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Negative emotions and behaviour: The role of regulatory emotional self-efficacy

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ABSTRACT

The objective of this study is to test a longitudinal model that analyses the direct effect of negative emotions (anger, depression and anxiety, wave 1) on prosocial and aggressive behaviour (wave 2) in adolescents. And the indirect effect of negative emotions (wave 1) on prosocial and aggressive behaviour (wave 2) through regulatory emotional self-efficacy. Data was obtained from 417 adolescents in a two-wave longitudinal study (225 girls, M age = 14.70 years) from schools located in Valencia, Spain. SEM was employed to explore longitudinal models. The results showed that anger had a direct relationship with prosocial behaviour and aggression, measured two years later. However, the depression and anxiety states did not predict prosociality and aggressiveness. The mediation role of regulatory emotional self-efficacy between negative emotion and behaviours was only partially confirmed. Finally, only the perception of self-efficacy in expressing positive affect is related to prosociality and aggressiveness.

Aggression and prosocial behaviour are indicators of interpersonal competence in adolescence (Belgrave, Nguyen, Johnson, & Hood, 2011). Both behaviours are related to positive and negative emotions and emotional states. In relation to positive emotionality, several studies have shown that positive emotions (like joy, gratitude, serenity and personal satisfaction) inhibit aggressive behaviour and promote prosocial behaviour (McCullough, Emmons, & Tsang, 2002; Richaud & Mesurado, 2016; Author, under review). With reference to negative emotions, empirical evidence shows that aggressiveness is related to anxiety (Salaam & Mounts, 2016), depression (Benarous, Hassler, Falissard, Consoli, & Cohen, 2015) and anger (DeWall, Anderson, & Bushman, 2012). On the other hand, prosocial behaviour relates in a negative way, to negative affective states like depression (Davis et al., 2016) and anger (Roberts, Strayer, & Denham, 2014). For example, a recent experimental study found that expressions of disappointment increase compliance with requests for help, whereas expressions of anger undermine compliance (Van Doorn, Van Kleef, & Van der Pligt, 2015).

Adolescence is a stage of high emotional vulnerability (Steinberg, 2005). Adolescents are able to move from love to hate, from acceptance to rejection, from pride to shame in their interpersonal relationships (Main, 2000). Therein, adjusted behaviour requires an effective regulation of emotions, and an effective regulation of emotions includes a control over positive and negative emotions. Emotional regulation makes social relationships easier and contributes to people's positive adjustment. Adolescents who are able to manage negative affect and to prolong the benefits of positive affect, have more personal resources that protect them from negative behaviours and promote positive behaviours (Caprara, Gerbino, Paciello, Di Giunta, & Pastorelli, 2010). Also, experience and expression of positive emotions are associated with rewarding social relationships and health (Gunzenhauser et al., 2013). Conversely, those who have difficulty containing their emotions when facing stressors or negative events can show problematic interpersonal

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behaviour (Gunzenhauser et al., 2013).

Adolescents differ vastly in the way they manage their emotions in everyday life, not only because they have different abilities, but also because they differ in their perceived capabilities to regulate their emotions. It is possible for a person to feel a positively ability to manage their emotions in perturbing or stressful situations, while they are not able to do so when actually facing these situations. However, it is more difficult for a person to actually manage their emotions if they don't believe they are able to do so; ultimately, the feelings about their self-regulation ability will contribute to their psychological wellbeing (Azizli, Atkinson, Baughman, & Giammarco, 2015).

Based on self-efficacy theory developed by Bandura (1997), Caprara (Caprara, Vecchione, Barbaranelli, & Alessandri, 2013; Caprara et al., 2008) which postulated the concept of regulatory emotional self-efficacy, which includes two dimensions: self-efficacy in managing negative affect and self-efficacy in expressing positive emotions. The former refers to the belief in one's ability to improve negative emotions, which can arise when facing different stressing events and to prevent negative results. In the same way, self-efficacy in expressing positive emotions refers to the belief in one's capacity to experiment or allow oneself to express positive emotions like happiness, enthusiasm and pride as an answer to success and pleasurable events. Caprara's self-efficacy beliefs analysis (Caprara & Gerbino, 2001), links regulatory emotional self-efficacy with social relationships in the same way as the latter with the regulation of affections. That is, the capacity to experiment and express positive and negative affects is thought to be as decisive for managing fulfilling and productive relationships with others as the ability to regulate affection (Caprara, Alessandri, Di Giunta, Panerai, & Eisenberg, 2010, Caprara, Gerbino, et al., 2010; Nocentini, Pastorelli, & Menesini, 2013). In addition, self-efficacy is specific and refers to particular domains and given times. For example, just as some people consider themselves highly efficient in academic tasks, they may also perceive themselves as not efficient in their relations with others, and vice versa (Salavera, Usán, & Jarie, 2017). Adolescents can feel they are efficient in regulating certain emotions but less efficient in regulating others, which could affect or modify their subsequent behaviour.

Furthermore, a vast body of research attests to the pervasive influence of regulatory emotional self-efficacy on effective functioning of adolescents and on the course of their life. The individual acts relates to the beliefs they have about their own abilities in a particular situation. The thoughts and feelings people have about their regulatory emotional self-efficacy to control events have an influence over the choices they make, the effort they invest, their motivation and their behaviour (Alessandri, Caprara, Eisenberg, & Steca, 2009; Galicia-Moyeda, Sánchez-Velasco, & Robles-Ojeda, 2013). In this way, if adolescents believe they can successfully obtain proposed objectives, they are motivated to undertake activities oriented to attain those objectives, and they persevere when facing difficulties and failures. Therefore, regulatory-emotional self-efficacy beliefs have a direct influence on the behaviour (Bandura, 2006).

