Similarities and Differences in Emotion Regulation and Psychopathology in Iranian and German School-children: A Cross-cultural Study

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ABSTRACT

Background: Internalizing and externalizing disorders in children and adolescents have been described in many countries. This study was performed to better understand the effect of culture on emotion regulation, and aimed to identify the relationship between emotion regulation and psychopathology in children.

Methods: Participants were 269 children from Iran and Germany who voluntarily agreed to participate. Groups were defined by cultural background, Participants completed the Children Emotion Management Scale (CEMS), Cognitive Emotion Regulation Questionnaire (CERQ), and the Youth self-report YSR questionnaires. Data were analyzed using Multivariate Analysis of Variance (MANOVA) with post-hoc Scheffe tests conducted to identify the exact nature of group differences.

Results: There were significant main effect of country ($P < 0.001$) and sex ($P = 0.003$). For CEMS, but no significant interaction For CERQ there was a significant main effect of country ($P < 0.001$), but no main effect of sex nor an interaction. MANOVA analyses for internalizing and externalizing symptoms as measured by the YSR indicated significant main effects of country and sex, but the interaction did not reach significance ($P=0.088$).

Conclusions: A main result of the study showed that children in Iran report more internalizing and externalizing symptoms. Culture and emotional expression may explain differences between Iranian and German children. It seems to be difficult for young children in Iran to express themselves, this may be because they are expected to show respect to maintain harmony in the family.

Keywords: Coping strategies, culture, emotion regulation, externalizing, internalizing.

INTRODUCTION

Internalizing and externalizing disorders in children and adolescents have been described in many countries.[1,2] However, some investigators have claimed that the underlying causes may differ[3,4] depending on cultural and social context.[5,6] Internalizing problems manifested as social withdrawal, somatic

complaints, and loneliness have been associated with an overregulation of emotions[7-9] whereas externalizing problems manifested as difficulty in adjusting and coping with situations and exhibiting under-controlled responses of sadness and anger are due to under regulation of emotions.[9] Therefore, the experience of emotion and emotion regulation may play an important role in the development of both internalizing and externalizing disorders.

Emotion regulation is extrinsic or intrinsic process responsible for changing or controlling emotional reactions in order to achieve personal goals.[5] There is some evidence that psychopathology in children is related to poor emotion regulation strategies.[10,11] Externalizing disorders may be due to inadequate regulation or insufficient ability to inhibit behavior and control attention in cognitive processes.[12,13] On the contrary internalizing problems are often linked with low attention control or inability to control negative emotionality as indicated by high levels of rumination, sadness, anxiety, and depression.[14-17]

There is some evidence that the expression of emotions, as well as the process of emotion regulation and the use of emotion regulation strategies differ across cultures.[18-20] Individualistic cultures (e.g., Germany) place more emphasis on self-independent, autonomous and personal goals. In contrast the collective cultures (e.g., Iran) tend to stress on being dependence and belonging to the others, having collective identity, depending and belonging to a group with values boosting group harmony, cohesion and group goals.[21] however, the Western cultures are more individualistic than Eastern cultures, with Iran somewhere around the midpoint between individualistic and collectivistic cultures.[22,23]

There are several studies indicating that differences and similarities in emotion regulation strategies are influenced by cultural values, gender and ethnic.[24-26]

In this study, we investigated emotion regulation strategies, coping strategies, and psychopathology in school-children in Germany and Iran using self-report instruments. In order to control the influence of the social/cultural environment, we included two additional groups of Iranian children living in Germany and German children living in Iran. We expected these two groups to show different emotion regulation strategies and psychopathology as compared with groups of children in their original country. It was expected that Iranian children in Iran would show (1) More internalizing and externalizing symptoms as well as (2) more inhibition and suppression than German children in Germany. According to the association between emotion regulation and psychopathological symptoms, it was further hypothesized that (3) there would be a stronger association in Iran than in Germany. Moreover, according to previous research. [26, 52, 41, 27] we (4) assumed that both psychopathology and emotion regulation should be influenced by gender.

