Europe's Journal of Psychology
ejop.psychopen.eu | 1841-0413

Research Reports

The Emotion Regulation Questionnaire: Psychometric Properties and Norms for Swedish Parents of Children Aged 10-13 Years

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Abstract

This study evaluated the internal consistency and factor structure of the Swedish version of the 10-item Emotion Regulation Questionnaire (ERQ), and its relation to family warmth and conflict, marital satisfaction, and parental discipline strategies, in addition to obtaining norms from the general population of parents of children aged 10-13 years. The ERQ has two subscales measuring an individual's use of cognitive reappraisal and expressive suppression as emotion regulation strategies. A random non-referred sample of parents of 1433 children aged 10-13 years completed the ERQ and other questions targeting the family functioning and couple adjustment (Warmth/Conflict in the family; Dyadic Adjustment Scale-short form) and parental strategies (Parent Practices Interview). The results indicated adequate internal consistencies (Cronbach's alpha) of the two subscales (cognitive reappraisal .81; expressive suppression .73). Confirmatory factor analysis resulted in close to acceptable fit (*RMSEA* = 0.089; *CFI* = 0.912; *GFI* = 0.93). Norms are presented as percentiles for mothers and fathers. The ERQ cognitive reappraisal scale correlated positively with marital adjustment (DAS), family warmth, appropriate discipline (PPI), and negatively with harsh discipline (PPI). The ERQ expressive suppression subscale was negatively correlated with marital satisfaction (DAS) and family warmth, and positively with harsh discipline (PPI). To conclude, this study showed the adequate reliability and construct validity of the ERQ in a large sample of Swedish parents. Specific use of suppression or reappraisal as a parental emotion regulation strategy was related to couple satisfaction, warmth in the family and employment of adequate discipline strategies in expected direction.

Keywords: emotion regulation, parents, rating scales, psychometrics, confirmatory factor analysis

Europe's Journal of Psychology, 2013, Vol. 9(2), 289–303, doi:10.5964/ejop.v9i2.535

Received: 2012-10-10. Accepted: 2013-02-05. Published: 2013-05-31.

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Introduction

Emotion regulation, in terms of processes related to modifying and influencing when and how specific emotions are expressed and how the emotions are experienced (Gross, 1998b), has become acknowledged as an important factor for wellbeing and mental health over the past decades (Gross & John, 2003; Kring & Sloan, 2010). Emotion regulation involves both conscious and unconscious processes, positive and negative emotions, and may include generating, reducing as well as sustaining emotions (Gross & Thompson, 2007). It probably has a central role in both severe and less severe forms of mental health and psychiatric disorders, such as anxiety (Cisler & Olatunji, 2012), depression vulnerability (Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010), misuse of alcohol (Berking et al., 2011), borderline personality disorder (McMain, Korman, & Dimeff, 2001), and in anorexia nervosa (Davies, Swan, Schmidt, & Tchanturia, 2012).

In clinical work with children and adolescents, parents are often involved in treatment. Recently, emotion- or self-regulation/self-control for parents has become a focus in prevention and intervention programs of child emotional and behavioral functioning, such as the Tuning in to Kids (Havighurst, Wilson, Harley, Prior, & Kehoe, 2010) and the Incredible Years (Webster-Stratton & Reid, 2010). The ability of a parent to regulate his or her affect could be important for providing positive, supportive and warm parenting, possibly mediating positive outcomes for the child. Adequate emotion regulation skills such as keeping one's cool or reappraising a problematic situation might enable a parent to, more often, cope effectively with a difficult situation, for instance through validating the child´s perspective, coaching the child, and using appropriate problem-solving or positive parenting strategies (see Bariola, Gullone, & Hughes, 2011, for a review of research on parent and child emotion regulation). This could also provide the child with a positive role model for emotion regulation. Knowledge on specific emotion regulation strategies that are effective and could lead to positive child and parental behavior, wellbeing and interconnectedness with each other, would be informative both theoretically and in treatment planning.

