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## Cognitive emotion regulation strategies and depressive symptoms: gender's moderating effect

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### Abstract

Depression is one of the most prevalent psychological conditions among adolescents. The first major depressive episode tends to occur around 15 years old. Between 13 and 15 years old gender differences begin to emerge with girls presenting higher prevalence of depressive symptoms than boys. Problems on emotion regulation and constantly relying on maladaptive cognitive emotion regulation strategies have been pointed as a risk factor for depression and also as a factor that explains gender differences in depressive symptoms, as girls tend to use more maladaptive strategies than boys, such as rumination, self-blaming and catastrophizing.

This study aimed to test the moderating effect of gender in the relationship between cognitive emotion regulation strategies and depressive symptoms. 319 adolescents, 13 to 15 years old, participated. Self-reported measures were used to assess depressive symptoms (CDI) and cognitive emotion regulation strategies (CERQ). The moderating effect of gender was found in the relationship between positive reappraisal and depressive symptoms, suggesting the importance of enhancing positive reappraisal when facing negative life events, especially for girls.

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## 1. Introduction

According to World Health Organization, major depressive disorder will be the second most prevalent disorder in general population in 2020 (Murray & Lopez, 1996). Therefore and because of its negative impact the interest and the body of research concerning adolescent's depression is increasing (Verduyn, Rogers, & Wood, 2009). It is one of the most prevalent and serious mental health conditions among adolescents because of its prevalence, comorbidity with other psychological disorders, its tendency to be chronic, along with the impact of the disease and long term effects that can develop into adulthood (Clarck, Lewinsohn, & Hops, 2000; Peterson, et al., 1993). This condition has a negative impact on academic achievement (Arnarson & Craighead, 2009; Siener & Kerns, 2012), influences the increasing of substance abuse (Thapar, Collishaw, Pine, & Thapar, 2012), sexual risk behavior and unplanned pregnancy during adolescence (Siener & Kerns, 2012). Depression is also the cause of 10% of suicide deaths at this age (Bahls, 2002; Thapar et al., 2012).

The first major depressive episode tends to occur around the age of 15 with the annual rate increasing from 3% to 7% (Arnarson & Craighead, 2009; Seeley, Rohde, Lewinsohn, & Clarke, 2002). At risk of developing depression are adolescents with depressed parents or family depression history, those who have conflicts with their parents, those who perceive themselves as socially unfit and that have experienced negative life events (Lewinsohn & Essau, 2002) such as loss or parental divorce (Horowitz & Garber, 2006). Also child abuse and negligence, chronic diseases (Bhatia & Bhatia, 2007), being a girl (Nolan-Hoeksema, 2001; Hankin, Abramson, Moffitt, Silva, McGee, & Angell, 1998; Nolan-Hoeksema & Girgus, 1994) and emotional regulation problems (Aldao & Nolan-Hoeksema, 2010; Aldao, Nolan-Hoeksema, & Schweizer, 2010) are considered risk factors for depression in adolescence.

Moreover, it is during this period of life span that both improving of emotion regulation abilities and increasing of negative life events tend to occur. Individuals become more autonomous in regulating their emotions and during adolescence they begin to use more complex emotion regulation strategies (Garnefski & Kraaij, 2006). But it is also during this age that challenging changes occur, which can lead to negative affect which the adolescent has to have the ability to regulate, otherwise he could develop a depressive disorder (Hilt & Nolen-Hoeksema, 2009).

The most consensual definition of "emotion regulation" is provided by Thompson (1994), which states that "emotional regulation consists of extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (pp. 27-28). According to Garnefski, Kraaij and Spinhoven (2001) emotions can be regulated by biological, social, behavioral and cognitive processes. The cognitive way of managing the intake of emotionally arousing information (Thompson, 1991), or cognitive emotion regulation, could occur through more unconscious processes, as selective attention, or through more conscious processes, as rumination or self-blaming (Garnefski et al., 2001). The present investigation will focus on more conscious cognitive strategies. Strategies that focus less on cognitive changes in order to manage emotions have been considering less effective than those targeting one's cognitions (Joormann & Gotlib, 2010).

Nevertheless, the systematic use of maladaptive cognitive emotion regulation strategies (Garnefski et al., 2001) and the failure in developing emotion regulation abilities can play an important role in the beginning and exacerbation of depressive symptoms, which could lead to depression (Compas, Jaser, & Benson, 2008; Hilt & Nolen-Hoeksema, 2009; Silk, Steinberg, & Morris, 2003). Depression have been consistently related to rumination, self-blaming and catastrophizing (maladaptive strategies) and inversely related to positive reappraisal (adaptive strategy) (Garnefski, Kraaij, & Spinhoven, 2001; Garnefski & Kraaij, 2006; Garnefski, Boon, & Kraaij, 2003).

