# Profiles of Autonomy Support and Controlling Parenting: Mixing the Two Predicts Lower Child-

Perceived Autonomy Support

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#### Abstract

Despite the well-documented developmental benefits and costs of autonomy-supportive and controlling parenting, little is known about the extent to which parents engage in both types of parenting in real life and its implications for child functioning. This study aimed to examine how combinations of these two seemingly opposite parenting dimensions may contribute to children's perceptions of parenting and developmental outcomes. To this end, we used a dataset pooled from six independent samples, involving 3,843 Canadian parents ( $M_{age}$  = 41; 68% mothers) to identify profiles of parenting, using parent-reported autonomy-supportive and controlling behaviors. Parent profiles were then associated to child-perceived parenting and child outcomes, as well as parentrelated predictors. A latent profile analysis found four profiles of parents: In most cases, autonomysupportive and controlling behaviors covaried, most parents simultaneously exhibiting comparable levels of these two parenting dimensions, while only 17% of the parents reported engaging predominantly in autonomy support. This subgroup of parents was perceived by their children to be most autonomy-supportive; their children also showed better school grades and fewer externalizing problems. High-earning and highly educated parents tended to be predominantly autonomysupportive, while parents whose self-worth was tied to their child's success (i.e., ego-involved parents) tended to resort predominantly to controlling parenting. Finally, we found that when controlling parenting is present, parents and children greatly differ in their assessments of autonomy support, with children perceiving less parental autonomy support than parents' self-reports. These findings shed light on the implications of pairing controlling with autonomy-supportive behaviors within a single parenting style.

*Keywords:* autonomy support, controlling parenting, parent reports, multi-informant, latent profile analysis

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According to self-determination theory (SDT), parents contribute to optimal child development by supporting their child's innate need for autonomy (Joussemet et al., 2008; Ryan & Deci, 2017; Soenens et al., 2017). Autonomy-supportive parents encourage their child to act, think, and feel in line with the child's values and interests. Conversely, controlling parents impose pressure and dominance, with little regard for the child's needs and perspectives. Despite the mounting evidence that parental autonomy support and control are key to optimal development (Bradshaw et al., 2024; Vasquez et al., 2015), less is known about how these parenting behaviors co-occur. Most studies relied on a variable-centered approach, examining how *each* parenting behavior *in isolation* relates to child outcomes. However, parents often mix both, supporting autonomy in one moment or situation, while being controlling at others. Also, distinct subgroups of parents may show different behavioral patterns.

Although some studies have used person-centered approaches to capture this heterogeneity, most—if not all—focused on *child-perceived* parenting (e.g., Ahn, Plamondon, et al., 2022; Teuber et al., 2022). To our knowledge, no study has examined parenting profiles using *parent reports*, leaving important questions unanswered: (1) How do autonomy-supportive and controlling behaviors combine in parent reports? Some parents may report predominantly supporting autonomy, and some may see themselves as equally engaging in both. (2) What is the interactive effect of these behaviors on child-perceived parenting and their outcomes? Could controlling behaviors offset the child assessment of autonomy support and its developmental benefits? This study aimed to answer these questions by identifying parent profiles of autonomy-supportive and controlling behaviors and examining how these profiles relate to child perceptions of parenting and child functioning. Throughout the paper, parenting behaviors refer to parent-reported behaviors, unless qualified (e.g., child-perceived parenting).

#### Parental Autonomy Support and Control

Autonomy support refers to parents actively encouraging the child to act in line with their personal values and interests (Joussemet et al., 2008; Soenens et al., 2018). Autonomy-supportive

parents promote their child's volitional functioning by: (1) recognizing and considering the child's feelings and perspectives, (2) offering meaningful choices and encouraging self-expressions, and (3) providing rationales and explanations when imposing limits or making requests (Koestner et al., 1984; Mageau et al., 2015). In contrast, *control* refers to parents using pressure to coerce the child to think, feel, or act in parent-prescribed ways, irrespective of the child's own needs and feelings (Mageau et al., 2015; Pomerantz & Wang, 2009). Controlling parents (1) use external motivators such as promises of rewards or threats of punishment, (2) induce guilt or shame, and (3) impose performance pressures and provide conditional love and approval contingent on the child's performance.