For emotion regulation, several emotion regulation strategies have been identified, of which some may be helpful, while others seem to have an unintended negative impact on the individual. Examples of instruments that target emotion regulation strategies or processes involved are, for instance, the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2001), the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011), the Affective Style Questionnaire (Hofmann & Kashdan, 2010), the Berkeley Expressivity Questionnaire (Gross & John, 1995, 1997), the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), and the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ (Gross & John, 2003) is based on a theoretically interesting and partially validated process model of emotion regulation, which includes several emotion regulation strategies. Two of these, cognitive reappraisal and expressive suppression, both included in the ERQ, have been differently connected to for instance psychological wellbeing and social functioning in experiments with undergraduate students and community samples of adults (e.g., Gross & John, 2003). The emotion regulation model that the ERQ is based on distinguishes between antecedent-focused strategies, i.e., before an emotional situation or reaction occurs or has become fully activated, and response-focused strategies, i.e., regulating emotions after they occur and are being experienced (Gross & Thompson, 2007). Cognitive reappraisal is defined as an antecedent cognitive strategy where future or present situations are reappraised so that the emotional impact is changed. It includes changing or reformulating the way an individual thinks about a situation or the emotion, to regulate its impact. Expressive suppression is defined as a response-focused strategy where the behavioral reactions or emotional expressions are made covert and not shown to others, involving restraining or inhibiting external facial, bodily, or behavioral signs of the emotion. Research indicates that each of these strategies is differentially related to psychological functioning and wellbeing (Gross, 1998a; Gross, 2001; Gross & John, 2003; John & Gross, 2004; Srivastava, Tamir, McGonigal, John, & Gross, 2009). For cognitive reappraisal, few negative affective, cognitive or social effects have been identified. Expressive suppression on the other hand, has been associated with lower psychological wellbeing in terms of increased physiological and sympathetic activation (Gross, 1998a), decreased positive affect (Gross & John, 2003), deteriorated memory (Richards & Gross, 2000), and negative social consequences (Butler et al., 2003; Gross & John, 2003). In summary, this research favors reappraisal as a strategy for regulating emotions opposed to suppression. Due to its theoretical base, and the focus on two commonly used strategies that seem to be differently related to psychological wellbeing, the ERQ seems of interest to evaluate for various populations.

The ERQ was recently adapted for use with children and adolescents (ERQ-CA) and evaluated with a sample of participants aged 10-18 years (Gullone & Taffe, 2012).

Earlier research by Gross and John (2003) has shown adequate factor structure and Cronbach's alpha (in average, .79 for cognitive reappraisal and .73 for expressive suppression) for the ERQ in a sample of undergraduate students. Abler and Kessler (2009) replicated the original factorial structure and reported adequate reliability (Cronbach's alpha cognitive reappraisal .76; expressive suppression .74) in a similar sample. Wiltink and colleagues (2011) presented norms from a representative community study of adults (N = 2524; mean age 49.4 years, SD = 18.2), and reported acceptable reliability (Cronbach's alpha; cognitive reappraisal, .82; expressive suppression .76). However, confirmatory factor analysis did not completely confirm the original factor structure why the authors modified one item (nbr 8). In this study, suppression was predicted by depression, male gender, lower income and education.

Until today, no study has validated the ERQ or provided norms for a sample of parents. Parenthood during pre- and early adolescence could be a period associated with high stress and new challenges in emotion regulation for the family. In some of the evidence-based programs for parents to conduct problem children, e.g., the Family Check Up (FCU; Dishion & Stormshak, 2007), a structured multi-level assessment-driven motivational approach is included where the developmental level of the child, as well as parental and family-related risk/protective factors are evaluated and discussed. The aim is to provide the family with tailored feedback based on their self-ratings and describe these in relation to norms for the targeted population. The family is then offered an individualized treatment plan. To achieve this, therapists and researchers need to have established, validated instruments with known psychometrics and norms for this particular population compared to adults in general.

A recent review has argued for consistency across studies in the measurement of emotion regulation, and that more refined theoretical conceptualizations of regulatory strategies, types or skills should be included (Bariola et al., 2011). In light of the current research and theoretical model underlying the ERQ, this instrument was chosen in the present study for examining emotion regulation among parents. Since Internet-based questionnaires are used frequently nowadays for collecting information, but only a few evaluations exist of data collected through the Internet compared to when collected through paper and pencil, we chose to include both of these procedures to compare the outcome of these approaches.

It could be hypothesized that parents who use cognitive reappraisal and therefore may be able to cope more effectively with difficult emotions use more appropriate discipline, as opposed to parents using suppressive emotion regulation strategies where more harsh and inconsistent discipline could be expected. Further, in line with earlier research showing that individuals who use cognitive reappraisal as a strategy have closer relationships (Gross & John, 2003), it is possible that parents who use reappraisal have more satisfying and rewarding relations with their family members and less family conflicts. On the contrary, we expect parents who use expressive suppression to have more strained relationships and higher incidence of family conflicts. As earlier research has reported, individuals who suppress have less emotional closeness, more avoidance of sharing, and discomfort with closeness in their relationships (Gross & John, 2003).