Rumination has a positive relation with depression (Aldao et al., 2010; D'Avanzato, Joorman, Siemer, & Gotlib, 2013; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) because it exacerbates negative thinking, interferes on problem solving, instrumental behavior and makes the individual vulnerable to the loss of social support (Nolen-Hoeksema, 2008). This relation between rumination and depressive symptoms has also been verified in adolescents' samples (Garnefski & Kraaij, 2006; Garnefski, Boon, & Kraaij, 2003; Öngen, 2010). In the same way, it has been shown (for both adults and adolescents) that self-blaming is also positive related to depression (Garnefski & Kraaij, 2006; Garnefski et al., 2003; Martin & Dahlen, 2005; Öngen, 2010). This relation could be caused by the attribution

of the negative event to internal, stable and global causes (Anderson, Miller, Riger, Dill, & Sedikides, 1994; Hankin & Abramson, 2001). Catastrophizing integrates rumination, magnification and helplessness components and is considered a cognitive distortion that contributes to the development and exacerbation of depressive symptoms (Sullivan, Bishop, & Pivik, 1995). In contrast, positive reappraisal, or generating a positive interpretation of a situation in terms of personal growth in order to decrease suffering when handling a negative life event (Gross, 1998; Garnefski et. al., 2001) is associated with lower levels of depressive symptoms (Aldao & Nolen-Hoeksema, 2010; Aldao et. al., 2010; Garnefski et. al., 2003; Martin & Dahlen, 2005) and with negative affect reduction (D'Avanzato et. al., 2013), being considered a protective factor to depression (Hilt & Nolen-Hoeksema, 2009).

Besides being pointed as a risk factor to depression, cognitive emotion regulation strategies have also been studied as an explanation to the emerging gender differences in depression rates that begin in adolescence. It has been suggested that this differences exist because of the way boys and girls respond to negative life events and manage negative mood (Butler & Nolen-Hoeksema, 1994; Hilt & Nolen-Hoeksema, 2009; Garnefski, Teerds, Kraaij, Legerstee, & Van Den Krommer, 2004).

Between 13 and 15 years old, gender differences tend to emerge, with depression rate increasing significantly among girls and staying relatively constant among boys (Nolan-Hoeksema, 2001). Between 15 and 18 years old this differences increase, with girls showing twice as more depressive symptoms than boys (Hankin et al., 1998). Women tend to ruminate as well as catastrophize more than men, when managing negative life events (Garnefski et. al., 2004; Martin & Dahlen, 2005). This leads women to focus and magnify negative thoughts that maintain and exacerbate the negative affect (Butler & Nolen-Hoeksema, 1994). Garnefski and colleagues (2004) showed that rumination, catastrophizing and self-blaming positively predicted depression for both gender. They concluded that even though maladaptive cognitive emotion regulation strategies were the same for women and men, the greater tendency of women to use them, makes them more vulnerable to depressive symptoms (Garnefski et. al., 2004). Although positive reappraisal have been considered a protective strategy, studies reported mixed evidence when showing who **tends** to rely the most on this strategy, if men (Öngen, 2010) or women (Garnefski et. al., 2004; Martin & Dahlen, 2005).

Therefore, this study aims to test the moderating effect of gender in the relationship between cognitive emotion regulation strategies and depressive symptoms. In other studies, gender has also been studied as a moderator of the relationship between depression and other variables such as traumatic experiences (Monteiro, Matos, & Oliveira, 2014) or emotional intelligence (Salguero, Extremera & Fernandes-Berrocal, 2012).

## 2. Method

### 2.1. Sample

The sample was composed by 319 adolescents from the general population, attending 8<sup>th</sup> (47%) and 9<sup>th</sup> (53%) grades in public schools. There were 102 boys (32%) and 217 girls (68%) aging 13 to 15 years old ( $M = 13.94$ ;  $SD = .69$ ). Boys ( $M = 13.91$ ;  $SD = .77$ ) and girls ( $M = 13.95$ ;  $SD = .67$ ) didn't differ significantly in age ( $t_{(319)} = -.43$ ,  $p = .67$ ). All subjects participated in a Portuguese study entitled "Prevention of depression in Portuguese adolescents: study of the efficacy of an intervention with adolescents and parents" (PTDC/MHC-PCL/4824/2012).