Moreover, previous findings demonstrated the role of regulatory-emotional self-efficacy beliefs in mediating the contribution of different personal traits (e.g. agreeableness and conscientiousness) to positive behaviours in adolescents (e.g. prosociality and academic achievement, respectively) (Caprara, Alessandri, et al., 2010; Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2011). Another longitudinal study has shown primacy in the direction of the influence of emotional stability on self-efficacy beliefs (Caprara et al., 2013). Caprara et al. (2013) suggested “that the initial levels of emotional stability are highly correlated with initial levels of self-efficacy beliefs in managing both positive and negative emotions. Likely individuals who are more emotionally stable, also feel more capable of exerting proper control over their emotions” (p. 152). Consequently, it is likely that emotional instability (characterized by experience of negative emotions such as anger, anxiety and depression) could be associated with lower levels of regulatory-emotional self-efficacy beliefs; and this in turn, mediates the relationship between negative emotions and behaviour.

1. The present study

Previous cross-sectional studies have found a positive relation between regulatory emotional self-efficacy and prosocial behaviour, and a negative relation to aggressive behaviour. Specifically, the ability to express positive affect, to manage despondency or distress, and to manage anger or irritation are associated in a positive way with prosocial behaviour and in a negative way with aggressiveness (Caprara et al., 2008). Moreover, a longitudinal study investigated the relationship between efficacy in managing negative emotions and in expressing positive emotions at wave 1 with prosocial behaviour and delinquency at wave 2 (Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003). The wave 1 constructs showed a negative correlation to wave 2 prosocial behaviour and a positive correlation to wave 2 delinquencies.

Despite the available evidence on the links among anger, depression, anxiety, regulatory emotional self-efficacy, prosocial behaviour and aggressiveness, most studies are limited to the inference of causality due to their cross-sectional design. Consequently, the objective of this study is to test a longitudinal model that analyses the direct effect of negative emotions (anger, depression and anxiety, measured in wave 1) on prosocial and aggressive behaviour (measured in wave 2) in adolescents. And the indirect effect of negative emotions (wave 1) on prosocial and aggressive behaviour (wave 2) through regulatory emotional self-efficacy (1. perceived self-efficacy in expressing positive affect, 2. perceived self-efficacy in managing anger/irritation and 3. perceived self-efficacy in managing despondency/distress, measured in wave 2). The mediating role of regulatory emotional self-efficacy will be studied because, previous studies have shown that emotional stability is associated with regulatory emotional self-efficacy, and the regulatory emotional self-efficacy plays a mediating role between trait and behaviours (Caprara, Alessandri, et al., 2010; Caprara et al., 2011). Consequently, it is likely that emotional instability -characterized by experience of negative emotions- is associated with regulatory emotional self-efficacy, and the regulatory emotional self-efficacy mediates the relation between negative emotions and prosocial and aggressive behaviour.

Based on these previous studies, we hypothesize that:

1. Anger (state and trait), depression and anxiety (wave 1) have a negative effect on regulatory emotional self-efficacy (wave 2) and prosocial behaviour (wave 2), and a positive effect on aggressive behaviour (wave 2).
2. The different aspects of regulatory emotional self-efficacy (perceived self-efficacy in expressing positive affect, perceived self-efficacy in managing anger/irritation and perceived self-efficacy in managing despondency/distress, wave 2) will mediate or regulate the relation between negative emotions (wave 1) and prosocial and aggressive behaviour in adolescents (wave 2).
3. The different aspects of regulatory emotional self-efficacy (wave 2) are associated in a positive way with prosocial behaviour and in a negative way with aggressive behaviour (wave 2).

Because gender differences in regulatory emotional self-efficacy (Caprara, Steca, Cervone, & Artistico, 2003), in prosocial and aggressive behaviour were found in a previous study (Kornbluh & Neal, 2016; Mesurado et al., 2014); we will analyse this difference in all variables included in the paper. In the case that these differences were confirmed in our data, we will test the model hypothesized using gender as a control variable.

2. Method

2.1. Participants

Data was obtained from four hundred and seventeen adolescents in a two-wave longitudinal study (192 boys and 225 girls, *M* age = 14.70 years, *SD* = .68; age range = 13–17) from public and private schools located in different geographic zones within the school district of the city of Valencia, Spain. In the first wave, adolescents were either in the third and fourth year of secondary school. The second wave was carried out at a two-year interval and the adolescents were between fifteen and nineteen years old.

Most adolescents were from two-parent households (84%; 16% single-parent households). Mothers' education level was less than high school diploma in 22%, high school diploma or equivalent in 42%, and some university education in 42% of the cases. Fathers' education level was high school diploma or less in 24%, high school diploma or equivalent in 41%, and some university education in 29% of the cases. Participating schools were randomly selected from the list of all schools in Valencia with students enrolled in compulsory secondary education. In total, 11 schools participated in the study.

2.2. Procedure

Approval from the School Council and parental consent were obtained. Participation by students was voluntary; students were free to decline to participate. The survey was administered by trained researchers in the classroom in 50-min sessions during school hours. The two assessments took place during the first trimester of the school year. The study followed all ethical guidelines, respecting respondents' anonymity for both data collection and data analysis.

