

# **Parental Threat Perception and Hyper-parenting as Potential Risk Factors for Adolescents' Test Anxiety**

## **Abstract**

Parents who perceive their social environment as threatening may transmit these anxieties to their adolescents through their parenting, by shaping the skills and beliefs that adolescents adopt to interact with their own environment. The present study explores the role of hyper-parenting and two potential psychological mechanisms (i.e., youth emotional regulation and perfectionism) in the association between parental threat perception and adolescents' test anxiety. Two styles of hyper-parenting are investigated: child-centrism, which refers to over-protective behaviors, and tiger, which describes over-involved behaviors regarding children's achievements. The proposed theoretical model was tested among 439 dyads of parents ( $M_{age} = 44.5$ ,  $SD = 5.8$ , 24% fathers) and adolescents (40.4% boys, 46.9% public school, 54% sixth graders). Results from path analyses showed that parental threat perception was positively associated with both styles of hyper-parenting. However, solely tiger hyper-parenting (and not child-centrism) was associated with greater adolescent test anxiety through youth perfectionism. Emotion regulation strategies did not mediate the relation between hyper-parenting and test anxiety. The proposed model was invariant across adolescent or parent gender and school type or level. Findings from this study have practical implications as they reveal that test anxiety in adolescents is not only rooted in individual factors or parental behaviors but may also reflect parental threat perception of the social environment.

*Keywords:* test anxiety, adolescents, parents, hyper-parenting, environmental threat.

## **Introduction**

A growing number of societies may be characterized by high standards, outcome-focused climates, and job market instability (Doepke & Zilibotti, 2021; Keller et al., 2016), potentially triggering concerns of competitiveness and insecurities in many families. Parents who perceive such cues as threatening for their adolescent's future can be likely to adjust their rearing attitudes to shield their offspring from potential harm. For instance, parents can select the best schools for their offspring (Cucchiara, 2013) or have them engage in numerous growth-promoting activities (Barrett DeWiele & Edgerton, 2016). Parents over-involvement in their adolescent's lives and education is a phenomenon called hyper-parenting. It remains unclear whether hyper-parenting helps youth prepare to face daily challenges or instead facilitates the transmission of parents' anxieties to their adolescents. In the present study, we explored in one model (1) whether parental threat perception can predict hyper-parenting attitudes and (2) how hyper-parenting attitudes may be associated with adolescents' test anxiety, through two main psychological mechanisms, namely youth emotion regulation and perfectionism.

### **Parental Threat Perception**

Parental threat perception of the adolescents' environment is defined as worries about children's future, beliefs about the scarcity of resources, and perception of instability (Gurland & Grolnick, 2005). Even in the absence of physical threats (e.g., war), parental threat perception is associated with more controlling behaviors (Mauras et al., 2013). Using an experimental design, Robichaud and colleagues (2020) found that children whose mothers were exposed to a media broadcast presenting a threatening future world perceived their mothers as significantly more controlling than those in the non-experimental condition. These results suggest that perception of threatening social environments may prompt parents to over-involvement, presumably to protect their adolescent from potential harm (Grolnick,

2003). Many forms of parental over-involvement, coined hyper-parenting styles, have recently emerged in social media and popular parenting resources (Druckerman, 2014). Yet, their associations with parental threat perception or the way hyper-parenting styles impact child development are poorly documented.

## **Hyper-Parenting**

Hyper-parenting styles refer to specific groupings of parenting attitudes and behaviors that shape the home climate (Ashton-James et al., 2013). *Helicopter parenting* involves the over-protection of adolescents (Vigdal & Brønnick, 2022). Helicopter parents are over-invested in their adolescents' lives, controlling their behaviors and limiting their autonomy (Padilla-Walker & Nelson, 2012) with the goal of preventing negative emotions. For instance, they are more likely to solve problems for their adolescents (LeMoyne & Buchanan, 2011). A similar hyper-parenting style has been originally conceptualized in Asian societies, called *Little Emperor parenting*. It refers to families where the child, often an only child, has access to any desired object and is granted the entirety of his/her wish (Wang & Fong, 2009). As with helicopter parenting, little emperor parents tend to actively prevent or respond to their adolescent's negative emotions without considering whether they could learn to regulate these emotions. In contrast, *Tiger parents* are defined as authoritarian parents who are extremely demanding of their children (Kim et al., 2013). This style includes strict discipline and high performance pressures regarding family obligations and academic achievement (Chua, 2011). Finally, *concerted cultivation* consists of offering or forcing adolescents to participate in several extra-curricular activities (e.g. sports, chess, etc.) to give them as many growth-promoting opportunities as possible (Lareau, 2011). The goal is to increase their odds of having a prosperous future (Vincent & Maxwell, 2016).