### 2.2. Procedure

Permission to conduct the study was obtained from national entities that regulate scientific research.

Schools were contacted and asked permission for their students to participate in the study. Authorization was also obtained from students and their parents. Anonymity was ensured to the participants. After obtaining all permission required, the research protocol was applied in classrooms before any psychological intervention.

Subjects that left incomplete any questionnaire were excluded from the study. The project where this investigation is inserted aims to prevent the first major depressive episode among adolescents. Therefore only subjects between 13 and 15 years old are targeted. For that reason, adolescents outside this age range were also

excluded.

### 2.3. Measures

#### 2.3.1. *Children's Depression Inventory* (CDI, Kovacs, 1985; Portuguese version: Marujo, 1994).

CDI is a self-report inventory designed to access depressive symptoms in children aged 7 to 17. It has 27 items with three answering options that range from 0 (no problem) to 2 (severe problem). The total score can reach 54 points. Kovacs (1985) found good psychometric qualities in this inventory, with excellent internal consistency (Cronbach alpha coefficients ranging .83 to .94). In the Portuguese version (Marujo, 1994) an unifactorial structure was found, with an alpha coefficient of .80 for the total scale. In the present study an alpha coefficient of .80 was obtained for the total score of the CDI.

#### 2.3.2. *Cognitive Emotion Regulation Questionnaire* (CERQ, Garnefski, Kraaij & Spinhoven, 2001; Portuguese version: Matos, Cherpé & Serra, 2012).

CERQ is a self-report questionnaire used to access specific cognitive emotion regulation strategies that adolescents can use when facing negative life events. It has 36 items that can be answered using a Likert scale ranging from 1 (almost never) to 5 (almost always). CERQ has 9 subscales that match nine cognitive emotional regulation strategies: *self-blame*, thoughts of blaming oneself for the event; *ruminating*, thinking about the feelings and thoughts associated with the event; *catastrophizing*, thoughts of emphasizing the terror of the situation; *other-blame*, thoughts of putting the blame of what happened on others or in the context; *acceptance*, thoughts of accepting what one has experienced and resigned to what has happened; *positive reappraisal*, thoughts of attaching a positive meaning to the situation in terms of personal growth; *refocus on planning*, thinking about what steps to take in order to handle the negative event; *putting into perspective*, thoughts of playing down the seriousness of the event and emphasizing its relativity comparing to other events; *positive refocusing*, referring to thinking about joyful and pleasant events instead of thinking about what happened. In CERQ's original study, alpha coefficients ranged from .68 to .83 (Garnefski et al., 2001). In the present study, alpha coefficients ranged from .68 (other-blame) to .83 (ruminating).

### 2.4. Data-analysis

All data analyses were performed using Statistical Package for Social Sciences, version 20 for windows (SPSS). We conducted a cross-sectional study, based only on self-reporting measures. Normal distribution of the sample was analysed by Kolmogorov-Smirnov normality test. No serious normality deviation were found when analysing kurtosis and skewness ( $|Sk| < 3$  e  $|Ku| < 8-10$ ; Kline, 2011).

*Student's* t-tests for independent samples were conducted to analyse gender differences on depressive symptoms and cognitive emotion regulation strategies used by the adolescents.

One-way ANOVA test was performed in order to search for differences in the levels of adolescents' depression according to their age. We considered three age groups: 13, 14 and 15 years old. Then we were able to control this variable latter on moderation.

Using nine distinctly Hierarchical Multiple Regressions we were able to test the moderating effect of gender (moderator) in the relationship between each cognitive emotional regulation strategy (each of CERQ subscales as an independent variable) and depressive symptoms (CDI's total as a dependent variable). Age was entered first, in order to control its effect. Secondly we entered one of the nine cognitive emotion regulation strategies. Gender was dummy coded, because it is a categorical variable with two levels (masculine and feminine), and entered next. We also created nine interaction terms, multiplying each cognitive emotion regulation strategy by gender (dummy coded), which were entered in the final step of the regression. A moderation occurs when the nature of the relationship between the predictor variable (X) and the criteria variable (Y) differs in its strength or sign, in the presence of a third variable, the moderator (M) (Hayes, 2013; Warner, 2013). Statistically, a moderating effect would be seen if any regression coefficient of the interaction term was statistically significant (Hayes, 2013). The moderating effect that was found was graphically represented on SPSS. Slopes *post-hoc* analyses were performed

using ModGraph (José, 2013) in order to verify if the slope was statistically different from zero for both gender.

