

Fear of Failure Mediates the Relation Between Parental Psychological Control and Academic Outcomes: A Latent
Mediated-Moderation Model of Parents' and Children's Genders

Abstract

Given the negative relations between parental psychological control and various aspects of emerging adults' social and emotional adaptation, there is a need to determine whether similar relations exist for emerging adults' academic adjustment. The current study tested an integrative model using an *interactionist approach of dyadic gender composition* to test whether maternal and paternal psychological control are unique and interactive predictors of four different indicators of academic adjustment (i.e., academic achievement, satisfaction of academic achievement, academic goal progress, and school satisfaction) for male and female emerging adults, using fear of failure as a mediator. The sample comprised 1,792 undergraduate students aged 17 to 25 years old (74.2% identified as females). The results showed that maternal and paternal psychological control interacted to predict students' fear of failure, and that fear of failure negatively predicted all indicators of academic adjustment. The results revealed small indirect mediation effects. For females, fear of failure mediated the relation between the interaction of psychological control and satisfaction of academic achievement. For males, fear of failure mediated the relation between the interaction of psychological control and academic goal progress. The results show that parents continue to play an important role in their children's lives during emerging adulthood, and provide insight on the mechanisms underlying such parental influence.

Keywords: psychological control, emerging adult, fear of failure, academic achievement, academic satisfaction, goal progress

Introduction

The contemporary reconceptualization of emerging adulthood (18-25 years) as a distinct developmental period has generated research dedicated to the understanding of this in-between period during which an individual is no longer an adolescent but is not yet an adult (Arnett, 2000). During emerging adulthood, post-secondary education is central to the lives of many emerging adults and plays an important role in shaping their developmental trajectories. As a result, a number of studies have examined the continued role that mothers and fathers play in their emerging adult children's lives during post-secondary education (Aquilino, 2006). For example, parental use of psychological control during emerging adulthood may be especially detrimental for social and emotional adaptation (e.g., Wagner & Abaied, 2016). Beyond the social and emotional disruptions attributed to psychological control, evidence shows that psychologically controlling parenting may also relate to emerging adults' academic functioning (e.g., Luyckx, Soenens, Goossens, & Vansteenkiste, 2007). However, compared to the literature on emotional and social adaptation, literature on the mechanisms underlying the association between psychological control and academic adjustment is scant. Furthermore, despite calls from noted scholars to distinguish mothers from fathers, and daughters from sons when studying psychological control (e.g., Soenens & Vansteenkiste, 2010), dyadic gender composition is rarely considered as a potential factor of influence. In order to address these two limitations, the present study proposed a model in which fear of failure acted as a mediator in the relation between parental psychological control and emerging adults' academic adjustment. The proposed model included an *interactionist approach of dyadic gender composition* to differentiate the unique and interactive contributions of maternal and paternal psychological control, as well as their differential roles for female and male emerging adults, respectively.

Parental Psychological Control During Emerging Adulthood

Emerging adulthood is characterized by a subjective sense of attaining some aspects of adulthood while still exploring core identity features across different life domains (Arnett, 2000). Emerging adults are more responsible and independent than adolescents, yet sometimes remain financially and emotionally dependent on their parents. The new dynamic of child-parent relationships during emerging adulthood forces both parties to renegotiate the terms of the relationship as a function of two separate, yet interconnected individuals (Aquilino, 2006). However, some parents have more difficulty in redefining their parenting role according to the emerging adult child's needs. Parents may refuse through active or passive means to grant the interpersonal conditions to fulfil the needs of their child, thereby impeding on their development (Aquilino, 2006). Parental psychological control refers

to such parenting behaviors that intrude, constrain, invalidate, or manipulate children's psychological and emotional experiences (Barber, 1996). Given that psychologically controlling behaviors can occur through a variety of means (e.g., in person, via phone calls, text messages, or emails; Abaied & Emond, 2003), parents can still exert control regardless of the residential status of their child. Emerging adults who experience higher levels of psychological control feel less adult-like and have lower feelings of competence (Lindell, Campione-Barr, & Killoren, 2017).

Experiencing parental psychological control in emerging adulthood is associated with a worse trajectory of emotional and social adaptation. For example, emerging adults who experience higher levels of psychological control report higher internalizing problems (Costa, Soenens, Gugliandolo, Cuzzocrea, & Larcan, 2015). Emerging adults who report high parental psychological control also report lower levels of life satisfaction (Seibel & Johnson, 2001). Similarly, experiencing higher parental psychological control in emerging adulthood is associated with higher proactive and reactive relational aggression (Wagner & Abaied, 2016).

Parental Psychological Control and Academic Adjustment

Despite the growing literature on the negative role that parental psychological control plays on social and emotional adaptation in emerging adults (see Scharf & Goldner, 2018 for a review), it remains unclear how parental psychological control relates to academic adjustment. Yet, there is reason to believe that these two constructs may be associated. Indeed, some parents may use psychological control to convey their excessive expectations for academic achievement (Soenens, Vansteenkiste, & Luyten, 2010). Other parents may use psychological control as a way to project their own high standards onto their child (Soenens, Vansteenkiste, Duriez, & Goossens, 2006). Consistent with traditional conceptualizations of psychological control (Barber, 1996), if parents are not satisfied with their child's academic achievement, parents may avoid talking or looking at the emerging adult to convey disappointment, or even bring up the child's past mistakes or shortcomings as a form of criticism. Parents may also be manipulative by inducing a feeling of guilt in the child because their lack of academic success does not do justice to the parents' investment in the child's life.

Research on the association between parental psychological control and emerging adults' academic adjustment remains limited. As a result, the small, yet significant meta-analytical relationship between psychological control and academic achievement in adolescent samples may be informative (maternal control: $r = -.10$, $k = 40$, paternal control: $r = -.12$, $k = 28$; Pinquart, 2016) to infer the existence of a similar relationship in emerging adulthood. Empirical studies in emerging adulthood also offer preliminary support for an association between

psychological control and academic adjustment. Indeed, emerging adults who report experiencing higher parental psychological control also report lower academic adjustment (Luyckx, Soenens, Goossens, et al., 2007). Similarly, when female emerging adults experience high levels of paternal psychological control, they attain lower levels of education, whereas both paternal and maternal psychological control relate to lower perceived educational abilities for males (Desjardins & Leadbeater, 2017). Yet, educational problems are not associated with psychological control across parents' and children's genders (Desjardins & Leadbeater, 2017). In a sample of younger emerging adults (18-20-year olds), higher maternal psychological control related to lower academic performance for both male and female students (Lu, Walsh, White, & Shield, 2018).

Beyond the few studies that have examined psychological control specifically, the helicopter parenting literature provides insight into the relationship between psychological control and academic adjustment, given that psychological control and helicopter parenting share a common basis in intrusive parenting (hence the high correlation between the two constructs: $r = .49$; Luebbe et al., 2018). For instance, university students who report higher levels of helicopter parenting report lower academic achievement and less attachment to their university (Luebbe et al., 2018). Furthermore, maternal and paternal helicopter parenting are also associated with lower school engagement in emerging adults (Padilla-Walker & Nelson, 2012).

Although the aforementioned studies suggest a negative link between psychological control and academic adjustment in emerging adulthood, the interpersonal and psychological mechanisms underlying the association between these variables are not well understood. This leads to the following question: what are the underlying mechanisms by which parental psychological control interferes with emerging adults' academic adjustment in post-secondary education? In addition, the current state of the literature on parental psychological control and academic adjustment presents two other important gaps. First, it is unclear whether the nature of the indicators of academic adjustment matters. For example, psychological control is a predictor of educational attainment and perceived educational abilities, but not of educational problems (Desjardins & Leadbeater, 2017). Does the association with psychological control vary as a function of the type of academic adjustment concerned? Second, the results of studies vary based on emerging adults' gender, since educational attainment is affected by psychological control for females, while perceived educational ability is affected by psychological control for males (Desjardins & Leadbeater, 2017). Does psychological control influence the academic adjustment of males and females differently?