In line with the previously identified knowledge gaps, the aim of the present study was to 1) evaluate the internal consistency and factor structure of the ERQ in a community sample of parents, 2) obtain norms for self-ratings of the ERQ subscales, and 3) evaluate the associations of the ERQ to self-rated couple distress/marital adjustment, family warmth and conflict, and parenting strategies.

Method

Design

The study was a cross-sectional observational study. Parents to children aged 10-13 years were randomly selected from the Swedish Population Address Register (SPAR) and received information about the study. Consenting parents were randomly assigned to respond to the questionnaire via Internet or paper and pencil. All the variables with the exception of some demographics were continuous.

Measures

Translation and back-translation of the ERQ from English as well as the other questionnaires that were not already available in Swedish was carried out according to the procedure suggested by the World Health Organization (WHO, 2007).

Assessment of demographics: The parents were asked to provide information about the following: their relation to the child (being a mother; father; step-mother; step-father; foster-parent; other relationship), child age, child gender, parental marital status (married; living together; single; widower/widow; living apart, other marital condition), and their highest level of formal educational (less than elementary school; elementary school; 2-year college school or less; more than 2-year college school; less than 3-year university; 3-year university or more; Ph.D.).

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is an established 10-item self-report questionnaire targeting emotion-regulatory processes and strategies for how emotions are regulated and managed. Individuals are asked to rate the extent to which they typically try to think or behave differently in situations to change their emotions. The questionnaire consists of 10 items capturing two specific emotion regulation strategies, cognitive reappraisal and expressive suppression on a 7-point Likert scale, where 1 means “strongly disagree”, 4 “neutral”, and 7 means “strongly agree”. Higher mean score on a subscale indicates that the strategy is more endorsed. The cognitive reappraisal scale has 6 items and the expressive suppression has 4 items. Item example in the cognitive reappraisal scale is “I control my emotions by changing the way I think about the situation I’m in”, and of the expressive suppression scale is “I control my emotions by not expressing them”. No items are reversed. In earlier studies, the ERQ had high internal consistency for both the cognitive reappraisal and expressive suppression subscales (α = .79 and .73, respectively; Gross & John, 2003). Good convergent validity has been reported with several measures, e.g., the COPE reinterpretation and venting scales (Carver, Scheier, & Weintraub, 1989), and discriminant validity with e.g., the 44-item Big Five Inventory (John, Donahue, & Kentle, 1991; for a thorough description of validity, see Gross & John, 2003). The scales have demonstrated stability across 3 (r = .69; Gross & John, 2003) and 2 months (cognitive reappraisal, r = .67; expressive suppression, r = .71; Balzarotti, John, & Gross, 2010).

Parenting Practices Interview (PPI; compare, Reid, Webster-Stratton, & Hammond, 2007; Webster-Stratton, Reid, & Hammond, 2001) is an 80-item questionnaire measuring parenting practices. The parents are asked to evaluate how often he or she uses a certain strategy on a 7-graded Likert scale. For the present study we included two subscales, a 15-item harsh and inconsistent discipline subscale and a 12-item appropriate discipline subscale. An example of a question is “The following is a list of things that parents have told us they do when their children misbehave. In general, how often do you do each of the following things when your child misbehaves (that is, does something (s)he is not supposed to do)?”. Example of an item for the harsh/inconsistent discipline is, e.g., “Raise your voice (scold or yell)”, and of the adequate discipline “Get your child correct the problem or make up

for his/her mistake". In the present study, the internal consistency (Cronbach's alpha) was .84 for harsh/inconsistent parenting, and .80 for positive praise and incentives.

Dyadic Adjustment Scale, brief version (Sabourin, Valois, & Lussier, 2005) includes 4 items measuring the relationship between the parents. This is the short version of the original DAS scale (Spanier, 1976) with 32 items, targeting dyadic satisfaction, dyadic consensus, dyadic cohesion, and affectional expression. Sabourin and colleagues (2005) concluded that the DAS-4 was informative at all levels of couple satisfaction. The internal consistency of the DAS-4 was .84 in the original study and .60 in the present study.

Warmth and conflict in the family consists of 5 questions on warmth from the Adult-Child Relationship Scale (ACRS; Criss & Shaw, 2005), which is an adaptation of the School-based Student-Teacher Relationship Scale (STRS; Pianta & Nimetz, 1991) and 4 questions on conflict adapted from the PAL2 project by the *Child and Family Center, University of Oregon, Eugene, OR. USA.* The internal consistency for the warmth subscale in the present study was .80, and the corresponding value for the conflict subscale was .70.

