***

#### *Articles of Journals (1)*

1. Hegedűs K, Zana Á, **Szabó G** (2008) Effect of end of life education on medical students' and health care workers' death attitude. *Palliat Med*, 22(3): 264–269. (IF: 1,874)

### **PUBLICATIONS NOT RELATED TO THE DISSERTATION**

### ***Domestic learned publications***

#### *Book chapters (1)*

1. Németh E, Kopp M, **Szabó G**, Székely A (2011) TV-használat és internetelérés: micsoda különbség! In: Gabos E (szerk.): *A média hatása a gyermekekre és fiatalokra V., Balatonalmádi, 2009*, Nemzetközi Gyermekmentő Szolgálat Magyar Egyesület, Balatonalmádi: 222–229.

#### *Articles of Journals (6)*

1. Csóka Sz, **Szabó G**, Sáfrány E, Rochlitz R, Bódizs R (2007) Kísérlet a felnőttkori kötődés mérésére – a Kapcsolati Kérdőív (Relationship Scale Questionnaire) magyar változata. *Pszichológia*, 27(4): 333–355.
2. Martos T, Szabó G, Rózsa S (2006) Az Aspirációs Index rövidített változatának pszichometriai jellemzői hazai mintán. *Mental*, 7(3): 171–191.
3. Németh E, **Szabó G**, Székely A, Kopp M (2009) Az internetelérés, a tévéhasználat és társas támogatás összefüggései. *Magyar Fogyasztó*, 2009/1: 8–13.
4. Susánszky É, Székely A, **Szabó G**, Szántó Zs, Klinger A, Konkoly ThB, Kopp M (2007) A Hungarostudy Egészség Panel (HEP) felmérés módszertani leírása.

*Mental*, 8(4): 259–276.

5. Vincze K, **Szabó G** (2008) Örökbefogadó családok mentálhigiénés szolgáltatások iránti igényei. *Család Gyermek Ifjúság*, 17(2): 42–52.
6. Zana Á, Hegedűs K, **Szabó G** (2006) A Neimeyer és Moore-féle Multidimenzionális Halálfélelem Skála validálása magyar populáción. *Mental*, 7(3): 257–266.

### ***International learned publications***

#### *Articles of Journals (1)*

1. Csóka S, Simor P, **Szabó G**, Kopp M, Bódizs R (2011) Early maternal separation, nightmares and bad dreams: Results from the Hungarostudy Epidemiological Panel. *Attach Hum Dev*, 13(2): 125–140. (IF: 1,426)