### 3. Findings

#### 3.1. Gender differences in depressive symptoms and cognitive emotion regulation strategies

*Student's t-test* for independent samples for the CDI total and the nine cognitive emotion regulation strategies showed significant gender differences on depressive symptoms ( $t(230) = -5.298, p < .001$ ), self-blame ( $t(225) = -3.696, p < .001$ ), rumination ( $t(317) = -5.960, p < .001$ ) and acceptance ( $t(317) = -2.724, p = .007$ ). Girls reported higher scores on depressive symptoms ( $M_{girls} = 12.99, SD = 7.59; M_{boys} = 8.66, SD = 6.42$ ), self-blame ( $M_{girls} = 2.64, SD = .93; M_{boys} = 2.26, SD = .81$ ), rumination ( $M_{girls} = 3.02, SD = .94; M_{boys} = 2.37, SD = .88$ ) and acceptance ( $M_{girls} = 2.95, SD = .86; M_{boys} = 2.67, SD = .86$ ). No significant differences were found on catastrophizing ( $M_{girls} = 2.31, SD = .99; M_{boys} = 2.10, SD = .87; t(317) = -1.802, p = .072$ ), other-blame ( $M_{girls} = 1.73, SD = .68; M_{boys} = 1.86, SD = .76; t(317) = 1.498, p = .135$ ), positive reappraisal ( $M_{girls} = 3.05, SD = .94; M_{boys} = 3.10, SD = .95; t(317) = .398, p = .691$ ), refocus on planning ( $M_{girls} = 3.22, SD = .94; M_{boys} = 3.16, SD = .90; t(317) = -.503, p = .615$ ), positive refocusing ( $M_{girls} = 2.83, SD = .99; M_{boys} = 2.92, SD = .94; t(317) = .734, p = .464$ ) and putting into perspective ( $M_{girls} = 2.85, SD = .98; M_{boys} = 2.69, SD = .94; t(317) = -1.359, p = .175$ ).

#### 3.2. Differences in depressive symptoms according to adolescents' age

In order to test if there was any difference concerning depressive symptoms level according to adolescents' age, we conducted three separated one-way ANOVAs, one for the total sample, one for boys and one for girls. Homogeneity assumption was assumed ( $F_{Levene}(\text{total}) = 1.278; p = .280; F_{Levene}(\text{girls}) = .816; p = .443; F_{Levene}(\text{boys}) = .115; p = .892$ ). There were statistically significant differences in the level of depressive symptoms according to age for the total sample [ $F(2, 316) = 4.643, p = .01$ ]. The older the subjects, the higher the level of depressive symptoms. *Tukey HSD* post-hoc analysis showed that statistically significant differences occurred between 13 years old ( $n = 87; M = 9.57; SD = 7.04$ ) and 14 years old ( $n = 165; M = 12.19; SD = 7.72$ ) subjects and between those with 13 and 15 ( $n = 67; M = 12.81; SD = 7.15$ ) years old. Also for girls there were statistically significant differences in depressive symptoms level according to age [ $F(2, 214) = 3.974; p = .020$ ] and the older they were, the higher the depressive symptoms level ( $M_{(girls, 13 [n=54])} = 10.63, SD = 6.99; M_{(girls, 14 [n=120])} = 13.46, SD = 7.71; M_{(girls, 15 [n=43])} = 14.65, SD = 7.48$ ). *Tukey HSD* post-hoc analysis showed that statistically significant differences in depression symptoms levels occurred between 13 year old and 15 year old girls (mean difference = 4.02;  $p = .025$ ). There were no statistically significant differences found for depressive symptoms levels for boys [ $F(2, 99) = .475; p = .623$ ], although depressive symptoms mean increased as they got older ( $M_{(boys, 13 [n=33])} = 7.85, SD = 6.87; M_{(boys, 14 [n=45])} = 8.80, SD = 6.72; M_{(boys, 15 [n=24])} = 9.50, SD = 5.19$ ). As we found differences in depressive symptoms levels across age of the participants, we controlled this variable in the moderation analysis.

#### 3.3. The moderating effect of gender in the relationship between cognitive emotion regulation strategies and depressive symptoms

Of the nine Multiple Hierarchical Regression analysis performed, only the moderation analysis that included the cognitive emotion regulation strategy "positive reappraisal" produced a statistically significant regression coefficient of the interaction term ( $\beta = -.456, p = .013$ ). That is to say that gender moderated the relationship between positive reappraisal and depressive symptoms.