Procedure

A first wave of information letters was sent to 2800 families in Sweden detailing the purpose and procedures of the study. The parents were informed about the voluntary nature of the study, and that they would be randomly assigned to respond to the questionnaire via Internet or the traditional way (paper and pencil). All the parents were also provided with a pre-paid envelope and a checklist to indicate in case they wished not to participate in the study, or if they preferred to receive a questionnaire via mail if they were allocated to the Internet condition, in order to decrease the drop-out rate. A total of 168 parents (6%) asked to receive the questionnaires on paper, of which 28 had been assigned to Internet. These 28 parents received the questionnaire on paper and 23 of them returned the questionnaire, all of which were excluded from the analyses comparing parents' response on paper versus through Internet. Randomization was done using www.randomizer.org. The parents were also referred to a homepage on the Internet where they could read more about the study. Parents who agreed to participate in the study responded to questions regarding frequency and characteristics of their child's behaviors and emotional wellbeing, as well as characteristics of parental strategies, couple adjustment and family warmth or conflicts (see measures). The parents were also asked to respond to a set of questionnaires with background information about the family, i.e., child age, school functioning, parental education and profession. If the parents had several children in the same age group, they were asked to consider their youngest child in the 10-13 years age span when filling out the questionnaires. A reminder was sent out to the parents within one month. We also called a randomly chosen subset of parents across children's age and sex to remind them about the study. Within 3-6 weeks after the phone call, a third wave of information letters, informed consent and questionnaires were sent out to all the remaining non-respondents. The participating parents received a small incentive (e.g., cinema tickets) for participating in the survey. The Regional Research Ethics Committee approved of the study.

Participants

Of the invited 2800 parents, 1443 responded to the survey. Ten respondents did not report if they were mothers or fathers and were therefore excluded, leaving 1433 parents (51.2%). Explicit difficulties in speaking and understanding Swedish constituted an exclusion criterion, since the questionnaires were in Swedish. No family was excluded a priori from the study due to the exclusion criteria. Of the 1433 respondents, there were 756 (52.8%) mothers, 675 (47.1%) fathers, and 2 stepparents (0.1%). Due to missing data, complete data on the ERQ expressive suppression and the cognitive reappraisal subscale was available for 1387 and 1355 parents, respectively. No

differences in background characteristics were identified for those with complete data on the ERQ compared to those with missing items. Mean age of the children was 11.51 years (*SD* = 1.10), and there was a similar amount of parents to boys (49.6%) and girls (50.4%) in the sample.

For the norms and subgroup analyses we chose to combine the small number of stepparents with (same gender) mothers and fathers. To describe demographics and when investigating the relation between educational status and the internet/paper-pen versions, the seven levels of education parents reported on were coded into five levels to avoid groups with very low number of parents (i.e., those with a Ph.D., or parents with uncompleted elementary school). When evaluating the association between emotion regulation strategies and parental education, however, educational level was divided into "higher education" (university-level) and "without higher education" (completed high school or less). Due to the small number of widowers/widows (*N* = 8) and other marital conditions (*N* = 4) these were combined with the group of single parents in the analyses.

A majority of parents (53.7%) reported having at least 2 years of college/university studies (i.e., 2 years: 19.4%; 3 years or a PhD: 34.3%) whereas the rest reported their highest level of education to be elementary school (6.4%), or 2-year or 3-year high school studies (20.4% and 19.5%, respectively). Most parents were married or living together (63.9% and 20.5% respectively), whereas the other parents reported being single parents or widows/widowers (13.4%), or were living apart (2.2%). No differences emerged between mothers and fathers on the demographic variables (child age, child gender, or educational level). However, a significant difference in marital status emerged between mothers and fathers who participated in our study (χ^2 (3; *N* = 1426) = 100.69, $p < .001$). The proportion of mothers being married, single/widow/other marital condition, living apart, or living together with a partner was 53.7%, 20.3%, 3.7%, and 22.3%. The corresponding proportions for father were: 75.2%, 5.7%, 0.6%, and 18.5%. A larger proportion of parents responded to the questionnaire in the paper and pencil condition (*N* = 976; 68.1%) compared to via the Internet (*N* = 457; 31.9%). When evaluating the proportion of parents with different levels of education to see whether this was related to the response-rate, this was not significantly different between those responding via paper or Internet, and there were no significant differences in any of the other background characteristics for parents who completed the questionnaire via the Internet or paper-pen version.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) version 19 was used for the statistical analyses. There were 0.3% non-systematic missing values for single items in the ERQ, resulting in missing values on the ERQ for 40 (ERQ suppression) and 62 (ERQ reappraisal) individuals. In total, 22 outliers were identified (6 on ERQ suppression, and 16 on ERQ reappraisal). Data on the ERQ suppression subscale is therefore available for 1387 parents and the reappraisal subscale for 1355 parents. Internal consistencies (Cronbach's alpha) and corrected item to total correlations were calculated. Chi-square, t-tests and ANOVAs were used to explore possible differences in categorical and continuous background variables between the genders and respondents. Multiple group comparisons after significant F-test were done using Bonferroni correction. Other comparative analyses were done using Pearson's correlation coefficients. In line with the recommended thresholds (Cohen, 1988) we considered a correlation of .1 as small, .3 as medium, and .5 as high. Cohen's *d* or partial eta squared was used as a measure of effect size for group comparisons. With a Confirmatory Factor Analysis (CFA) we examined the fit of the two-factor model of the ERQ with a cognitive reappraisal and an expressive suppression subscale, respectively (Gross & John, 2003). For the CFA we used LISREL 8.30 (Jöreskog & Sörbom,1978, 1988, 1993). The global model fit to the data was tested by Chi-square, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CF) and Goodness of Fit Index (GFI). The alpha was set to $p < .05$.

