

# Gender Differences in Emotion Regulation Strategies in Adolescents

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**【Abstract】** We used the Emotion Regulation Questionnaire(ERQ) to examine gender differences in emotion regulation strategies among 900 adolescents aged 13–18. In our sample, male adolescents were more likely than female adolescents to report using expression suppression strategies, even after statistically controlling for agreeableness, neuroticism, openness, and positive emotional experiences. There were no significant gender differences in the use of cognitive reappraisal, but after controlling for neuroticism and positive emotional experiences, females were more likely to use this strategy than males. No significant age differences emerged in the use of cognitive reappraisal. Age differences were found in that 15-, 16-, and 18-year-old adolescents were more likely than 13- and 14-year-olds to report using expression suppression strategies. There was no significant interaction between age and gender for any emotional regulation strategies.

**【Key words】** Gender differences; Emotion regulation; Cognitive reappraisal; Expression suppression; Adolescents

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## 青少年情绪调节策略使用的性别差异

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**【摘要】** 本研究以900名13-18岁的青少年群体作为被试, 采用斯坦福情绪调节量表中文版, 调查了这一阶段个体情绪调节策略使用频率的性别差异。结果发现被试认知重评使用频率的性别差异、年龄差异以及二者的交互作用均不显著, 表达抑制策略使用频率的性别差异和年龄差异显著, 二者的交互作用不显著。进一步研究在控制了被试的人格特质和积极消极情绪体验后发现, 女性认知重评策略的使用频率显著高于男性。

**【关键词】** 性别差异; 情绪调节; 认知重评; 表达抑制; 青少年

Emotion regulation is a series of processes that people use to regulate their emotional experiences and responses(Gross & John, 1998). In daily life, people use various emotion regulation strategies, in which cognitive reappraisal and expression suppression are the most commonly used strategies(John & Gross, 2004). Cognitive reappraisal involves changing the way of thinking about emotional events to regulate emotions, while expression suppression refers to changing one's response in order to regulate emotions(John & Gross, 2004).

The use of cognitive reappraisal is reported to relate with positive emotional experiences, better social adjustment, and increased sense of happiness(Gross &

John, 2003; John & Gross, 2004; McRae, Jacobs, Ray, John, & Gross, 2012; Richards & Gross, 2000). Likewise, the use of expression suppression has been found to be associated with negative emotional experience, depressive symptoms, poor social adjustment, and decreased sense of happiness(English, John, Srivastava, & Gross, 2012; Gross & John, 2003; Hoeksma & Aldao, 2011; John & Gross, 2004). It is generally thought that cognitive reappraisal is better than expression suppression for individuals' adaptation(Flynn, Hollenstein, & Mackey, 2010).

Gender difference in emotion regulation has been at the center of issues in the study of emotion regulation(Fujita, Diener, & Sandvik, 1991; Flynn et al., 2010; Tamers, Janicki, & Helgeson, 2002; Thoits, 1994). Existing research reflects that females are more likely to perceive and regulate their emotions(Fujita, Diener, & Sandvik, 1991). Additionally, females prefer to use rumination, emotional support, cognitive reappraisal, ac-

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tive coping, and acceptance strategies to regulate their emotions(Tamers, Janicki, & Helgeson, 2002), while men tend to use expression suppression to modulate their emotional responses(Cabello et al, 2013; Flynn et al., 2010).

Recent studies have shifted their focuses to gender differences in adolescent(13–18 years old) emotion regulation from the developmental perspective. Hoeksema and his colleagues found a significant interaction between age and gender differences in the use of expression suppression. That is, for female, the oldest group(65 and 75) were more likely to use suppression than the middle aged(45 and 55) and youngest groups(25 and 35), but the same phenomenon was not observed in the male groups(Hoeksema & Aldao, 2011). Moreover, in a 2-year follow-up study, Gullone et al selected 1,128 children and adolescents aged from 9 to 15 years old to explore the developmental features of emotional regulation. They found that the use of expression suppression decreased with age, particularly for female adolescents(Gullone, Hughes, King, & Tonge, 2010). Notably, it has been also observed that development of emotion regulation in adolescent has a nonlinear variation tendency(Gullone et al., 2009; McRae et al., 2012). Silvers and colleagues found the adolescent use of cognitive reappraisal to be stable in 16-year-olds(McRae et al., 2012); Gullone and colleagues found not only a nonlinear variation in the development of emotion regulation in adolescents, but also gender differences in this nonlinear variation tendency(Gullone, Hughes, King, & Tonge, 2010). Compared with children and adults, it is suggested that adolescents may more likely activate their social cognitive system to regulate their negative emotion(McRae et al., 2012).