The introduction of gender variable in the regression third step produced a statistical significant model [*Model 3*:  $F(3, 315) = 29.062; p < .001$ ], that added 6.7% to the explanation of depressive symptoms variance [ $R^2_{modified} = .067; F_{modified}(1, 315) = 26.889; p < .001$ ].

The final model of the hierarchical regression reached statistical significance [*Model 4*:  $F(4, 314) = 23.711, p < .001$ ] and explains 23.2% of the variance of depressive symptomatology ( $R^2 = .232$ ). Entering the

interaction term of positive reappraisal by gender added 1.5% to the explanation of depressive symptomatology variance [ $R^2_{modified} = .015$ ;  $F_{modified} (1, 314) = 6.212$ ;  $p = .013$ ]. Post-hoc analysis of the slopes, conducted on ModGraph program (José, 2013), showed that the interaction between positive reappraisal and depressive symptoms was statistically significant for both boys ( $b = -1.37$ ;  $t = -1.97$ ;  $p = .049$ ) and girls ( $b = -3.48$ ;  $t = -7.22$ ;  $p < .001$ ). However it was more significant for girls, as can be seen by  $p$  value.

Table 1. Moderating effect of gender in the relationship between cognitive emotion regulation strategies and depressive symptoms

Predictors	R <sup>2</sup>	Adjusted R <sup>2</sup>	B	β	F	t
Model 1	.024	.021			7.85**	
Age			1.68	.16		2.80**
Model 2	.150	.145			27.87***	
Age			1.45	.13		2.57*
Positive Reappraisal			-2.84	-.36		-6.84***
Model 3	.217	.209			29.06***	
Age			1.38	.13		2.55*
Positive Reappraisal			-2.80	-.35		-7.00***
Gender			4.16	.26		5.19***
Model 4	.232	.222			23.71***	
Age			1.33	.12		2.47*
Positive Reappraisal			-1.37	-.17		-1.98*
Gender			10.66	.66		3.91***
Gender x Positive Reappraisal			-2.11	-.46		-2.49*

Note. \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

Graphical representation (Figure 1), showed a negative slop for both boys and girls, which makes it clear to understand that the more adolescents used positive reappraisal in order to regulate their emotions, the lower the depressive symptoms' level they reported. The moderating effect occurs for both gender, however it was more pronounced for girls. They showed higher levels of depressive symptoms than boys in all conditions of positive reappraisal, but the levels of depressive symptoms fall so hard for girls that at the highest condition of positive reappraisal (five) they reach the same lowest level of depressive symptoms as boys.

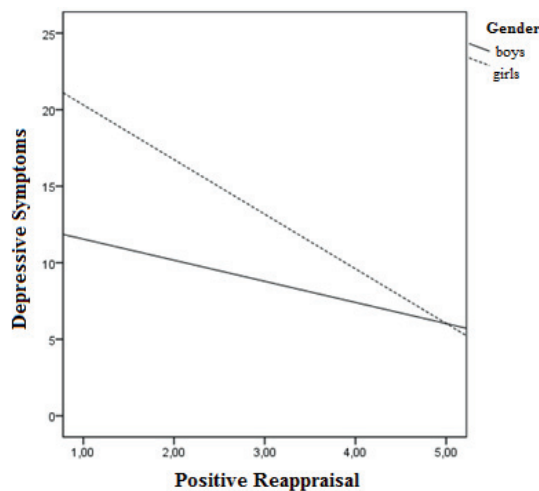


Figure 1. Graphical Representation of the Moderation

#### 4. Discussion

Relying on maladaptive cognitive emotion regulation strategies to handle negative life events have been considered a risk factor for depression (Aldao & Nolen-Hoeksema, 2010; Aldao, Nolen-Hoeksema, & Schweizer, 2010; Compas et al., 2008) and it is also an explanation factor to gender differences in depression, with women showing greater risk for depression than men (Hilt & Nolen-Hoeksema, 2009; Nolen-Hoeksema, 2001).

The present study showed that girls reported higher levels of depressive symptoms than boys, as has been reported in literature (Hankin, et al., 1998; Hilt & Nolen-Hoeksema, 2009; Nolen-Hoeksema, 1990, 2001; Nolen-Hoeksema & Girgus, 1994).