Results

Demographics and Emotion Regulation

Significant differences emerged between mothers and fathers regarding use of emotion regulation strategy with mothers reporting slightly higher levels of cognitive reappraisal (mothers: M = 5.04, SD = 0.97; fathers: M = 4.83, SD = 0.89; $t(1353) = 4.13$, $p < .001$, Cohen's d = 0.22) and fathers using more expressive suppression (mothers: M = 2.98, SD = 0.91; fathers: M = 3.49, SD = 0.92; $t(1385) = -10.3$, $p < .001$, Cohen's d = 0.56). Parents with college/university education reported more use of cognitive reappraisal compared to parents without higher education (M = 5.05, SD = 0.93; M = 4.82, SD = 0.93; $t(1349) = 4.64$, $p < .001$, Cohen's d = 0.25). In contrast, parents with higher education reported less use of expressive suppression (M = 3.11, SD = 0.89) compared to those without higher education (M = 3.35, SD = 1.00). The difference was statistically significant ($t(1383) = 4.60$, $p < .001$, Cohen's d = 0.25).

Further, use of cognitive reappraisal was significantly different between parents with different marital status ($F(3, 1346) = 3.33$, p = .019, *partial* η^2 = .007). After Bonferroni correction, parents who were living apart reported significantly higher use of reappraisal (M = 5.42; SD = 0.94) than parents who were married (M = 4.92; SD = 0.93), or those who lived together (M = 4.97, SD = 0.90), but no significant differences remained between single/widowed parents and the other groups. Similarly, significant differences emerged in relation to expressive suppression ($F(3, 1376) = 6.20$, $p < .001$, *partial* η^2 = 0.01). After Bonferroni correction, single/widowed parents reported significantly lower use of suppression as a strategy (M = 2.98; SD = .87) compared to married parents (M = 3.25; SD = 0.94) and parents living together (M = 3.34; SD = 0.93), but no significant differences remained between parents living apart and the other groups. There was no correlation between the age of the child and use of parental emotion strategy (reappraisal r = .02; suppression r = .04).

There were no significant differences on the cognitive reappraisal scale between those who filled in the questionnaire through the Internet or paper-pen ($t(1353) = -1.49$, p = .13). Although those responding through the Internet reported significantly lower frequency on the expressive suppression scale (M = 3.12; SD = 0.92) than those completing the paper-pen version (M = 3.26; SD = 0.96) ($t(1363) = -2.44$, p = .02) the difference represented a small effect (Cohen's d = 0.15).

Reliability

The internal consistency (Cronbach's alpha) of the cognitive reappraisal scale was .81, and .73 for the expressive suppression scale. The corrected item-total correlations within each scale were in general large (>.50). One item with small item-total correlations was found for each scale. The item (5) in the reappraisal scale was "When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm" (r = .33), and in the suppression scale (item 9), "When I am feeling negative emotions, I make sure not to express them" (r = .43). Removing these items from their subscales resulted in a small increase of alpha for the cognitive reappraisal scale (alpha .83), whereas the alpha for the expressive suppression scale did not change.

Factor Structure of the ERQ

To evaluate the construct validity of the ERQ, we conducted a Confirmatory Factor Analysis. The chi-square analysis of the model was significant (χ^2 (34; N = 1366) = 408.61, $p < .001$), thus rejecting the model based on the data, a finding that is usual in large samples. On the other hand, fit indices adjusted for the large sample size

showed that a two-dimensional model had fairly acceptable fit: *RMSEA* = 0.089, and 90% CI for *RMSEA* = (.0818; .0974), *CFI* = .912, and *GFI* = .931 (please see Figure 1).