Autonomy support and control are distinct parenting dimensions that can operate in parallel each predicting the "bright and "dark" developmental pathways (Vansteenkiste & Ryan, 2013). Autonomy-supportive parenting is linked to children being happier and emotionally stable (Vrolijk et al., 2020), as well as more productive and engaged in learning (Ratelle et al., 2020). Meta-analytical evidence supports the robust benefits of autonomy support on child's psychosocial and academic functioning, regardless of the informant (child vs. parent reports), child age and gender, and culture (Bradshaw et al., 2024; Vasquez et al., 2015). Emerging evidence from intervention studies also suggest that parental autonomy support plays a causal role in lowering externalizing problems among children (Grolnick et al., 2021; Mageau, Joussemet, Paquin, et al., 2022). In contrast, controlling parenting comes with heavy costs, predicting higher internalizing problems, and lower self-esteem, irrespective of the informant (Cheung et al., 2016), with far-reaching implications across the lifespan (Loeb et al., 2020).

A recent meta-analysis of over 200 studies shed light on the nature of the relation between autonomy support and control (Bradshaw et al., 2024). The study revealed pronounced links between these two parenting dimensions and their respective child well-being outcomes, even after controlling for their intercorrelations, thus highlighting that autonomy support and control are not two opposite ends of a continuum but are distinct constructs that can coexist in various combinations. Said differently, being autonomy-supportive does not equate to the absence of controlling parenting, nor does a lack of autonomy support equate to being controlling. For example, a parent who provides meaningful rationales (i.e., autonomy support) may still resort to punishment (i.e., control), while a parent not explaining rationales may also avoid controlling strategies. Given their distinct nature, autonomy-supportive and controlling behaviors can be configured in different parenting profiles.

Extant studies in the SDT literature have predominantly relied on a variable-centered approach to understand the *unique* and *independent* role of autonomy support and control in child outcomes (e.g., Bradshaw et al., 2024). This approach often examines the relations between variables, such as autonomy support and life satisfaction, while holding other variables (e.g., controlling parenting) constant. It yields an average, single parameter that best reflects the link between the variables for the entire population. In contrast, a person-centered approach assumes that the population may be heterogeneous, with the associations between variables differing across individuals. This approach takes each person as a unit of analysis and classifies them into subgroups based on the pattern of how ratings on autonomy-supportive and controlling behaviors combine within individuals (Power, 2013).

#### How Do Autonomy Support and Controlling Parenting Combine in Parent Reports?

Using a person-centered approach to studying autonomy support and control can produce theoretically meaningful and practically relevant insights (Haerens et al., 2017). First, a personcentered approach can shed light on the relation between autonomy support and control, two seemingly opposites that are distinct and may co-occur (Bradshaw et al., 2024). Similar to the classic paradigm of parenting styles that defines parental responsiveness and demandingness as orthogonal dimensions (Baumrind, 1967; Maccoby & Martin, 1983), we can identify several profiles of parents endorsing different degrees of autonomy support and controlling practices (e.g., high-high, low-low, high-low, and low-high). Departing from the assumption that these two parenting dimensions necessarily co-vary, a person-centered approach provides a nuanced view by capturing the

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heterogeneity in the intra-individual configurations of autonomy support and control. Second, identifying parenting profiles can shed light on the *joint* contributions of these two dimensions. For instance, it can show how autonomy support might buffer the detrimental consequences associated with controlling behaviors, or how controlling behaviors might undermine the benefits of autonomy support. These insights can inform intervention efforts, clarifying whether it is sufficient for parents to either forego controlling practices or gear up on autonomy support, or whether both should be addressed simultaneously.

A handful of studies in the SDT parenting literature have used a person-centred approach, but all have focused on *child-perceived* parental autonomy support and control (Ahn, Plamondon, et al., 2022; Liga et al., 2018; Soenens et al., 2009; Teuber et al., 2022). These studies, conducted among adolescents and young adults, identified four comparable subgroups: autonomy-supportive, controlling, and two mixed profiles that combine both dimensions. Comparing the profiles on developmental outcomes, results first replicated those from variable-centered studies (with the students in the autonomy-supportive profile faring best and those in the controlling struggling the most). They then extended them by revealing that students in the mixed parenting subgroups showed suboptimal outcomes compared to their autonomy-supported peers; in some cases, they fared as poorly as their controlled peers. These findings highlight that (1) parents engage in different combinations of parenting behaviors; and that (2) such differences have implications for child development.