2.3. Measures

State and Trait Anger Scale (Del Barrio, Aluja, & Spielberger, 2003). This self-report questionnaire has three parts that includes Likert-type items with three response options (1 = *nothing* to 3 = *much*). The first part evaluates Anger as a state with 13 items as follows by having the subject answer according to the following instructions: “Mark the answer that best describes you at this time. Do not think too much about the answer and answer your first impression about how you feel NOW” (example item: “I'm furious”, “I feel like kicking”). The second part evaluates Anger as a trait with 10 items. The subject must answer according to the following instructions: “Mark the answer that best describes you habitually. Do not think too much about the answer and answer your first impression about how you feel USUALLY” (example item: “I have a strong character”, “It infuriates me to be corrected in front of others”). The third one assesses the level of self control and the coping mechanisms (externalisation or self control) that the subject uses in anger inducing situations (example item: “when I'm furious I hide my feelings”, “I take a deep breath to calm myself”). The total score for each scale was obtained with the mean of the scores of each item. In this study, Anger state (α = .82 at wave 1) and Anger trait (α = .92 at wave 1) were used in obtaining good reliability indexes.

DASS-Anxiety (Norton, 2007). This 7 items scale measures the negative emotional state of anxiety, and the frequency and severity in which negative emotions were experienced the previous week using a four-point likert scale ranging from *never happened* (0) to *happens often* (3). The total score for each scale was obtained with the mean of the scores for each item. For this study, only the anxiety scale was used (α = .82 at wave 1).

CES-D Scale (Radloff, 1977). This measure assesses the frequency and severity of negative emotions experienced and depressive symptoms in the previous week. Example of item: “I was upset by things that don't normally upset me”. In addition to internal consistency, CES–D scores have demonstrated an acceptable reliability, with cronbach's alphas from .70 to .90 in others studies (Edwards, Cheavens, Heiy, & Cukrowicz, 2010; Russell, Crockett, Shen, & Lee, 2008). Cronbach's alpha for this study was α = .76 at wave 1.

Regulatory Emotional Self-Efficacy Scale (Caprara et al., 2008). This scale evaluates self-efficacy beliefs in the domain of emotion regulation, using a five-point Likert scale ranging from *be unable* (1) to *fully capable* (5). Two scales are included: (a) Perceived self-efficacy to express positive affect was measured by five items in terms of perceived ability to express liking and affection toward others, to get oneself to express enthusiasm and enjoyment, and to feel satisfaction with personal accomplishments. A sample of item is “I can show liking for a person toward whom I am attracted” (α = .90 at wave 2). Perceived self-efficacy in regulating negative

affect was assessed by nine items in two subscales: (b) perceived self-efficacy in managing anger/irritation assessed the perceived ability to manage negative affect in the face of anxiety-arousing threats, anger provocation, rejection, and disrespect, and to control worrisome ruminations when things go wrong ("I can Manage negative feelings when reprimanded by my parents or significant others", $\alpha = .84$ at wave 2); and (c) perceived self-efficacy in managing despondency/distress, measured the perceived ability to manage negative affect in the face of despondency and discouragement ("I can keep from getting discouraged in the face of difficulties", $\alpha = .85$ at wave 2). The total score of each scale is the mean of the items score.

Prosocial Behaviour Scale (Caprara & Pastorelli, 1993; Del Barrio, Moreno, & López, 2001). This instrument uses 15 items to evaluate the behaviour of help, trust and sympathy. Respondents indicate the frequency with which the behaviour in each statement occurs (*often*, *sometimes*, *never*). Example items are, "I help my peers to do their homework" and "I try to console those who are sad". The total score of the Scale is the mean of the items score. Cronbach's alpha for this study was .75 at wave 2.

Physical and Verbal Aggression Scale (Caprara & Pastorelli, 1993; Del Barrio et al., 2001). This scale uses 20 items with three possible answers (*often, sometimes or never*) to evaluate behaviours that harm others physically or verbally. Example item: "I hit, kick and punch". The total score of the scale is the mean of the items score. Cronbach's alpha for this study was .83 at wave 2.

2.4. Statistical procedure

First, means and standard deviations were calculated using SPSS 19, and analysis of variance (ANOVA) or multivariate analysis of variance (MANOVA) were carried out to study gender differences in all variables included in the study. Correlation analysis was carried out, and finally, three longitudinal models were tested using structural equations modelling (SEM) in AMOS 17.0 (SPSS Inc., 2007). The following goodness-of-fit indices were used: chi-square, chi-square divided by degrees of freedom (χ^2/fd), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI) and Bentler comparative fit index (CFI). Root mean residual (RMR), was used to measure error. To assess the significance of the mediating effects of regulatory emotional self-efficacy between negative emotion and prosocial and aggressive behaviour, bootstrapping criteria was used (Shrout & Bolger, 2002).

3. Results

3.1. Preliminary analyses and descriptive statistics

Means, standard deviations and mean differences between boys and girls (based on ANOVA/MANOVA designs) for each variable at each wave are provided in Tables 1 and 2. The results show that girls were higher than boys in Anxiety and Depression in wave 1. Moreover, girls were higher than boys in Perceived self-efficacy in expressing positive affect and Prosocial Behaviour in wave 2; while boys were higher than girls in Perceived self-efficacy in managing despondency/distress and Aggression in wave 2.