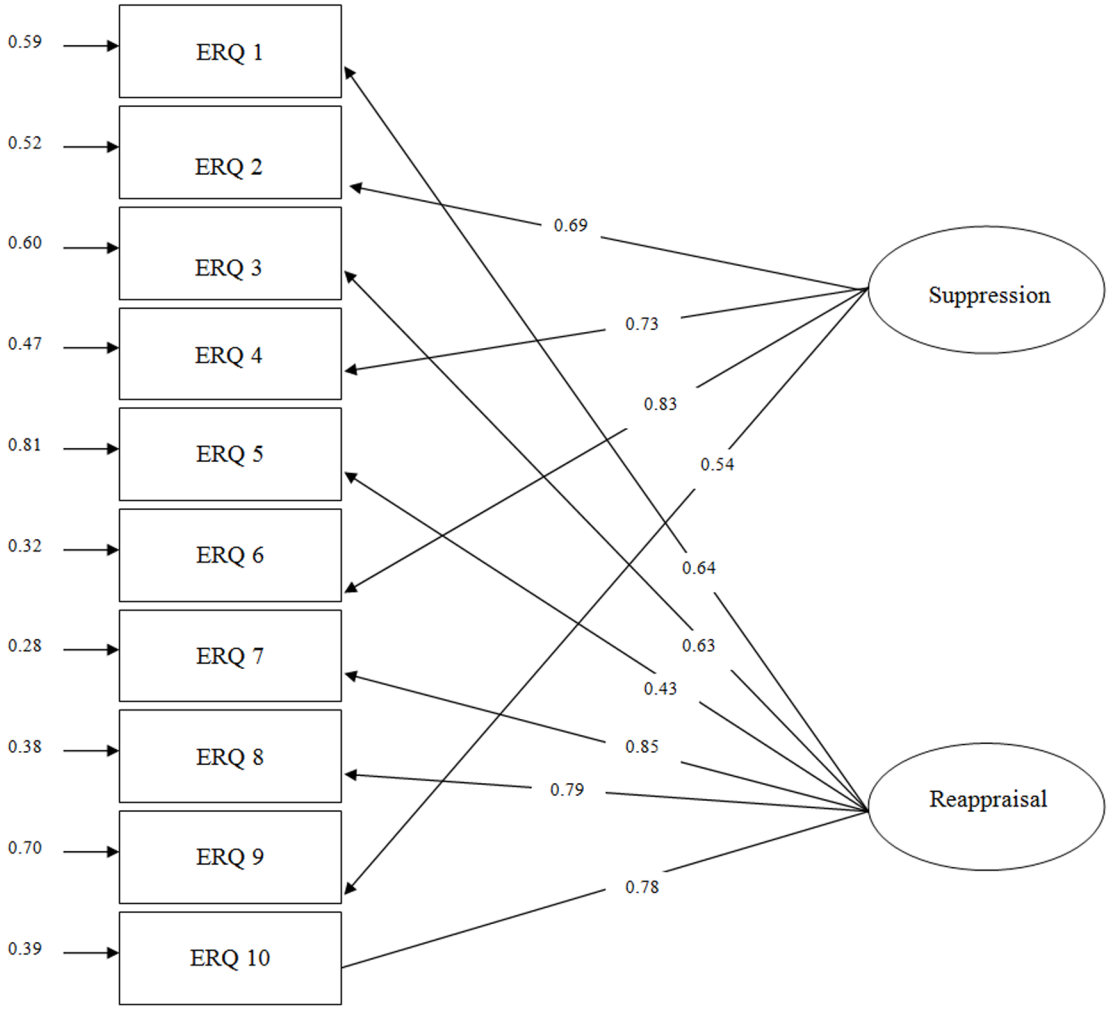

Figure 1. Confirmatory factor analysis of the Emotion Regulation Questionnaire.

Note. Chi-Square = 408.61, *df* = 34, P-value = 0.00001, RMSEA = 0.089.

Modification indices (MI) in LISREL suggested that the model would attain a better fit by relating item 4 and 9 to cognitive reappraisal, although both of these items are very clear examples of suppression. In addition, MI suggested that the error covariance between quite a few indicators (i.e., ERQ items) should be allowed to correlate. If the error covariances of items 1 and 3 on the ERQ are allowed to correlate, the fit indices improve drastically (*RMSEA* = .066, and 90% CI for *RMSEA* = (0.0579; 0.0740), *CFI* = .95). When the model was tested for fathers only, slightly better fit indices emerged *RMSEA* = 0.083, and 90% CI for *RMSEA* = (0.0719; 0.0952), *CFI*= .924, and *GFI* = .936. The chi-2 was still very high and significant (χ^2 (34; *N* = 650) = 186.68, *p* < .001). MI in LISREL once again suggested that item 4 and 9 should be related to cognitive reappraisal to reach at a better fit as well as letting the error covariances of some indicators to correlate. Testing the model for mothers only, resulted in slightly less favorable fit (χ^2 (34; *N* = 716) = 252.44, *p* < .001, *RMSEA*= .0943, and 90% CI for *RMSEA* = (0.0836; 0.105), *CFI* = .892, and *GFI* = .919). MI suggested a path between cognitive reappraisal and item 9 on the ERQ,