However, no study, to our knowledge, has examined profiles using *parent* reports of autonomy support and control, despite evidence suggesting greater heterogeneity in the relation between these two parenting dimensions in parent reports—ranging from negative (e.g., -.15 in Skinner et al., 2005) to positive (e.g., .51 in Guay et al., 2018). This stands in contrast to child reports showing consistently negative associations, albeit varying in strengths (e.g., -.34 to -.71; Costa et al., 2018; Ratelle et al., 2017). Given this considerable sample-to-sample variability in the links between parent-reported autonomy support and control, our study aimed to capture this heterogeneity in

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how autonomy-supportive and controlling behaviors combine in parent reports, using a personcentered approach. Addressing this gap is crucial because parents and their parenting behaviors create the most proximal and enduring social context for child development (Soenens & Vansteenkiste, 2020). Parents are not only a prime target for interventions but are the main agent in seeking parenting support. How parents *believe* they interact with their child in terms of either supporting or thwarting their autonomy can thus guide intervention efforts.

Also, parental perceptions of their own parenting can shape their child's appraisal of parenting, which explains a large proportion of variance in child outcomes (Soenens & Vansteenkiste, 2020). Yet, we know very little on how children appraise different combinations of autonomy-supportive and controlling behaviors. Do children perceive lower levels of autonomy support when parents report high levels of controlling *and* autonomy-supportive parenting? Amidst the growing concern over overparenting—the excessive and developmentally inappropriate involvement in one's child's life that likely threatens the child's sense of autonomy and optimal development (Pomerantz et al., 2007; Zhang & Ji, 2023)—it is particularly pertinent to investigate how profiles of parents' perceptions of their own parenting behaviors relate to children's perceptions of parental autonomy support and control.

#### **Characteristics Linked to Parent Profiles**

To further identify subgroups of parents who may be in dire need of support, we aimed to situate parents within their larger socioeconomic context while also identifying parental psychological correlates of parent profiles. Being autonomy-supportive is not the automatic response for many parents, especially in times of stress, because it demands more emotional and cognitive resources than being controlling. For instance, a multi-informant diary study found that on days when parents felt stressed and had less psychological energy available, they reported being more controlling and less autonomy supportive, a finding corroborated in child reports (Van Der Kaap-Deeder et al., 2019) and in experimental studies (Robichaud, Roy, et al., 2020). Moreover, parents whose sense of worth is contingent on their child's performance (i.e., ego-involved parent)

tended to be more controlling toward their child (Ng et al., 2014; Wuyts et al., 2015), particularly so when they perceived their child to lack competence (Grolnick et al., 2007; Robichaud et al., 2019; Wuyts et al., 2017). Relatedly, a recent systematic review of 63 studies examining determinants of parental autonomy support found that less educated and less wealthy parents tended to report being less autonomy-supportive (Distefano & Meuwissen, 2022). Given these findings, we can expect that parents experiencing greater stressors, such as overscheduled families or those from disadvantaged backgrounds (i.e., lower-income or less-educated parents), may have fewer inner resources available to respond supportively to their child, and hence, be more vulnerable to using controlling strategies that often yield immediate compliance. However, what characterizes parents showing a balanced mix of autonomy support and control remains unclear. Our study begun this investigation by first examining the predicting value of contextual and psychological predictors known to relate to controlling parenting (e.g., ego-involvement).

#### The Present Study

The goal of this study was to examine how the combinations of two seemingly opposite parenting dimensions— autonomy support and control—relate to child-perceived parenting and their developmental outcomes. Three specific objectives guided the study. **First**, we aimed to identify profiles capturing different constellations of parent-reported autonomy support and control. We expected to find at least three profiles: one profile predominantly autonomy-supportive, another profile predominantly controlling, and the other profiles characterized by a mix of autonomy support and control (Hypothesis 1). **Second**, we aimed to examine differences in child perceptions of autonomy support and control and in child functioning as a function of parenting profiles. We expected that parents in the autonomy-supportive profile would be perceived by their child to be most autonomy-supportive and least controlling, while those in the controlling profile would show the opposite pattern (Hypothesis 2a). Based on the negative correlation typically observed between child-reported parental autonomy support and control, we also expected that children would perceive less autonomy support when it is coupled with controlling behaviors (Hypothesis 2b). As for child functioning, we expected children of autonomy-supportive parents to show optimal outcomes, while children of controlling parents to show the worst outcomes (Hypothesis 2c). The outcomes of children of parenting engaging in both parenting behaviors were expected to be situated either in between or at the same level as the children of predominantly controlling parents (Hypothesis 2d). **Last**, we aimed to identify sociodemographic and psychological factors associated with parent profiles, including household income, parents' educational level, ego involvement, and perceived child competence. We expected that parents experiencing greater internal and external stressors (i.e., low income, low educational level, more ego-involvement, and low perceived child competence) would engage in more controlling parenting (Hypothesis 3). Given inconsistent findings, we examined child- and parent-specific characteristics (e.g., gender, age) as predictors of parent profiles in an exploratory manner. To offset the potential drawback of person-centered analyses, the study used pooled data from multiple samples of widely ranging child age living in different historical times, to increase the findings' generalizability.