3.2. Correlations

Table 3 despite the correlation analysis between variables in both groups: boys and girls.

The results indicate that state anger and trait anger correlate with each other and positively with anxiety and depression at wave 1 in both boys and girls. Moreover, state anger and trait anger correlate negatively with perceived self-efficacy in expressing positive affect (wave 2) and positively with physical and verbal aggression in both genders. Only girls reached a negative correlation between state anger, trait anger and prosocial behaviour. The correlation between trait anger and perceived self-efficacy in managing anger/irritation is negative in both genders. Only in girls, a negative correlation was reached between anxiety and depression with perceived self-efficacy in managing despondency/distress. Finally, it was observed that the three aspects of self-efficacy were positively and highly related to each other, both in boys and girls, and they reach a positive correlation with prosocial behaviour and a negative

Table 1
ANOVAS for waves 1 variables by gender.

	Wave 1					η_p^2
	Boys n = 192		Girls n = 225		*F* (1, 415)	
	Mean	SD	Mean	SD		
Anger[a]						
State Anger	1.10	.17	1.08	.19	1.80	.00
Trait Anger	1.77	.36	1.79	.36	.22	.00
Anxiety	.46	.50	.60	.56	7.57**	.02
Depression	1.71	.38	1.87	.46	14.65***	.03

Note: *F*, statistics based on one-way ANOVAs; η_p^2, Partial Eta squared, effect size measure (.01 = small effect; .06 = medium effect; .13 = large effect; Cohen, 1988).

**$p < .01$; ***$p < .001$.

[a] One-Way MANOVA, Hotelling trace F (2, 414) = 1.31, p = 2.7, $\eta_p^2 = .01$.

Table 2
ANOVAS for waves 2 variables by gender.

	Wave 2					η_p^2
	Boys n = 192		Girls n = 225		F (1, 415)	
	Mean	SD	Mean	SD		
Regulatory emotional self-efficacy[a]						
Perceived self-efficacy in expressing positive affect	3.98	.75	4.32	.71	22.24***	.05
Perceived self-efficacy in managing despondency/distress	3.41	.77	3.13	.81	12.19***	.03
Perceived self-efficacy in managing anger/irritation	3.22	.81	3.27	.82	.51	.00
Aggression	1.36	.29	1.22	.19	31.72***	.07
Prosocial Behaviour	2.48	.30	2.60	.27	17.03***	.04

Note: F, statistics based on one-way ANOVAs; η_p^2, Partial Eta squared, effect size measure. *$p < .05$; **$p < .01$; ***$p < .001$.

[a] One-Way MANOVA, Hotelling trace F (3, 413) = 20.35, $p < .001$, $\eta_p^2 = .13$.

Table 3
Correlations between variables in male and female participants.

Variables	1	2	3	4	5	6	7	8	9
1. State Anger (wave 1)	–	.27***	.26***	.31***	−.23***	−.01	−.08	.34***	−.15*
2. Trait Anger (wave 1)	.25***	–	.24***	.22***	−.16*	−.13*	−.27***	.37***	−.13*
3. Anxiety (wave 1)	.14*	.18**	–	.58***	−.12	−.20*	−.15*	.27***	−.12
4. Depression (wave 1)	.18**	.25***	.62***	–	−.36***	−.32***	−.24***	.21**	−.20**
5. Perceived self-efficacy in expressing positive affect (wave 2)	−.17**	.07	−.05	−.10	–	−.37***	−.21***	−.03	.31***
6. Perceived self-efficacy in managing despondency/distress (wave 2)	−.09	.01	−.01	−.15*	.50***	–	−.63***	−.07	.03
7. Perceived self-efficacy in managing anger/irritation (wave 2)	−.08	−.19**	−.04	−.16*	.38***	.55**	–	−.28***	.14*
8. Aggression (wave 2)	.20**	.18**	.08	.08	−.22**	−.16*	−.28***	–	−.31***
9. Prosocial Behaviour (wave 2)	−.13	−.08	−.07	−.14*	.22**	.15*	.22**	−.32***	–

Note: intercorrelations for female participants are presented above the diagonal, and intercorrelations for male participants are presented below the diagonal.
*$p < .05$; **$p < .01$; ***$p < .001$.

correlation with aggression.