In this present research, we explored gender differences of emotion regulation in 900 adolescent participants aged from 13 to 18 years old. We hypothesized that male adolescents were more likely than female adolescents to use suppression strategies, and that the gender differences were unstable and would change with age. Given that personality traits and emotional experiences are also important factors influencing emotion regulation(Gross & John, 2003; Janice et al., 1989), the gender differences in adolescent emotion regulation

were examined with controlling for personality traits and emotional experiences in this study.

## 1 Methods

### 1.1 Participants

According to the student IDs, we conducted stratified random sampling to investigate 900 adolescents (450 male and 450 female) aged from 13 to 18 years old (Mean=15.50, SD=1.71). Each age group included 75 male adolescents and 75 female adolescents. Of the 900 adolescent participants, 83.0% identified their ethnicity as Han, 16.3% as Hui, and 0.7% did not identify their ethnicity. 81.8% male and 84.2% female adolescents were identified as Han, and 17.1% male and 15.6% female adolescents as Hui. There were no significant gender differences in ethnicity distribution.

### 1.2 Measures

The Emotion Regulation Questionnaire Short Form (ERQ; Gross & John, 2003) was used to measure emotion regulation strategies. It uses a 7-point Likert scale, including two dimensions of cognitive reappraisal and expression suppression, to measure how often people use these two emotion regulation strategies. The ERQ comprises 10 items, 6 for the reappraisal dimension and 4 for the suppression dimension. This questionnaire requires participants to respond to how each item applies to their situations, with responses ranging from 1(strongly disagree) to 7(strongly agree). The higher the score, the more frequently respondents use emotion regulation strategies. The Chinese version has good reliability and validity(Wang, Liu, & Li, 2007).

The NEO-FFI is composed of 60 items and five dimensions to measure the personality traits of individuals. These dimensions include neuroticism, conscientiousness, openness to experience, agreeableness, and extraversion. There are five ratings for each item, from 1(strongly disagree) to 5(strongly agree). The Chinese version has good reliability and validity(Nie, Yang, & Zeng, 2011).

The Positive and Negative Affect Scale- Short Form(PANAS) (Watson, Clark, & Tellegen, 1998) includes two dimensions and 20 items(positive affect and negative affect), with 10 items for evaluating positive affect and 10 items for negative affect. There are 5 rating

choices for each item, and respondents are to circle the best answer for the two weeks prior to taking the survey from “almost never,” “less,” “medium,” “more,” and “very much.” The Chinese version has good reliability and validity(Huang, Yang, & Ji, 2003).

We administered the paper-and-pencil test to the participants in a completely private environment, and the three questionnaires were distributed in random sequence to all participants.

### 1.3 Data Analysis

We used statistical software SPSS version 13.0 for descriptive statistics analysis of our data. A multivariate analysis of variance(MANOVA) was performed, with reappraisal strategy and suppression strategy scores as the dependent variables, and gender and age groups as the independent variables. We then statistically controlled for personality traits and emotional experiences to analyze gender differences in the use of emotion reg-

ulation strategies.

## 2 Results

### 2.1 Gender Differences in Emotion Regulation in Adolescents

MANOVA found that for suppression, there were significant main effects for the gender and age. That is, male adolescents were more likely to use suppression strategies than females( $F[1,898]=28.013$ ,  $P<0.05$ ,  $\eta^2=0.030$ ), while elder groups(15-, 16-, and 18-year-old adolescents) were more likely to use suppression strategies than younger group(13- and 14- year-old adolescents) ( $F[5,888]=2.893$ ,  $P<0.05$ ,  $\eta^2=0.016$ ). No significant interaction between age and gender were found( $F[5,888]=0.436$ ,  $P>0.05$ ,  $\eta^2=0.002$ ). For reappraisal, there were no significant effects of gender( $F[1,888]=3.009$ ,  $P>0.05$ ,  $\eta^2=0.003$ ) and age( $F[5,888]=1.934$ ,  $P>0.05$ ,  $\eta^2=0.011$ ), nor gender by age interaction( $F[5,888]=0.381$ ,  $P>0.05$ ,  $\eta^2=0.002$ ).

