

# The role of cognitive emotion regulation in stress-reactions

PhD thesis

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## *1. Introduction*

Cognitive emotion regulation refers processes of attention and thinking which aim to alter the appearance, valence, intensity and timing of emotional responses (Garnefski, Kraaij, & Spinhoven, 2001; Ochsner & Gross, 2008). Previous studies have revealed that cognitive emotion regulatory processes play an important role in mental well-being and reactions to stress (John & Gross, 2004). Although there is much research on the consequences of emotion regulation, less research addressed which antecedents influence their use. In line with the literature we assumed that beliefs about controllability and predictability, as well as self-efficacy might have an impact on the mobilization of cognitive emotion regulatory processes in response to facing environmental challenges. Research on these cognitive processes might add valuable information for planning preventive and therapeutic interventions.

Beliefs about controllability and predictability, or „perceived stress” as it was suggested by Cohen (1988) are central issues in behavioural sciences because of their impact on mental health (Kopp & Réthelyi, 2004). Although there is much research on the relationships between controllability and predictability and executive functioning (see Sandi, 2013 for a review), we found only a single study on the impact of stress on cognitive emotion regulation. Results revealed that stress induction lead to deficit in the use of cognitive reappraisal (Raio et al, 2013). When evaluating their results, the authors pointed out that under stress – when most needed – cognitive mechanisms fail to effectively regulate emotional responses, probably due to deficits in executive functions.

Controllability and predictability beliefs are related to events in the external world. The other side of the coin regarding the self is self-efficacy which refers to beliefs about personal agency, i.e. to be able to influence the person’s own functioning and environmental factors (Bandura, 2001; 2012). According to the social cognitive theory of posttraumatic recovery (Benight & Bandura, 2004) self-efficacy beliefs have a crucial role in stress-response by guiding the selection of cognitive regulatory processes. Individuals who believe that they have little ability to cope with a stressful situation are more likely to respond to these

situations with such maladaptive cognitions as catastrophizing (exaggerating the negative aspects of their experience) or rumination (repeating chains of unproductive negative thoughts about the experience). These maladaptive cognitive regulatory processes are then proposed to result in increased negative affect, such as anxiety (Bandura, 2001). Up to date, no research addressed this mediational hypothesis, however.

*Paediatric medical traumatic stress* refers to the psychological and physiological reaction of children and caregivers to frightening or invasive medical procedures, pain, serious illness or injury (National Child Traumatic Stress Network, 2003). Pathological stress-reactions were described in children and their caregivers in relation to unintended injuries, chronic illnesses and hospitalization (Kassam-Adams et al., 2013). Parents' reactions to stress was shown to be one of the most important predictors of children's adaptation to these life events (Alisic, Jongmans, van Wesel, Kleber, 2011; Cox, Kenardy, Hendrikz, 2008; Kahana, Feeny, Youngstrom, Drotar, 2006; Trickey, Siddaway, Meiser-Stedman, Serpell, Field, 2011). Therefore, there is a need for research on factors influencing parental stress-reactions and effective parent interventions. Previous research revealed that both parents' cognitive emotion regulation (van der Veek, Kraaij, & Garnefski, 2009; Barr, 2011; Glidden, Billings, & Jobe, 2006; Caes, Vervoort, Eccleston, Vandenhende, & Goubert, 2011; Goldbeck, 2001; Nelson, O'Leary, & Weinman, 2009; Wong & Heriot, 2008; Greening & Stoppelbein, 2007; Norizan & Shamsuddin, 2010), and parental self-efficacy (Melnyk, Crean, Feinstein, Fairbanks, & Alpert-Gillis, 2007) impact paediatric medical traumatic stress in parents. There is no research on the joint effect of these factors, however.

## 2. *Aims*

The aim of our research was to examine the relationships between controllability/predictability and self-efficacy beliefs, cognitive emotion regulation and stress-reactions, as well as mental well-being, in non-

clinical samples and parents of hospitalized children. Research phases are shown in Table 1.

