

Summary

Emotion Regulation during Adolescence and Psychological Adjustment: Psychometric Qualities of Emotion Regulation Questionnaire in Turkish Culture

Emine Tuna Ulaşan Özgüle

Middle East Technical University

Nebi Sümer

Middle East Technical University

Thompson (1994) states that in order to align our emotional reactions with our goals we have to regulate our emotions. Emotion regulation consists of external processes as well as internal processes as individual difference variables (Thompson & Meyer, 2007).

The main aim of the present study is to examine the psychometric qualities of Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) on Turkish adolescents. The ERQ assesses two important individual emotion regulation strategies, reappraisal and expressive suppression. We tested ERQ's factor structure and investigated associations between its two subscales and psychosocial development variables to explore its construct and predictive validity in Turkey.

Individual Differences in Emotion Regulation

Children internalize emotion regulation processes through development and use them on their own by middle childhood rather competently (Calkins & Hill, 2007; Morris, Silk, Morris, Steinberg, Aucoin K. J., & Keyes, A. W., 2011). Caregivers not only support the extrinsic processes of emotion regulation in the early years but also help the child to internalize different strategies through coaching, reinforcement, and discussing emotions and situations (Çorapçı, 2012; Thompson, 1994). Thompson and Meyer (2007) suggest that encountering different situations and sharing own feelings with friends also expose children to different emotion regulation strategies.

There is ample research suggesting that dysfunctional emotion regulation is associated with depression, anxiety, and conduct disorders in adulthood, and internalization and externalization problems in children (Thompson & Goodman, 2010; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Frick and Morris (2004) asserted that dysfunctional emotion regulation causes

children to have strong emotional arousal, which may lead to social maladjustment.

Regardless of the fact that emotion regulation is a complex process, Gross (1999) suggests that emotion regulation as an individual difference variable should only cover the processes of how the individual manipulates own internal processes and influences own emotions. Although emotion regulation may also consist of other individualized strategies such as attention deployment by paying attention to the positive aspects of the situation or manipulating the ways of getting access to financial and social support to deal with emotions, modern scientific approaches emphasize reappraisal and suppression as the ones most eligible for emotion regulation research (Gross & Thompson, 2007).

Reappraisal is an antecedent-focused strategy, which may be effective even after the individual can no longer deploy attention (Gross, 1998). Gross (1999) suggests that emotions do not get meaning in a vacuum and our appraisals cause emotions. Joorman, Yoon, and Siemer (2010) suggest that there is ambiguity in every situation until we evaluate them. Reappraisal is an effective form of emotion regulation strategy, in which the individual tries to alter his/her felt emotions in order to amplify or alleviate them through changing evaluations of own cognitions (Gross & Thompson, 2007). Gross and John (2003; John & Gross, 2004) show that the individuals who use reappraisal frequently feel better, are high in authenticity, have more intimate relations with others, have less negative affectivity, and they ruminate less. Additionally, reappraisal is associated with recognition and clarity of emotions, and mood repair, all of which improve the effectiveness of emotion regulation.

Response-focused emotion regulation consists of focusing on the emotions when they are in full force and trying to restrain own physiological, experiential, and

behavioral responses (Gross, 1998; Gross & Thompson, 2007). One of the most important response-focused strategies is *expressive suppression*, which consists of efforts to eradicate emotional experiences and to inhibit expressions of emotions. Salters-Pedneault, Steenkamp, and Litz (2010) show that flexible use of suppression occasionally supports psychological adjustment but using it with rigidly and frequently leads to dysfunctional emotion regulation. The authors point out that suppression has a rebound effect especially for negative emotions. Western studies have shown that suppression had negative association with memory, social intimacy, and life satisfaction (e.g., John and Gross, 2007). John and Gross (2004) suggest that suppression only inhibits the expression of negative affect, but not their inner experience. Thus, when the disparity between felt emotion and its expression is wide, the person may experience more negative emotions.

Adolescence is a period with high need of emotion regulation (Zeman et al., 2006) but their brain structures are still evolving to improve emotion regulation capacity (e.g., Galvan, Hare, Parra, Voss, Glover, & Casey, 2006). McRae, Gross, Weber, Robertson, Sokol-Hessner, Ray, and others (2012) show that adolescents' brain structure are not developed enough to use cognitive reappraisal in its full performance but the adolescents may use it adequately with intervention. Also, the use of suppression decreases with time (Gross & John, 2003).

Culture and Gender

Culture influences both emotions and emotion regulation processes. Mesquita and Albert (2007) consider emotion regulation as a universal need although the culture determines the unique strategies used by its members. Furthermore, culture determines which emotions should be felt more intensely as well as the ready-made attributions for the emotions and the responses of the others to the expressed emotions. The literature review by Corapçı (2012) emphasizes that parents in Eastern and Western cultures perform different socialization practices for emotions and the development of emotion regulation skills. Their main goal in Eastern cultures is to show the social norms to be followed by the child, whereas in Western cultures it is to teach children how to regulate emotions autonomously and express them in a way to manifest their individuality.