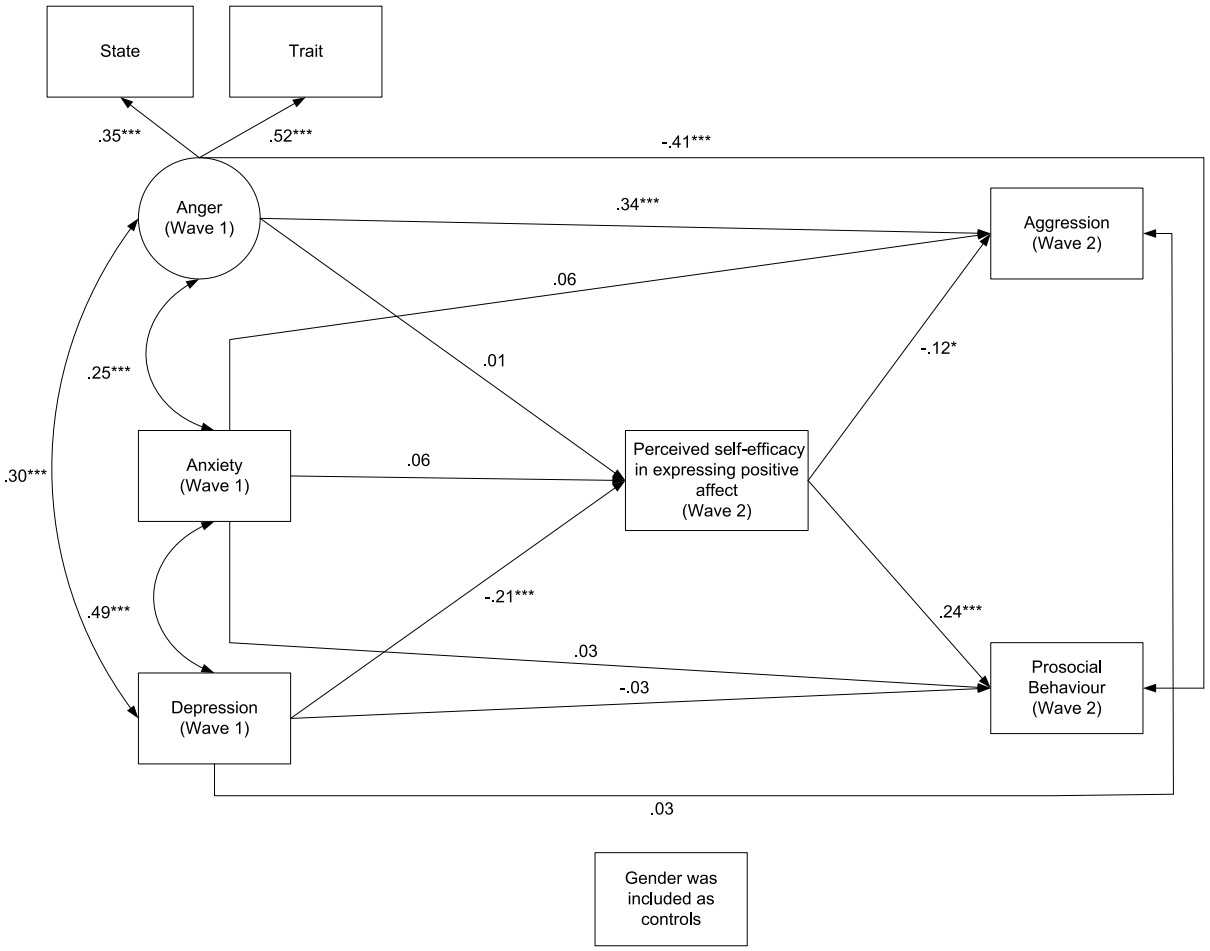
3.3. Test of longitudinal model

Three longitudinal hybrid models (Kline, 2015) were tested using AMOS 17 and maximum likelihood estimation with robust standard errors. Since we found differences between girls and boys, all models were gender controlled. The objective of this study is to test a longitudinal model that analyses the direct effect of negative emotions (anger, depression and anxiety, wave 1) on prosocial and aggressive behaviour (wave 2) in adolescents. And the indirect effect of negative emotion (wave 1) on prosocial and aggressive behaviour (wave 2) through regulatory emotional self-efficacy (1. perceived self-efficacy to express positive affect, 2. perceived self-efficacy in managing anger/irritation and 3. perceived self-efficacy in managing despondency/distress, wave 2). The same model was carried out three times changing the mediator variable.

The first model used perceived self-efficacy as a mediator variable, to express positive affect (first aspect of regulatory emotional self-efficacy). This first model test (controlling for gender) yielded acceptable fit to the data, χ^2 (6) = 22.43, $p < .001$, χ^2/fd = 3.71; GFI = .99; AGFI = .92; CFI = .96 and RMR = .004. Standardized path coefficients of the first model shows that depression (wave 1) is negatively related to perceived self-efficacy in expressing positive affect (wave 2). Anger (wave 1) is positively associated with aggression (wave 2) but negatively associated with prosocial behaviour (wave 2).

Additionally, the results indicate that perceived self-efficacy to express positive affect, mediated only the relation between depression and prosociality (indirect effect = −.05, 95% CIs = −.10 to −.02, p = 0.05) and between depression and aggression (indirect effect = .03, 95% CIs = 0.02 to 0.07, p = 0.05). However, the perceived self-efficacy to express positive affect (wave 2) did not mediate the relation between other negative emotions (anger and anxiety, wave 1) and prosocial and aggressive behaviour (wave 2). Moreover, perceived self-efficacy in expressing positive affect (wave 2) was positively related to prosocial behaviour (wave 2) and negatively related to aggression (wave 2) (See Fig. 1). The R^2 values for the mediator and outcomes are as follows: Perceived self-efficacy in expressing positive affect = .10; aggression = .38 and prosocial behaviour = .25.

Later, the same model was tested using the perceived self-efficacy in managing despondency/distress as mediator variable (second aspect of regulatory emotional self-efficacy). The second model test (control for gender) yielded acceptable fit to the data, χ^2 (6) = 28.22, $p < .001$, χ^2/fd = 4.03; GFI = .98; AGFI = .91; CFI = .94 and RMR = .01. Standardized path coefficients of the second model shows that anger (wave 1) was positively associated with aggression (wave 2) but negatively associated with perceived self-



Note: * $p < .05$; *** $p < .001$

Fig. 1. Longitudinal model testing the associations between negative emotions (wave 1), perceived self-efficacy in expressing positive affect (wave 2), aggression (wave 2) and prosocial behaviour (wave 2).

efficacy in managing despondency/distress (wave 2) and prosocial behaviour (wave 2).