Our first aim was the adaptation of the *Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2001)* and the evaluation of the psychometric properties of the Hungarian version. Then we studied the role of cognitive emotion regulation in the relationship between perceived stress and anxiety. In accordance with previous research, we hypothesized a mediator role for cognitive strategies (*mediational model*) between perceived stress and anxiety. On the other hand, we thought to be possible that the level of perceived stress would affect the relationships between cognitive strategies and anxiety (*moderator model*).

*Table 1. Research phases*

<b>Research Phase</b>	<b>Sample</b>	<b>Design</b>	<b>Aims</b>
1.			
1/a	Convenience non-clinical (N=261)	Cross-sectional	Evaluation of the Hungarian version of the <i>Cognitive Emotion Regulation Questionnaire</i>
1/b	Convenience non-clinical (n=162)	Cross-sectional	Examination of the role of cognitive emotion regulation in the relationship between perceived stress and anxiety
2.			
2/a	Parents of hospitalized children (N=100)	Cross-sectional	Evaluation of the Hungarian version of <i>The Parental Belief Scale for Parents of Hospitalized Children</i>
2/b	Parents of hospitalized children (N=157 and 114)	Prospective	Assessing the role of cognitive emotion regulation and parental self-efficacy in stress reactions
3.	Non-clinical mothers (N=407)	Cross-sectional	Examination of the role of cognitive emotion regulation in the relationships between parental self-efficacy and role satisfaction

In the second research phase we evaluated the Hungarian version of *The Parental Belief Scale for Parents of Hospitalized Children (PBS; Melnyk, 1994)*. Then we addressed the relationships between self-efficacy beliefs, cognitive emotion regulation and stress-reactions among parents of hospitalized children. We tested two alternative models. On one hand, we hypothesized that cognitive strategies mediate the relationship between parental self-efficacy and anxiety (*mediational model*). On the other hand, it would also be plausible to assume that the level of parental self-efficacy moderate the relationships between self-efficacy beliefs and anxiety (*moderator model*).

For further analysis of parental self-efficacy and cognitive emotion regulation, in the third phase of our research we addressed the role of cognitive emotion regulation in the relationships between parental self-efficacy and role satisfaction. We tested three alternative models. First, we hypothesized that cognitive emotion regulation mediate the relationship between parental self-efficacy and satisfaction with parental role (*mediational model*). Second, we assumed that the level of parental self-efficacy affect the relationship between cognitive strategies and role satisfaction (*moderator model*). Finally, we hypothesized that the mediator role of cognitive strategies would depend on the level of parental self-efficacy (*conditional process model or moderated mediational model*).

### **3. Methods**

#### **3.1. Participants and Procedure**

Ethical approvals were obtained. After giving their informed consent, participants filled out questionnaire packets.

The Hungarian version of the CERQ has been developed using a back translation process. To test its psychometric properties, we included 261 graduate and postgraduate students. Mean age was 26,14 yrs ( $SD=8,37$ ), the sample included 134 men (51,3%) and 127 women (48,7%). Locations of participants were capital (42,1%), town (41,1%) and countryside (16,5%). Educational level of participants' mothers' were

low in 12,3%, medium in 33,3% and high in 54,4%. Our hypotheses regarding the relationships between cognitive emotion regulation, perceived stress and anxiety was tested in a subsample of 162 participants, 102 men (63,6%) and 60 women (36,4%), mean age was 25,78 yrs ( $SD=9,43$ ).

The Hungarian version of the PBS has been developed using a back translation process. In study 2/a, 100 parents of children hospitalized in the Department of Surgery and Traumatology in the Heim Pál Children's Hospital were included (88 mothers, 11 fathers and 1 stepparent, caregivers of 54 boys and girls). Mean age of parents was 37,20 yrs ( $SD=5,78$ ), mean age of children was 8,94 yrs ( $SD=4,33$ ). The hospitalization was unexpected in 62 cases and planned in 38 cases. Seven percent of caregivers reported low level of education, 54% of them reported medium, and 39% reported high level of education. Median of hospital stay was 3 days ( $min=1$ ;  $max=14$ ; *Interquartile Range*: 2—5).

