


Overprotective parenting and social anxiety in adolescents: The role of emotion regulation

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Abstract

The present study sought to examine the underlying mechanisms through which overprotective parenting relates to social anxiety symptoms in adolescents. Specifically, we tested whether the adolescents' emotion regulation strategies of dysregulation, suppression, and integration, played an intervening role in the association between perceived maternal and paternal overprotection and social anxiety symptoms in adolescents. A sample of 278 Swiss adolescents filled out questionnaires assessing perceived overprotective parenting, social anxiety symptoms and emotion regulation. Results indicated that perceived overprotective parenting was significantly associated with adolescents' social anxiety symptoms. Furthermore, structural equation modeling analyses indicated that emotional dysregulation, in particular, intervenes in the association between both maternal and paternal overprotection and social anxiety. These findings highlight emotion regulation difficulties as a potential mechanism underlying the association between parental overprotection and social anxiety, suggesting that adolescents' maladaptive emotion regulation strategies as well as overprotecting parenting could be targeted when treating social anxiety symptoms.

Keywords

Social anxiety, overprotective parenting, emotion regulation, adolescents

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Social anxiety (SA) is a debilitating phenomenon that affects a large percentage of adolescents (Kessler et al., 2015). Indeed, socially anxious adolescents exhibit greater risks of depression, suicide attempts, substance abuse, early school-dropout, among other psychosocial difficulties (Ranta et al., 2015). There is general support for the contribution of familial factors in the onset and course of SA (e.g., Fyer, 1993; Olsen, 2021). Parenting behavior, including overprotective parenting, has been found to contribute to the development of SA symptoms in children and adolescents (e.g., Knappe et al., 2012; Lieb et al., 2000; Rapee & Spence, 2004). Although the relationship between overprotective parenting and SA is fairly well-established, limited attention has been paid to potential factors that may explain this relationship. Herein, we argue that emotion regulation (ER) may be an important intervening factor, as maladaptive ER strategies are considered to be core characteristics of SA (e.g., Clark & Wells, 1995; Kashdan and Breen, 2008; Werner et al., 2011).

Even though there is scientific support for the relationship between unhealthy ER strategies and the development of SA symptoms (Jazaieri et al., 2015) as well as for the negative association between overprotective parenting and the development of healthy ER skills (see Segrin & Flora, 2019), further research is needed to examine whether ER plays a role in the association between parental overprotection and SA. Thereby, in this study, we used an emotion-specific approach (Brenning & Braet, 2013) by focusing on the regulation of anxiety specifically, as previous research particularly documented associations between overprotective parenting and adolescent anxiety (e.g., McLeod et al., 2007; Van Petegem et al., 2021). Further, we examined adolescents' perceptions of both their mothers' and fathers' overprotective parenting, as most studies investigating parental overprotection have only focused on mothers (e.g., Dumas et al., 1995; Hudson & Rapee, 2001). Such an exclusive focus on maternal overprotection may be problematic, as researchers may be neglecting the potential role of fathers' overprotective parenting in the development of psychosocial difficulties, as well as potentially reinforcing implicit messages that mothers are to blame for their offspring's developmental difficulties (Frascarolo et al., 2016).

Social anxiety in adolescence: The role of overprotective parenting

Social anxiety refers to the intense and persistent fear and avoidance of social situations and an excessive preoccupation with the fear of being rejected, criticized, or embarrassed (Kashdan & Herbert, 2001). When experiencing SA, common concerns include the fear of blushing, of appearing anxious, boring, or incompetent (Jefferies & Ungar, 2020; Stein & Stein, 2008). The impact of SA is widespread with a lifetime prevalence rate up to 9.7% for adolescents aged 14–15 years in the United States (Kessler, 2011). Further, SA is generally associated with maladjustment and lowered well-being (e.g., Stein & Kean, 2000). In mid- and late adolescence specifically, past research has indicated that socially anxious adolescents reported having fewer friends, having peer and romantic relationships of poorer quality, as well as more being likely to be victims of bullying (La Greca & Lopez, 1998; Ranta et al., 2009). The onset of SA symptoms typically occurs during the

period of mid-adolescence (Rao et al., 2007), which corroborates the importance of deepening our understanding of SA during adolescence.