#### Method

#### **Data Source and Participants**

This study, which was not preregistered, involved secondary analyses of existing data from six research projects, each involving independent samples and conducted at different time periods (from 2008 to 2020). All six projects were approved by the ethics committee of Université Laval and Université de Montréal. We used data from participants who completed the central measure to the study: parental autonomy support and control. The final analytical sample was 3,843 Canadian parents from 2,943 families, with a mean age of 42 (ranging from 24 to 66). Most participants identified as mothers (68%), were working full time (78%), and earned a high school diploma (97%). Roughly half reported having a daughter (48%), with the child mean age of 10, ranging from 5 to 18. Most families had one participating parent (2932 families with one participating parent, 911 with two).

The six subsamples showed some characteristic differences (See Table S1). **Sample 1** included 1,205 parents with a mean age of 38 years; 37% reporting having a female child, and the child mean age was 7 years. **Sample 2** included 927 parents with a mean age of 41 years; 49 reporting having female child and the child mean age was 9 years. **Sample 3** included 831 parents with a mean age of 45 years; data from 486 parents were matched to the data from their children ( $M_{age} = 14$  years; 53% girls). **Sample 4** included 605 parents with a mean age of 45 years, 401 of whose data were matched to their children's data ( $M_{age} = 12$  years; 57% girls). **Sample 5** included 204 parents, with a mean age of 44 years; data from 77 parents were matched to their children's data ( $M_{age} = 14$  years; 81% girls). **Sample 6** included 156 parents with a mean age of 41 years, 92 of whose data were matched to their children's data ( $M_{age} = 15$  years; 48% girls). Each of six subsamples constituted 30%, 23%, 22% 15%, 5% and 4% of the final sample.

Despite some differences, these samples shared some similarities. They all had a higher representation of mothers (62–77%), were mostly in intact families (69-91%), and were moderate to high in socioeconomic status (65–88% holding a postsecondary degree, a median household income that is comparable or slightly higher than the provincial level). One exception was Sample 5, who reported relatively lower socioeconomic status (44% reported holding a postsecondary degree and the median household income was lower than the provincial level). See Section S1 in the Online Supplements for more detail on the sample-specific characteristics.

#### Measures

#### Parental Autonomy Support and Controlling Parenting

Parents in all six samples (n = 3,830; 99.7%) completed the 25-item Parental Autonomy Support Scale (PASS; Mageau et al., 2014; Ratelle et al., 2017), indicating how often they engaged in each parenting behavior, using a 7-point Likert scale ranging from 1 (almost never) to 7 (almost always). The scale assessed three autonomy-supportive behaviors, including (1) acknowledging the child's perspectives and feelings (4 items;  $\omega = .78$ ; e.g., "..., I tell him/her that I understand his/her feelings before I insist that he/she follows the rules."); (2) offering choices within limits (4 items;  $\omega =$  .70; e.g., "..., I let him/her choose the type of activity he/she wants."); and (3) providing rationales (5 items;  $\omega = .78$ ; e.g., "..., I explain to him/her why these rules are important and insist that he/she follows them."). The scale also assessed three controlling behaviors, including (1) threatening to punish the child (4 items;  $\omega = .89$ ; e.g., "..., I tell him/her that he/she had better obey before he/she gets punished."); (2) inducing guilt (4 items;  $\omega = .86$ ; e.g., "..., I tell him/her that it hurts me a lot."); and (3) encouraging performance goals (4 items;  $\omega = .85$ ; e.g., "..., I tell him/her how to be the best at what he/she does."). Each item is preceded by a description of a situation in which the parenting behavior is enacted (e.g., "When my child does not want to follow the house rules").