Students' Fear of Failure as a Mediating Psychological Mechanism

When attempting to explain the underlying mechanisms of the link between parental psychological control and adjustment, scholars have emphasized the need to consider emerging adults' internal psychological functioning as a mediator (Luyckx, Soenens, Goosens et al., 2007). The pressure of experiencing psychological control could bring the child to internalize the underlying message of inadequacy and shame, which could in turn impede on academic adjustment. A few studies have suggested that the internalization of psychological control could contribute to the development of 'fear of failure' in emerging adults, which could be the mediating variable of the relation between psychological control and emerging adults' adjustment (e.g., Luyckx, Soenens, Vansteenkiste, Goossens, and Berzonsky, 2007).

Fear of failure is defined as an appraisal-to-threat concept in evaluative situations in which it is possible for an individual to fail (Conroy, 2004). Fear of failure represents the beliefs that individuals hold about the potentially aversive consequences of failing. Beliefs about failing stem from specific fears such as fear of experiencing shame and embarrassment, fear of losing one's self-esteem, fear of having an uncertain future, fear of losing the interest of important others, and fear of upsetting important others. Fear of failure also holds important associations with feelings of shame (McGregor & Elliot, 2005).

Research with different populations shows that fear of failure is deeply rooted in relational processes. In adolescent-athletes, parents who responded negatively to their children's failures contributed to the development of higher fear of failure in their child (Sagar & Lavallee, 2010). In emerging adult students, fear of failure may be instigated by the socialization technique of parental love withdrawal (Elliot & Thrash, 2004). The construct of love withdrawal shares commonalities with psychological control, notably how parental love and approval are conditional upon certain circumstances and behaviors. The significance of parents as primary caregivers and attachment figures provides parents with the interpersonal opportunity to influence their emerging adult children's beliefs about the consequences of failing (i.e., fear of failure). As a result, scholars have proposed that fear of failure could be the mediating variable in the relation between psychological control and school self-efficacy (Filippello, Sorrenti, Buzzai, & Costa, 2015); the mediation model was however not tested in the study. In a sample of gifted adolescents, fear of failure was one of two serial mediators, along with school amotivation, that explained the relation of achievement-oriented maternal and paternal control with school avoidance (Garn & Jolly, 2015). Overall, the achievement-oriented context of post-secondary education and the deep relational ties between parents and

emerging adults may predispose students to develop higher levels of fear of failure when they perceive their parents as psychologically controlling.

The possibility that fear of failure acts as a mediator is supported by studies that have reported associations between higher fear of failure and lower academic adjustment across different indicators of adjustment in emerging adults. For example, there is a link between fear of failure and goal achievement orientation in an academic context, whereby individuals with high fear of failure pursue achievement goals for controlling reasons, such as to gain contingent rewards and avoid negative consequences (Michou, Vansteenkiste, Mouratidis, & Lens, 2014). Emerging adults with high fear of failure are also more likely to report cheating behavior and positive beliefs about cheating on exams (Michou et al., 2014). Another study reported that higher fear of failure also relates to lower metacognitive strategies, which are strategies that foster affective and motivational regulation, thereby helping students evaluate their goal progress in academic settings (Bartels & Magun-Jackson, 2009). The contingent reasons for motivation and the lower metacognitive strategies in students with higher fear of failure may explain why individuals with high fear of failure also report more disengagement in school (De Castella, Byrne, & Covington, 2013).

An Interactionist Approach of Dyadic Gender Composition in Child-Parent Dyads

There is considerable variation in the ways that studies on parental psychological control during emerging adulthood treat the question of gender (see Scharf & Goldner, 2018). With respect to parents' gender, research typically falls in one of two categories (Rogers, Buchanan, & Winchel, 2003). First, a number of studies only examine maternal psychological control (e.g., Fletcher, Shim, & Wang, 2012). The decision to focus on mothers may be theoretical (e.g., research shows that mothers are influential for specific outcomes) or pragmatic in nature (e.g., the number of questionnaires used in a study was restricted). Second, other studies examine the global psychological control exerted by both parents, indiscriminately of gender (e.g., Luyckx, Soenens, Vansteenkiste, et al., 2007). Although examining global control better reflects the different socialization agents present in emerging adults' lives, this approach neglects the fact that parents may exert different levels of psychological control and use psychological control differently (Soenens, Vansteenkiste, & Luyten, 2010). These differences may lead to different results based on parents' gender (e.g., Desjardins & Leadbeater, 2017).

Similarly, with respect to children's gender, not all studies include both genders or differentiate between males and females. For example, some studies focus on one gender, for example by only examining the relation between psychological control and internalizing problems in female emerging adults (Costa et al., 2015). Other

studies may include gender as a covariate, but fail to examine gender differences (e.g., Wagner & Abaied, 2016). The lack of gender distinction may be attributed to pragmatic factors (e.g., difficulty to recruit males) or statistical reasons (e.g., sample size too small to compare genders). Nonetheless, it is important to consider gender effects, since males and females may report different levels of psychological control and experience psychological control differently (Soenens et al., 2010), which could explain why some studies have found differences across genders (e.g., Desjardins & Leadbeater, 2017).

Some rare studies have differentiated between both parents' and children's genders, thereby taking a *dyadic-gendered composition perspective*. However, as described in a review of research on psychological control, results pertaining to parents' and children's genders are inconsistent (Scharf and Goldner, 2018). Some studies have found different effects based on the gender composition of dyads, with some relations only being significant for males or for females. For example, there were links between psychological control and depression only in father-daughter dyads (Barber, 1996). However, some studies have failed to find effects associated with the interaction of parents' and children's gender, even when they find differences between fathers vs. mothers and sons vs. daughters independently (Soenens et al., 2010). These inconsistencies make the need for work disentangling effects of dyadic gender composition even more imperative.

A number of studies using a dyadic-gendered composition perspective have recommended not only considering the effect of parents' and children's gender, but also the effects of the interaction between both parents' psychological control. In other words, an *interactionist approach of gender composition* should be used, by which one parent's psychological control is considered in conjunction with the other parent's psychological control. For example, the interactionist approach allows to evaluate the possibility that having one parent who is low in psychological control could act as a buffer against the adverse consequences of the other parent's high psychological control. In a sample of adolescents, paternal psychological control was only associated with higher self-reported internalizing symptoms when maternal psychological control was also high (Rogers et al., 2003). The study also showed a "maternal psychological control x paternal psychological control x adolescent gender" interaction for the prediction of externalizing symptoms. For females, high paternal psychological control was only associated with higher externalizing symptoms when maternal psychological control was also high. For males, there was no significant interaction between parents' psychological control. The interactionist approach, although rarely used,

provides a more thorough way of examining the differential effects of psychological control depending on parents' and children's genders.

Current Study

The current study proposed that experiencing parental psychological control may impede on students' ability to approach positively the inevitable success-failure dynamic in post-secondary education, which could bring students to develop avoidance-based motivation in the form of fear of failure. Fear of failure may ultimately hamper different aspects of academic adjustment such as academic achievement, satisfaction of academic achievement, goal progress, and academic satisfaction. As such, the present study tested an integrative model to explore the potential mediating effect of fear of failure between perceived maternal and paternal psychological control and indicators of emerging adults' academic adjustment. To do so, the proposed model relied on an *interactionist approach of dyadic gender composition* to examine maternal and paternal psychological control as unique and interactive predictors, as well as their differential predictive relations for female and male emerging adults, respectively. Specifically, the present study examined the interaction of maternal psychological control x paternal psychological control x children's gender as predictors, fear of failure as a mediator, and four indicators of academic adjustment as outcomes. The integrative mediated-moderation model is presented in Figure 1.