METHODS

Sample

The sample consisted of 269 children from Iran and Germany, divided into four groups: Iranian children in Iran (II), German children in Germany (GG), German children in Iran (GI) and Iranian children in Germany (IG). The samples were drawn from both gender in the cities of Karaj (Iran) and Freiburg (Germany).

Procedure

The research goals and methods were explained to school directors in both cities, and upon agreement to participate, informed consent forms were sent to children and their parents. The Iranian sample in Iran was collected between September 2010 and the end of November, the German sample in Germany was collected between December 2010 and May. 2011, the German sample in Iran was collected in September 2011, and the Iranian sample in Germany was collected between February 2012 and the end of June. In class, participants were provided with instructions for completing the questionnaire. They were aged between 11-14 years. Of 680 eligible children, a total number of 103 II (female n=48, male n=55), 24 GI (female n=14, male n=10), 119 GG (female n=78, male n=41) and 23 IG (female n=11, male n=12) completed the questionnaires.

Measures

Emotion regulation

Emotion regulation was measured using the Children's Emotion Management Scale (CEMS);[27]

which assesses children's perceptions of their anger (CEMS-A) and sadness (CEMS-S) management styles with 27 items answered on a three-point Likert scale (1 = hardy ever, 2 = sometimes, and 3 = often). Both the CEMS-S and the CEMS-A consist of three subscales: (a) Inhibition (b) dysregulation expression, and (c) emotion regulation coping. The inhibition scale assesses suppression of emotional expression, for instance when the child feels sad or angry but does not show it externally. The dysregulation expression scale assesses over and under-controlled expression or inappropriate expression of emotions (e.g., screaming). The emotion regulation coping scales assesses the child's ability to adapt and control emotions and show a healthy response to emotions. The Cronbach's alpha for the overall CEMS in our sample was $\alpha = 0.764$. The Cronbach's alpha in II was $\alpha = 0.713$, for GG was $\alpha = 0.785$, for German children in Iran was $\alpha = 0.715$ and for Iranian children in Germany was $\alpha = 0.672$.

Coping strategies

Coping strategies were measured using the Cognitive Emotion Regulation Questionnaire (long version), developed by Garnefski *et al*.[28,29] This questionnaire consists of 36 self-report items assessing cognitive coping strategies following negative life events, developed by. The CERQ measures nine cognitive coping strategies (five functional and four dysfunctional emotion regulation strategies) in children and adolescents. All CERQ subscales consist of four items and statements that have to be rated on a five-point scale ranging from 1 = never to 5 = always. The nine subscales are self-blame, other blame, rumination, catastrophe, putting into perspective, positive refocusing, positive reappraisal, and acceptance and refocusing on planning. The Cronbach's alpha in II was $\alpha = 0.843$, for GG was $\alpha = 0.891$, for GI was $\alpha = 0.829$, and for Iranian students in Germany was $\alpha = 0.842$.

Internalizing and externalizing symptoms

Internalizing and externalizing symptoms were measured using the Youth Self-Report (YSR) questionnaire developed by Achenbach[30] for adolescents between 11-18 years. The YSR is a self-report questionnaire divided in two parts; 1) competencies, and 2) problems.[30] The questionnaire contains items concerning activities, social relationships and academic performance as well as 112 items assessing emotional and behavioral problems during the preceding 6 months. The response format for the problem item is 0 (not true), 1 (somewhat true) and 2 (very true). The YSR allows examination of two groups of syndromes; Internalizing problems and externalizing problems. Internalizing problems comprise social withdrawal, somatic complaints, and anxiety/depression, while externalizing problems include delinquent and aggressive behavior. The Cronbach's alpha for the overall YSR in our samples demonstrated high reliability $\alpha = 0.929$. The Cronbach's alpha in II was $\alpha = 0.950$, for GG was $\alpha = 0.930$, for GI was $\alpha = 0.874$ and for IG was $\alpha = 0.948$.