Into the next, prospective study (2/b), we included parents whose children (<18 years old) were waiting for a planned surgical intervention within 7 days in the Heim Pál Children's Hospital. Mental retardation was an exclusion criterion. Parents were contacted when arriving for the preoperative examination by the anesthetist, from one to seven day(s) before admission to the hospital ( $T_1$ ). On the day of the surgical intervention (from 1 to 6 hours after intervention) parents were asked at the child's bedside to complete a measure of anxiety. During a three-week period of recruitment, 199 (96.6%) of 206 parent-child dyads fulfilling inclusion criteria agreed to participate in the study. On the day planned for the surgical intervention, 114 parents (57.3% of the total sample) were available to fill in the second questionnaire (Table 2).

In the third phase of the research (Study 3) we analysed a database collected by *Márkné Ribiczey Nóra PhD* (Eötvös Loránd University, Psychological Institute, Department of Developmental and Clinical Child Psychology). Exclusion criteria were child's physical/mental illness or psychological/psychiatric treatment. We analysed data from 407 mothers of children between ages 418 years (Table 3.).

Table 2. Demographic characteristics of the sample in study 2/b. (N=114)

	<i>n (%)</i>		<i>n (%)</i>
<i>Child's gender</i>		<i>Department</i>	
Boys	72 (63,2)	Otolaryngology	52 (45,6)
<i>Length of hospital stay</i>		Orthopaedics	12 (10,5)
≤ 24 hrs	81 (71,1)	Surgery	27 (23,7)
>24 hrs	33 (28,9)	Urological Surgery	23 (20,2)
<i>Caregiver</i>		<i>Caregiver's level of education</i>	
Mother	101 (88,6)	Low	21 (18,4)
Father	13 (11,4)	Medium	53 (46,5)
Other	1 (0,9)	High	40 (35,1)

Table 3. Characteristics of sample of the third research phase. (N=407).

	<i>n (%)</i>		<i>n (%)</i>
<i>Child's gender</i>		<i>Location</i>	
Girls	205 (49,6)	Capital	125 (30,7)
Boys	202 (50,4)	Town	93 (22,9)
<i>Family living in own flat/house</i>	385 (94,6)	Countryside	189 (94,6)
<i>Family structure</i>		<i>Brothers/sisters</i>	
Original intact family	335 (82,3)	No	77 (18,9)
One-parent family	54 (13,3)	One	128 (31,4)
Two-parent family with step parent	15 (3,7)	More	202 (49,7)
Other	3 (0,7)		
<i>Mother's level of education</i>		<i>Employment status</i>	
Low	189 (46,4)	Active	308 (75,7)
Medium	131 (32,2)	Unemployed	19 (4,7)
High	87 (21,4)	Other	80 (19,6)

### 3.2. Measures

*Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al, 2001a)*. CERQ is a self-report measure consisting of 36 Likert-type items assessing five adaptive (*acceptance, positive refocusing, planning, positive reappraisal, putting into perspective*) and four non-adaptive (*self-blame, rumination, catastrophizing, other blame*) cognitive emotion regulation strategies people use to regulate negative emotions evoked by challenging life-events. Higher scores indicate more frequent use of the strategies. A short version has also been developed with 18 items

(Garnefski & Kraaij, 2006), in which each subscale consists of two items. We evaluated both the original and the short version.

*Beck Depression Inventory, short form (S-BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Rózsa, Szádóczy, & Füredi, 2001).* The 9-item version of the BDI assesses symptoms of major depression. Higher scores indicate more symptoms of depression. In our sample, internal consistency was very good (Cronbach- $\alpha=0,81$ ).

*WHO Well-being Scale ( WBI-5; Bech, Staehr-Johansen, & Gudex, 1996; Susánszky, Konkoly Thege, Stauder, & Kopp, 2006)* This 5-item measure assesses different aspects of subjective well-being, e.g. positive mood, activity or interest. Higher scores indicate higher well-being. In our sample, reliability of the WBI5 was good (Cronbach- $\alpha=0,71$ ).