Table1 Descriptive statistics for variables of emotion regulation by gender and age

		13		14		15		16		17		18		Total	
		Male (n=75)	Female (n=75)	Male (n=75)	Female (n=75)	Male (n=75)	Female (n=75)	Male (n=75)	Female (n=75)	Male (n=75)	Female (n=75)	Male (n=75)	Female (n=75)	Male (n=450)	Female (n=450)
Cognitive Reappraisal	M	4.72	4.73	4.69	4.77	4.68	4.91	4.78	4.82	4.92	4.98	4.84	5.02	4.77	4.87
	SD	0.99	1.09	0.77	0.85	1.01	0.99	0.89	0.77	0.78	0.66	0.76	0.76	0.87	0.87
Expression Suppression	M	3.66	3.33	3.60	3.32	4.06	3.52	4.06	3.52	3.85	3.49	3.94	3.65	3.86	3.47
	SD	1.19	1.19	1.07	1.00	1.14	1.13	1.07	1.05	1.10	1.09	1.07	1.11	1.11	1.09

### 2.2 Gender Differences in Emotion Regulation after Controlling for Personality Traits

MANOVA was firstly performed to examine the effects of age and gender on the differences of personality traits. Scores on agreeableness( $F[1,786]=9.659$ ,  $P<0.01$ ,  $\eta^2=0.012$ ), neuroticism( $F[1,78]=12.017$ ,  $P<0.01$ ,  $\eta^2=0.015$ ), and openness( $F[1,786]=5.103$ ,  $P<0.05$ ,  $\eta^2=0.006$ ) in female adolescents were higher than male adolescents. No significant effects of gender were found on conscientiousness( $F[1,786]=0.682$ ,  $P>0.05$ ,  $\eta^2=0.001$ ) and extroversion( $F[1,786]=0.128$ ,  $P>0.05$ ,  $\eta^2=0.000$ ). Then the agreeableness, neuroticism, and openness entered into an ANCOVA model to further examine the gender effects on the emotion regulation strategies.

After statistically controlling for agreeableness, male adolescents were more likely to use suppression than females( $F[1,897]=24.798$ ,  $P<0.01$ ,  $\eta^2=0.027$ ), but

no gender effects on the use of reappraisal strategy were found( $F[1,897]=1.172$ ,  $P>0.05$ ,  $\eta^2=0.001$ ). After statistically controlling for neuroticism, female adolescents were more likely to use reappraisal than males( $F[1,897]=6.844$ ,  $P<0.01$ ,  $\eta^2=0.008$ ), and male adolescents were more likely to use suppression than females( $F[1,897]=32.911$ ,  $P<0.01$ ,  $\eta^2=0.035$ ). After statistically controlling for openness, there were no gender effects on the use of reappraisal strategies( $F[1,897]=1.691$ ,  $P>0.05$ ,  $\eta^2=0.002$ ), but male adolescents were more likely to use suppression than females( $F[1,897]=27.920$ ,  $P<0.01$ ,  $\eta^2=0.030$ ).

### 2.3 Gender Differences in Emotion Regulation When Controlled for Emotional Experiences

MANOVA only found scores for positive emotional affect were higher in male adolescents than that in females( $F[1,866]=14.869$ ,  $P<0.001$ ,  $\eta^2=0.017$ ). We then statistically controlled for positive emotional experi-

ence to further study gender differences in emotion regulation.

After controlling for positive emotional experiences, female adolescents were observed to be more likely to use reappraisal than males ( $F[1,879]=5.731$ ,  $P<0.05$ ,  $\eta^2=0.006$ ), and male adolescents were more likely to use suppression than females ( $F[1,879]=35.162$ ,  $P<0.01$ ,  $\eta^2=0.038$ ).

Table 2 Descriptive statistics for variables of personality traits by gender

	Male(n=376)		Female(n=412)	
	M	SD	M	SD
Agreeableness	3.56	0.45	3.66	0.44
Conscientiousness	3.26	0.54	3.29	0.53
Extroversion	3.54	0.67	3.52	0.67
Neuroticism	2.83	0.67	2.98	0.69
Openness	3.23	0.51	3.32	0.52

Table 3 Descriptive statistics for variables of emotional experiences by gender

	Male(n=432)		Female(n=436)	
	M	SD	M	SD
Positive Affect	3.02	0.73	2.83	0.69
Negative Affect	2.18	0.66	2.22	0.69

### 3 Discussion

Our research accessed data from 13- to 18-year-old adolescent participants to investigate gender differences in emotion regulation(cognitive reappraisal and expression suppression) by using the Emotion Regulation Questionnaire. Consistent with our hypothesis ,we showed that male adolescents were more likely to use suppression than females, even after controlling for personality traits and emotional experiences. The gender differences may be attributed to different social roles defined for the males and females. Males are often required to be stronger and tougher, which lead to less emotional expressions; while females are usually thought to be more gentle and softer, and are allowed to display their emotional experiences more readily(Flynn, Hollenstein, & Mackey, 2010). Interestingly, our research found that this phenomenon begins to emerge in adolescents with 13 to 18 years old.