While aimed at providing adolescents with optimal life experiences, the over-emphasis on preventing negative emotional experiences (helicopter and little emperor) or

preparing for the future (tiger, little emperor, and concerted cultivation) may inadvertently compromise adolescents' optimal development. Specifically, parents with helicopter, little emperor, and tiger attitudes tend to take control of adolescents' lives, which could negatively affect their self-regulation capabilities (Mathijs et al., 2023; Roth & Assor, 2012). Furthermore, by setting high achievement standards that pressure adolescents to perform (Ringeisen & Raufelder, 2015), parents with tiger, little emperor, and concerted cultivation attitudes could cultivate adolescents' vulnerability to experiencing anxiety when facing challenges. For instance, Cameron et al. (2013) showed that little emperor children, who are an only child, reported greater nervousness and sensitivity than children with siblings. Helicopter parenting was also significantly related to anxiety symptoms in most studies included in the review of Vigdal & Brønnick (2022). Finally, according to a large meta-analysis of 1015 studies, controlling behaviors—a key component of hyper-parenting—predicted greater levels of internalized symptoms in youth, although the effects sizes were small (Pinquart, 2017). These findings cast serious doubts on the belief that hyper-parenting can effectively prepare adolescents for meeting upcoming challenges.

Common challenges that directly influence adolescents' future opportunities are academic evaluations. Available evidence suggests that hyper-parenting seems counterproductive to help adolescents cope with such evaluations. Indeed, key features of hyper-parenting such as high expectations for success and parental pressures have been positively associated with anxiety in school (e.g., Greenberger et al., 2008).

### **Test Anxiety**

Test anxiety is a form of anxiety that predisposes individuals to respond to academic evaluations with heightened anxious states (Putwain & Daly, 2014; von der Embse et al., 2018). These anxious states include worries about failure, physiological activation (Zeidner, 2007), and off-task behaviors (e.g., seeking reassurance; Szöllös et al., 2023). There is solid

empirical and meta-analytic evidence linking test anxiety to poorer academic achievement (von der Embse et al., 2018), emotional disorders, and poorer well-being at school (Putwain et al., 2021). Girls seem particularly affected as they consistently report higher test anxiety than boys (Putwain & Daly, 2014; von der Embse et al., 2018).

Few studies have examined the association between parental pressures or expectations and youth test anxiety at early school levels. Ritchwood et al. (2015) and Brandmo et al. (2019) found that parental expectations and pressures were positively associated with test anxiety in large samples of secondary school students. These associations were found to be similar regardless of parents' gender (Ringeisen and Raufelder, 2015). Yet, no study has examined whether hyper-parenting behaviors are associated with test anxiety. Understanding this association could highlight the potentially paradoxical impact of hyper-parenting and offer recommendations to channel parental involvement towards behaviors more likely to help adolescents overcome challenges at school. To shed light on the underlying mechanisms through which hyper-parenting style could play a role in adolescents' test anxiety, this study explored two potential mediators of these relations: adolescent emotion regulation and perfectionism. We focused on these potential mediators because of their likely role in regulating and producing anxiety during academic evaluations.

### **Child Emotion Regulation and Perfectionism**

With high expectations for their children, hyper-parents may encourage different emotion regulation strategies (Roth & Assor, 2012), that could affect adolescents' test anxiety. Gross (2013) defines emotion regulation strategies as the attempt to influence the nature of one's emotions, their timing, their intensity, and their expression. While cognitive reappraisal refers to the reinterpretation of situations to modify their emotional impact, expressive suppression is defined as the inhibition or concealment of ongoing emotions

(Gross & Cassidy, 2019). Past research has shown that positive parenting behaviors were associated with greater cognitive reappraisal in children (Jaffe et al., 2010). Conversely, controlling behaviors were linked to dysregulation and less adaptive emotion regulation strategies (e.g., expressive suppression; Mathijs et al., 2023; Strayer & Roberts, 2004). Regarding test anxiety, a study has shown that medical students who used less emotion regulation strategies reported higher test anxiety (Liu et al., 2021). However, this relation is inconsistent and understudied (Putwain, 2019).

Moreover, parental expectations and controlling behaviors that characterize hyper-parenting seem to be developmental precursors of perfectionism (Damian et al., 2013; Randall et al., 2015). Hewitt and Flett (1991) described perfectionism as deeply rooted expectations for perfection that may vary in their source and target. They propose two forms of perfectionism regarding the self: socially prescribed perfectionism, characterized by one's need to attain perfection for external approval, and self-oriented perfectionism, characterized by unrealistically high standards for oneself and severe self-criticism. In the academic domain, studies suggested that women are particularly prone to perfectionism compared to men (Smith et al., 2022).