*Perceived Stress Scale, 4-item version (PSS4; Cohen, 1988; Stauder, & Konkoly Thege, 2006).* The PSS measures the degree to which life situations were appraised as stressful in terms of general unpredictability and uncontrollability in the course of the previous month (“In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?”). In this study, internal consistency of the 4-item version of the Perceived Stress Scale was very good ( $\alpha=.83$ ).

*Spielberger Trait/State Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970; Sipos & Sipos, 1978).* The STAI is the most widely used self-report measure of anxiety, which has been validated across genders and ethnic groups. While state anxiety refers the emotional responses when confronted with specific threatening events and so, no doubt can be viewed as a measure of “fear”, trait anxiety can be defined as feelings of tension, apprehension, worry and discomfort experienced across various situations, and so can be viewed as a marker of sustained fear. Both subscales consists of 20 items with a Likert-type response format, higher scores indicate higher levels of anxiety. In our samples,



STAI-T ( $\alpha=0,90$ ) and STAI-S ( $\alpha=0,92$ , and  $0,93$ ) provided excellent internal consistencies.

*Parental Belief Scale for Parents of Hospitalized Children (PBS; Melnyk, 1994).* As a measure of parental self-efficacy in hospital setting, we used the 20-item PBS, which assesses parents' beliefs about their ability to understand and predict their children's behavior and emotions (e.g., "I know what changes in behavior to expect in my hospitalized child"), and about parenting their children during hospitalization (e.g., "I am clear about the things that I can do to best help my child"). Higher total scores indicated stronger parental self-efficacy.

*Parental Sense of Competence Scale (PSOC; Johnston & Mash, 1989).* This measure assesses two dimensions of parents' perceptions about their role as a parent: the satisfaction subscale refers to an affective dimension of parenting and reflects emotional well-being in relation to the parental role ("Being a parent makes me tense and anxious"), while the efficacy subscale consists of judgements about parenting abilities and effectiveness ("I meet my own personal expectations for expertise in caring for my child"). PSOC consists of 16 Likert-type items, higher scores indicate higher self-efficacy and *lower* satisfaction. In our sample, the satisfaction and efficacy subscales showed good to very good internal consistencies ( $\alpha=0,70$  and  $0,80$ , respectively).

*Child Behavior Checklist, shortened version (CBCL-short; Achenbach, 1991; Gáboros, 1996).* This measure consists of 47 Likert-type items selected from the CBCL aiming to assess behavioral and emotional problems in children and adolescents between ages 4—18 years. Higher scores indicate more problems. We used the externalizing and internalizing subscales, which showed very good internal consistencies in our sample. ( $\alpha=0,83$  and  $\alpha=0,86$ , respectively).

### 3.3. Statistics

Psychometric properties of the questionnaires were assessed by Cronbach- $\alpha$  and test-retest  $r$ , relationships between measures of parenting and mental health were examined by means of Pearson's correlational coefficients. Confirmatory and exploratory factor analyses were conducted to explore factorial validity of the CERQ.

Multiple mediator, moderator and conditional process modelling based on multiple regression analysis was used for hypothesis testing (Hayes, 2013).

## 4. Results

### 4.1. Psychometric properties of the CERQ Hungarian (1/a)

CERQ subscales of both the original and the short version showed acceptable to very good internal consistency ( $\alpha= 0,64 - 0,88$ ) and good stability (test-retest  $r= 0,58 - 0,88$ ). Confirmatory factor analysis and exploratory principal component analysis supported the nine factor model. Gender and socioecological variables did not influence CERQ scores.

### 4.2. Psychometric properties of the PBS Hungarian (2/a)

Internal consistency of the Hungarian version of the PBS was excellent ( $\alpha=0,94$ ), and its stability was also very good (test-retest  $r=0,85$ ). PBS scores were significantly and positively related to general parental self-efficacy ( $r=0,31$   $p<0,001$ ), and showed significant negative associations with parents' state anxiety ( $r=-0,42$   $p<0,001$ ). Parents of children hospitalized unexpectedly reported higher self-efficacy than parents whose children's hospitalisation was expected ( $t(98)=2,54$   $p=0,013$ ).