#### Perceived Parental Autonomy Support and Controlling Parenting

Children in Samples 3 to 6 (n = 1,474; 38%; 17% missing for reasons other than by design) completed the 24-item Perceived Parental Autonomy Support Scale (P-PASS; Mageau et al., 2015), indicating how much each item described their mother or father, using a 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*very strongly agree*). Like the parents' scale, the child version assessed three autonomy-supportive and three controlling behaviors. Each dimension showed acceptable internal consistency ( $\omega s = .78-.86$ ). Children completed the scale for both parents, with item order alternating to prevent anchoring bias (making one parent the anchor on which the other is compared).

#### **Child School Grades**

School grades in math and language arts were assessed using parent reports in **Samples 1** and **2**; and using child reports in **Samples 3 to 6**, on a 1–100 scale. One exception was **Sample 5** where children reported their own grades, using a 5-point scale, ranging from 1 (*90 and above*) to 5 (*59 and below*). The score was reverse coded to have higher scores represent better school performance. In Samples 1 and 2, parent-reported school grades in reading and writing were averaged to create aggregated indicators of school grades in language arts. School grade indicators were standardized within each sample to control for differences in response scales and samplespecific characteristics. A total of 2,453 participants (64%) had available data, of which roughly half were child reports.

#### **Child Psychosocial Problems**

*Externalizing Problems* were assessed using parent reports of their child's symptomology. Samples 1 and 2 completed the 10-item Externalizing Problem Subscale of the 2014 Ontario Child Health Study Emotional Behavioral Scales (OCHS-EBS; Duncan et al., 2019), using a 3-point scale, ranging from 1 (*never or not true*) to 3 (*often or very true*). Samples 3 and 4 completed 8 items selected from the Externalizing Problem Subscale of the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), using a 3-point scale, ranging from 1 (*not true*) to 3 (*very true or often true*). In Sample 6, parents completed the 36-item Externalizing Problem Subscale of the CBCL for Ages 6-18, using a 3-point scale, ranging from 0 (*does not apply*) to 2 (*always or often true*). Sample items include "My child gets in many fights", "... loses temper", "... runs away from home." All scales showed adequate internal reliability (ωs = .73 –.86). Item scores were averaged to create aggregate scores of externalizing problems. Aggregate scores were then standardized within each sample to control for differences in response scales and sample-specific characteristics. Sample 5 did not complete a measure of externalizing problems. A total of 3,634 participants (95%) had available data, all from parent reports.

Internalizing Problems were assessed using parent reports in Samples 1, 2, and 6; child reports in Samples 4 and 5. In Samples 1 and 2, parents completed the 13-item Internalizing Problem Subscale of the OCHS-EBS, using a 3-point scale, ranging from 1 (*never or not true*) to 3 (*often or very true*). In Sample 4, children answered 12 items selected from the French translation of the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978; Turgeon & Brousseau, 1998), indicating whether they agreed with each item, using a binary scale of 0 (*No*) or 1 (*Yes*). They also answered 5 items selected from the Children Depression Inventory (CDI; Kovacs, 2014). For each item consisting of three statements (e.g., "I am sad once in a while," "I am sad many times," "I am sad all the time"), children indicated one that best described how they felt in the past two weeks. Statements received a score of 0, 1, or 2, depending on the severity that the statement represented. Aggregate scores of anxiety and depression symptoms were standardized (to control for differences in response scales), then averaged to create a single score of internalizing problems. Children in **Sample 5** completed the 10-item CDI-Short Form. In **Sample 6**, parents completed the 31-item Internalizing Problem Subscale of the CBCL for Ages 6-18, using a 3-point scale, ranging from 0 (*does not apply*) to 2 (*always or often true*). Sample items include "My child is unhappy, sad or depressed", "... is too fearful or anxious", "... cries a lot." All scales showed adequate internal reliability (ωs = .81– .87). Aggregate scores of internalizing problems were standardized within each sample. Participants in **Sample 3** did not complete any measure of internalizing problems. A total of 2,774 participants (72%) had available data (80% were parent reports).

#### Parental Ego Involvement

Parents completed an adapted version of the 5-item *Contingencies of Self-Worth Scale* (Crocker et al., 2003), using a 7-point Likert scale, ranging from 1 (*do not agree at all*) to 7 (*strongly agree*). **Samples 1 and 2** completed the Academic Competence subscale of the scale (5-item;  $\omega = .78$ ; e.g., "*I feel bad about myself whenever my child does not do well in school.*"), while **Samples 5 and 6** completed the Competition subscale (5-item;  $\omega = .89$ ; e.g., "*My self-worth is affected by how well my child does when they are competing with others.*"). Items scores were averaged then standardized within each sample. **Samples 3 and 4** did not complete any measure of ego involvement. A total of 2,400 participants (63%) had available data.