A multitude of interrelated variables have been identified that contribute to the etiology and maintenance of SA, including characteristics of the family context (e.g., Olson, 2021). Indeed, there is a consensus in the literature about the contribution of the parent-child relationship in the development and maintenance of SA (e.g., Kearney, 2005; Spokas & Heimberg, 2008). In particular, a parenting context characterized by low warmth, rejection, insecure attachment, as well as overcontrol and overprotection are considered as potential factors that increase adolescents' vulnerability for the development of SA symptoms (Wong & Rapee, 2015). However, it should be noted that other potential risk factors, such as biological factors (e.g., the role of genetics in the development of SA; Donner et al., 2008), temperamental factors (such as shyness; Essex et al., 2010), socialization patterns (such as peer friendships; Voelkel et al., 2013) and psychological vulnerabilities (such as cognitive characteristics; Kearney, 2005) can contribute to the development of adolescents' SA symptoms as well.

In the past two decades, the phenomenon of overprotective parenting has gained increasing interest from scientific researchers, while also becoming increasingly debated in the popular literature (e.g., Haidt & Lukianoff, 2018). We focused on overprotective parenting, considering previous research demonstrating a consistent link with SA (e.g., Lieb et al., 2000; Wood et al., 2003). Maternal or paternal overprotection involves the provision of an excessive level of protection, considering the developmental level of the child (Thomasgard et al., 1995). Throughout adolescence, children's increasing need for independence and autonomy may be experienced as threatening to the parent-child bond for some parents (e.g., Brenning et al., 2017; Wuyts et al., 2017). As a consequence, they may have a hard time to adapt to this new reality, putting them at risk for excessively protecting their adolescent children, without considering their children's developmental needs (Gutman & Eccles, 2007; Zimmermann et al., 2022). Parental overprotection in adolescence can manifest in several ways, but it primarily involves developmentally inappropriate parenting by making decisions or solving problems on behalf of the adolescent, by excessively worrying about their adolescent's health and safety, and by being overinvolved in the adolescent's emotional well-being (Brenning et al., 2017; Gere et al., 2012). Although parental protection and involvement is beneficial for children when adapted to the child's developmental needs (e.g., Wilder, 2014), previous research has illustrated that inappropriate levels of parental protection may put children and adolescents at risk for developing psychosocial difficulties. Such negative consequences include depressive symptoms and perceived stress (Shah & Waller, 2000) internalizing and externalizing symptoms (Flamant et al., 2022; Van Petegem et al., 2020), lower academic performance (Masud et al., 2019), and lower life satisfaction and self-acceptance (Herz & Gullone, 1999).

Further, past research on overprotective parenting has examined associations with SA specifically. In a longitudinal study investigating the relationship between college students' SA and their recollections of overprotective and cold parenting, Spokas and Heimberg's (2009) findings suggested that when entering university, college students with high levels of SA particularly reported recollections of low parental warmth and high

levels of parental overprotection. Similarly, previous retrospective research demonstrated that adolescents with SA disorder reported that their parents were overprotective, controlling, low on emotional warmth, and critical (e.g., [Knappe et al., 2012](#)). To explain this relationship, a reciprocal influence model of the parent-child interaction has been proposed, where parents who perceive their children as more fragile or vulnerable may be more likely to engage in overprotective behavior ([Thomasgard et al., 1995](#)). In turn, this may prevent offspring from exposing themselves to social situations or acquiring social skills, increasing their dependency on the parents, hence reinforcing their vulnerability ([Rapee & Spence, 2004](#); [Wood et al., 2003](#)).

While previous research provides a certain insight into the factors specific to the parent-child relationship that may contribute to the development and maintenance of SA in adolescents ([Lieb et al., 2000](#)), it is essential to gain insight into the underlying mechanisms that may explain why overprotective parenting would be associated with more SA during adolescence. Herein, we argue that this may be particularly explained by adolescents' difficulties regulating their anxious emotions, as is outlined below.

The potential role of adolescents' emotion regulation

A vital component of the psychological and social well-being of individuals involves the ability to regulate and integrate emotional experiences ([Ryan & Deci, 2001](#); [Ryan et al., 2006](#)). As defined by [Gross \(1998\)](#), ER refers to "the process by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (p. 275). These ER abilities develop during childhood through interactions with the parents and other significant others and are essential in adolescence when transitioning into a more independent lifestyle ([Calkins & Hill, 2007](#); [Craco et al., 2017](#); [Love et al., 2022](#)). As proposed by [Gross and John \(2003\)](#), ER strategies can be consciously executed, or automatically with little awareness and deliberation.