The first objective was to evaluate whether students' fear of failure was a mediator of the relationships between perceived maternal and paternal psychological control and four indicators of academic adjustment (i.e., academic performance, satisfaction of academic performance, goal progress, and academic satisfaction). The four indicators were chosen based on literature showing that the predictors and the mediator are related to both achievement and metacognition related to achievement in an educational setting. The indicators allow for a broader perspective of academic adjustment by including both indicators of achievement and indicators of the experience of emerging adults in the academic context. Although it was expected that fear of failure would be a significant mediator in the prediction of academic adjustment, possible variations based on the nature of the indicators of academic adjustment were expected.

The second objective was to examine the mediation model using an interactionist perspective of gender that included both parents' and children's genders. Perceived maternal psychological control and paternal psychological control were independent predictors in the model, along with their interactive effect (maternal psychological control × paternal psychological control). Furthermore, the interactive effect of maternal and paternal control was

investigated separately for male and female students using a maternal psychological control \times paternal psychological control \times children's gender interactionist approach. Based on previous research that has found different results based on dyads' gender composition, the hypothesis was that the unique and the interactive effects of maternal psychological control and paternal psychological control would differ based on gender composition.

Methods

Participants

A total of 1,809 undergraduate students (74.2% identified as females, 25.5% as males, and 0.3% as non-binary) at a large-size eastern Canadian university completed a series of online questionnaires on perceived parental psychological control and on their academic adjustment. As the current study sought to examine the contributions of both parents' psychological control for children's academic adjustment, participants ($n = 13$) who only reported on one parent were excluded from the sample. Given the sample size requirements for structural equation modeling, analyses only included emerging adults who identified as males or females, resulting in a final sample of 1,792 emerging adults). Participants were aged between 17 and 25 years old ($M = 19.53$ years; $SD = 1.57$). Although participants were all registered in an introductory psychology course, only 15.3% were psychology majors. The rest were enrolled in a wide range of post-secondary programs (e.g., biomedical sciences, communications, engineering, law, nursing, etc.). Participants described their ethnic background as Caucasian (63.0%), Asian (17.5%), Middle Eastern (11.2%), Black (10.7%), First Nations (2.1%), Latinx (1.9%), and Pacific Islander (0.2%). Most of the participants reported being born in Canada (69.7%) and being native English (63.4%) or French speakers (19.7%). In regard to current living arrangements, 42.1% lived with their parents, 26.2% in a university residence, 21.7% with roommates in an apartment, 5.5% alone, and 3.3% with a romantic partner. When asked how often their family or themselves have problems paying for basic necessities, 21.6% replied sometimes or often, while 6.5% reported not knowing and 71.9% reported not facing such problems.

Procedure

Participants were part of an undergraduate participant pool at the University of Ottawa. Participants received a link to a Qualtrics questionnaire pack to be completed online at their convenience. Prior to answering the questionnaires, students provided informed consent and received an anonymously assigned participation code; no further identifying information was collected. A resource list for psychological support was included at the end of the questionnaire, should the participants need it. In compensation for their participation, students received two

points toward their introductory psychology course mark. The University of Ottawa's Research and Ethics Board approved all procedures and measures used in the current study (H06-16-03) and the study respected the 1964 Helsinki declaration and its later amendments for ethical standards.

Measures

Psychological control. Participants reported on their mothers' and fathers' psychological control using the original 16-item Psychological Control Scale - Youth Self-Report (PCS-YSR; Barber, 1996). Participants answered whether they currently experienced specific controlling behaviors separately for their mothers and fathers using a 3-point scale ranging from "Not like her/him" to "A lot like her/him", with higher scores representing higher psychological control. The PCS-YSR includes items pertaining to different aspects of psychological control (constraining verbal expression, invalidating feelings, personal attacks, guilt induction, love withdrawal, and erratic emotional behavior). The PCS-YSR is a widely used measure of global psychological control that presents adequate reliability and validity across various cultures (Barber, 1996). In the current sample, internal consistency was high for maternal ($\alpha = .93$) and paternal psychological control ($\alpha = .92$). In order to ensure a degree of independence between responses pertaining to maternal and paternal control, correlation analyses for each item were computed. Correlations ranged from $r = .210$ to $r = .379$, showing that participants answered with sufficient independence regarding each parent.

Fear of failure. Participants reported on their fear of failure with the short-form of the *Performance Failure Appraisal Inventory* (PFAI; Conroy et al., 2002). The short-form comprises 5 items, each measuring five aversive consequences of failure (fear of experiencing shame and embarrassment, fear of devaluing one's self-esteem, fear of having an uncertain future, fear of important others losing interest, and fear of upsetting important others). Participants reported on their typical feelings on failure on a rating scale ranging from -2 ("Do not believe at all") to +2 ("Believe 100% of the time"), with higher scores representing higher levels of fear of failure. The short-form of the PFAI meets the criteria for tight cross-validity with the complete 25-item version (Conroy et al., 2002). The short-form also presents adequate internal consistency as well as external validity with measures of pessimism and anxiety. In the current sample, internal consistency was adequate ($\alpha = .79$).

Academic achievement. Participants answered the following question to report on their academic achievement during the current semester: "This semester, how would you rate your performance so far in all of your courses?" The rating scale matched the grading scale used at the institution, with 1 = F (0-39), 2 = E (40-49%), 3 = D (50-

54%), 4 = D+ (55–59%), 5 = C (60–64%), 6 = C+ (65–69%), 7 = B (70–74%), 8 = B+ (75–79%), 9 = A- (80–84%), 10 = A (85–89%), and 11 = A+ (90–100%).

Satisfaction of academic achievement. Two questions assessed participants' satisfaction of their academic achievement during the current semester: "Overall this semester, I would describe my performance so far in all of my courses as..." and "Overall this semester, I would describe my learning so far in all of my courses as..." The rating scale for the two questions ranged from 1 ("Not at all satisfactory") to 7 ("Totally satisfactory"), with higher scores representing higher levels of satisfaction of achievement. The inter-item correlation between the two questions was high ($r = .70, p < .001$).

Academic goal progress. Participants reported on the progress they made toward their academic goal using a five-item measure (Dugas, Gaudreau, & Carraro, 2012). Participants referred to their goal progress during the current semester to rate each item (e.g., "I have progressed on my academic goal") on a 9-point scale ranging from "Not at all" to "Totally". Higher scores represented higher academic goal progress. Consistent with previous studies using the scale (e.g., Dugas et al., 2012), internal consistency was high ($\alpha = .97$).

Academic satisfaction. Participants evaluated their academic satisfaction during the two previous weeks using five items of the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS; Huebner, Suldo, Valois, Drane, & Zullig, 2004). From the 8-item brief form of the MSLSS, participants only answered the five items that measured satisfaction (i.e., not the reversed items), for example, "I like being in school". The rating scale for the items ranged from 1 ("Not at all agree") to 7 ("Totally agree"). Higher scores represented higher academic satisfaction. The BMSLSS demonstrates adequate reliability, criterion-related validity, and construct validity (Seligson, Huebner, & Valois, 2003). In the current sample, internal consistency was high ($\alpha = .91$).

Sociodemographic Information. Participants answered questions about relevant sociodemographic information that were considered as potential covariates. They reported on their current academic level (e.g., freshman, junior, etc.) and their residential status (i.e., at home with parents, in a rented accommodation with roommates, etc.).