Girls also tended to use more maladaptive cognitive emotion regulation strategies (rumination and self-blaming) than boys, in line with results showed in other studies (Garnefski, et. al., 2004; Hilt & Nolen-Hoeksema, 2009; Öngen, 2010). It was also found that girls showed a tendency to rely more than boys on acceptance. However, caution with interpreting this subscale is recommended as it may be measuring a passive form of resignation, other than measuring the truly acceptance of the negative life events (Martin & Dahlen, 2005). All taken together, our results suggested that girls tend to use more maladaptive cognitive emotion regulation strategies when managing negative life events. However, our results didn't support the idea of boys having a greater tendency than girls to use adaptive cognitive emotion regulation strategies (Öngen, 2010), nor the idea that girls tend to use less adaptive strategies than boys (Garnefski, et. al., 2004), because no gender difference were found on refocus on planning, putting into perspective, positive reappraisal and positive refocusing.

As concerning to age, results showed that there is a tendency for depressive symptoms' level to get higher, as adolescents get older. At the age of 15 there is a greater incidence of depressive symptoms level for both gender. Results match previous studies, which showed that the first major depressive episode tends to occur around the age of 15 (Anderson, 2012; Arnarson & Craighead, 2009; Seeley et. al., 2002). Also, there were statistical significant differences in reporting depressive symptoms level for girls, according to their age. When comparing those with 13 with those with 15 years old, there is an increasing of depressive symptoms level. For boys, no significant differences were found. Data is in line with previous research, which refers that between 13 and 15 years old, gender differences in depression begin to rise (Hankin et. al., 1998) and at that point, the levels of depressive symptoms rise significantly for girls, remaining relatively stable for boys (Nolen-Hoeksema, 2001).

A moderating effect of gender was found in the relationship between positive reappraisal and depressive symptoms, so that the impact of this strategy on depressive symptoms was different for boys and girls. Data suggested that for the same conditions of positive reappraisal, girls presented higher levels of depressive symptoms than boys, exception made for the highest condition of positive reappraisal, where both gender reached the same low level of depressive symptoms. In other words, the more adolescents rely on positive reappraisal to manage negative life events, the lower are the levels of depressive symptoms they presented, although the symptoms decrease in a more pronounced way for girls. Results are in line with previous studies that showed that the use of positive reappraisal may be an adaptive strategy, that protects individuals from developing depressive symptoms when managing negative life events, and is associated with positive mood (Garnefski et al., 2001; Garnefski et al., 2002; Garnefski et al., 2004; Slee et al., 2008; Öngen, 2010) and reduction of negative affect (D'Avanzato et. al, 2013).

Some authors suggested that adaptive cognitive emotional regulation strategies are less relevant explaining depressive symptomatology, when compared to maladaptive cognitive emotion regulation strategies (Aldao & Nolen-Hoeksema, 2010; Aldao, Nolen-Hoeksema, & Schweizer, 2010) but our results showed that it may be prudent to consider the moderating effect of gender before analysing this relationship. Positive reappraisal seems to have a considerable importance in decreasing levels of depressive symptoms. Clinical intervention may be important to promote the use of this cognitive emotion regulation strategy when individuals approach negative events in their lives.

Garnefski and colleagues (2004) found that women tend to use less adaptive cognitive emotion regulation strategies than boys, which were inversely related to depressive symptoms. Assuming that this tendency occurs in general population, results of the moderation analysis become even more relevant as the use of positive reappraisal caused a more pronounced decreasing of depressive symptoms level for girls. If they really tend to use less this strategy than boys, it becomes much important to enhance the use of this strategy to regulate their emotions when

managing negative life events. These results also showed that when the ability of regulating emotions through positive reappraisal fails, mostly girls, may be at risk for depressive symptoms. Enhancing the use of positive reappraisal may be important mostly in preventing depression, because our data were obtained in a non-clinical sample and because there are studies suggesting that when individuals have to regulate negative emotions that are very intense, positive reappraisal may become less helpful (Sheppes, Scheibe, Suri, & Gross, 2011). These data should be considered in the development of programs designed to prevent depression among adolescents.

This study has some limitations that have implications on data interpretation and generalization. The sample was not composed by the same number of boys and girls, which could have caused some bias. Furthermore, our data were obtained from a non-clinical population, so the results cannot be generalized for clinical population. The results of this study were based on cross-sectional data and were obtained using only self-reported measures. We have to acknowledge that nothing can be concluded about directions of influence.