According to self-determination theory, there are three ways in which emotions can be regulated: emotional dysregulation, suppressive regulation, and emotional integration ([Ryan et al., 2006](#)). *Emotional dysregulation* refers to one's difficulties to understand and accept emotions, to control impulsive behaviors and negative emotions, to use appropriate ER strategies flexibly, and to modulate desired emotional responses ([Gratz & Roemer, 2004](#)). Previous studies have indicated that emotion dysregulation constitutes a significant risk factor for multiple psychological disorders, including social anxiety (e.g., [Mennin et al., 2009](#)). Suppressive regulation, which is also often implicated in many forms of psychopathology and ill-being ([Ryan et al., 2006](#)), takes place when an individual avoids or minimizes the experience of emotions to reduce a negative impact ([Roth et al., 2009](#)). Finally, emotional integration refers to a more autonomous and adjusted type of emotion regulation ([Ryan et al., 2006](#)). Individuals using emotional integration strategies allow inner experiences to take place and are interested in their own sensations and emotions. They possess the regulatory capacities to choose how to express their emotions, and thus have the capacity to explore their emotions without being overwhelmed by them ([Roth et al., 2009; 2018; Ryan et al., 2006](#)).

There is also work focusing specifically on the role of ER in the context of SA disorder, suggesting that emotional dysregulation plays an important role in the development of SA symptoms (Hermann et al., 2004). In particular, four factors—heightened sensitivity of emotions, poor understanding of emotions, negative reactivity to emotions, and maladaptive management of emotions—that are components of maladaptive emotion regulation strategies, were found to relate to social anxiety symptoms (Goldin et al., 2014). Research focusing on ER strategies in individuals with SA disorder suggests that individuals with SA have dysfunctional beliefs about emotional expression (Jazaieri et al., 2015). This is because socially anxious individuals would believe that negative emotions are unbearable, that emotional experiences are unchangeable, and that emotional expression may elicit social rejection (Dryman & Heimberg, 2018), suggesting that rather maladaptive ER strategies may be put in place. Hence, they are likely to rely upon suppressive ER strategies when confronted with negative emotions. This association is also documented in the systematic review of Dryman and Heimberg (2018), where SA was found to be characterized by an overreliance on emotional suppression.

It should be noted that these studies mostly focused on adults and undergraduate students, that no information was provided regarding specific associations with emotional dysregulation or integration, and that most studies focused on the regulation of negative affect more generally. However, an emotion-specific approach is essential, as emotion-related processes may differ depending on the specific emotion involved (e.g., Niedenthal et al., 2002). Indeed, past research showed that the correlations between specific ER strategies and attachment representations and adolescent psychopathology differed in important ways, depending on the type of emotion involved (e.g., sadness vs. anger; Brenning & Braet, 2013).

Previous research also examined associations between perceived parenting and ER in children and adolescents. Indeed, whereas individual differences (genetic factors and their interaction with the environment) are related to their ER development, the family context contributes to this as well (Ryan et al., 2006). Moreover, positive ER strategies, such as emotional integration, have been found to be associated with responsive, warm, and autonomy-supportive parenting (e.g., Brenning et al., 2015; Jaffe et al., 2010; Morris et al., 2007), whereas emotion dysregulation is particularly associated with controlling, intrusive and overprotective parenting (e.g., McDowell et al., 2002; Strayer & Roberts, 2004; Tani et al., 2017). Lastly, emotion suppression has been found to relate negatively to warm, responsive, and empathic parenting (Jaffe et al., 2010). Drawing upon this literature, overprotective parenting was particularly expected to relate to more emotional dysregulation. Past research indicated that emotional integration and suppression are particularly associated with, respectively, high (vs. low) levels of parental warmth and responsiveness. We therefore expected that overprotective parenting would relate to more emotional suppression and less emotional integration. This is in line with recent results suggesting that overprotective parenting relates to lower levels of parental responsiveness (e.g., Chevrier et al., 2022). Furthermore, it should be noted that most studies investigating this relationship did not rely upon an emotion-specific approach to ER, nor did they examine further associations with SA.

The current study

The main goal of this study was to identify whether ER plays an intervening role in the relationship between perceived overprotective parenting and SA symptoms in adolescence. Several studies have indicated that familial factors, including parental overprotection, may play a role in the development of SA in adolescence and young adulthood (e.g., Spokas & Heimberg, 2009). However, the potential intervening role of ER remains unclear. Herein, we examined whether emotional suppression, dysregulation, and integration played an intervening role in the association between perceived parental overprotection and SA symptoms in adolescents. Thereby, we distinguished between maternal and paternal overprotection, in order to avoid a one-sided focus on mothers that may reinforce gendered representations of the mother as the primary caregiver that is solely responsible for healthy child development (Bristow, 2014). Indeed, despite decades of evidence that fathers play a unique contributing role in the development of children (e.g., Sarkadi et al., 2008), research in the developmental psychological field does not systematically integrate the role of fathers in the study of parenting, hence perpetuating stereotypical representations of the mother as the primary and fathers as secondary caregivers (e.g., Cabrera et al., 2018). Consequently, we distinguished explicitly between mothers' and fathers' overprotective parenting. Further, we relied upon an emotion-specific approach focusing on adolescents' difficulties in regulation their feelings of anxiety specifically, as past research indicated that the correlates of emotion regulation may vary significantly depending on the type of emotion involved (Brenning & Braet, 2013).