#### Parent-Perceived Child Academic Competence

**Samples 1 and 2** responded to three items assessing how well their child is doing in mathematics, writing, and reading, respectively ( $\omega = .90$ ; e.g., "I consider my child to be doing well in mathematics"), using a 7-point Likert scale, ranging from 1 (*not at all*) to 7 (*extremely well*). **Samples 5 and 6**\_completed 5 items inspired from the *Competence Perceptions in Life Domains Scale* (Losier et al., 1993), indicating the how much each item described their child ( $\omega = .84$ ; e.g., "My child has developed very good competencies as a student."), using a 7-point Likert scale, ranging from 1 (*do* 

*not agree at all*) to 7 (*strongly agree*). **Sample 3** responded to three items assessing how much their child struggles in school ( $\omega$  = .80; e.g., "My child has difficulty in mathematics."), using a 7-point Likert scale, ranging from 1 (*not true for my child*) to 7 (*very true or often true for my child*). Item scores in Sample 3 were reverse coded to have higher scores represent better academic competence. Aggregate scores were standardized within each sample. **Sample 4** did not complete any measure of the child's academic competence. A total of 3,211 participants (84%) had available data.

#### Sociodemographic Variables

Parents reported their gender (0 = men; 1 = women), age, family composition (0 = intact; 1 = other), annual household income, educational attainment (0 = high school not completed; 1 = high school completed; 2 = postsecondary degree obtained). They also reported on their child's gender (0 = boys; 1 = girls) and age. Income scores were standardized within each sample to control for differences in rating scales (i.e., income brackets) and variations due to historical timing and across samples.

#### **Analytical Plan**

Main analyses were conducted in *Mplus 8.8*, using the CLUSTER option to adjust for interdependence of observations. As preliminary analyses, we tested the measurement invariance for parent-reported autonomy support and controlling parenting across mothers and fathers, and across samples. Factor scores (M = 0, SD = 1) from the most invariant model were saved and used as indicators in the profile analysis. Missing data were handled using full information maximum likelihood estimation (FIML), a gold-standard method that uses all available data to produce unbiased estimates (Enders, 2010). Differences between participants with and without missing data were negligible across all variables (see Sections S3 and S4 for more information).

#### Latent Profile Analyses

**Unconditional Model.** A series of 1-to-8 solutions of latent profile analyses (LPA) were estimated, using the robust FIML estimator (MLR in Mplus) correcting for non-normality. To avoid

convergence on local maxima, all models were estimated using 5,000 random start values with 200 iterations, retaining 300 of these start values for final stage optimization (Morin & Litalien, 2019). Means and variances were freely estimated in all profiles. The decision on the number of optimal profiles was guided by the substantive meaning and theoretical conformity of profiles as well as model fit statistics (Bauer & Curran, 2004). Statistical indices supporting this decision include the Akaike information criterion (AIC), the Bayesian information criterion (BIC), the sample-size adjusted BIC (ABIC), and the adjusted Lo, Mendell, and Rubin likelihood ratio test (aLMR). Bootstrap likelihood ratio test (BLRT) could not be obtained because of the data's complex nature (i.e., parents nested within a family). Lower values on the AIC, BIC, and ABIC suggest a better fitting model, and a statistically significant *p* value ( $\alpha = .05$ ) of the aLMR supports a model with one less profile. In cases where the indicators keep decreasing without ever reaching a minimum, their values were graphically presented in an elbow plot in which the plateau (i.e., the point after which the slope flattens) indicates a range of optimal profile numbers.

**Conditional Model.** Outcome variables and predictors were integrated to the retained model. All outcome variables and predictors were standardized (see *Measures* section for more information).

*Outcomes of Profile Membership.* A total of 12 outcomes were considered, namely, child school grades (in mathematics and language arts), child psychosocial problems (internalizing and externalizing), child perceptions of parenting (autonomy support, controlling parenting, and their six subdimensions). We used a manual BCH method to examine if children showed any differences in the outcome variables as a function of their parents' profile membership. The BCH method is recommended when estimating profile-specific means for continuous distal outcomes, because (1) this method accounts for uncertainty associated with classifications, using BCH weights (i.e., the likelihood or probability of an individual belonging to a specific latent profile) and; (2) it prevents profile shifting, a phenomenon occasionally observed when integrating distal outcomes (Asparouhov & Muthén, 2021). Additionally, because the manual method involves comparing profile-specific

means using the BCH weights saved from the unconditional model, this method ensures that the profile identified in the complete sample remains identical in subsequent analyses involving subsamples even when distal outcomes include missing data (e.g., Samples 1 and 2 without childreported parenting).