For future investigation, it would be interesting to use a more balanced sample in terms of number of boys and girls. It would also be important to replicate this study in a clinical sample with major depressive disorder and / or across specific negative life event types.

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### References

- Aldao, A., & Nolen-Hoeksema, S. (2010). Specificity of cognitive emotion regulation strategies: a transdiagnostic examination. *Behavioral Research and Therapy*, 48, 974-983.
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, 30, 217-237.
- Anderson, M. (2012). *Factors of Resiliency and Depressive in Adolescents*. Wisconsin: UNIVERSITY OF WISCONSIN-LA CROSSE College of Liberal Studies.
- Arnarson, E., & Craighead, W. (2009). Prevention of depression among Icelandic adolescents. *Behaviour Research and Therapy*, 47, 577-585.
- Bahls, S. (2002). Aspectos clínicos da depressão em crianças e adolescentes. *Jornal de Pediatria*, 78, (5), 359-366.
- Clark, G., Lewinsohn, P., & Hops, H. (2000). *Leader's Manual for Adolescent Groups: Adolescent Coping with Depression Course*. Portland: Center for Health Research.
- Compas, B., Jaser, S., & Benson, M. (2008). Coping and Emotional Regulation: Implications for Understanding Depression During Adolescence. Em S. Nolen-Hoeksema, & L. Hilt, *Handbook of Depression in Adolescents* (pp. 419-440). New York: Routledge Press.
- D'Avanzato, C., Joormann, J., Siemer, M., & Gotlib, I. (2013). Emotion Regulation in Depression and Anxiety: examining diagnostic specificity and stability of strategy use. *Cognitive Therapy and Research*, 37, 968-980.
- Garnefski, N., & Kraaij, V. (2006). Relationships between Cognitive Emotional Regulation Strategies and Depressive Symptoms: a Comparative Study of Five Specific Samples. *Personality and Individual Differences*, 40, 1659-1669.
- Garnefski, N., Boon, S., & Kraaij, V. (2003). Relationships Between Cognitive Strategies of Adolescents and Depressive Symptomatology Across Different Types of Life Event. *Journal of Youth and Adolescence*, 32, (6), 401-408.
- Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative Life Events Cognitive Emotional Regulation and Emotional Problems. *Personality and Individual Differences*, 30, 1311-1327.
- Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & Van Den Krommer, T. (2004). Cognitive Emotion Regulation Strategies and Depressive Symptoms: Differences Between Males and Females. *Personality and Individual Differences*, 36, 267-276.
- Garnefski, N., Van Den Kommer, T., Kraaij, V., Teerds, J., Legerstee, J., & Onstein, E. (2002). The Relationship between Cognitive Emotion Regulation Strategies and Emotional Problems: Comparison between a Clinical and a Non-Clinical Sample. *European Journal of Personality*, 16, 403-420.
- Gross, J. (1998). Antecedent- and Response- Focused Emotion Regulation. *Journal of Personality and Social Psychology*, 74, (1), 224-237.
- Hankin, B., Abramson, L., Moffitt, T., Silva, P., McGee, R., & Angell, K. (1998). Development of depression from preadolescence to young adulthood: emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology*, 107, (1), 128-140.