Past studies have documented certain similarities and differences between Eastern and Western cultures regarding emotion regulation. Although there exists contradictory evidence (e.g., Hsieh & Dopkins-Stright, 2012), studies show that reappraisal and suppression are correlated with each other in collectivistic culture (Kwon, Yoon, Joorman, & Kwon, 2013; Matsumoto,

Too, Nakagawa, et al., 2008). Additionally, the meta-analysis of Hu, Zhang, Wang, Mistry, Ran, and Wang (2014) showed that suppression was related less strongly with psychological adjustment variables in Eastern cultures as compared to Western cultures. However, these authors have also found that reappraisal was positively associated with positive psychological outcomes similarly in both collectivist and individualist cultures. Hsieh and Dopkins-Stright (2012) also showed that the ERQ had similar psychometric qualities across cultures.

Considering potential cultural influences, Çorapçı (2012) argues that parents pay more attention to sadness in girls and to anger in boys, and such differences may increase the probability of externalization problems in boys and internalization problems in girls. The peer context may further mold these inclinations. For example, Fuchs and Thelen (1988) found that expression of sadness reduced the expectations of boys to be accepted by their parents and this was not observed among girls.

The primary aim of this study is to adapt the ERQ (Gross & John, 2003) into Turkish culture by employing an adolescent sample and examine its psychometric qualities. The study also tested predictive validity of the ERQ by using the reports of parents and teachers about the adolescents' internalization and externalization problems as well as their prosocial behaviors as outcome variables. It is expected that reappraisal would be associated positively with prosocial behavior and negatively with externalization and internalization problems. Suppression, however, is expected to be negatively associated with prosocial behavior and positively with externalization and internalization problems. Furthermore, it is expected that boys would use suppression more than girls. Considering the culture specific characteristics, reappraisal and suppression would be positively associated.

Method

Students ($n = 422$; 46 % girls) from two different high schools completed the ERQ ($M_{age} = 14.55$, $SD = .59$, Range = 13 - 17). Test-retest reliability was tested on 370 students (12.5 % attrition rate) with a six-month interval. Mothers ($n = 185$), fathers ($n = 173$), and teachers ($n = 352$) also completed outcome measures for the students. The students delivered the scales to their parents and brought them back in sealed envelopes after being rated by their parents. Class teachers rated the scales for each student in the class.

Emotion Regulation Questionnaire (ERQ). The 10-item questionnaire developed by Gross and John (2003) aims to measure the frequency of using individual emotion regulation strategies of reappraisal and expressive suppression using a 7-point Likert type scale.

The ERQ was translated into Turkish using the standard back-translation procedure.

Strengths and Difficulties Questionnaire (SDQ).

Goodman's (1997) 25-item SDQ was completed by both parents and teachers using 3-point Likert type scales. The SDQ assesses children's problem behaviors between 4-16 years of age. The factor structure found by Sümer, Sayıl, Kazak-Berument, Doğruyol, Günaydın, Harma et al. (2009) suggests three internally consistent factors, prosocial behavior, and internalization and externalization problems, which are used in the current study. Their Cronbach's Alpha internal reliability scores for these factors are .70, .71, and .69 for mothers, .78, .72, and .74 for fathers, and .87, .80, and .79 for teachers.

Results

Principal component analysis with varimax rotation using SPSS 15.0 computer software on the 10 items suggested three factors with eigenvalues above one. Yet, two-factor model provided a theoretically consistent and well-interpreted structure. Two factors explained 50% of the total variance with items loading on respective factors above .30. The reappraisal factor had 6 items and the suppression had 4 items. The internal reliability for reappraisal was .78, and .65 for suppression. The correlation between these factors was .27 ($p < .01$). The same analysis was implemented for girls and boys as well as different school samples separately and the results were similar for both genders as well as for different school students.

One-way ANOVA analysis revealed several significant differences between girls and boys, also between the two types of schools on the major variables. The results showed that boys used suppression more than girls and were reported to have higher externalization problems by all reporters. However, fathers and teachers reported that girls had higher levels of prosocial behavior. The regular public high school students rated using suppression more and they were reported to have more psychological adjustment problems than the Anatolian High School, which is an achievement-oriented school.

Confirmatory Factor Analysis

Multi-group confirmatory factor analysis tested the factor structure of ERQ for different samples in separate analyses concurrently. The results of the measurement model supported the two-factor structure for both girls and boys [χ^2 (89, $n = 422$) = 196.17, $p < .000$, GFI = .91, AIC = 238.17, NNFI = .88, CFI = .88, RMSEA = .08]. In line with the suggestions of modification indices, the errors of reappraisal's two items were correlated for both samples and this procedure improved the model [χ^2 (88,

$n = 422$) = 173.27, $p < .000$, GFI = .92, AIC = 217.27, NNFI = .90, CFI = .90, RMSEA = .07]. Sequential models, which allowed means, factor variances, and factor covariance to vary at each consecutive step between tested groups revealed that there was factor structure invariance between two samples. The same procedure applied for the school samples revealed that the measurement model for the school samples was acceptable and there was factor structure invariance between samples [χ^2 (78, $n = 422$) = 199.51, $p < .000$, GFI = .92, AIC = 220, NNFI = .85, CFI = .87, RMSEA = .086].