RESULTS

Analysis of variance showed significant main effects of country ($F(24, 690.8) = 7.206$, $P < 0.001$) and sex, ($F(8, 238) = 3.050$, $P = 0.003$), but no significant interaction between country and sex. A main effect of country was significant in three subscales of CEMSS sadness dysregulation expression, ($F(3, 245) = 7.366$, $P < 0.001$), sadness coping ($F(3, 245) = 2.129$, $P = 0.097$) and sadness inhibition, ($F(3, 245) = 4.777$, $P = 0.003$). The main effect of sex and interaction between sex and country was significant for sadness inhibition, ($F(1, 245) = 6.82$, $P = 0.010$), and ($F(3, 245) = 2.695$, $P = 0.047$) respectively.

A significant main effect of country was found for three subscales of CEMS anger; anger inhibition, ($F(3, 245) = 3.670$, $P = 0.013$), anger dysregulation ($F(3, 245) = 31.693$, $P = < 0.001$), and anger coping ($F(3,245) = 3.784$, $P = 0.011$). There were no significant main effects of sex and or interactions between sex and country.

Post hoc Scheffe tests indicated that in children emotion management in sadness, II reported less sadness dysregulation than GG ($P < 0.001$) and GI reported more sadness dysregulation than II ($P = 0.010$), GI reported more sadness inhibition than II ($P = 0.014$) and in sadness coping there were not significant differences between four groups.

Differences between II, GG, GI and Iranian Student in Germany (IG) in the reporting cognitive strategies

MANOVA for CERQ showed that the main effect of country was significant ($F(27, 695.7) = 4.10$, $P = < 0.001$), but there was no significant main effect of sex and no interaction. There were no significant main effects of country for self-blame, putting into perspective or acceptance ($P > 0.05$), but main

effects for country were found for other-blame (F (3, 246) = 8.95, P = < 0.001), rumination (F (3, 246) = 6.48, P = < 0.001), catastrophe (F (3, 246) =3.35, P = 0.020), positive refocusing (F (1,191) =7.90, P < 0.001), positive reappraisal (F (3, 246) =6.53, P= < 0.001), and planning (F (3, 246) = 3.77, P = 0.011).

The results of Scheffe *Post hoc* test to compare the four groups on the nine subscales showed that there were no group differences on self-blame, putting in to perspective and acceptance.

For other-blame GI reported more than other groups (P < 0.010) and GG reported less other-blame than GI (P = < 0.001). II reported more rumination (P = 0.001), catastrophe (P =0.017), positive refocusing (P < 0.001), and positive reappraisal (P = 0.003) than GG.

Differences between II, GG, GI, and IG in the reporting YSR

MANOVA analyses of the Internalizing and externalizing behavior problems scales of the YSR indicated main effect of country (F(6, 506) = 5.566, P = <0.001*), a main effect of sex (F(2, 253) = 5.687, P = 0.004*), but the country and sex interaction was not significant (F(6, 506) = 1.849, P = 0.088).

A main effect of country was found for internalizing behavior problems (F(3, 14.86) = 4.869, P = 0.003), and also for externalizing behavior problems (F(3, 254) = 10.063, P = < 0.001*).

There were sex differences in internalizing behavior problems (F(1, 254) = 8.149, P = 0.005*); girls report more internalizing problems than boys but there was no main effect for sex in externalizing behavior problems (F(1, 254) = 0.003, P = 0.959).

For internalizing behavior problem II report more than GG and other groups (P = 0.002). For externalizing behavior problem, GI reported more than GG and other groups (P = 0.014) and GG report less externalizing behavior problem than other groups (P < 0.002). Results, mean and standard deviation have been showed in Table 1.

To explore the relationships between CERQ, CEMS and internalizing and externalizing problems, the linear regression analysis was performed separately in each group [Table 2]. The results showed that more internalizing symptoms were predicted by higher CERQ scores on self-blame and catastrophe GG ($ß$ = 0.266, P = 0.023), ($ß$ = 305, P = 0.009). There were no other significant predictors of internalizing symptoms in the other groups. Results also showed that in II externalizing symptoms were predicted by lower CERQ positive reappraisal scores.