### 4.3. Relationships between cognitive emotion regulation, perceived stress and anxiety

In a cross-sectional, non-clinical sample (1/b), lower levels of controllability and predictability beliefs were related to the more frequent use of non-executive cognitive strategies (*self-blame, rumination,*

*catastrophizing*), and the less frequent use of executive strategies (*positive refocusing, positive reappraisal, putting into perspective, and planning*). Multiple mediation analysis revealed significant total, direct and total indirect effects (0,67  $p < 0,001$  and 0,52  $p < 0,001$ , and 0,15; 95% BCa bootstrap CI: 0,08 — 0,23, respectively). Significant mediators of the relationship between perceived stress and anxiety were *self-blame, rumination, positive refocusing, and putting into perspective* (95% BCa bootstrap CI, 0,01 — 0,08; 0,01 — 0,07; 0,03 — 0,13; -0,07 — -0,01, respectively). The relationships between cognitive strategies and anxiety were independent of the level of perceived stress, however.

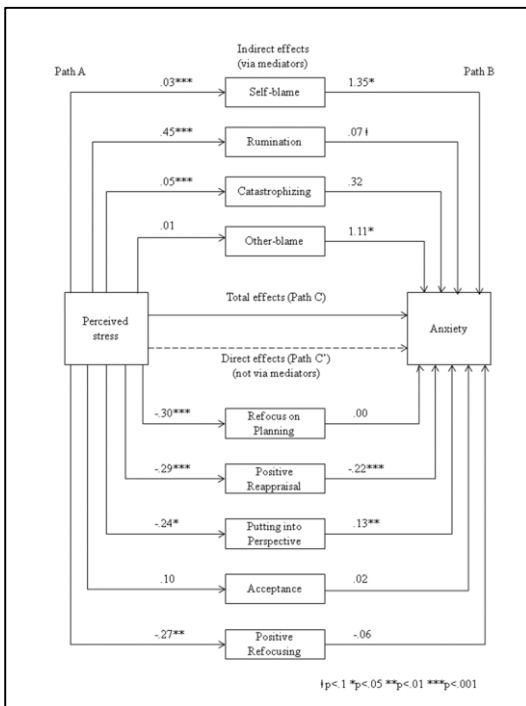


Figure 1. Indirect effects of perceived stress on anxiety, as mediated by individual cognitive coping strategies (unstandardized regression coefficients)  
 Note. Age and gender are included in the model as covariates but not represented in the Figure for reasons of clarity.

#### 4.4. Relationships between cognitive emotion regulation, perceived parental self-efficacy and anxiety

In parents of hospitalized children (2/b), both lower levels of perceived parental self-efficacy and the increased use of non-adaptive cognitive emotion regulation strategies predicted higher levels of anxiety ( $\beta=-0,25$   $p=0,008$  and  $\beta=0,19$   $p=0,044$ , respectively). Perceived parental self-efficacy and the use of cognitive strategies were independent; however levels of perceived parental self-efficacy moderated the relationships between the use of non-adaptive strategies and anxiety: this relationship was significantly and positive when perceived parental self-efficacy was high, but no association was found in the low self-efficacy condition (Figure 2).

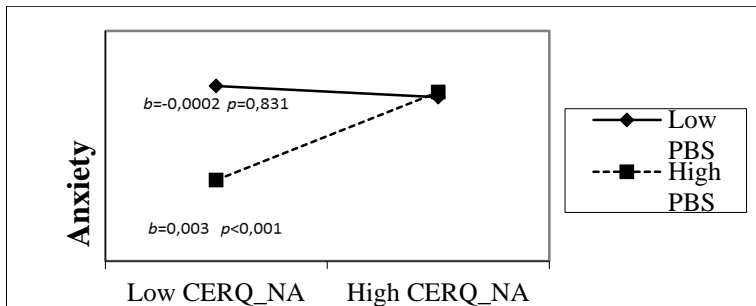


Figure 2. Regression lines for relations between non-adaptive cognitive emotion regulation strategies and state anxiety as moderated by perceived parental self-efficacy (a 2-way interaction).  $b$  = unstandardized regression coefficient (i.e., simple slope); CERQ-NA: Cognitive Emotion Regulation Questionnaire, Non-adaptive strategies subscale, PBS: Parental Beliefs Scale.