First, we examined the direct relation between perceived overprotective parenting and SA symptoms. Thereby, it was expected that adolescents perceiving more overprotective parenting would report higher levels of SA. Second, we examined the intervening role of the three ER strategies. It was expected that adolescents reporting higher levels of perceived overprotective parenting would report a more frequent reliance upon suppressive regulation strategies, which in turn would relate to more SA. Further, we also expected that higher levels of perceived overprotective parenting would be positively associated with emotional dysregulation, which in turn would be associated with higher levels of SA. Lastly, it was expected that adolescents who reported higher levels of perceived overprotective parenting would report lower levels of emotional integration, which in turn would be associated with higher levels of SA.

Method

Participants and procedure

The sample consisted of 278 adolescents (51.1% female, 48.9% male) in their last year of mandatory secondary schooling (i.e., ninth grade), recruited in two schools of the French-speaking part of Switzerland. The participants' age ranged between 14 and 17 years ($M_{\text{age}} = 14.96$ years, $SD = 0.74$, median = 15 years). Further, 67.1% of the participants had the Swiss nationality, 22.3% had a non-Swiss European nationality, whereas 10.6% had

another nationality (i.e., non-European). Most of the adolescents lived in a two-parent family constellation (72.3%), while 26.3% lived with separated parents, and 1.4% had one deceased parent. The study took place during a regular class period at school. The inclusion criteria for participating in the study were that participants were in their last year of secondary schooling. After obtaining consent from the parents and adolescents, research collaborators invited the pupils to complete paper-and-pencil questionnaires assessing SA, perceived overprotective parenting, and ER. Questionnaires were in French. A minority of the parents (i.e., less than 5%) did not consent to the participation of their adolescent, whereas none of the adolescents refused to participate. No incentives were provided. The study followed the ethical standards of the Swiss Society of Psychology (SSP) and was approved by the Coordinating Committee for educational research of canton de Vaud.

Measures

Social anxiety symptoms. SA was measured using the short version of the Social Anxiety Scale for adolescents (La Greca & Lopez, 1998; Nelemans et al., 2017). This scale is often used to measure adolescents' SA and has been well-validated (Garcia-Lopez et al., 2015). The questionnaire is composed of three subscales, each of them containing four items: Social Avoidance and Distress in new social situations or with new peers (SAD-New, $\alpha = .84$), Fear of Negative Evaluation (FNE, $\alpha = .89$) and the Social Avoidance and Distress, perceived as more general or pervasive (SAD-General, $\alpha = .76$). The scales include items such as "I feel nervous when I'm around certain people" (SAD-New); "I'm afraid that other won't like me" (FNE) and "It's hard for me to ask others to do things with me" (SAD-General). Item responses ranged from 1 (Never true) to 5 (Totally true). We used a total score for SA which had an overall good internal consistency of $\alpha = .87$.

Perceived overprotective parenting. Perceived overprotective parenting was measured using the Anxious Overprotection subscale of the Multidimensional Overprotective Parenting Scale (Kins & Soenens, 2013; see also Brenning et al., 2017; Chevrier et al., 2022). This 25-item subscale assesses five facets of overprotective parenting, each using five items: anxious rearing (e.g., "My mother/father immediately sees danger whenever I want to do something new"), infantilization (e.g., "My mother/father treats me like a small child"), privacy invasion (e.g., "My mother/father violates my privacy"), premature problem solving (e.g., "My mother/father makes comments about things that are none of her/his business like my clothes, hobbies, friends or music"), as well as general perceptions of overprotection (e.g., "My mother/father is too involved in my life"). Items were completed for mothers and fathers separately. Item responses ranged from 1 (Completely disagree) to 5 (Completely agree). Excellent internal consistency was observed in this study, with Cronbach's alphas of .91 and .90 for mothers and fathers respectively.

Emotion regulation. ER was assessed using the Emotion Regulation Inventory (Roth et al., 2009). This 18-item scale consists of three subscales, each composed of six items: Emotional Dysregulation, Emotional Suppression, and Emotional Integration. Items were

adapted to specifically refer to adolescents' regulation of anxiety. The subscales include items such as "When I am anxious, I feel I have little control over my behavior" (Dysregulation), "It can sometimes be useful to show my anxieties in certain situations" (Integration), and "I try to ignore feelings of anxiety" (Suppression). Item responses ranged from 1 (Never true) to 5 (Completely true). The scale had an internal consistency of $\alpha = .77$ for Emotional Dysregulation, $\alpha = .80$ for Emotional Suppression, and $\alpha = .75$ for Emotional Integration.