Regression analysis results for CEMS, externalizing problems and internalizing problems YSR indicated more externalizing symptoms were predicted by higher CEMS-A scores on anger dysregulation in II($ß$ =.301, P = 0.008). In addition, more internalizing symptoms were predicted by higher CEMS-A scores on anger dysregulation anger coping and in II ($ß$ =.219, P = 0.042) ($ß$ =.349, P = 0.017) and by higher CEMS-S scores on sadness inhibition ($ß$ =.259, P = 0.025). Results also showed that in II internalizing symptoms were predicted by lower CEMS-S sadness coping ($ß$ =-.486, P < 0.001). The result showed more internalizing symptoms were predicted by higher CEMS-S scores on sadness inhibition in GG ($ß$ =.432, P < 0.001). Results also showed that in GG internalizing symptoms were predicted by lower CEMS-S sadness coping ($ß$ =-.280 P = 0.011). There were no predicted able internalizing and externalizing problems with CERQ and CEMS in GI and IG.

DISCUSSION

The aim of this study was to identify the relationships between internalizing and externalizing problems, and emotion regulation and cognitive strategies, among Iranian children and German children in both Iran and Germany. German children, from an individualist culture, and Iranian children from a collectivist culture, have different experiences and beliefs. Our study shows that Iranian children report more internalizing and externalizing symptoms than German children do. Moreover, Iranian children use more suppression and inhibition strategies than German children. Therefore, Iranian children show stronger relation between emotion regulation and psychopathology than German children. Overall, we found that II, GI, and IG show more internalizing problems than GG, and females show more internalizing problems than males. Beside influences by society and environment, cultural differences between

Table 1: Country Differences in mean score and standard deviation children emotion management scale (sadness, anger) Cognitive Emotion Regulation Questionnaire, and youth self-report

Country variables	Mean (SD)				*P* value	M.E.C	M.E.S	M.E.C & S
	Iran (*N*=90,94,100)	German (*N*=116,114,110)	German student in Iran (*N*=24,24,23)	Iran student in Germany (*N*=23,22,23)				
Sadness coping	2.01 (0.495)	2.16 (0.441)	2.11 (0.478)	2.11 (0.408)	0.097			
Sadness dysregulation	1.54 (0.422)	1.82 (0.453)	1.90 (0.496)	1.78 (0.546)	0.001	**		
Sadness inhibition	1.71 (0.463)	1.82 (0.506)	2.09 (0.629)	1.88 (0.481)	0.003*	**	*	*
Anger coping	1.96 (0.611)	2.07 (0.467)	1.69 (0.448)	2.05 (0.673)	0.011*	*		
Anger dysregulation	1.38 (0.481)	2 (0.475)	2.22 (0.535)	1.81 (0.634)	0.001*	**		
Anger inhibition	1.79 (0.518)	1.60 (0.403)	1.46 (0.507)	1.70 (0.546)	0.013*	*		
Self-blame	2.39 (0.647)	2.29 (0.745)	2.23 (0.693)	2.21 (0.547)	0.567			
Other blame	2.11 (0.637)	1.89 (0.636)	2.73 (1.07)	2.04 (0.684)	0.001*	**		
Rumination	2.91 (0.900)	2.41 (0.841)	2.44 (0.905)	2.65 (0.864)	0.001*	**		
Catastrophizing	2.23 (0.823)	1.87 (0.758)	2.14 (0.929)	2.14 (0.774)	0.020*	*		
Putting into perspective	2.70 (0.789)	2.85 (0.882)	2.61 (0.822)	2.93 (1.00)	0.494			
Positive refocousing	3.18 (0.997)	2.55 (0.998)	2.62 (1.03)	2.94 (1.109)	0.001*	**		
Positive reapprisal	3.15 (0.897)	2.68 (0.855)	3.10 (0.856)	2.92 (0.958)	0.001*	**		
Acceptence	2.80 (0.776)	3.05 (0.871)	3.02 (0.751)	2.98 (1.05)	0.210			
Planning	3.47 (0.890)	3.10 (0.925)	3.45 (0.853)	3.05 (0.981)	0.011*	*		
Internalizing	0.380 (0.258)	0.266 (0.208)	0.393 (0.240)	0.354 (0.338)	0.003*	**	**	
Externalyzing	0.419 (0.232)	0.299 (0.209)	0.514 (0.277)	0.469 (0.208)	0.001*	**		