To examine the magnitude of the mean differences (i.e., effect sizes), we calculated Cohen's d, using profile-specific mean estimates, standard errors (SE; to obtain standard deviations), and sample sizes. We followed the conventional benchmark of interpreting ds suggesting that values of 0.20, 0.50, and 0.80 represent small, medium, and large effects (Cohen, 1988). However, a critical interpretation of effect sizes is needed, given the multi-informant design of the study and the existing empirical evidence (Hill et al., 2008). Even effect sizes of 0.25 can be substantively important in light of a meta-analytical result reporting rs = .11-.38 between parental autonomy support and child outcomes (Vasquez et al., 2015) and an intervention study reporting  $ds \ge 0.19$  and 0.42 on parent reports of parenting (Mageau, Joussemet, Robichaud, et al., 2022).

*Predictors of Profile Membership.* In a separate model, we added 10 variables to predict profile membership, using the multinomial logistic regressions. The predictor variables include sociodemographic information (e.g., parents' age, household income) and characteristics specific to children (e.g., gender) and parents (e.g., child-contingent self-esteem). Household income and parent-specific variables were standardized within each sample. We interpreted odds ratios (OR) for effect size, in reference to 95% confidence intervals (CI). OR greater than 1 indicates a greater probability of being classified in a given profile (vis-à-vis a reference profile), while OR equal to 1 indicates no difference in the classification probability between two profiles being compared. OR greater than 1.44, 2.48, and 4.27 are interpreted as small, medium, and large (Cohen, 1988). While our primary interest was comparing the autonomy-supportive profile and other profiles, we examined comparisons among all profiles in an exploratory manner. Data and study materials are available upon request; Mplus analytic codes are available in Section S5 of the Online Supplements.

#### Results

#### **Testing Measurement Invariance of Parent Reports of Parenting**

We found support for configural and metric invariance of the parent reports of autonomy support and controlling parenting, but weaker support for scalar invariance, and thus proceeded to an alignment method to arrive at an approximately invariant model (See Section S3 for more information). Factor scores from the aligned model were used as indicators in the LPA.

#### **Identifying Parent Profiles**

Table S2 shows the fit indices of the LPAs. While aLMR pointed to the 6-profile solution, AIC, BIC, and aBIC continued to improve with the addition of a latent profile. An elbow plot (see Figure S1) indicated a plateau of model fit indices around 5 profiles. We therefore more closely examined the 3- to 5-profile solutions. The 4-profile solution identified three profiles already identified in the 3-profile solution, plus a qualitatively distinct and theoretically meaningful profile. The profiles in the 5-profile solution were harder to interpret and showed level differences, rather than qualitative differences. For this reason, we selected the 4-profile solution as the final unconditional model (see Figure 1).

The first profile showed low scores in controlling parenting and relatively high scores in autonomy support, particularly for taking perspectives and offering choices, and lower—but still above average—score for providing rationales. Constituting 17% of the sample, this profile was named "Autonomy-Supportive." The second profile showed very high scores in autonomy support (1 SD above the mean), alongside above-average scores in controlling parenting. Constituting 24%, this profile was named "Overinvolved," given parents' high endorsement of both autonomy-supportive and controlling behaviors. The third profile showed average scores in both autonomy support and controlling parenting. Constituting 38%, this profile was named "Average" because 0 in factor scores represents a group average. The last profile showed very low scores in autonomy support (1 SD below the mean) and below-average scores in controlling parenting. Constituting 21%, this profile was named "Uninvolved."

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#### **Outcome of Profile Membership**

Figure 2 shows the mean-level differences in the standardized scores for child outcomes and child-perceived parenting as a function of parent profiles (See Figure S2 for the mean-level differences in raw scores of perceived parenting; see Table S3 for the correlations between all study variables).