Results

Preliminary analyses

There were .1% missing data. Little's (1988) MCAR-test yielded a non-significant result, indicating that data were likely to be missing at random ($\chi^2/df = 1.66$). Therefore, we used Hot Deck Imputation (Andridge & Little, 2010) to impute these missing data for the preliminary analyses, whereas Full Information Maximum Likelihood (FIML; Enders & Bandalos, 2001) was used for the main analyses. All analyses were conducted in R version 4.1.2 (R Core Team, 2021). Means, standard deviations and correlations between the variables of interest are presented in Table 1. To examine potential mean-level differences as a function of gender and family structure, we performed a MANOVA with gender and family structure as independent variables and our study variables as dependent variables. The multivariate effect of gender was statistically significant [$F(6,270) = 5.39, p < .001$]; this was not the case for family structure [$F(6,270) = 1.55, p > .05$]. Subsequent univariate analyses for gender indicated that boys reported statistically significantly lower levels of emotional dysregulation [$F(1,276) = 22.93, p < .001, M_{\text{boys}} = 2.54$ versus $M_{\text{girls}} = 3.02, d = .55$], lower levels of emotional suppression [$F(1,276) = 5.35, p < .05, M_{\text{boys}} = 3.43$ versus $M_{\text{girls}} = 3.67, d = .28$], and lower levels of social anxiety [$F(1,276) = 10.18, p < .01, M_{\text{boys}} = 2.24$ versus $M_{\text{girls}} = 2.55, d = .38$]. Further, we examined potential age differences by inspecting the correlations of age with our variables of interest (see Table 1). These analyses indicated that older adolescents perceived significantly more maternal and paternal overprotection, and they reported fewer SA symptoms. These effects were controlled for in our main analyses.

Main analyses

Our main research questions were addressed using a structural equation modeling framework. We first examined the direct relation between perceived overprotective parenting and SA. Then, we tested for the intervening role of ER in the association between perceived overprotective parenting and SA. Specifically, we modeled perceived overprotective parenting as a predictor of adolescents' emotional dysregulation, emotional suppression, and emotional integration. These ER variables were, in turn, modeled as predictors of adolescents' SA. In order to examine whether ER fully explained the relation between overprotective parenting and SA, we examined whether model fit

Table 1. Means, standard deviations, and correlations among the study variables.

	Overall mean (SD)	Mean boys (SD)	Mean girls (SD)	1	2	3	4	5	6
1. Perceived overprotection mother	2.51 (.73)	2.50 (.67)	2.52 (.78)						
2. Perceived overprotection father	2.23 (.64)	2.21 (.61)	2.23 (.66)	.71**					
3. Emotional dysregulation	2.78 (.84)	2.54 (.83)	3.02 (.79)	.22**	.26**				
4. Emotional suppression	3.55 (.82)	3.43 (.79)	3.67 (.84)	.17**	.09	.20**			
5. Emotional integration	3.00 (.76)	3.01 (.77)	2.99 (.75)	-.08	-.06	.20**	-.03		
6. Social anxiety symptoms	2.39 (.79)	2.24 (.75)	2.55 (.80)	.20**	.17**	.25**	.18**	-.01	
7. Age	14.96 (.74)	15.0 (.72)	14.9 (.76)	.16**	.18**	-.01	-.02	.03	-.16**

Note. * $p < .05$. ** $p < .01$.

ameliorated significantly by including a direct effect between overprotection and SA. Models were estimated separately for mothers and fathers.

Each study variable was modeled as a latent variable. For SA and overprotective parenting, we used their subscales as indicators, whereas each of the three ER strategies were represented by three parcels that were created through a random selection of items from the corresponding subscale (Little et al., 2002). Model fit was evaluated based on a combined consideration of the comparative fit index (CFI), the standardized root-mean-square residual (SRMR) and the root-mean-square error of approximation (RMSEA). A cut-off of .90 for CFI, .08 for RMSEA, and .10 for SRMR would indicate a reasonable fit, whereas a CFI higher than .95, RMSEA below .06 and SRMR lower than .08 would be indicative of a good-fitting model (Hu & Bentler, 1999). Model comparison was based on the difference in CFI (Δ CFI). Models would fit equally well when the Δ CFI-statistic is lower than .010 (Cheung & Rensvold, 2002).