as well as two paths from expressive suppression to item 8 and 10, in addition to letting the error covariances of the indicators to correlate. Finally, the reappraisal and the suppression subscales were significantly correlated (r = .10, p < .001) albeit with a small effect size.

Norms for the ERQ cognitive reappraisal and expressive suppression subscales are provided in Table 1. The norms are displayed separately for mothers and fathers, and percentiles for both tails are provided, based on the mean scores for each subscale.

Table 1

Norms (Mean, Median, Mode and Percentiles) for the ERQ Reappraisal and Suppression Scale for Mothers and Fathers, Respectively

	Reappraisal		Suppression	
Measure	**Mothers (N = 714)**	**Fathers (N = 641)**	**Mothers (N = 729)**	**Fathers (N = 658)**
Mean (SD)	5.04 (0.97)	4.83 (0.89)	2.98 (0.91)	3.49 (0.92)
Median	5.00	4.83	2.75	3.50
Mode	5.00	4.50	2.50	4.00
Percentiles				
1	2.67	2.67	1.00	1.25
5	3.33	3.33	1.75	2.00
10	3.83	3.83	2.00	2.25
15	4.00	4.00	2.25	2.50
20	4.17	4.16	2.25	2.75
80	6.00	5.50	3.75	4.25
85	6.00	5.83	4.00	4.50
90	6.25	6.00	4.25	4.75
95	6.54	6.33	4.50	5.00
99	7.00	7.00	5.50	5.50

Relations to Marital Adjustment, Family Warmth/Conflicts and Parental Strategies

The correlations between the ERQ subscales to measures tapping marital adjustment (DAS), family warmth, and harsh discipline (PPI) were significant (see Table 2), small in magnitude (i.e., below r = .3), and non-significant to family conflicts (p > .05). The ERQ reappraisal scale was positively significantly associated with marital adjustment (DAS), family warmth, appropriate discipline (PPI), and negatively associated with harsh discipline (PPI). Interestingly, the associations between the ERQ suppression subscale with marital satisfaction (DAS) and family warmth were significant and negative, whereas it showed a non-significant association to appropriate discipline (PPI) and a small, positive significant correlation with harsh discipline (PPI).

Table 2

Correlations Between the ERQ Subscales and Couple Adjustment, Family Warmth and Conflict, as Well as Appropriate and Harsh Parenting.

Scale	ERQ reappraisal scale	ERQ suppression subscale
DAS	.09**	-.21**
Family Warmth	.22**	-.25**
Family Conflict	-.04	-.04
PPI Appropriate Discipline	.12**	-.01
PPI Harsh Discipline	-.14**	.12**

**p < .01.

Discussion

This study presents data from one of the first evaluations of emotion regulation in a normative sample of parents with children in the 10-13 years age span. Norms from the general population of parents of pre- and young adolescents are essential for informative research on this group. Our findings contribute both to the limited knowledge on the kind and level of emotion regulation that parents use, as well as to the knowledge-base about how parental emotion regulation is related to marital adjustment, parental strategies and family warmth and conflict.

As a notable part of data collection in various research studies is now being done through the Internet, we randomized parents to respond to the ERQ via Internet or using paper and pencil. No clinically meaningful differences emerged between Internet versus paper and pencil. The ERQ seems to be a stable instrument that can be administered via Internet or the usual way.

The ERQ seems to work well in a large representative sample of Swedish parents. Its psychometric properties in terms of internal consistency, item-to-total correlations, factors structure, and correlation to various other relevant measures correspond well to earlier studies (e.g., Gross & John, 2003). We found only few significant demographic differences, all representing small effects with one exception. Fathers reported significantly higher levels of expressive suppression compared to mothers, a difference with a medium size effect. This is in line with earlier studies reporting higher frequency of use of suppression among men (e.g., Gross & John, 2003). Item 5 and 9 had smaller corrected item-total correlations (CITC) than the rest of the items. Item 5 in the cognitive reappraisal scale (When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm) showed medium CITC (.33), while it was between medium and large (.48) in the study by Balzarotti and colleagues (2010). CITC of item 9 in the expressive suppression scale (When I am feeling negative emotions, I make sure not to express them) was between medium and large (.43), which was very similar to findings in the study by Balzarotti and colleagues (2010), as well as Wiltink and colleagues (2011) (CITC = .45 and .48 respectively).