Through modelling processes, adolescents could thus internalize some hyper-parenting attitudes (e.g., those of tiger or concerted-cultivator parents) towards educational success. These attitudes, in turn, would reinforce both types of perfectionism in adolescents. While few studies focused on perfectionism and hyper-parenting per se, one showed that helicopter parenting predicts perfectionism in emerging adults (Hayes & Turner, 2021). Regarding test anxiety, a meta-analysis of 92 studies found a positive and robust association between this form of anxiety and perfectionism (Burcaş, 2021).

To our knowledge, only one study documented the indirect effect of controlling parenting on test anxiety among young adults via perfectionism (indirect effect for mothers

= 0.038 and for fathers = 0.04; Soysa & Weiss, 2014). This study suggested that controlling behaviors, such as those involved in hyper-parenting, could be related to greater levels of perfectionism, which in turn is likely to be associated with greater levels of test anxiety.

### **The Present Study**

Building on these past findings, we tested a prospective mediational model of the association between parental threat perception and test anxiety. We first hypothesized that parental threat perception could set the stage for stronger parental endorsements of hyper-parenting attitudes. In turn, we expected such hyper-parenting attitudes to be associated with less adaptive emotion regulation strategies (i.e., less cognitive reappraisal and more expressive suppression) and more perfectionism in adolescents (i.e., socially prescribed and self-oriented), which should relate to adolescents' greater test anxiety. We also expected a positive indirect association between parental threat perception and youth test anxiety, through the proposed mediators. To test these hypotheses, we relied on a multi-informant approach where parents reported their environmental threat perception and hyper-parenting styles, while adolescents from elementary and secondary schools answered questionnaires on emotion regulation, perfectionism, and test anxiety.

Considering females' vulnerability in experiencing perfectionism and anxiety in the academic domain, a second objective was to test the moderating effect of gender on the proposed relations using a multi-group analytical approach. We also examined the moderating role of school type (private vs. public) on the proposed associations, as it may reflect hyper-parents' efforts to secure the best future for their offspring (Cucchiara, 2013) and attending private school can be more pressuring for adolescents. Tentatively, we expected stronger associations among female youths and students in private schools.

## **Methods**

### **Participants**

Data for this study are part of a larger project that focuses predictors of anxiety in school. The project was approved by [anonymized] in April 2019. Two cohorts of students, one per school level, provided data in May-June 2019 (T1) and again in October-November 2019 (T2,  $N = 1,204$  students; 287 sixth graders and 917 eleventh graders). Of these students' parents, 512 completed scales at T1. When both parents participated ( $n = 73$  families), we randomly retained the responses of one parent for the analyses, yielding a final sample of 439 dyads of parents ( $M_{age} = 44.5$ ,  $SD = 5.8$ , 24% fathers) and adolescents (40.4% boys, 46.9% public school, 54% sixth graders).

### **Procedure**

Participants were recruited from 13 French-speaking public and private schools subdivided into 7 elementary and 6 secondary schools in suburban areas of the Montreal region (Canada). Students in Grades 6 and 11 from these schools were invited to participate at T1 and at T2. While parental consent was required for the students in Grade 6, students in Grade 11 could consent independently. When required, parental consent was obtained prior to the first school visit and student consent or assent was obtained at T1. All students filled out the self-reports described below (alongside other measures described in the project's registration) in their classroom during regular class hours at T1 and T2. Data were collected online from parents at T1 using Qualtrics.

### **Measures**

For all the following scales used in this study, a higher score represents a greater level of the construct measured. When needed, a double-blind translation technique (Kristjansson et al., 2003) was used to translate the scales in French.

**Demographics.** Demographic data were gathered through youth (i.e., gender) and parental demographic questionnaires (i.e., school level, school type, last education level completed, yearly family income, racial and ethnic identity). To obtain a more complete



indicator of each dyad's socioeconomic status (SES), we averaged standardized scores of parental education and family income ( $r = .35, p < .001$ ).

**Hyper-parenting practices.** The *Hyper-parenting questionnaire* (HPQ; Ashton-James et al., 2013) measures four styles of hyper-parenting: helicopter, tiger, little emperor, and concerted cultivator. Each style is measured through 5 items. Parents answer using a 9-anchor response scale while considering the extent to which they identify with each parental attitude (1 = never or definitely not and 9 = always or definitely). Only two previous studies have used this scale and showed low or satisfactory internal consistency ( $\alpha = .50$  to  $.73$  in Ashton-James et al., 2013 and  $\alpha = .60$  to  $.80$  in Janssen, 2015). In these two studies, the factorial structure of the hyper-parenting questionnaire was not explicitly documented. Therefore, a confirmatory factor analysis (CFA) was performed as a preliminary analysis to validate its factorial structure.