First, we estimated the measurement model for mothers and fathers. These models yielded good fit indices [Mother model: CFI = .94, RMSEA = .06, SRMR = .05; Father model: CFI = .93, RMSEA = .06, SRMR = .05], with all indicators loading high on their respective latent variables for mothers and fathers (for mothers, ranging between .50 and .85, all $ps < .001$; for fathers, ranging between .49 and .85, all $ps < .001$). Then, we examined the direct association between perceived maternal overprotective parenting and SA. This model yielded an excellent fit [CFI = .97, RMSEA = .07, SRMR = .04]. In line with our hypotheses, adolescents who perceived more maternal overprotective parenting reported more social anxiety symptoms ($b = .26, p < .01$). Results for the father model were very similar. The model yielded a good fit [CFI = .95, RMSEA = .09, SRMR = .05], also indicating that higher levels of perceived paternal overprotective parenting was related to more SA ($b = .26, p < .01$).

Then, we tested for the intervening role of ER in the association between perceived overprotective parenting and SA. Following the guidelines of Holmbeck (1997), we first estimated a model in which all associations are estimated, thus also including the direct relation between overprotective parenting and SA. In the mother data, this model fitted the data well [CFI = .94, RMSEA = .05, SRMR = .05]. Then, we compared this model with a model where the direct association between overprotection and SA was constrained to zero. Model fit did not change significantly (Δ CFI = .003), indicating that the latter model is the most parsimonious one. This model is presented in Figure 1. Specifically, it was found that perceived maternal overprotection is associated with more emotional dysregulation and more emotional suppression, which both, in turn, are associated with more SA symptoms. Associations for emotional integration were not statistically significant. A path analysis using maximum likelihood estimation with 5,000 bootstrap samples (Cerin & MacKinnon, 2009) also indicated a significant indirect effect of maternal overprotection on social anxiety symptoms through emotional dysregulation (.08, 95% CI [.00, .15]), whereas indirect effects were non-significant for emotional suppression (.03, 95% CI [-.02, .07]) and integration (.01, 95% CI [-.02, .05]). The total indirect effect through emotion regulation was significant (.12, 95% CI [.03, .20]).

We then tested for the intervening role of ER in the association between fathers' perceived overprotective parenting and SA. This model, including the direct association

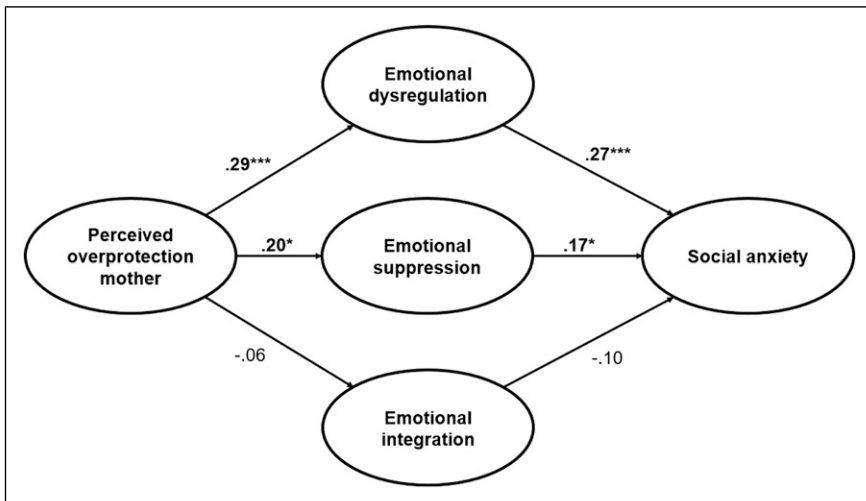


Figure 1. Structural model depicting the relation between perceived overprotective parenting, emotion regulation and social anxiety symptoms (mother model). Note. *** $p < .001$. ** $p < .01$. * $p < .05$. For the sake of clarity, correlations between variables at the same level, effects of the control variables, and indicator variables are not depicted.

between overprotection and SA, yielded a good model fit as well [CFI = .91, RMSEA = .06, SRMR = .05]. In addition, constraining the direct association between overprotection and SA to zero did not change model fit significantly ($\Delta\text{CFI} = .003$), indicating that the latter model is the most parsimonious one (cf. Figure 2). In this parsimonious model, perceived paternal overprotective parenting is only linked to more emotional dysregulation; associations with emotional suppression and emotional integration were not statistically significant. Emotional dysregulation and emotional suppression, in turn, are associated to more SA symptoms, whereas associations for emotional integration were not statistically significant either. Path analysis with bootstrapping analyses also indicated a significant indirect effect of paternal overprotection on social anxiety symptoms through emotion dysregulation (.09, 95% CI [.00, .18]), but not through emotional suppression (.01, 95% CI [-.02, .04]) or integration (.01, 95% CI [-.02, .04]). The total indirect effect through emotion regulation was significant (.11, 95% CI [.01, .21]).