The two subscales were correlated ($r = .10$, $p < .001$) with a relatively small effect size. Other studies have reported lack of correlations between the reappraisal and suppression scales (e.g., Gross & John, 2003). In addition, the factor analysis basically confirmed two rather independent factors, similar to those reported earlier (Gross & John, 2003; John & Gross, 2004). Whereas Gross and John (2003) report two independent factors through both exploratory and confirmatory factor analyses and describe a good fit, Wiltink and colleagues (2011) could not completely replicate the two-factorial solutions of the ERQ (χ^2 (42) = 1172.44, $p < .001$; RMSEA = .11; SRMR = .097; CFI = .90). In the latter study, reductions in the overall chi^2 are reported when allowing item 8 to load on both factors (χ^2 (41) = 662.95, $p < .001$; RMSEA = .078; SRMR = .064; CFI = .95). RMSEA level in the CFA should preferably be below .06 to indicate good fit, but levels up to .08 are considered to indicate acceptable fit. The fit indices in our models are at the borderline levels, and making some minor adjustments in the model would lead to acceptable fit (e.g., allowing some error covariances among the indicators to correlate). We chose not to make such modifications just to attain a better fit to report, as such changes do not in reality correspond to how the instrument has been formed, used and perceived by the participants. Overall, the fit indices are very close to what is considered adequate.

As hypothesized, the ERQ reappraisal scale correlated positively with marital adjustment, family warmth, appropriate discipline, and negatively with harsh discipline. The ERQ expressive suppression subscale was negatively correlated with marital satisfaction and family warmth, and positively with harsh discipline. These results, targeting

parents, extend earlier research where individuals who use reappraisal as a strategy have been found to have closer and more rewarding relationships, and those using suppression having more strained relationships, more avoidance of sharing and discomfort with closeness (Gross & John, 2003).

During middle childhood to adolescence, children need to learn to use more effective emotion regulation strategies. A disability to regulate emotions during these years has been found related to risk for development of psychopathology (e.g., Betts, Gullone, & Allen, 2009). Generally it is suggested that when a parent respond sympathetically and supportively to his/her child, the child may learn how to regulate his/her emotions in a new situation, whereas punitive or dismissive reactions of parents to children's emotions have been related to negative outcomes (for a review, see Bariola et al., 2011). Theoretically and clinically, it would be valuable with a multi-faceted, comprehensive understanding on the connection between theoretically important parental emotion regulation strategies and the child's emotion regulation strategies, psychosocial functioning and psychopathology. Parental antecedent or response-focused emotion regulation strategies, like cognitive reappraisal or expressive suppression, perhaps in combination with various parenting strategies (e.g., appropriate strategies or harsh, inconsistent discipline) and other characteristics of the family, such as the quality of the parent-child relationship, could be possible moderating or mediating variables for development of child emotion regulation strategies and might have an effect on outcome in interventions for parents and children with internalizing or externalizing problems. Increasing our understanding of how these variables might interact and their importance for outcome could be one way forward for more individualized and tailored treatments.

Further, cognitive reappraisal and suppression should be investigated in the context of other emotion regulation strategies in experimental studies in various populations to contribute to the theoretical development of the concept of emotion regulation. The present study provides one step in that direction, through the validation of the ERQ in a sample of parents and providing of norms.

Limitations

Despite intensive efforts, the response rate was low, and there is a risk for bias in terms of higher level of education among respondents compared to those who chose not to participate in the study. The number and marital status of responding parents were though fairly evenly distributed among children at each age cohort (i.e., 10 to 13 years of age). Children's limited age range puts another limitation on how representative this sample of parents is in relation to the population of parents in general. Nevertheless, these are critical ages when it comes to child development, and knowledge on emotional regulation strategies of parents of children at these ages is important.

Conclusions

The results of this study indicate adequate internal consistency and acceptable factor structure of the ERQ in a sample of parents to children aged 10-13 years. The study provides norms of the ERQ as percentiles for mothers and fathers, respectively. Parents are role models for their children and emotion regulation in stressful situations may be crucial for providing supportive, validating and positive parenting. If the present findings are replicated and expanded, the ERQ might be a valuable instrument in research and clinical work with families.

Funding

The work was supported by the National Board of Health and Welfare (Grant no. 6.2.1-18225/2010).

Acknowledgements

We are indebted to the parents who participated in the study.

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