The CFA results did not converge into the four theory-based factors. We thus conducted exploratory factorial analyses (EFA) to identify the factorial structure of the HPQ in the study sample (see supplement A). The final solution suggested two factors, with items assessing helicopter and little emperor hyper-parenting merging into a single 6-item factor of child-centrism. The second factor grouped three items of tiger hyper-parenting. The items from concerted-cultivation hyper-parenting did not differentiate from the other hyper-parenting styles and were thus removed from subsequent analyses. The final solution explained 29.4% of the item variance and all factor loadings were above  $.364$  with no cross-loading (Stevens, 2002).

**Parental threat perception.** The *World Out There questionnaire* (WOT; Gurland & Grolnick, 2005) measures parents' perception of current and future threats in their adolescents' environment with three indicators: worries about the future, scarcity of resources, and instability of the world. The ten items are answered on a 7-anchor Likert

scale (1 = strongly disagree and 7 = very strongly agree), where each item's scores are summed and vary from 10 to 70. The internal consistency was found to be satisfactory for each subscale with mothers ( $\alpha > .74$ ; Gurland & Grolnick, 2005). In our sample, Omega coefficients ( $\omega$ ) were .85, .73 and .70 for worries about the future, rarity of resources, and instability of the world subscales, respectively.

**Adolescents' test anxiety.** The 25-item *Children's Test Anxiety Scale* (CTAS; Wren & Benson, 2004) assesses test anxiety. Adolescents answered each item considering their behaviors and feelings during an evaluation on a 4-anchor response scale (1 = almost never and 4 = almost always) and sum of the items provides a score ranging from 25 to 100. The CTAS demonstrated high internal consistency in the original validation study ( $\alpha = .89$ ; Wren & Benson, 2004) and in our sample,  $\omega = .94$ .

**Adolescents' emotion regulation strategies.** The two 10-item subscales of the French version of the *Emotion Regulation Questionnaire* (Christophe et al., 2009) were used to evaluate two adolescents' emotion regulation strategies: cognitive reappraisal and expressive suppression. Adolescents rated each item on a 7-anchor response scale (1 = not at all and 7 = absolutely). Scores vary from 6 to 42 for cognitive reappraisal and 4 to 28 for expressive suppression. The internal consistency of the French version of this questionnaire is  $\alpha = .76$  for cognitive reappraisal and  $\alpha = .72$  for expressive suppression (Christophe et al., 2009). We observed satisfactory internal consistency in our sample ( $\omega = .80$  and .77 for cognitive reappraisal and expressive suppression, respectively).

**Adolescents' perfectionism.** The 22-item French version of the *Child-Adolescent Perfectionism Scale* (Douilliez & Hénot, 2013) assesses self-oriented and socially prescribed perfectionism. Adolescents answered how true each item was for them using a 5-anchor response scale (1 = absolutely false for me and 5 = absolutely true for me). The sum scores

vary from 22 to 110. The internal consistency of the French version was  $\alpha = .76$  for the self-prescribed perfectionism subscale and  $\alpha = .72$  for socially prescribed perfectionism. We found satisfactory omega coefficients of .85 and .86 in our sample for the self- and socially prescribed subscale, respectively.

## **Data Analyses**

The analysis plan for this study was pre-registered on June 19<sup>th</sup>, 2023, prior to conducting the analyses and is available at:

[https://osf.io/dy2cb/?view\\_only=f24b9e5acd8043bfa75f9aa7eca96561](https://osf.io/dy2cb/?view_only=f24b9e5acd8043bfa75f9aa7eca96561).

**Initial treatment of the data and preliminary analyses.** We first verified multivariate analyses assumptions and each variable's variance inflation factor (VIF) to prevent multicollinearity problems. After replacing univariate outliers by the recommended threshold of 3.29 standard deviations from the means ( $n = 1$ ; Tabachnick & Fidell, 2013), all variables yielded normal distributions (kurtosis between -.60 and .76 and skewness between -.22 and .61). Linearity and homoscedasticity assumptions were also met. Thus, we relied on Maximum Likelihood estimators in all path analyses. VIF values varying between 1.00 and 1.24 suggested an absence of multicollinearity (Tabachnick & Fidell, 2013). Preliminary analyses included missing data patterns, descriptive statistics, and bivariate correlations among all variables of interest. We intended to include any sociodemographic variable shown to correlate with an endogenous variable as a covariate (if not already a planned moderator). We relied on full information maximum likelihood to handle missing data (FIML; Larsen, 2011). This procedure enables the inclusion of all participants in the analyses and yields unbiased estimates with a variety of missing data patterns (Schlomer et al., 2010).