#### 4.5. Relationships between cognitive emotion regulation, perceived parental self-efficacy and satisfaction with parental role.

In the last, cross-sectional study in a non-clinical sample (3), parental self-efficacy was significantly and negatively related to the use of self-blame ( $b=-.01$   $p=.003$ ), while the negative associations between self-

efficacy and rumination was marginally significant ( $b=-.07$   $p=.051$ ). Furthermore, higher self-efficacy scores were related to the increased use of acceptance ( $b=.01$   $p=.016$ ), positive refocusing ( $b=.02$   $p=.002$ ), refocus on planning ( $b=.08$   $p=.004$ ), positive reappraisal ( $b=.18$   $p<.001$ ) and putting into perspective ( $b=.05$   $p<.001$ ).

We found significant negative relationships between role satisfaction and the use of self-blame ( $b=-3.56$   $p=.002$ ), rumination ( $b=-.19$   $p=.033$ ), and catastrophizing ( $b=-9.73$   $p<.001$ ), and significant positive associations with the use of refocus on planning ( $b=.41$   $p<.001$ ). Higher parental self-efficacy ( $b=.23$   $p<.001$ ), as well as the interaction term of self-efficacy scores by self-blame ( $b=.52$   $p=.009$ ) were also related to higher levels of satisfaction. The conditional indirect effect of self-blame was .05 (BCa 95% CI: .01—.10) when self-efficacy was low, and .01 (BCa 95% CI: -.02—.04) in the high self-efficacy condition, while planning was found to be a significant mediator independent from the level of self-efficacy (Table 3).

Post-hoc analyses revealed that the unstandardized simple slope for individuals 1 SD below the mean of PSOC self-efficacy was  $-.75$  ( $p=.603$ ), and that the unstandardized simple slope for individuals 1 SD above the mean of PSOC self-efficacy was  $-6.36$  ( $p<.001$ ) (see Figure 3).

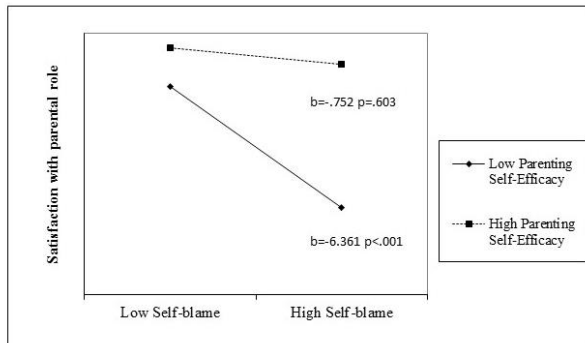


Figure 3. Regression lines for relations between self-blame and satisfaction with parental role as moderated by parental self-efficacy (a 2-way interaction).  $b$  = unstandardized regression coefficient (i.e., simple slope).

## *5. Discussion and Conclusion*

The aim of our research was to explore the role of cognitive emotion regulation in the relationships of controllability and predictability beliefs to perceived parental self-efficacy and stress-reaction, in non-clinical samples and in parents of hospitalized children.

As a part of our research, we evaluated the psychometric properties of the Hungarian version of the CERQ. We found both the 36- and 18-item version to be reliable and valid instruments to measure individual differences in cognitive mechanisms of emotion regulation.

Similarly, our results revealed evidence that the Hungarian version of the PBS is a reliable and valid instrument of perceived parental self-efficacy in parents of hospitalized children.

We suggest their use both in research and clinical settings.

In line with the literature and our hypotheses, our results underlined the importance of cognitive emotion regulation strategies and controllability/predictability beliefs in adaptation to stress, especially in parents' stress reaction.

Our results in non-clinical samples suggest that the perception of stress and low self-efficacy are associated with a specific pattern of cognitive emotion regulatory processes related to adaptational problems. Precisely when control is most needed (under stressful conditions) and precisely in those who would most needed it (individuals with low self-efficacy), cognitive regulation may be ineffective in controlling emotional responses.