Beyond that, we found no significant gender differences in cognitive reappraisal strategies in adolescents aged 13 to 18, but after controlling for neuroticism per-

sonality traits and positive emotional experiences, female adolescents were more likely to use cognitive reappraisal strategies. Consistent with previous evidence showing that men expended less effort and had more automatic emotion regulation strategies than women who prefer to using cognitive reappraisal(McRae et al., 2008), our research further suggests that this phenomenon also exists in adolescents aged 13- 18. What should be noted is that, this gender difference on the cognitive reappraisal is obtained after controlling for personality traits and positive emotional experiences. We found that female adolescent neuroticism scores were higher than male scores. Previous research has already found that neuroticism has a significant negative correlation with cognitive reappraisal, and reappraisal has a significant positive correlation with positive emotional experiences(Balzarotti, John, & Gross, 2010; Cabello et al., 2003). Accordingly, we found that female adolescent positive emotion experience scores were lower than that of male adolescents. Thus, female adolescents were more likely to use cognitive reappraisal strategies than male adolescents were after controlling for positive emotional experiences.

Further, we found significant age differences in suppression strategies in adolescents aged 13 to 18. Post hoc analyses showed that 15-, 16-, and 18-year-old adolescents were more likely to use suppression than 13- and 14-year-old adolescents. Different researchers have come to different conclusions about age effects on expression suppression strategy. Gross and his colleagues noted the decreasing use of suppression with age in adult participants(John & Gross, 2004), Gullone and his colleagues found that the use of expression suppression decreased with age in their pool of 9- to 15-year-old children and adolescents. These findings are not consistent with our conclusion, so we deduce that the change tendency of the use of suppression strategies is different at different developmental periods.

In this study, we did not find significant interaction between age and gender group in the use of suppression in adolescents aged 13- 18. This indicates that gender differences in suppression are relatively stable, suggesting that they would not change with age,

at least for the adolescent aged 13–18. These research findings can be accounted to by the concept of “trait-like,” namely that the development of suppression will be more stable with age and become a part of an individual’s characteristics (Cole, Michel, & Teti, 1994). Gullone and colleagues once used “trait-like” to explain their research findings. Their research found that people between the ages of 9 and 15 years old were less likely use suppression strategies with age, and that the rate declined gradually in girls, specifically. They asserted that this phenomenon could be attributed to different maturity in boys and girls (i.e., girls mature earlier than boys, so the use of suppression strategies in girls would become stable earlier than in boys) (Gullone, Hughes, King, & Tonge, 2010). Similarly, we deduce that because of the maturity effect, the use of suppression strategies tends towards stability in adolescents aged 13 to 18 years old, which makes the gender differences in this age period remain comparatively stable. However, in Hoeksma’s research, elder women between the ages of 65 and 75 were more likely to use suppression than middle-aged women (ages of 45 and 55) and younger people (ages of 25 and 35). Elder women were also more likely to use suppression strategies than men at the same age stage (Hoeksma & Aldao, 2011). Combining our findings, it may suggest that the developmental trend of suppression will be different at different stages of age, change of living environment, and developmental tasks. Moreover, this developmental tendency may also have significant gender differences.

Our research found that female adolescents were more likely to use reappraisal strategies than males after we statistically controlled for neuroticism; therefore, we deduce from this phenomenon that neuroticism will affect female adolescents’ use of reappraisal strategies significantly. However, previous studies have yet provided evidence to support this hypothesis, future studies to explore the effect mechanism of personality traits on the use of emotion regulation strategies may help to provide further insight on the emotion regulation development. Finally, our research only used personality traits and positive and negative emotional affect as co-variables. Future studies need to consider other variables that influence emotion regulation development,

such as the living environments and peer relationships of individuals, to further validate the gender differences in emotion regulation.

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