Additionally, the results indicate that the perceived self-efficacy in managing despondency/distress (wave 2) did not mediate the relation between different negative emotions (wave 1) and prosocial and aggressive behaviour in adolescents (wave 2). Moreover, perceived self-efficacy in managing despondency/distress (wave 2) was not related to prosocial behaviour (wave 2) and aggression (wave 2) (See Fig. 2). The R^2 values for the mediator and outcomes are as follows: perceived self-efficacy in managing despondency/distress = .04; aggression = .42 and prosocial behaviour = .22.

Finally, the same model was tested using the perceived self-efficacy in managing anger/irritation as mediator variable (third aspect of regulatory emotional self-efficacy). The third model test (control for gender) also yielded acceptable fit to the data, χ^2 (6) = 20.76, $p < .004$, χ^2/fd = 2.96; GFI = .99; AGFI = .93; CFI = .96 and RMR = .003.

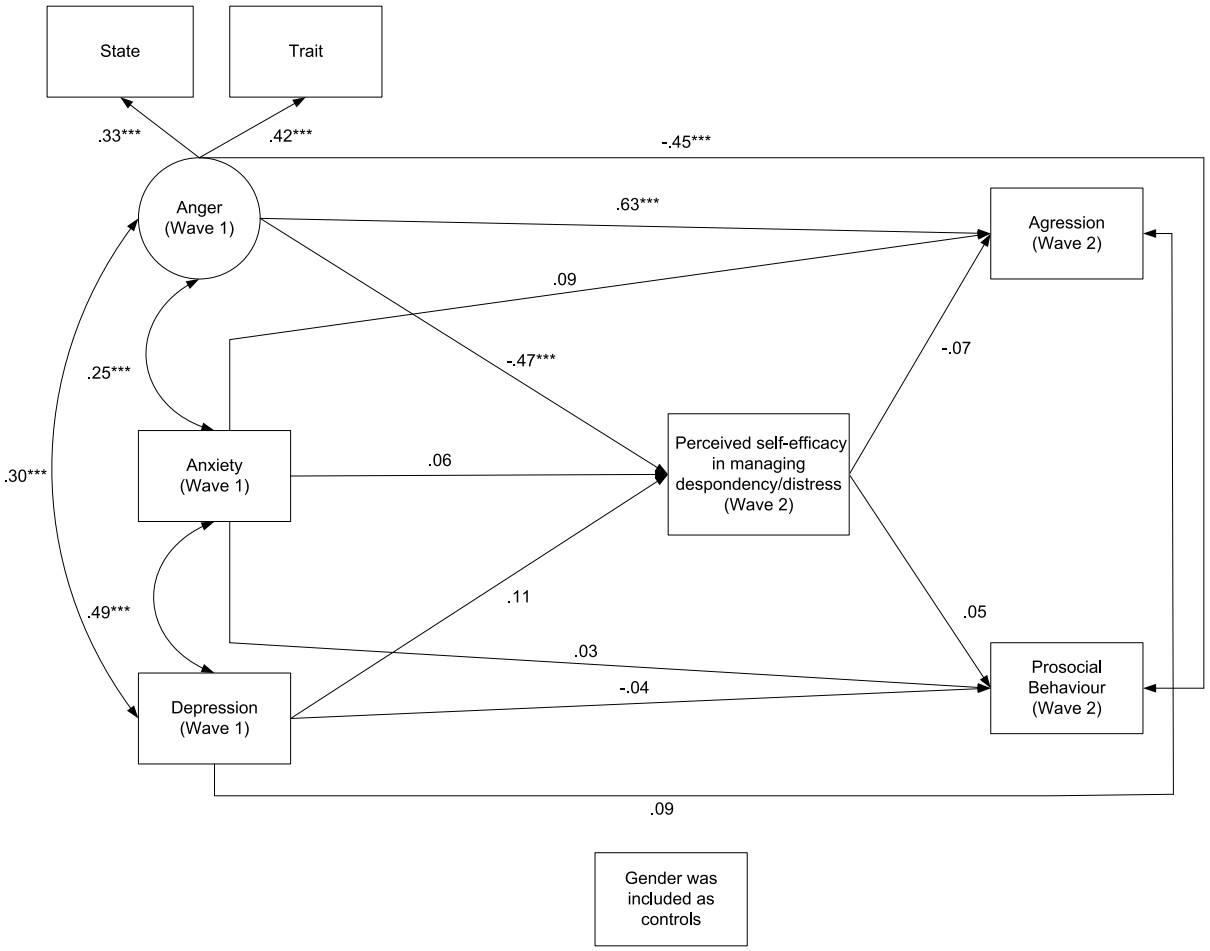
Standardized path coefficients of third model shows that anger (wave 1) was positively associated with aggression (wave 2) but negatively associated with perceived self-efficacy in managing anger/irritation (wave 2) and prosocial behaviour (wave 2).

However, the results indicate that the perceived self-efficacy in managing anger/irritation (wave 2) did not mediate the relation between different negative emotions (wave 1) and prosocial and aggressive behaviour in adolescents (wave 2).