Analytical Strategy

The moderated-mediation model used an *interactionist approach of dyadic gender composition* to examine maternal and paternal psychological control as unique and interactive predictors, fear of failure as a mediator, and four different indicators of academic adjustment as outcomes. Before examining the moderated-mediation model, three variables were considered as potential covariates: emerging adults' residential status, emerging adults' school

year, and time of completion of the questionnaires. Then, hypotheses were tested using structural equation modeling in Mplus 8 with full information maximum likelihood robust estimation for handling missing data (less than 1% in the current study). The analytical strategy proceeded in three steps: 1) testing measurement invariance; 2) establishing a multigroup latent mediated-moderation model; and 3) examining simple slopes for significant interaction effects.

First, it was necessary to ensure that the postulate of measurement invariance was met to compare models across children's genders (Chen, 2007). A multi-group confirmatory factor analysis tested the invariance of the different constructs between male and female students. The evaluation criteria to compare nested models were based on a significant difference in Satorra-Bentler χ^2 (SB χ^2) for robust estimation and a difference of .002 on the Comparative Fit Index (CFI; Meade, Johnson, & Braddy, 2008).

Second, once it was confirmed that the measurement model was partially invariant, the next step was to test the structural multigroup latent mediated-moderation model. A sequence of models was used to determine whether the sequential addition of model components (e.g., interaction of maternal and paternal psychological control, fear of failure as a mediator) improved the fit of the model. All structural parameters were freely estimated across children's genders in the models. The final latent mediated-moderation model served as the basis to examine gender differences in the hypothesized model (Figure 1) using a mixture modeling approach with known classes (1 = men, 2 = women). Throughout the modeling sequence, a scaled log-likelihood difference test (ΔLL) compared nested models instead of using conventional fit indices (e.g., χ^2 , CFI, TLI, SRMR). Conventional fit indices were not available given the use of latent moderated structural models to estimate the interaction of maternal and paternal psychological control. Indeed, the estimation of latent moderated structural models uses a data integration algorithm that prevents the estimation of a baseline model for the relative fit indices.

Lastly, since the model revealed significant interactive effects between maternal and paternal psychological control, simple slope analyses at $\pm 1 SD$ examined how parents' psychological control interacted in the prediction of fear of failure and academic adjustment. Paternal psychological control was the independent variable and maternal psychological control was the moderating variable for simple slope analyses. Confidence intervals (95%) around each predicted value were used to compare predicted values at different levels ($\pm 1 SD$) of maternal and paternal psychological control for a clearer depiction of the relation between both parents' psychological control.

Results

Preliminary Analyses

Before starting any main analyses, the relations with potential covariates was considered. For psychological control, the emerging adults' residential status (living with parents or not) was examined as a covariate. Mean difference testing via an analysis of variance showed that the levels of psychological control perceived by emerging adults did not vary as a function of their residential status ($F(1, 1760)$ ranging between .105 and 2.093, $p > .05$). Residential status was thus not included in the model. For indicators of academic adjustment, the potential associations with emerging adults' school year and the time of the semester when they completed the questionnaires were considered. Correlation analyses revealed significant associations between academic adjustment and school year as well as time of completion, with r ranging from -.209 and -.299). School year and time of completion were thus included as covariates in the model to control for variance associated with all academic outcomes.

The next step before starting the analyses was to define the measurement model. Latent variable indicators (i.e., individual items from questionnaires) loaded on their respective factors (maternal psychological control, paternal psychological control, fear of failure, academic achievement, satisfaction of academic achievement, goal progress, school satisfaction). The estimation of psychological control factors relied on a parcelling approach to avoid a cumbersome estimation of latent variables with 16 indicators. Each psychological control factor comprised four parcels (parcel 1 = items 1-5-9-13, parcel 2 = items 2-6-10-14, parcel 3 = items 3-7-11-15, parcel 4 = items 4-8-12-16). For scaling purposes, the first indicator of each latent variable was set to 1.0. In addition, the residuals for the academic achievement indicator were set to zero, thereby transferring the sole indication entirely to its concurrent latent variable. The specification of residuals to zero allowed for the creation of a latent variable of academic achievement, which eases the manipulation of its parameter across genders.

Gender Invariance of the Measurement Model

Two independent confirmatory factor analyses, one for male and another for female students, were used to investigate measurement invariance across children's genders. As presented in Table 1, the measurement model was acceptable for both males and females. A multigroup confirmatory factor analysis then tested measurement invariance. The first step was to estimate a configural model with freely estimated parameters. Constraints were then successively added on the loading, intercepts, and residual parameters. All latent means were then constrained to

zero across groups as the model did not seek to compare latent mean differences (Byrne, 2012)¹. Based on the different fit indices, the configural model was deemed acceptable (see Table 1). Second, the configural model was compared to a second model in which loadings were constrained to equality across genders; the model fit did not significantly worsen ($\Delta SB\chi^2_{(19)} = 26.618, p = .113; \Delta CFI = .000$). Third, the second model was compared to a third model in which intercepts were constrained to equality across genders. The third model led to significantly worse model fit ($\Delta SB\chi^2_{(26)} = 154.001, p < .001; \Delta CFI = -.004$). Based on modification indices, the constraints of two different intercepts of indicators of fear of failure were relaxed with a sequential approach (items 1 and 2; see Table 1). After releasing the constraints on the two indicators, the intercept/invariance model remained statistically different from the loading/invariance model ($\Delta SB\chi^2_{(24)} = 70.332, p < .001; \Delta CFI = -.001$). A data-driven approach was not adopted with the remaining modification indices, as indices suggested only small differences on several intercept parameters. The accumulation of modifications to such small intercept differences may create a model that is significantly different from the previous model (loading constraint). In addition, partial invariance at the intercept level is not associated with biased estimations for the association between latent variables (Byrne, 2012). Overall, the model fit remained adequate throughout the intercept sequence and the difference in CFI was lower than the suggested threshold ($> |.002|$). The next step was to test the residual invariance of indicators across genders. The model was not significantly different from the precedent model, and even presented a slight increase on the CFI ($\Delta SB\chi^2_{(25)} = 36.275, p = .067; \Delta CFI = +.001$). The last invariant model served as the basis to examine the structural parameters of the hypothesized mediated latent moderation model. Correlations for male and female students between latent variables of the final invariant model are presented in Table 2.

Multigroup Mediated Latent Mediated-Moderation Model

In order to select the model with the best fit, a sequential series of models was first tested without imposing any constraints on structural parameters across genders (Table 3). However, the models included the measurement constraints from the previous invariance analysis, which allowed for the examination of the interactive effects of maternal and paternal psychological control freely, as well as the mediating effect of fear of failure on the different indicators of academic adjustment across children's genders. The first model included a main effect model in which

¹ Mean differences of the variables based on gender composition of the dyad were examined from an exploratory perspective using an ANOVA test and an aggregation procedure. Results revealed that females reported higher fear of failure ($F(1, 1754) = 19.124; p < .001; r = .118$), while males reported higher goal progress ($F(1, 1754) = 7.851; p = .005; r = .076$); these mean differences between students' genders were of a small magnitude. There were no differences between maternal and paternal psychological control across students' genders.

maternal and paternal psychological control predicted the four indicators of academic adjustment ($LL_{(117)} = -53053.328$, $SC = 1.328$). The interaction of maternal and paternal psychological control was then added into the model ($LL_{(125)} = -53041.040$, $SC = 1.314$). When compared to the main effect model ($\Delta LL_{(8)} = 22.193$, $p = .002$), the model with the interaction significantly improved the estimation. To select a more parsimonious model, only indicators of academic adjustment that were predicted by the interaction effect of maternal and paternal were retained. The psychological control interaction only predicted goal progress for male students, whereas the psychological control interaction predicted academic achievement satisfaction only for female students. The two significant paths were retained in the model as interactions that may potentially be mediated by fear of failure, along with the main effects for other outcome variables (Total effects model: $LL_{(119)} = -53043.647$, $SC = 1.326$). The next model saw the addition of the mediating effect of fear of failure between the main effects and academic adjustment ($LL_{(131)} = -52955.268$, $SC = 1.314$). The mediational model improved estimation compared to the previous total effect model ($\Delta LL_{(12)} = 161.707$, $p < .001$). Lastly, the interactive effect of maternal and paternal psychological control on fear of failure was added ($LL_{(133)} = -52947.733$, $SC = 1.314$), which also improved the estimation of the model ($\Delta LL_{(2)} = 11.554$, $p = .002$). The final, freely estimated across genders mediated-moderation model was used as a baseline model for the comparison of gender differences.