Predictive Validity Analysis of ERQ

Correlation analyses supported some expectations of the present research and of the culture. Specifically, reappraisal was associated with suppression for girls ($r = .22$, $p < .01$) and for boys ($r = .32$, $p < .01$). Furthermore, reappraisal was negatively associated with mother-reported internalization problems ($r = -.22$, $p < .05$ for girls; $r = -.24$, $p < .05$ for boys), and with father-reported internalization problems negatively for boys ($r = -.24$, $p < .05$) and prosocial behavior positively for girls ($r = .23$, $p < .05$). Suppression was only associated with father-reported prosocial behaviors positively for girls ($r = .28$, $p < .01$) and externalization problems positively for boys ($r = .29$, $p < .01$). Correlations for different school samples revealed that for Anatolian High School, reappraisal correlated negatively with parents' internalization problem ratings ($r = -.30$, $p < .01$ and $r = -.28$, $p < .01$, for mothers and fathers respectively) and positively with teachers' prosocial behavior ratings. For regular high school students, both reappraisal and suppression correlated positively with the ratings of the fathers' prosocial behaviors ($r = .25$, $p < .05$ and $r = .26$, $p < .01$, respectively).

Regression analyses tested the predictive power of ERQ dimensions on outcome variables separately for boy and girl samples. The results showed that for girls, the frequency of using reappraisal predicts mother-reported internalization problems negatively ($\beta = -.22$, $B = -.10$, $t = -2.110$, $p < .05$) and the frequency of using suppression predicts father-reported prosocial behavior positively ($\beta = .23$, $B = .07$, $t = 2.209$, $p < .05$). For boys, the frequency of using reappraisal predicts parent-reported internalization problems negatively ($\beta = -.24$, $B = -.08$, $t = -2.228$, $p < .05$ for mothers, $\beta = -.23$, $B = -.09$, $t = -2.073$, $p < .05$ for fathers) and the frequency of using suppression predicts father-reported externalization problems positively ($\beta = .29$, $B = .11$, $t = 2.635$, $p = .01$). These results suggest that using reappraisal is related with positive outcomes consistently, whereas using suppression has more intricate relationship with the outcome variables regarding males and females.

Discussion

The aim of the present study is to analyze the psychometric qualities of Emotion Regulation Questionnaire (ERQ) developed by Gross and John (2003). Both principal component analysis and multi-group confirmatory factor analysis supported the reliability, validity, and the two-factor structure of the 10 item questionnaire across different samples. The confirmatory analysis showed that the two-factor measurement models for both analyses had acceptable fit to the data. The modification indices showed that two items had correlated errors for both boys and girls, and this modification improved the fit of the model. The sequential testing of the model for factorial invariance supported the construct validity of the ERQ across genders and different high school students.

In line with the findings of Gross and John (2003; Hu et al., 2014), reappraisal was related with psychosocial adjustment positively in general across samples. Additionally, consistent with Hsieh and Dopkins-Stright's (2012) findings, reappraisal was negatively associated with internalization problems across genders. The present results showed that boys used suppression more frequently than girls and it was less consistently associated with psychosocial adjustment variables (e.g., Kwon et al., 2013). The same was also true for the student samples from different high schools.

Findings were consistent with those found in other collectivistic cultures. For instance, reappraisal and sup-

pression were positively associated as it was found in the previous studies conducted in Eastern cultures (e.g., Kwon et al., 2013). However, the results also imply that suppression of the positive emotions may be the problem in the present sample, especially for boys.

The results also showed that parents and teachers similarly rated boys as having higher levels of externalization problems than girls, and fathers and teachers rated girls having higher levels of prosocial behavior. These differences may be related with different paternal and maternal parenting behaviors for boys and girls (Çorapçı, 2012).

First limitation of the study is that the test-retest reliability of the ERQ is relatively low and it may be due to the experienced emotional fluctuations and ongoing development of brain structures (e.g., McRae et al, 2012) during adolescence. Furthermore, the turnover rate for parents is relatively high as compared to teachers. Supplementary analyses showed that demographic variables may influence the emotion regulation strategies used by students. There is need for future research using longitudinal designs to see culture and age specific developmental changes in emotion regulation strategies.

In conclusion, the present study contributes to the literature in Turkey by adapting a scale assessing emotion regulation with strong reliability and validity that can be used by researchers and practices in the related arena.