Moreover, perceived self-efficacy in managing anger/irritation (wave 2) was not related to prosocial behaviour (wave 2) and aggression (wave 2) (See Fig. 3). The R^2 values for the mediator and outcomes are as follows: perceived self-efficacy in managing anger/irritation = .24; aggression = .42 and prosocial behaviour = .22.

4. Discussion

The findings of this study provide good evidence on how negative emotions (anger, anxiety and depression) operate in relation to

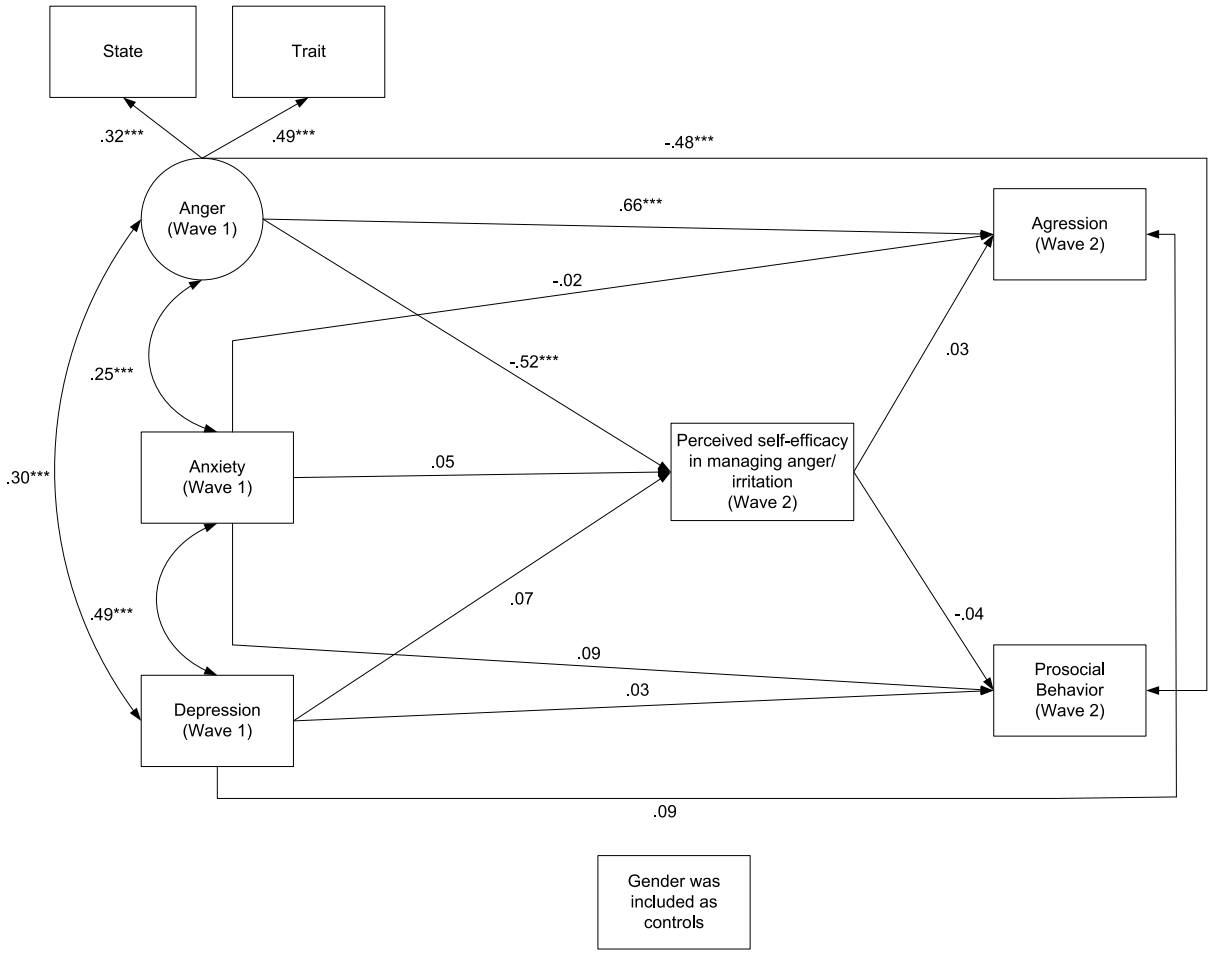


Note: *** $p < .001$

Fig. 2. Longitudinal model testing the associations between negative emotions (wave 1), perceived self-efficacy in managing despondency/distress (wave 2), aggression (wave 2) and prosocial behaviour (wave 2).

regulatory emotional self-efficacy in promoting aggression and mitigating prosocial behaviour. Because there is an important pattern of gender differences in several variables included in this research, in our preliminary analyses, gender differences were analysed. The results showed that girls reported higher level of anxiety, depression and prosocial behaviour than boys, while boys reported higher level of aggression than girls. These findings are consistent with several previous studies (Carlo, Mestre, Samper, Tur, & Armenta, 2010; Del Barrio & Carrasco, 2013; Diamantopoulou, Verhulst, & Van Der Ende, 2011; Mestre, Samper, Frías, & Tur, 2009). Moreover, girls showed higher level of self-efficacy in expressing positive affect than boys, while boys showed higher level of self-efficacy in managing despondency and distress than girls, these results are consistent with others studies in adolescent population, that could justify less depressive symptoms in boys (Alessandri et al., 2009). As Alessandri, Vecchione, and Caprara (2015) indicated, and aligned with the above, that the weight of gender-role socialization makes most females develop relatively high levels of positive interpersonal abilities, such as prosocial behaviour and a modulated expression of positive emotion (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006), whereas males tend to report higher level of ability to manage the expression of negative emotions, in accordance with the masculine role. However, it is important to note that a research done in populations of different countries did not show consistent results in gender differences and they vary by country (Caprara et al., 2008).