In order to investigate gender differences in the final structural model, structural parameters were sequentially constrained across genders to reveal any significant differences in the prediction of 1) students' fear of failure and 2) each indicator of academic adjustment. First, the main and interactive effects of parental psychological control in the prediction of fear of failure were constrained across genders. The model with constraints did not significantly change the estimation compared to the baseline structural model ($\Delta LL_{(3)} = 2.577$, $p = .462$); the restrictions across genders were thus retained in the model. Then, turning to academic adjustment, there were constraints across genders only for academic achievement and school satisfaction, given that there was a significant interaction for the prediction of other indicators of academic adjustment (academic achievement satisfaction for females and goal progress for males). Constraining the main effect of parental psychological control and fear of failure on the prediction of academic achievement ($\Delta LL_{(3)} = 6.729$, $p = .081$) and school satisfaction ($\Delta LL_{(3)} = 4.017$, $p = .256$) across genders did not significantly worsen the model estimation; the restrictions on gender were retained. Lastly, for the prediction of academic achievement satisfaction and goal progress, only the path from fear of failure to the outcomes was constrained across genders given that different interactive effects of parental psychological

control were previously uncovered for male and female students ($\Delta LL_{(2)} = 0.047, p = .977$); the restrictions on gender were retained since the model with constraints was not significantly worse.

The final constrained model for the hypothesized mediated-moderation analysis is presented in Figure 2. The primary findings from the model showed that maternal and paternal psychological control are significant predictors of students' fear of failure, along with the interaction of both parents' psychological control. Fear of failure significantly predicted all indicators of academic adjustment. The interaction of maternal psychological control x paternal psychological control significantly predicted academic achievement satisfaction for female students (total effect: $B = .419$); fear of failure fully mediated the relation (direct effect: $B = .300$, indirect effect = $.144$). The interaction of maternal psychological control x paternal psychological control significantly predicted goal progress for male students ($B = 1.016$); fear of failure partially mediated the relation (direct effect: $B = .857$, indirect effect = $.159$). The last model was used to calculate total, direct, and indirect effects for the mediated-moderation model, with varying levels from both parents on psychological control (Table 4). A simple slope analysis for each significantly predicted outcome (fear of failure, satisfaction of academic achievement, and goal progress) allowed for the visualization of the interactive effects of parental psychological control.

Simple Slope Analysis for the Interactive Effects of Psychological Control

In the simple slope analysis, paternal psychological control was the independent variable and maternal psychological control was the moderating variable. In a case like the one examined here, the independent and moderating variables are theoretically interchangeable and the regression equations mathematically equivalent. For parsimony reasons, only the simple slope for paternal psychological control at varying levels of maternal psychological control is presented. The estimation of 95% confidence intervals around each predicted value allowed for the comparison of point estimates of maternal psychological control at varying levels of paternal psychological control (see Figure 3 for graphical representations). For students reporting higher levels of maternal psychological control, the association between paternal psychological control and fear of failure was not significant ($B = -.207, SE = .129, p = .108, 95\% CI = [-.459, .046]$). In contrast, the association between paternal psychological control and fear of failure was significant and positive when students perceived lower levels of maternal psychological control ($B = .554, SE = .149, p < .001, 95\% CI = [.262, .846]$).

Interactive effects that were specific to each gender were also examined. Among female students, the interaction of maternal and paternal psychological control was a significant predictor of satisfaction of academic

achievement. When female students reported lower levels of maternal psychological control, the association between paternal psychological control and academic achievement satisfaction was negative and significant ($B = -.651, SE = .242, p = .007, 95\% CI = [-1.125, -.177]$). However, the association between paternal psychological control and academic achievement satisfaction was not significant for females perceiving higher levels of maternal psychological control ($B = .155, SE = .204, p = .555, 95\% CI = [.554, -.244]$).

Lastly, among male students, the interaction of maternal and paternal psychological control significantly predicted goal progress. When male students reported lower levels of maternal psychological control, the association between paternal psychological control and goal progress was positive and significant ($B = .926, SE = .399, p = .020, 95\% CI = 1.708, .144$). In contrast, the relation between paternal psychological control and goal progress was negative and significant when male students perceived higher levels of maternal psychological control ($B = -1.118, SE = .348, p = .001, 95\% CI = -.436, -1.801$).

Discussion

Although a number of studies have investigated how psychological control impedes children's and adolescents' academic adjustment, it is unclear whether psychological control remains detrimental for emerging adults pursuing post-secondary education. Within the parental psychological control literature, there was a need to propose potential mediators to explain the relationship between psychological control and emerging adults' academic adjustment. The current study proposed that fear of failure has deep interpersonal significance that could explain the association between parental psychological control and academic adjustment. Furthermore, the model used an *interactionist approach of dyadic gender composition* to examine whether parental psychological control predicts fear of failure and academic adjustment depending on the parents' and children's genders. The results revealed that maternal and paternal psychological control as well as their interaction predicted students' fear of failure, regardless of children's gender. Fear of failure negatively predicted all four indicators of academic adjustment. Fear of failure mediated the association between parental psychological control and academic adjustment, with the indirect effects of the psychological control interaction varying as a function of children's genders.

Independent and Interactionist Contribution of Parental Psychological Control on Fear of Failure

In the present study, the interaction between maternal and paternal psychological control significantly predicted fear of failure over and above main effects, for both male and female emerging adult students. The

interaction reveals that maternal and paternal psychological control are not completely independent predictors, but rather that their interactive association also contributes to the development of fear of failure in emerging adults. Specifically, when emerging adult students perceived low levels of maternal psychological control, higher paternal psychological control was associated with higher fear of failure. In contrast, when levels of maternal psychological control were high, the association between paternal psychological control and fear of failure was not significant. As expected, students reported high fear of failure when both parents exerted psychological control, but fear of failure was equivalent to that of students who only perceived their mother as psychologically controlling. This raises the possibility that maternal psychological control is especially detrimental for emerging adults. Students reported the lowest fear of failure levels when both parents displayed low levels of psychological control.

The interaction of maternal and paternal control suggests that there is a risk for the development of fear of failure as long as one parent exerts psychological control. Indeed, children with two psychologically controlling parents were not at heightened risk for fear of failure compared to children with only a psychologically controlling mother or father. Interestingly, the results are in line with the only other study that examined the interactive effect of maternal and paternal psychological control (Rogers et al., 2003).

Overall, the results corroborate the hypothesis that higher levels of parental psychological control are associated with heightened fear of failure. Given that it was the case for both parents, the current study provides support to the idea that fear of failure stems from deeply relational processes and that emerging adults internalize parental expectations expressed psychological control as fear of failure. The achievement-oriented nature of post-secondary education could exacerbate the insidious effects of psychological control. The importance of psychological control for academic adjustment is consistent with conceptual models of undergraduate socialization (Weidman, 1989), which propose that the parent-emerging adult relationship affects how students deal with normal stressors in post-secondary education, which in turn affects students' academic success.