**Main analyses.** Our main analyses consisted of path and multi-group analyses on R, using the Lavaan package (Rosseel et al., 2023; see Figure 1). Associations between parental

threat perception and each hyper-parenting style were modelled. Each hyper-parenting style was modelled to predict adolescents' test anxiety through emotion regulation (cognitive reappraisal and expressive suppression) and perfectionism (self-oriented and socially prescribed perfectionism). Good fit indicators – non-significant chi-square test ( $\chi^2$ ), CFI and TLI values  $>.95$  (Hu & Bentler, 1999), RMSEA and SRMR values  $<.08$  (Browne & Cudeck, 1992) – corresponded to a well-adjusted model. Should unsatisfying fit indicators be found, we intended to add direct associations guided by modification indices.

Next, we adopted a multigroup approach to test whether the obtained model varied according to adolescents' gender (girl vs. boy) and type of school (public vs. private). Each moderator was tested separately to ensure adequate sample size for each group. We first set all associations (regressions, residual, and covariance) to be equal across groups such that unsatisfying fit indices would indicate the presence of moderating effects (by gender or type of school). If moderations were identified, we intended to remove inappropriate constraints using the modification indices.

**Supplemental analyses.** As our sample was drawn from a larger study comprising two cohorts (sixth and eleventh graders), we tested a potential moderation effect of school level to ensure that the sample composition did not drive the results.

## **Results**

### **Missing Data, Descriptive Statistics, and Correlational Analyses**

Proportions of missing data were low for adolescent outcomes ( $\leq 10\%$ ) but higher for parent measures (40% on the WOT and 38% on the HPQ). This may be explained because these questionnaires were the last two to be completed by parents. Missing data patterns showed that adolescents presented higher test anxiety levels when parents did not complete the HPQ. Adolescents who did not answer the test anxiety questionnaire at T2 scored higher

on socially prescribed perfectionism and lower on cognitive reappraisal. Characteristics of the final sample are presented in Table 1.

Means, standard deviations, and correlations between all variables are presented in Table 2. On average, parents moderately identified with hyper-parenting attitudes, with scores slightly above (child-centrism) or below (tiger) the midpoint of the response scale. Exploring the number of parents with high ( $\geq 5$  on a 9-anchor scale) or extreme ( $> 7$ ) endorsement of hyper-parenting styles, we observed that 43.2% of parents highly endorsed the child-centrism style, whereas 2.8% extremely endorsed it. These proportions were reduced to 23.6% and 1.2% for the tiger style. The two hyper-parenting styles were moderately correlated ( $r = .29, p < .001$ ), which confirms our choice of investigating them simultaneously. Correlations between sociodemographic variables and our variables of interest showed stronger endorsements of tiger style in private schools ( $r = .17, p = .002$ ) and of eleventh grade parents ( $r = .13, p = .021$ ). Higher SES was related to less parental threat perception ( $r = -.28, p < .001$ ), higher endorsement of tiger style ( $r = .28, p < .001$ ), self-prescribed perfectionism ( $r = .11, p = .033$ ), and lower levels of test anxiety ( $r = -.13, p = .008$ ). In addition, fathers tended to endorse child-centrism attitudes to a greater extent than mothers ( $r = .15, p < .006$ ). Consequently, we controlled for the potential confounding effect of SES on all the endogenous variables in our main analyses and added a moderation analysis to test the potential effect of parents' gender. Of note, youth test anxiety was correlated with the other adolescent measures but not with parental ones.

### **Path Analysis**

The proposed model yielded adequate fit indices ( $\chi^2[11] = 19.80, p = .048$ ; CFI = .97; TLI = .90; RMSEA = .043 [.00; .08;  $p = .554$ ]; SRMR = .034), indicating a satisfying adjustment of the model to the data. Modification indices suggested the addition of covariances between adolescents' expressive suppression and each type of perfectionism.

However, these paths were not added to the model to avoid an over-adjustment of the model, which would reduce its replicability in other samples. As shown in Figure 2, parental threat perception was significantly related to child-centrism ( $\beta = .37$ ; 95% CI  $[.26, .47]$ ;  $p < .001$ ) and to tiger ( $\beta = .27$ ; 95% CI  $[.17, .38]$ ;  $p < .001$ ) when adjusting for SES. Thus, the more parents perceived their adolescents' environment as threatening, the more they endorsed both hyper-parenting styles.

Similarly, tiger style was not related to cognitive reappraisal ( $\beta = -.06$ ; 95% CI  $[-.19, .07]$ ;  $p = .339$ ) nor expressive suppression ( $\beta = .07$ ; 95% CI  $[-.06, .19]$ ;  $p = .309$ ). However, we found a significant association between tiger style and adolescents' socially prescribed perfectionism ( $\beta = .17$ ; 95% CI  $[.04, .29]$ ;  $p = .009$ ,  $R^2 = .04$ ), whereas its association with self-oriented perfectionism was not significant ( $\beta = .02$ ; 95% CI  $[-.10, .15]$ ;  $p = .705$ ). Unsurprisingly, the covariance between the two perfectionism types was significant ( $\beta = .26$ ; 95% CI  $[.29, .46]$ ;  $p < .001$ ). No significant relation was found between SES and emotion regulation strategies or perfectionism types.