In contrast to these results, in parents of hospitalized children, the use of cognitive emotion regulation processes and reported parental self-efficacy were uncorrelated. The results may have been due to the heterogeneity of cognitive emotion regulation strategies included in the adaptive and non-adaptive strategies subscales of the CERQ. On the other hand, we focused on different aspects of a complex situation when assessing parents' cognitive emotion regulation (child's emotional and behavioral response to hospitalization) and parental self-efficacy (child's illness and hospitalization). It might be that self-efficacy and cognitive

processes are expected to be intercorrelated only when they are related to the same aspect of environmental demands, while their interaction might affect outcome even across different domains.

Our results need to be considered in light of the studies' limitations. Using non-clinical samples (Study 1 and 3) and parent samples consisting mostly of mothers limits the generalizability of our findings. Further research is needed to replicate our findings in other caregivers and clinical samples as well. We used self-report measures which can be biased by contextual factors, memory and social desirability. Single source reporting could inflate the relationships among variables; further research should complement the present data by using multimethod assessments as well. The cross-sectional design in study 1 and 3 did not permit causal conclusions. Further studies are required to gain better understanding about the complex causal relationships between cognitive factors and stress reactions.

Despite these limitations, our research have important clinical implications. Our results suggest that specific therapeutic interventions targeting cognitive emotion regulation strategies by helping people maintain the use of executive strategies and avoid non-executive strategies under stress might be crucial in the prevention of negative consequences of psychological stress.

Our results draw attention to the importance of psychological interventions in parents of hospitalized children. Previous studies on parent interventions aiming to enhance self-efficacy focused on situations involving a child's unexpected hospitalization; our research in parents of planned hospitalized children extended the findings of these research studies. According to our results parent interventions should be targeted in this population as well. Furthermore, our findings suggest that interventions focusing on parenting self-efficacy beliefs alone might prevent or reduce parental distress in some instances, but that targeting parents' cognitive emotion regulation strategies would also be important in their coping with a child's surgery. Most importantly, in a subgroup of parents characterized by excessive use of non-adaptive cognitive emotion regulation strategies, interventions aiming to enhance parenting self-

efficacy beliefs alone might be less effective; whereas assessing and targeting parents' cognitive emotion regulation would be crucial.

## **6. Publications**

### *6.1. Publications related to the thesis*

Miklósi M, Martos T, Szabó M, Kocsis-Bogár K, Perczel Forintos, D. (2014) Cognitive emotion regulation and stress: A multiple mediation approach. *Transl Neurosci* 5(1): 64-71.

Miklósi M, Perczel Forintos D. (2014) Az észlelt szülői kompetencia vizsgálata hospitált gyermekek szüleinek körében. *Nővér* 27:(5): 27-35.

Miklósi M, Szabó M, Martos T, Galambosi E, Perczel Forintos D. (2013) Cognitive emotion regulation strategies moderate the effect of parenting self-efficacy beliefs on parents' anxiety following their child's surgery. *J Pediatr Psychol* 38(4): 462-471.

Miklósi M, Galambosi E, Perczel Forintos D. (2012) Gyermekápolók vélekedései a gyermekkel és a szülővel való együttműködésről a kórházban; az együttműködést befolyásoló tényezők. *Nővér* 25(5): 19-28.

Miklósi M, Martos T, Kocsis-Bogár K, Perczel Forintos D. (2011) A Kognitív Érzelem-Reguláció Kérdőív magyar változatának pszichometriai jellemzői. *Psychiatr Hung* 26(2): 102-111.

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Dallos Gy, Miklósi M, Keresztény Á, Velő Sz, Szentiványi D, Gáboros J, Balázs J. (2014) Self-, and parent rated quality of life of a treatment naive sample of children with attention-deficit hyperactivity disorder (ADHD): The impact of age, gender, type of ADHD and comorbid psychiatric conditions according to both a categorical and a



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*Book chapter:*

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