An interesting avenue for future research would be to investigate if, given the relation between psychological control and fear of failure, increased psychological control could explain the intergenerational transmission of fear of failure (Elliot & Thrash, 2004). Psychological control is known to play a role in the intergenerational transmission of perfectionism for females, even beyond the contribution of shared genetic traits like neuroticism that also predict higher fear of failure (Soenens et al., 2005). Similar transmission mechanisms could be at play for fear of failure, which shares common features with maladaptive perfectionism.

Fear of Failure as a Disruptive Motivational Mechanism for Academic Outcomes

The present study also reinforces the importance of fear of failure as a disruptive motivational mechanism in context of achievement, such as post-secondary education. Indeed, higher levels of fear of failure were associated with lower academic adjustment of students across four different indicators, which is consistent with other studies that found that fear of failure relates to lower academic adjustment (e.g., De Castella et al., 2013). Furthermore, the results extend the current literature by demonstrating that students' academic adjustment is also negatively related to fear of failure. The experience of academic achievement and adjustment may hold a more fine-tuned association with students' internal motivational, emotional, and cognitive processes—such as fear of failure. Similarly, past studies have shown that fear of failure could predict a controlling goal orientation by which individuals seek achievement for rewards or to avoid disappointment (Michou et al., 2014). Given the intertwined nature of fear of failure with achievement outcomes, future research should examine associations with other core self-regulation constructs in post-secondary education research, such as academic self-concept (Lu, Walsh, White, & Shield, 2017) as well as procrastination and coping (Gareau, Chamandy, Kljajic, & Gaudreau, 2019).

Another objective of the present study was to explain the psychological mechanisms underlying the relation between parental psychological control and academic adjustment by integrating students' fear of failure as a mediator. The results indicated indirect effects of the psychological control interaction on the prediction of goal progress (for male students) and satisfaction of academic achievement (for female students) through fear of failure. The indirect effects were relatively small ($r < .10$) and likely exacerbated by the large sample size; caution should be exerted when considering the indirect effects. The gendered effect for academic adjustment is consistent with the idea that women are socialized differently than men, and that women feel more pressure to succeed academically than men (McDaniel, 2010). As females would already feel a societal and unspoken pressure for academic success, they may put a lot of pressure on themselves to succeed. As soon as some external pressure is added to the pressure females already feel—be it from one or both parents—it would be sufficient to hinder children's satisfaction.

The direction of the interaction in the relation between the psychological control interaction and males' goal progress was different from the interaction involving females' satisfaction of academic achievement. Although having two parents exerting low psychological control was the best-case scenario for both males and females, for males, high paternal psychological control did not hold a negative relation with goal progress when maternal psychological control was also high. Indeed, when males perceived their mothers as being psychologically

controlling, males' trajectory was better when their father also exerted psychological control. Although this subtle result requires further investigation, one could wonder if the involvement of a same-gender role model for males would matter for goal progress specifically, even when the involvement may not be positive. Since fathers reinforce achievement and goal orientations and are important for modeling educational aspirations (Buchmann & DiPrete, 20016), it may be better for males to have a psychologically controlling father than mother.

Limitations

Although the current study is one of the first to delve into the mechanisms underlying the relation between parenting behaviors and academic adjustment during emerging adulthood, it presents limitations worth noting. First, the study relies on a cross-sectional design, which prevented the examination of potential confounding factors, such as an individual's general feeling of adjustment prior to the start of post-secondary education (Soucy & Larose, 2000). Similarly, it was not possible to examine the fluctuations in parental psychological control across emerging adulthood and their implication for academic adjustment, even if past studies have shown decreases in parental psychological control during emerging adulthood (Desjardins & Leadbeater, 2017). It was also not possible to investigate the ramifications of parental psychological control exerted during prior developmental periods.

Furthermore, it is impossible to know whether some participants answered the psychological control questions while thinking about different parental figures than their biological mothers and fathers (e.g., step-parents, caregivers, adoptive parents) since participants did not report on their family composition. Some participants may have more than two parental figures in their lives – not considering other parental figures could neglect part of the psychological control exerted on emerging adults. Ideally, family composition would have been examined as a potential covariate in the model. It would be interesting for future studies to consider how different familial configurations could play into the relation between psychological control and emerging adults' adjustment.

Another limitation of the current study is its reliance on single-informant self-reported data, which may inflate the strength of associations between variables. It is worth noting, however, that evaluating perceptions of psychological control through self-report is considered an advantage, as it would be more important to know the ways in which a child experiences and perceives psychological control than knowing the objective psychological control exerted by parents (Barber, 1996). Self-report was also used for academic achievement, which may inflate the reported grades. Although objective measures acquired through the university would have been ideal, there is evidence showing that the shortcomings of self-reported grades may be limited. Indeed, in a meta-analysis, self-

reported grades data did not globally affect the estimation of the relation between psychological control and adolescents' academic achievement (Pinquart, 2016).

Lastly, the current study does not provide information on how psychological control and fear of failure may predict adjustment in diverse samples or in non-student emerging adults. Evidence shows that the prevalence some psychological control behavior varies across cultures (e.g., guilt induction is higher in American than Taiwanese emerging adults; Chou & Chou, 2018). Furthermore, university students who present different study statuses (e.g., international students) may feel even more psychological control from their parents, who may be making many sacrifices to send their children to school abroad. The present study also focused on academic adjustment, thereby neglecting emerging adults who may have already joined the workforce. There is still much to know on the role of child-parent relationships for emerging adults who are not pursuing post-secondary education.

Conclusion

The current study sought to address the gap in our understanding of the relation between mothers' and fathers' psychological control and emerging adults' academic adjustment during post-secondary education. To achieve this goal, the model proposed fear of failure as a mediator and relied on an interactionist approach of dyadic gender composition. The study found that maternal and paternal psychological control, as well as their interaction, were significant predictors of fear of failure, while fear of failure was a significant predictor of academic adjustment. The indirect effect of the interaction of psychological control on academic adjustment through fear of failure varied as a function of emerging adults' genders. These results show that both parents, individually and in conjunction, continue to play an important role in their children's lives during emerging adulthood. Controlling parental behaviors can set children on a detrimental trajectory of inner psychological functioning, by which the fear of failing and disappointing their parents becomes a driving motivational factor in their lives. The present study highlights the need for further research and for the development of interventions aimed at helping children and their parents navigate the new dynamic of their relationship during emerging adulthood.

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Table 1
Measurement models and invariance tests across children's genders

Model	df	SB χ^2	CFI	TLI	SRMR	RMSEA (90% CI)	Δ df	Δ SB χ^2	Δ CFI
Overall model	279	1695.821	.954	.947	.034	.053 (.051 - .056)			
Male ($n = 459$)	279	667.617	.950	.942	.043	.055 (.050 - .060)			
Female ($n = 1333$)	279	1341.765	.955	.947	.033	.053 (.051 - .056)			
1. Configural model	558	2030.989	.953	.945	.036	.054 (.052 - .057)			
2. Loadings model	577	2051.289	.953	.947	.037	.053 (.051 - .056)	19	22.618	.000
3. Intercepts model	603	2199.532	.949	.945	.040	.054 (.052 - .057)	26	154.001*	-.004
3.1 – PFAI1	602	2139.439	.951	.947	.039	.053 (.051 - .056)	25	88.079*	-.002
3.2 – PFAI2	601	2122.913	.952	.948	.039	.053 (.051 - .056)	24	70.332*	-.001
3. Residuals model	626	2113.408	.953	.951	.041	.051 (.049 - .054)	25	36.275	+.001

Note. df = degree of freedom, SB = Satorra-Bentler, CFI = Comparative Fit Index, TLI = Tucker-Lewis Index, SRMR = Standardized Root Mean Square Residual, RMSEA = Root Mean Square Error of Approximation. PFAI = Performance Failure Appraisal Inventory.