Finally, all proximal predictors were significantly related to test anxiety at T2. Specifically, the more adolescents reported high levels of cognitive reappraisal at T1 ( $\beta = -.15$ ; 95% CI  $[-.24, -.06]$ ;  $p = .001$ ), the less they experienced test anxiety at T2. Conversely, higher levels of expressive suppression ( $\beta = .18$ ; 95% CI  $[.08, .27]$ ;  $p < .001$ ), self-oriented perfectionism ( $\beta = .14$ ; 95% CI  $[.04, .25]$ ;  $p = .006$ ), and socially prescribed perfectionism ( $\beta = .20$ ; 95% CI  $[.09, .30]$ ;  $p < .001$ ) were positively related to higher levels of test anxiety. Higher SES was associated with lower levels of test anxiety ( $\beta = -.17$ ; 95% CI  $[-.26, -.08]$ ;  $p < .001$ ). Together, these predictors explained 15% of test anxiety variability.

We used bootstrapping procedures ( $n = 1000$  resamples) to examine the indirect path from parental threat perception to test anxiety through tiger style and socially prescribed

perfectionism. Results revealed that this indirect effect was small and not significant ( $\beta = .009$  ; 95% CI  $[-.00, .02]$ ;  $p = .089$ ). However, indirect effects including only one mediator were significant (see Supplement B).

### **Moderation Analyses**

We used a multigroup approach to test moderation effects of adolescents' gender and school type, while adjusting for SES. Non-significant chi-square differences between the fully constrained model and the free model indicated that neither adolescents' gender ( $\Delta\chi^2(45) = 55.59, p = .133$ ) nor school type ( $\Delta\chi^2(45) = 34.70, p = .866$ ) moderated the obtained model's regression paths, variances or covariance coefficients. All estimates were thus similar for boys and girls, and for participants attending public and private schools.

### **Supplemental Analyses**

Using the same multigroup approach, we found no significant difference between the adjustment of the fully constrained and the free model for either school level ( $\Delta\chi^2(45) = 48.78; p = .324$ ) or parents' gender ( $\Delta\chi^2(45) = 36.64; p = .808$ ). These results indicate that all estimates were similar for sixth and eleventh graders as well as for fathers and mothers.

## **Discussion**

How do parents generally respond to environmental threats and do these responses help equip their adolescents to meet future life challenges, such as school evaluations? The present study innovated in addressing these questions using a multi-informant approach and prospective design. Using a path analysis, we specifically examined how parental threat perception was related to hyper-parenting styles, and how the latter predicted adolescents' test anxiety through adolescents' emotion regulation and perfectionism.

In line with our hypotheses, when adjusting for SES, parental threat perception was significantly and positively related to child-centrism and tiger styles. However, contrary to expectations, only the tiger style was associated with greater adolescent test anxiety through

socially prescribed perfectionism. Cognitive reappraisal, expressive suppression, and self-oriented perfectionism did not mediate the relation between hyper-parenting and test anxiety, although they were all significantly related to adolescents' test anxiety. The tested associations were not moderated by adolescents' gender or school type, nor by school level or parents' gender.

### **Threat Perception and Its Relation to Hyper-parenting and Test Anxiety**

Parenting is widely known to play a role in the development of internalized symptoms such as anxiety in offsprings (Kreski et al., 2023; Pinquart, 2017). Yet, few studies have taken a closer look at parents' perception of the world in which their adolescents evolve. Results from our study extended previous findings by focusing on macrosystemic factors such as perceived environmental threats when studying parenting (Robichaud et al., 2019; 2020). In our sample, parental threat perception was associated with more self-reported hyper-parenting in both fathers and mothers, including controlling, overindulging or pressuring attitudes. As a large proportion of our sample endorsed child-centrism and tiger hyper-parenting, (43% and 22%, respectively), reacting with over-involved behaviors may be a common way to try to regain control over the environment and keep threatening situations at bay (Van Der Bruggen et al., 2008). Thus, hyper-parenting may originate from good intentions, where parents aim to ensure their offspring's success in a perceived threatening society (Gurland & Grolnick, 2005). However, results from our study, in line with other empirical evidence, suggest that at least some hyper-parenting attitudes are counterproductive at best, as they are likely to increase adolescents' vulnerability to experiencing anxiety facing challenges (Wei & Kendall, 2014; Yap et al., 2014).