Discussion

Over the past two decades, the phenomenon of SA has received increasing attention, as research has demonstrated that it can severely disrupt long-term functioning when left untreated (Ranta et al., 2015). Despite previous researchers' success to document associations between overprotective parenting and SA in adolescents (e.g., Knappe et al., 2012), there is a dearth of research examining the potential intervening mechanisms in this relationship (Spokas & Heimberg, 2009). This is unfortunate, as insights into the

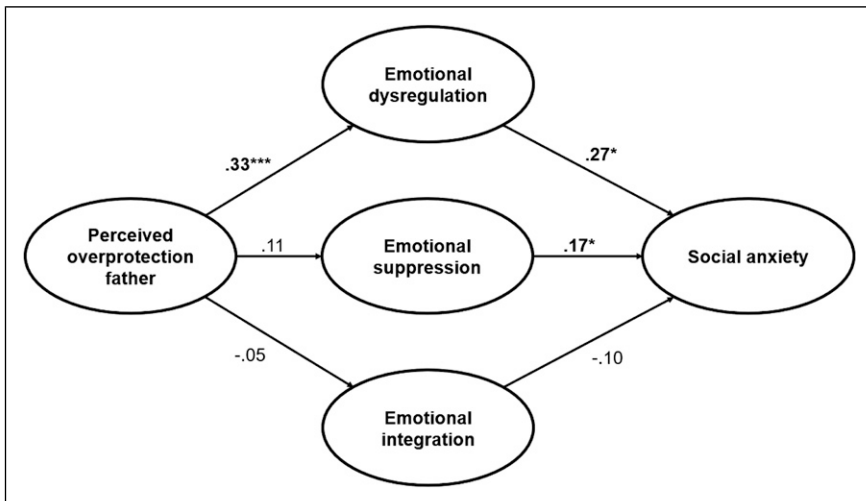


Figure 2. Structural model depicting the relation between perceived overprotective parenting, emotion regulation and social anxiety symptoms (father model). Note. *** $p < .001$. ** $p < .01$. * $p < .05$. For the sake of clarity, correlations between variables at the same level, effects of the control variables, and indicator variables are not depicted.

dynamics of SA could yield potential avenues for targeted interventions. Therefore, we aimed to test whether adolescents' perceptions of maternal and paternal overprotective parenting are associated with SA symptoms, and whether adolescents' capacities to regulate their feelings of anxiety may explain this association, using an emotion-specific approach to study ER (cf. Brenning & Braet, 2013). Overall, our results indicated that both maternal and paternal overprotection is significantly related to more SA symptoms in adolescents, and that emotional dysregulation particularly played an important role in explaining why overprotective parenting related to more SA symptoms. Emotional suppression, to a lesser extent, played an intervening role as well in the relation between maternal overprotection and SA.

The results of the present study support previous research showing that adolescents experienced more SA symptoms when they perceived their parents to be overprotective (for reviews, see Rapee, 1997; Wood et al., 2003). As previous research suggests, parents who tend to react in an overprotective way to a child displaying negative emotions may inhibit their child from experimenting with several ER strategies (Bell & Calkins, 2000; Fox & Calkins, 2003). In turn, children learn to rely on external sources for their ER (MacDermott et al., 2009) and are more at risk for developing SA (e.g., McDowell et al., 2002). This suggests that including parents to target their overprotective behaviors and their anxious expression might be relevant when treating adolescents displaying SA symptoms (Lau et al., 2017).

Furthermore, our results indicated that adolescents experiencing overprotective parenting particularly rely upon dysregulation as a strategy to regulate their feelings of

anxiety. Particularly, they tend to feel overwhelmed and have difficulties when confronted with feelings of anxiety. These ER difficulties fully explained the association between overprotective parenting and SA symptoms. Potentially, emotional dysregulation may be transmitted from parents to adolescents through parents' overprotective parenting (Fulton et al., 2014). Intergenerational transmission processes may take place for emotional dysregulation processes for anxiety specifically through parents' overprotective behaviors. However, more research is needed to test such dynamics explicitly. Furthermore, although several studies have identified a link between overprotective parenting and ER difficulties (e.g., McDowell et al., 2002; Strayer & Roberts, 2004), research mostly focused specifically on emotional suppression and cognitive reappraisal (Gross, 1998). However, our results indicate that emotional dysregulation, in particular, plays an important role in explaining the relationship between overprotective parenting and SA in adolescents.