- Hayes, A. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis - A Regression-Based Approach*. New York: The Guilford Press.
- Hilt, L., & Nolen-Hoeksema, S. (2009). The emergence of gender differences in depression in adolescence. Em L. Hilt, & S. Nolen-Hoeksema, *Handbook of Depression in Adolescents* (pp. 111-126). New York: Routledge.
- Horowitz, J., & Garber, J. (2006). The Prevention of Depressive Symptoms in Children and Adolescents: A Meta-Analytic Review. *Journal of Consulting and Clinical Psychology, 74* (3), 401-415.
- Joormann, J., & Gotlib, I. (2010). Emotion Regulation in Depression: relation to cognitive inhibition. *Cognition and Emotion, 24* (2), 281-298.
- José, P. (2013). ModGraph-I: A programme to compute cell means for the graphical display of moderational analyses: the internet version, Version 3.0. *Victoria University of Wellington, Wellington, New Zeland*. Obtido de <http://pavlov.psyc.vuw.ac.nz/paul-jose/modgraph/modgraph.php>
- Kline, R. (2011). *Principles and Practice of Structural Equation Modeling*. New York: The Guilford Press.
- Kovacs, M. (1985). The Children's Depression Inventory (CDI). *Psychopharmacology Bulletin* (21), 995-998
- Lewinsohn, M., & Essau, C. (2002). Depression in Adolescents. In H. Gotlib, & C. Hammen, *Handbook of Depression* (pp. 541-559). New York: Guilford Press.
- Matos, A. P., Cherpe, S., & Serra, A. R. (2012). *Estudo psicométrico do Questionário de Regulação Cognitiva da Emoção (CERQ), em adolescentes Portugueses [Psychometric study of the Cognitive Regulation Questionnaire (CERQ) in Portuguese adolescents*, Unpublished manuscript].
- Marujo, H. (1994). Síndromas depressivos na infância e na adolescência. Dissertação de doutoramento. Lisboa: Universidade de Lisboa
- Martin, R., & Dahlen, E. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress and anger. *Personality and Individual Differences, 39*, 1249-1260.
- Monteiro, S., Matos, A. P., Oliveira, S., 2014 (in press) The moderating effect of gender: Traumatic experiences and depression in adolescence. *Procedia – Social and Behavioral Sciences*
- Murray, C., & Lopez, A. (1996). The Global Burden of Disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020 (Global Burden of Disease and Injury Series, vol. 1). Cambridge: Harvard School of Public Health. Murray, C., & Lopez, A. (1996). *The Global Burden of Disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020 (Global Burden of Disease and Injury Series, vol. 1)*. Cambridge: Harvard School of Public Health.
- Nolen-Hoeksema, S. (1990). *Sex differences in depression*. Stanford: Stanford University Press.
- Nolen-Hoeksema, S. (2001). Gender Differences in Depression. *Current directions in psychological science, 173-176*.
- Nolen-Hoeksema, S., & Girgus, J. (1994). The emergence of gender differences in depression during adolescence. *Psychological Bulletin, 115* (3), 424-443.
- Nolen-Hoeksema, S., Wisco, B., & Lyubomirsky, S. (2008). Rethinking Rumination. *Perspectives on Psychological Science, 3* (5), 400-424.
- Öngen, D. (2010). Cognitive emotion regulation in the prediction of depression and submissive behavior: Gender and grade differences in Turkish adolescents. *Procedia Social and Behavior Sciences, 9*, 1516-1523.
- Petersen, A., Compas, B., Brooks-Gunn, J., Stemmler, M., Ey, S., & Grant, K. (1993). Depression in Adolescence. *American Psychologist, 48*, (2), 155-168.
- Salguero, J., Extremera, R., & Fernandez-Berrocal, P. (2012). Emotional intelligence and depression: the moderator role of gender. *Personality and Individual Differences, 53*, 29-32.
- Seeley, J., Rohde, P., Lewinsohn, P., & Clarke, G. (2002). Depression in Youth: Epidemiology, Edentification and Intervention. Em M. Shinn, H. Walker, & G. Stoner, *Interventions for Academic and Behavior Problems II: Preventive and Remedial Approaches* (pp. 885–912).
- Sheppes, G., Scheibe, S., Suri, G., & Gross, J. (2011). Emotion Regulation Choice. *Psychological Science, 22* (11), 1391-1396.
- Siener, S., & Kerns, K. (2012). Emotion Regulation and Depressive Symptoms in Preadolescence. *Child Psychiatry and Human Development, 43*, 414-430.
- Silk, J., Steinberg, L., & Morris, A. (2003). Adolescents' Emotion Regulation in Daily Life: Links to Depressive Symptoms and Problem Behavior. *Child Development, 74*, (6), 1869 – 1880.
- Sullivan, M., Bishop, S., & Pivik, J. (1995). The Pain Catastrophizing Scale: Development and validation. *Psychological Assessment, 7* (4), 524-532.
- Thapar, A., Collishaw, S., Pine, D., & Thapar, A. (2012). Depression in Adolescence. *The Lancet, 379*, 1056-1067.
- Thompson, R. (1991). Emotional Regulation and Emotional Development. *Educational Psychology Review, 3*, 269-307.
- Thompson, R. (1994). Emotion Regulation: A Theme in Search of Definition. Em N. Fox, *The development of emotion regulation: Biological and behavioral considerations (Monographs of the Society for Research in Child Development)* (Vol. 59, pp. 25-52). EUA: University of Chicago Press.
- Verduyn, C., Rogers, J., & Wood, A. (2009). *Depression: CBT with Children, Adolescents and Families*. London: Routledge.
- Warner, R. (2013). *Applied Statistics From Bivariate Through Multivariate Techniques*. London: Sage Publications.