Note: ***P*<0.05, **P*<0.01. M.E.C=Main effect of country, M.E.S=Main effect of sex, M.E.C & S=Main effect of country and sex

Germany and Iran in norms, values and beliefs could be one explanation for the use of different emotion regulation strategies and differences in psychopathology. In addition, the results showed that women are more prone to internal problems than men. Whether these sex differences are the result of a higher emotional sensitivity, social and cultural influences on women or due to other psychological variables are unclear and needs further research. [7]

We also found that II report lower sadness inhibition, sadness coping and sadness dysregulation than other groups. Furthermore, IG reported higher sadness inhibition and sadness dysregulation than other groups and GG reported high score in sadness coping than other groups.

Iranian children in Iran reported higher anger inhibition and lower anger dysregulation than other groups, but GI reported lower anger inhibition and anger coping and higher anger dysregulation than other groups. GG reported higher anger coping than other groups. All of these results indicate that Iranian children report more inhibition expression (except for sadness) and anger suppression than German children.

Research has shown that development of emotion regulation in non western cultures is related to empathy, interpersonal adjustment, and norm assimilation[32, 19, 51]. In western cultures, however, development of emotion regulation is associated with self-expression and autonomy. [27,31,32,19]

Other research has also reported that suppression may be accepted for Eastern countries or in collective cultures, as a strategy to maintain

Table 2: Regression analysis between cognitive emotion regulation questionnaire, children emotion management scale, and internalizing and externalizing (youth self-report)

Regression results	Iran		Germany		German student in Iran		Iran student in Germany	
	EXT	INT	EXT	INT	EXT	INT	EXT	INT
CERQ	R^2=.xx	n.s.	n.s.	R^2=.xx	n.s.	n.s.	n.s.	n.s.
Self-blame				0.305**				
Catastophizing				0.266*				
Positive reappraisal	−0.312*							
CEMS anger	R^2=.xx	R^2=.xx	n.s.	R^2=.xx	n.s.	n.s.	n.s.	n.s.
Inhibition								
Dysregulation	0.301**	0.219*						
Coping		0.349*						
CEMS sadness	n.s.	R^2=.xx	n.s.	R^2=.xx	n.s.	n.s.	n.s.	n.s.
Inhibition		0.259*		0.432**				
Coping		-0.486**		-0.280*				
Dysregulation	-	-	-	-	-	-	-	-

Note: **P<0.05, *P<0.01 a. Country: Germany b. dependent variable: Youth self-report Dependent variables (internalizing and externalizing), independent variables (subscales of Cognitive Emotion Regulation Questionnaire and children emotion management scale) II=Iranian students in Iran, GG=German students in Germany, GI=German students in Iran, IG=Iranian student in Germany, EXT=Externalizing, INT=Internalizing, CERQ=Cognitive emotion regulation questionnaire, CEMS=Children's emotion management scale

social harmony, that is for Chinese children, inhibition is an adaptive behavior.[33] Research by Zeman *et al*. showed that when children express an emotion in a dysregulated way, it is not culturally acceptable. In this study, II reported higher scores on the CERQ subscales self-blame, rumination, catastrophe, positive refocusing, positive reappraisal and planning, and lower acceptance scores than other groups. GG reported lower other-blame, rumination, catastrophe positive refocus, and positive reappraisal and higher acceptance than other groups. GI reported higher score in other blame and lower putting in to perspective than other groups. IG reported higher putting in to perspective and lower in self-blame and planning strategies than other groups. Zhu *et al.*[34] compared research across different countries and reported Chinese sample use more self-blame and other-blame. Whereas American sample report more rumination, catastrophe, refocus on planning, and positive reappraisal. Research has showen that dysfunctional cognitive coping strategies are positively correlated with internalizing disorders such as anxiety and depression.[28,29]