Moreover, overprotective parenting related to more emotional suppression, but only for perceived maternal overprotection. These findings are in line with Bariola et al. (2011), who focused on the intergenerational transmission of ER strategies. Their findings indicated significant associations between mothers' emotional suppression and their child's use of suppression, whereas these associations were not significant for fathers' use of emotional suppression. Potentially, this may reflect a dynamic of gender-typed emotion socialization (e.g., Root & Denham, 2010), but more research is needed to test this explicitly. Further, in line with the previous literature (e.g., Dryman & Heimberg, 2018), the use of such emotional suppression strategies may set adolescents at risk for more SA symptoms, although this association was less pronounced. Indeed, previous research found that individuals with SA report using emotional suppression more often, compared to individuals without SA symptoms (e.g., Kashdan & Breen, 2008; Werner et al., 2011).

Associations of emotional integration with both overprotection and SA were, unexpectedly, not statistically significant. One possible explanation is that more positive parenting dimensions, such as autonomy-supportive parenting, are associated with more adaptive ER strategies (Brenning et al., 2015). Hence, future research would benefit from also including more adaptive parenting dimensions when studying parents' role in the development of ER and SA. Furthermore, as we did not find evidence for an association between emotional integration and SA symptoms, we hypothesized that emotional integration might be more likely to relate to more positive developmental outcomes, such as prosocial behavior, empathy and positive well-being (Benita et al., 2017), rather than to maladaptive outcomes. Moreover, our study did not include the ER strategies of cognitive reappraisal, that is, one's ability to modify a subjective evaluation of an emotion-provoking situation to change its emotional impact (Gross & John, 2014). Potentially, cognitive reappraisal may be a better fitting strategy to deal with SA, as suggested by previous research (Kivity & Huppert, 2016).

To sum up, the present findings provide further insight into the correlates of SA symptoms in adolescence, both in terms of overprotective parenting and ER. These results are important from a clinical and a societal point of view. For instance, the implications of the anxious situations created due to COVID-19, declared by the World Health Organization as a pandemic in March 2020, affected the health of many human beings

worldwide. A study conducted by Kumar et al. (2021) indicated that there are higher chances of having SA symptoms as an after-effect of COVID-19, illustrating that it is important for clinicians and practitioners to offer adolescents the necessary guidance that is effective to treat these symptoms. This may apply to the broader context of uncertainty associated not only to the pandemic but also to other crises, such as the climate crisis.

Further, our findings indicate that it may be important for clinicians and practitioners to include parents when providing therapy to adolescents. Since parents' behaviors, and particularly their overprotective and emotion socialization behaviors, play a role in their offspring's ER strategies (Eisenberg et al., 1998), we hypothesize that targeting parents' overprotective behaviors as well as their own ER strategies may be valuable when promoting adaptive ER in adolescents (Lau et al., 2017).

Despite several strengths (e.g., inclusion of adolescents' perception of both mother's and father's parental overprotection, and the use of an emotion-specific approach to ER), it is important to highlight several limitations and to offer directions for researchers to further develop these research topics. First of all, the sample was comprised of French-speaking adolescents living in Switzerland. Future research should address the present research questions in populations with from different sociocultural contexts, or with a diagnosis of SA (i.e., in a clinical sample) in order to examine the generalizability of the findings. Further, as our research involved only adolescents' self-reported measures, future research could extend the current findings by assessing both parents' and adolescents' perceptions about overprotective parenting and/or by using an observational approach when assessing adolescents' ER strategies (for an example, see Hagström et al., 2020). Moreover, due to the cross-sectional nature of the data, no causal inferences can be made. A longitudinal or experimental design would allow us to gain further insight into the direction of effects. This would allow us to test whether SA in adolescents also may elicit overprotective parenting, since past research indicates that parents who perceive their children to be more vulnerable may be more likely to engage in overprotective behaviors (e.g., Eira Nunes et al., 2022; Thomasgard et al., 1995). A longitudinal design would be helpful to gain insight into the transactional nature of the relation between overprotective parenting, the development of emotion regulation strategies, and social anxiety.

Despite these limitations, the present study offers important insights that help us to better understand how parental overprotection is related to SA symptoms in adolescents. Specifically, adolescents' emotional dysregulation was particularly important for understanding the mechanisms by which parental overprotection is associated with SA symptomatology. Overall, our results underline the necessity for clinicians to work with parents, as well as to target adolescents' maladaptive ER strategies when treating SA symptoms.

Author's Note

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Open research statement

As part of IARR's encouragement of open research practices, the authors have provided the following information: This research was not pre-registered. The data used in the research are available. The data can be obtained by emailing: Stijn.Van.Petegem@ulb.be. The materials used in the research are available. The materials can be obtained by emailing: Stijn.Van.Petegem@ulb.be.

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