The main objective of this study is to test a longitudinal model that analyses the direct effect of negative emotions on prosocial and aggressive behaviour in adolescents. And the indirect effect of negative emotion on prosocial and aggressive behaviour through regulatory emotional self-efficacy (perceived self-efficacy in expressing positive affect, perceived self-efficacy in managing anger/irritation and perceived self-efficacy in managing despondency/distress). The results of the three models tested, indicated a good fit



Note: *** $p < .001$

Fig. 3. Longitudinal model testing the associations between negative emotions (wave 1), perceived self-efficacy in managing anger/irritation (wave 2), aggression (wave 2) and prosocial behaviour (wave 2).

between the proposed model and the empirical data. However, our hypotheses were only partially confirmed.

The first hypothesis was that anger (state and trait), depression and anxiety have a negative effect on regulatory emotional self-efficacy and prosocial behaviour and a positive effect on aggressive behaviour. The results showed that anger had a direct relationship with prosocial behaviour and aggression in adolescents, measured two years later. Within negative emotions included in this study, the state and trait of anger were the best predictors of physical and verbal aggression, while anger also inhibited prosocial behaviour in adolescence. The depression and anxiety states did not predict prosociality and aggressiveness, which were measured two years later, a possible explanation for these results, could be that the measure of anger included a combination of state and trait, while the other variables (depression and anxiety) were measured only as states. Consequently, it is possible that when mental states become more permanent mental traits, they have a greater influence on both positive and negative behaviour in adolescents. Our findings substantially replicated earlier reports that anger is directly related to unfriendly behaviours, for example Roberts et al. (2014), reported that anger predicts hostile behaviour toward peers and resistant behaviour with adults.

Our results contribute to understanding the role of certain negative emotions and their impact on positive and negative social interaction. Moreover, these results may have an implication on intervention programs like Kellner and colleagues proposed “anger management programs' attempt to reduce aggressive behaviour by reducing the cognitive, behavioural, and physiological responses associated with aggression, while increasing nonaggressive, socially appropriate responses” (2008, p. 216). Indeed, Kellner, Bry, and Salvador (2008) found that an intervention program based on managing anger increased prosocial behaviour toward teachers, and promotes less aggressive behaviour towards peers.

Furthermore, the results showed that both, the state and trait of anger, have an important negative influence on perception of self-efficacy in managing despondency or distress and in managing anger or irritation. On the other hand, depression as a state inhibits the perception of self-efficacy in expressing positive affect. Although previous studies have shown that failures in different aspects of

regulatory emotional self-efficacy promote negative emotions like depression (Bandura et al., 2003; Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Caprara, Alessandri, et al., 2010; Caprara, Gerbino, et al., 2010), our findings show that this relationship may also be reverse. This means that the experience of negative emotions could undermine the perception of regulatory emotional self-efficacy. However, more studies are necessary to confirm a bidirectional relationship.

Concerning the second hypothesis that different aspects of regulatory emotional self-efficacy mediate or regulate the relation between different negative emotions and prosocial and aggressive behaviour in adolescents, was only partially confirmed. We found that the perceived self-efficacy in expressing positive affect mediates the relation between depression and prosocial behaviour, and between depression and aggression. In contrast with our expectations, perceived self-efficacy in regulating negative affect failed in the regulation of the relation between negative emotions and behaviour. These findings could be explained by the arousal level of the negative emotions, maybe negative emotion with low arousal (eg. depression or sadness) could be managed through perceived self-efficacy in expressing positive affect; but in the case of emotions with high level of arousal (eg. anger), this would not be possible because in the face of provocative circumstances there is an immediate effect on the behaviour without the possibility of reflection.

Finally, our third hypothesis was that the different aspects of regulatory emotional self-efficacy are associated in a positive way with prosocial behaviour and in a negative way with aggressive behaviour. This hypothesis was only confirmed with one aspect of regulatory emotional self-efficacy: the perception of self-efficacy in expressing positive affect. The perception of self-efficacy in expressing positive affects had a negative relation to verbal and physical aggression and a positive relation to prosociality. These results are consistent with previous studies that found that the perception of self-efficacy in expressing positive affect is related to prosociality and aggressiveness (Alessandri et al., 2009; Caprara et al., 2008).

4.1. Limitations

This is a research based on self-assessments, even though depressive symptomatology and anxiety involves internal states, future research could add the assessment of aggressive or prosocial behaviour done by the teachers or the classmates.

Another limitation was that the longitudinal design included only two waves. Even though longitudinal designs allows the analysis of the evolution of the variables and how they relate at different times, this study has only carried out two assessments in a two year interval, in future studies, an assessment of these variables could be done over a longer period.

In conclusion, there is ample evidence on the links among anger, depression, anxiety, regulatory emotional self-efficacy, prosocial behaviour and aggressiveness; most studies are limited to the inference of causality due to their cross-sectional design. Maybe this study would contribute to narrow that gap. This study supports the notion that negative emotion plays an important role in regulatory emotional self-efficacy and especially in positive and negative adolescents' behaviour such as prosociality and aggression.

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