We also found that anger dysregulation expression and anger coping, and inhibition of the expression sadness are predictors for showing symptoms of internalizing problem and coping with sadness was negatively correlated with internalizing problem in II. Also, anger dysregulation was strongly correlated with externalizing problems in II. To know about GG, results indicated sadness inhibition had stronger correlation with internalizing problem as compared with II and negative correlation between sadness coping with internalizing problem. We found a main effect of sex in sadness inhibition in accordance with research by Young and Zeman[35, 36], who proposed that differences in emotional expression may be a result of differences in emotional rules in society for males and females (e.g. higher acceptance of intensive emotional expression in women). In Caucasian samples, males report more suppression of sadness and females report more inhibition of anger expression. Several studies conducted in western countries have reported that poor emotion regulation is related to psychopathological outcomes in children and adults.[9,37-39] In several studies dysregulated expression, inhibition and coping with anger and sadness have been found to be predictors for internalizing and externalizing disorder. For example, Zeman *et al*.[9] reported poor coping with anger and sadness inhibition are correlated with externalizing problem.

Moreover, maladaptive coping with anger and anger inhibition were predictive depressive and anxious symptoms, and research has supported the hypothesis that coping with anger would predict internalizing symptoms.[9] Other research by Suveg and Zeman[40] reported dysregulated expression of sadness and anger and coping less adaptively by sadness and anger. John and Gross[41] considering healthy and unhealthy emotion regulation, reported suppression to be associated with negative outcomes and reappraisal to be correlated with positive outcomes. Some researchers have noted that people differ in expression of emotions, which may be a resulted of social context or cultural differences (values and beliefs).[41,42] In II, reported anger dysregulation expression was correlated with internalizing. It may be that in this culture the expression of anger threatens social relationships, which makes it difficult for Iranian children to express their emotions.

Lack of control and over one's emotions can be reason for many different forms of internalizing and externalizing problem.[43] Dysregulation of anger and sadness has been linked with different forms of psychopathology.[7] Child self-reports of internalizing symptoms have been associated with children reporting more dysregulated expression of sadness and anger.[44]

Ours results indicated a negative correlation between positive reappraisals and externalizing problem in II. Several studies have also shown that positive reappraisal such as functional coping is negatively correlated with internalizing problem in Iran.[45,46]

In GG, we found that more internalizing symptoms were predicted by higher scores in self-blame and catastrophe. This is consistent with the idea that in western countries personal success may be more strongly related to the individual's ability for self-control and the empirical finding that in western cultures higher scores in depression are closely related to more self-blame. Other research has also reported that catastrophe is correlated with internalizing problem.[47,48] Research by Ehring *et al*.[49] also indicated that depressed participants reported more dysfunctional strategies rumination and catastrophe. Research in Iran has also found a correlation between rumination and depression.[50-52] In this study, the II group scored low in acceptance strategies and this group showed also more symptoms of behavior problems, in accordance with the finding by Ehring *et al*. that lack of acceptance is linked with depression.

CONCLUSIONS

Children in Iran showed more internalizing and externalizing symptoms, which may be because of differences in values and beliefs in Iran. It is difficult for young children to express themselves, may be because they have to show respect in order to maintain harmony in the family. It is noteworthy that in Iran, early puberty is another reason for conflict between young children and parents and society. Identity crisis is another reason for conflict, and may be a cause of symptoms of behavior problems in young adolescents. Possibly, one important influence for more behavior problems in Iranian children could be a change in young Iranian people to more individualistic values, which may lead to increasing conflicts with collective culture and collective family norms. If individuals are not able to control or manage their emotions in daily life, they will be prone to show symptoms of internalizing or externalizing problems. Thus, high scores in internalizing and externalizing symptoms in IG and GI may have to do with difficulties to cope with the situation in a foreign country, including such issues as language problems, and understanding the values in their new society. Finally, differences in the socio-economic status of the family, parental educational levels, and other similar factors could be other possible explanations for differences between the Iranian and German children in this research.

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