* $p < .05$

Table 2

Bivariate association between latent variables

Latent variables	1	2	3	4	5	6	7
1. Fathers' psychological control		.453	.188	-.039	-.102	-.085	-.071
2. Mothers' psychological control	.491		.253	-.013	-.112	-.089	-.092
3. Fear of failure	.128	.202		-.062	-.238	-.219	-.161
4. Academic Achievement	-.092	-.149	-.101		.699	.497	.298
5. Satisfaction of academic achievement	-.156	-.174	-.229	.708		.622	.406
6. Goal progress	-.048	-.080	-.209	.487	.546		.592
7. School satisfaction	-.071	-.027	-.079	.261	.350	.510	

Note. Bivariate associations for males are below the diagonal, and above for females. The associations with indicators of academic adjustment are in grey.

Significant associations at $p < .05$ are in bold.

Table 3
Model sequence for the latent mediated-moderation model with gender constraints

Models	#fp	LL	SC	Δ fp	Δ LL
<u>Unconstrained gender models</u>					
Mothers' and fathers' PC on outcomes (<i>main effect model</i>)	117	-53053.328	1.328		
Mothers' and fathers' PC interaction on outcomes (<i>interactive effect model</i>)	125	-53041.040	1.314	8	22.193*
Only significant interaction effects (<i>Total effect model</i>)	119	-53043.647	1.326	2	16.098*
Fear of failure as a mediator of main effects (<i>indirect effect model</i>)	131	-52955.268	1.304	12	161.707*
Fear of failure as a mediator of interactive effects (<i>final indirect effect model</i>)	133	-52947.733	1.304	2	11.554*
<u>Constrained gender models</u>					
... main/interactive PC effects on fear of failure	130	-52949.347	1.306	3	2.577
... main PC effects + FOF on academic achievement	127	-52952.600	1.314	3	6.729
... main PC effects + FOF on school satisfaction	124	-52954.715	1.320	3	4.017
... fear of failure on AA satisfaction and goal progress	122	-52954.740	1.324	2	0.047

Note. #fp = number of free parameters, LL = log likelihood, SC = scaling correction, PC = psychological control, FOF = fear of failure, AA = academic achievement.

* $p < .05$

Table 4

Unstandardized total, direct, and indirect effects for the mediated latent moderation predicting academic adjustment

	Total effects (c)		Direct effects (c')		Indirect effects via FOF	
	Male	Female	Male	Female	Male	Female
<u>Mediated-moderation effects</u>						
FPC × MPC → Satisfaction of AA	-	.419*	-	.300	-	.144*
FPC → AA satisfaction @ High MPC	-	.246	-	.164	-	.082
FPC → AA satisfaction @ Low MPC	-	-.643*	-	-.436	-	-.207*
MPC → AA satisfaction @ High FPC	-	.095	-	.110	-	-.015
MPC → AA satisfaction @ Low FPC	-	-.794*	-	-.490*	-	-.304*
FPC × MPC → Goal progress	1.016*	-	0.857*	-	.159*	-
FPC → Goal progress @ High MPC	.956*	-	.866*	-	.090	-
FPC → Goal progress @ Low MPC	-1.076*	-	-.849*	-	-.228*	-
MPC → Goal progress @ High FPC	.662*	-	.679*	-	-.017	-
MPC → Goal progress @ Low FPC	-1.371*	-	1.035*	-	-.335*	-

Note. In bold are the significant regression parameters * $p < .05$, † $p < .08$. PC = psychological control, AA = academic achievement, F = father, M = Mother, FOF = fear of failure. In bold are the significant regression parameters.

* $p < .05$, † $p < .08$.

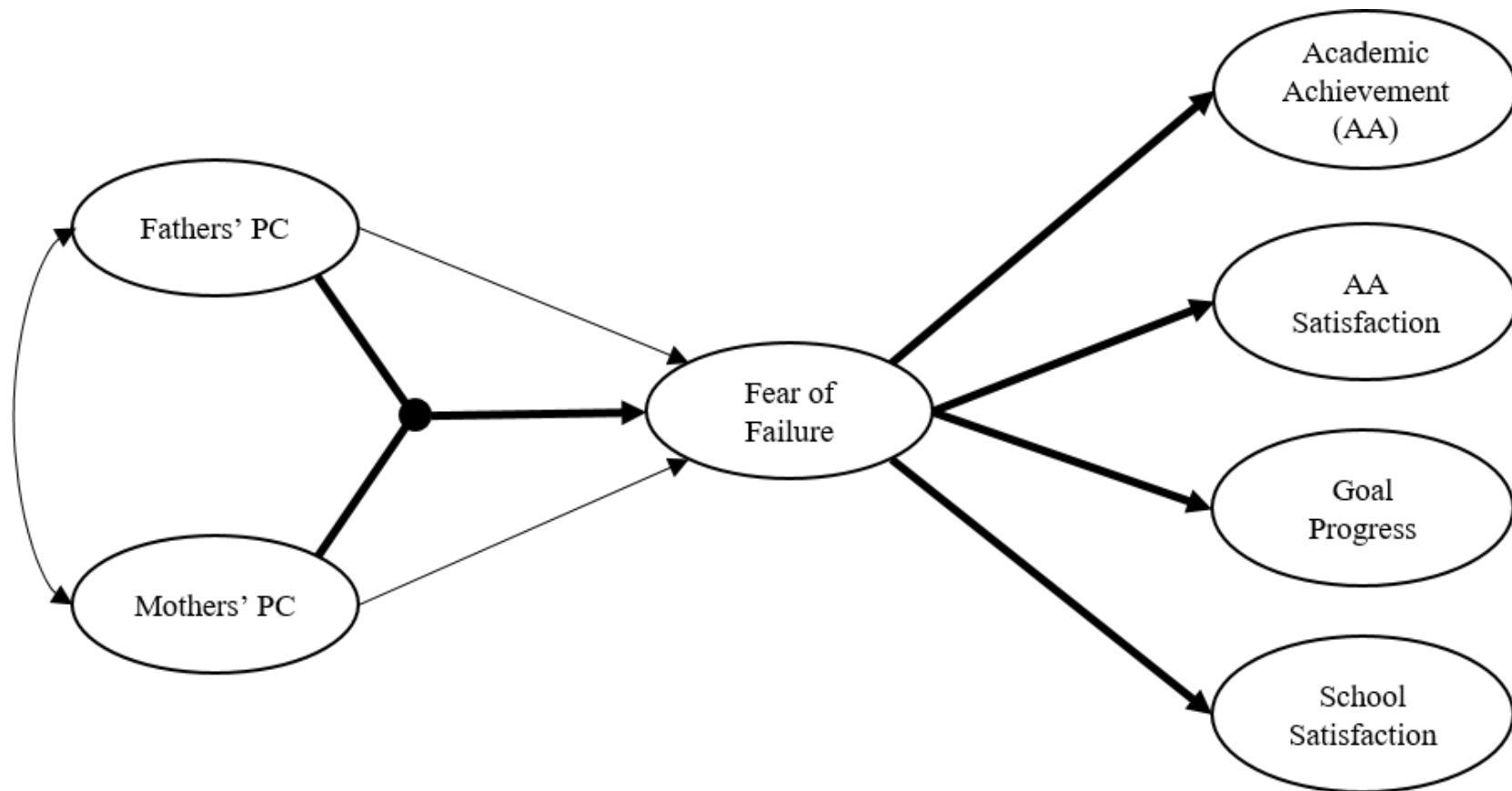


Fig. 1. The hypothesized latent moderated-mediation model, in which fear of failure acts as a mediator of all direct associations between paternal and maternal psychological control and indicators of academic adjustment; therefore, direct associations are not presented in the figure. The bold dot represents the interaction term of maternal and paternal psychological control. PC = psychological control.