### **Tiger Parents**



Adolescents of parents with tiger attitudes evolve in a home environment characterized by excessive discipline and pressure to meet high family standards, notably regarding academic achievement (Chua, 2011; Kim et al., 2013). Our results suggest that these tiger attitudes may result in socially prescribed perfectionistic beliefs, which could increase adolescents' vulnerability when facing challenges. Adolescents who interact with parents reporting tiger attitudes may come to internalize their parents' high expectations (Ryan et al., 2006) without having sufficient opportunities to adapt and fully integrate these standards. As maintaining perfect grades is extremely difficult, if not unachievable, academic evaluations can be particularly anxiety-inducing for adolescents who strongly believe that they must outperform others to have a successful life. When socially prescribed perfectionism is strongly endorsed, each school evaluation becomes a risk of failing to meet high parental expectations, triggering higher levels of test anxiety. Our findings shed preliminary light on the interplay between hyper-parenting, socially prescribed perfectionism, and test anxiety. However, these results are rooted in Western societies known for their individualistic values and competitiveness (Doepke & Zilibotti, 2021) and different results could be observed in other societies.

### **Child-Centrism Parents**

In contrast to tiger hyper-parenting, child-centrism was not associated with any of the adolescents' individual predictors of test anxiety, although it seemed to be triggered by greater environmental threat perception. One potential explanation for the non-significant association between child-centrism and adolescents' perfectionism is that parents with child-centrism attitudes may not systematically emphasize performance with their adolescents, which could generate less anxiety in performance-related activities. Some parents with child-centrism attitudes are likely to put this pressure on themselves, focusing on being the

“best parent” and perhaps, also prevent their adolescents from experiencing performance-related discomfort as much as possible (Locke et al., 2012).

The absence of association between child-centrism and emotion regulation strategies was unexpected. This non-significant association could possibly be explained by a tendency from child-centrism parents to limit the situations in which adolescents would experience strong emotional reactions (Locke et al., 2012). However, for many adolescents, negative emotions are likely to arise despite parents’ overprotection. These negative experiences would still offer adolescents opportunities to develop self-regulatory capacities, thereby reducing the expected relation between child-centrism and emotion regulations strategies. A previous systematic review reported that overprotective parenting was not related to any form of emotion dysregulation (Goagoses et al., 2022). The potential mediating effect of negative life experiences on the child-centrism and emotion regulation link could be explored further.

Although child-centrism was not associated with test anxiety nor individual factors in our study, past research has shown its detrimental effects on youth (e.g., other type of anxiety, such as increased social anxiety [Mathijs et al., 2023], and anxiety/depressive medication [LeMoyne & Buchanan, 2011]). To better understand the possible link between child-centrism and test anxiety, two additional mediators could be explored: youths' perception of need frustration and biases in processing threatening information. First, controlling behaviors that characterize child-centrism can frustrate youths’ basic psychological needs for autonomy, competence, and relatedness, affecting their psychological health (Van Petegem et al., 2020). Second, adolescents of child-centrism parents might perceive academic underachievement as less threatening, as they may believe that their parents will find a way to secure their future. This could explain the non-significant associations between child-centrism, the two types of perfectionism, and test

anxiety. Conversely, the tiger style could increase adolescents' sensitivity towards threats (Rapee, 2001), promoting avoidant behaviors that fuel anxiety symptoms. Avoiding mundane performance situations deprives adolescents of opportunities to develop coping skills and the sense of mastery to meet life challenges such as academic evaluations (Van Der Bruggen et al., 2008).

### **Individual Factors and Test Anxiety**

Although additional potential mediators undoubtedly exist, all individual factors tested in our hypothesized model, namely cognitive reappraisal, expressive suppression, self-oriented and socially-prescribed perfectionism, were significantly related to adolescents' test anxiety. Together, these individual factors, along with SES, explained 17% of adolescents' test anxiety.

These results extend previous work reporting mixed findings on the relation between emotion regulation strategies and test anxiety. Cognitive reappraisal is targeted for intervention with test-anxious individuals, while increased expressive suppression is theorized to be linked to greater test anxiety according to the self-referent executive processing model of test anxiety (Zeidner & Matthews, 2005). Our findings align with these original theoretical assumptions, showing that cognitive reappraisal is *negatively* associated with test anxiety, while expressive suppression is *positively* related to it. However, as another recent study found no association between expressive suppression and test anxiety (Putwain et al., 2019), further empirical is needed to deepen our understanding of these associations.

Regarding perfectionism, our results align with the vast body of literature suggesting that perfectionism and test anxiety are two intertwined constructs. Meta-analysis and theoretical frameworks indeed suggest that perfectionism predicts greater levels of test anxiety (Burcaş, 2021). Results from a longitudinal study even suggested that these variables

could share common manifestations (e.g., concerns over mistakes), which could account for part of their robust association (Stricker et al., 2022).

Finally, although girls consistently report higher levels of test anxiety and perfectionism than boys (Putwain et al., 2014; von der Embse et al., 2018; Smith et al., 2022) and private schools could pressure more adolescents to perform compared to public schools (Cucchiara, 2013), adolescents' gender and school type did not moderate the associations found in this study, nor did parents' gender and school level. The absence of moderation suggests that regardless of mean level differences, the associations between parental threat perception and test anxiety in adolescents through hyper-parenting and adolescents' individual factors were similar regardless of parents' or adolescents' gender and of school type or level.

### **Strengths and Limitations**

Overall, this study significantly contributes to the existing literature by examining how a broader contextual factor relates to adolescents' test anxiety through parenting and adolescents' individual factors. Our prospective design using parents' and adolescents' reports and a solid multivariate statistical approach enabled us to deepen our understanding of the processes underlying youths' experiences of test anxiety. We included a large sample of parent-adolescent dyads, which could increase replicability. Considering the well-documented challenges associated with fathers' participation in parenting research and their importance in children's development (Matte-Gagné et al., 2023), another strength is to have included a fair number of fathers (24%).

While results from this study are important, they must be cautiously interpreted considering some limitations. First, causal conclusions about the observed associations cannot be drawn as the present findings are based on a correlational prospective design. Second, our results may be generalized only to mostly white, educated and financially

comfortable families. Despite a high-SES sample, many parents still reported high levels of threat perception in their adolescents' environment. Nevertheless, observed associations could be different in families with other characteristics. Third, the factorial structure of the HPQ in our study did not reflect its theoretical conceptualization in past research (Ashton-James et al., 2013; Janssen, 2015). This led us to omit the concerted cultivation hyper-parenting style and combine little emperor with helicopter hyper-parenting to form a more general factor of child-centrism. Future research on the measurement of hyper-parenting is thus warranted. Assessing different forms of hyper-parenting with more validity is essential to untangle their unique and/or shared impact on youths' development. A future avenue of research would be to build a new instrument that clearly distinguishes between hyper-parenting attitudes and behaviors, perhaps focusing on those behaviors shown to support or thwart adolescents' psychological needs (Mageau & Joussemet, 2023). Finally, future studies should include the perception of both parents when possible and verify if concordance or discordance in parenting style have different effects on child's anxiety. As parents and children differ in their perception of parenting attitudes (Keeley et al., 2024), comparing reports of all family members on parenting would yield a more complete picture of the role of hyper-parenting in test anxiety (Kazdin, 2016).

### **Practical Implications and Conclusions**

In addition to identifying adolescents' individual factors that can account for a large proportion of test anxiety variability, our study highlights that these factors should be considered within the environment in which they develop. At the family level, it will be important to inform parents that hyper-parenting attitudes may be closely related to how threatening they perceive their adolescents' environment and future. Helping parents respond to threatening information without becoming overinvolved in their adolescents' lives could mitigate the potentially negative impact of environmental stressors on

adolescents' anxiety. Importantly, strong-held beliefs about the potential benefits of hyper-parenting attitudes need to be questioned. In our study, tiger style was positively linked to socially prescribed perfectionism and, indirectly, to test anxiety. Such adolescent outcomes could thus represent negative tradeoffs of this style of parenting. Parenting resources would benefit from warning parents about good intentioned, but controlling, parenting aimed to protect adolescents from increasingly threatening views of the world.

From a macrosystemic perspective, some work explored how media coverage could increase environmental threat perception in individuals and their subsequent subjective and physiological stress markers (Longpré et al., 2021). Future work could test if parental threat perception is associated with media coverage and consumption when, in fact, world statistics suggest that we live in an increasingly better world (Rosling et al., 2018). Given that parents' behaviors are affected by threatening news reports (Robichaud et al., 2020), favorable outcomes from such studies would reinforce the notion that media coverage can impact adolescents' mental health through indirect effects on their parents' perception, attitudes, and behaviors toward environmental threats. Thus, news coverage could be revisited to avoid any deleterious effects on families.

Possibly, as the present study suggests, adolescents' test anxiety would not be solely rooted in individual or parental factors but is intricately related to how parents experience the broader environmental context. Then, proactive interventions at the political level could help foster adolescents' development indirectly by alleviating parental threat perception, urge to over parent, and academic pressures. By fostering a more secure society through increased access to resources, equitable employment opportunities and stability, both parents and adolescents would be less likely to view success as dependent on achieving perfection. This shift could reduce the emphasis placed on the outcome of a single academic test as a measure of success in what is often seen as a threatening world.

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**Figure 1.** Proposed explanatory model of the associations between parental threat perception and youth test anxiety.

**Figure 2.** Results of the path analysis when adjusting for SES