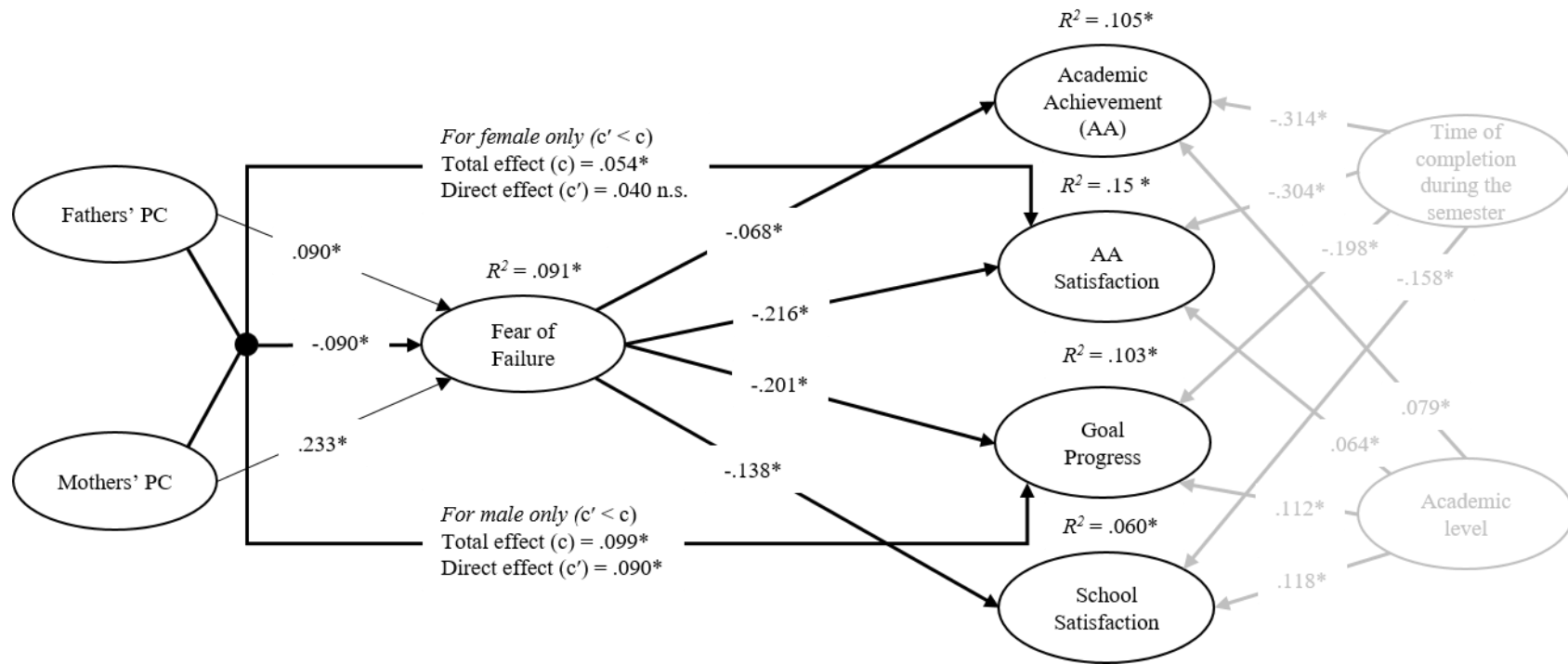


Fig. 2. Standardized coefficients for the final mediated-moderation constrained model across genders. Lines represent significant effects
 * $p < .05$.

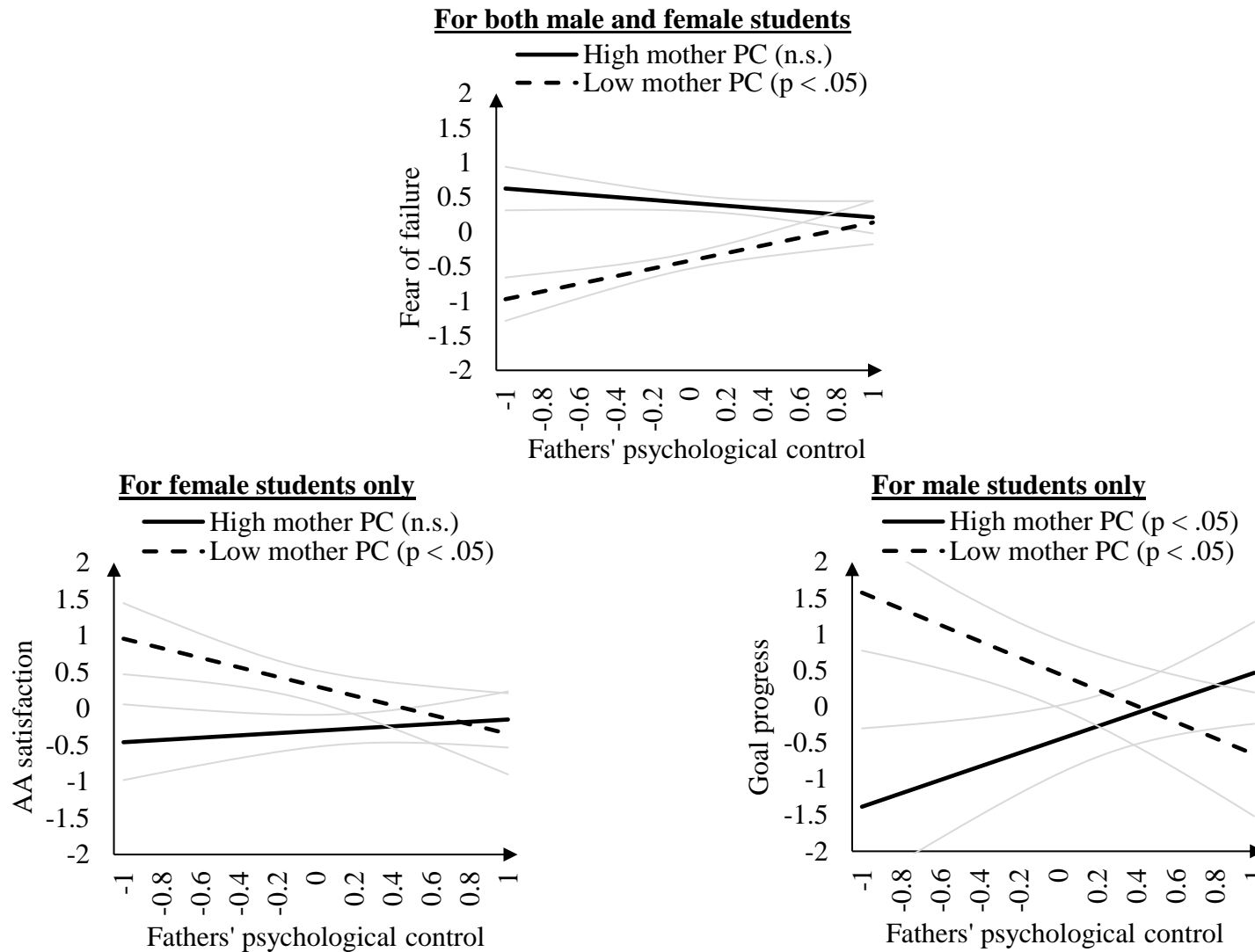


Figure 3. The results of simple slope analyses at +1 SD (dotted line) and -1 SD (bold line) of mother’s psychological control (PC). In grey are the 95% confidence interval (CI) for each predicted value. Non-overlapping 95% CI are considered different.