**Child School Grades.** As shown in Figure 2 (upper left panel), children in the Autonomy-Supportive profile performed better in language arts, M = 0.19, compared with children in other profiles,  $Ms \le 0.02$ . The differences were very small, ds = 0.12-0.17, all  $ps \le .02$ . Children in the last three profiles showed no difference in language grades. We observed no difference in math grades, except a very small difference (d = 0.09, p = .03) between *Overinvolved* (M = 0.06) and *Average* (M = -0.08) profiles.

*Child Psychosocial Problems.* As shown in Figure 2 (upper right panel), children in the *Autonomy-Supportive* profile showed fewer externalizing problems, M = -0.27, compared with children in other profiles,  $Ms \ge 0.03$ . The differences were small-to-medium, ds = 0.25-0.36, all ps < .001. Children in the last three profiles showed negligible differences, except for a very small difference in externalizing problems (d = 0.10, p = .013) between *Overinvolved* (M = -0.01) and *Average* (M = 0.12) profiles. The profiles did not show any differences in internalizing problems.

*Child-Perceived Parenting.* As shown in Figure 2 (lower left panel), children in the *Autonomy-Supportive* profile reported the highest score of perceived autonomy support, M = 0.41, compared to children in other profiles,  $Ms \le 0.09$ . The differences were small, ds = 0.13-0.23, all  $ps \le .01$ . Children in the last three profiles did not show any differences in perceived autonomy support. The results remained large the same for subdimensions of autonomy support: Children in the *Autonomy-Supportive* profile reported the highest score on perspective taking, choice giving, and rationale giving,  $Ms \ge 0.32$ , ds = 0.15-0.22, all  $ps \le .002$ . One exception was that *Autonomy-Supportive* and *Overinvolved* parents showed comparable scores on rationale giving, Ms = 0.32 vs. 0.18, d = 0.06, p = .22. The last three profiles could not be distinguished from each other on any of

the three behaviors, except for one: *Overinvolved* parents were perceived to give more rationales, M = 0.18, than *Uninvolved* and *Average* parents,  $Ms \le -0.07$ . The differences were, however, very small, ds = 0.12,  $ps \le .01$ .

Turning to controlling parenting (see Figure 2, lower right panel), *Autonomy-Supportive* parents were perceived to be least controlling, M = -0.34. The differences were small, ds = 0.11-0.23, all  $ps \le .033$ . Children in the last three profiles showed negligible and statistically insignificant differences in perceived controlling parenting. One exception was a small difference (d = 0.16, p < .001) between the *Uninvolved* (M = -0.12) and *Average* (M = 0.14) parents, where *Average* parents were perceived to be more controlling. The results remained largely the same for subdimensions of controlling parenting: Children in the *Autonomy-Supportive* profiles reported the lowest scores on threats of punishment, guilt induction, and performance goals,  $Ms \le -0.27$ , ds = 0.13-0.19,  $ps \le .02$ . One exception was that *Autonomy-Supportive* and *Uninvolved* parents showed comparable scores on performance goals, Ms = -0.27 vs. -0.07, d = 0.09, p = .08. The last three profiles could not be distinguished from each other, except for small differences (ds = .09-0.18) between *Uninvolved* and *Average* parents, where *Uninvolved* parents scored lower in all three controlling behaviors, particularly on performance goals, Ms = -0.17 vs. -0.05, d = 0.18, p < .001.

Sensitivity Analyses. Because some of the outcome variables differed in informants (i.e., parent vs. child reports) and in constructs assessed (i.e., anxiety vs. depression vs. internalizing problems), we conducted subsample analyses to control for part of this sample variability, using the manual 3-step BCH method. First, we examined profile-specific mean estimates of school grades using a subsample that only included child reports of school grades (n = 1,792; Samples 3 to 6). Second, we examined profile-specific mean estimates of internalizing problems using a subsample whose parents completed the general internalizing problem scale, rather than only a depression or anxiety scale (n = 2,206; Samples 1, 2 and 6). The results remained identical across whole vs.

subsample analyses: The differences were negligible, ranging from .00 to .11, with an average of .04 across all outcomes (See Figure S3 for graphs).

#### **Predictors of Profile Membership**

Table S4 shows the results of the multinomial logistic regressions. We report key findings, starting from those with the largest effects. First, parents with higher education levels were more likely to belong to the Autonomy-Supportive profile (OR = 3.32 to 3.92), while the three other profiles did not differ on education. Second, ego-involved parents were more likely to belong to profiles other than the Autonomy-Supportive profile (OR = 1.47 to 2.39). They were also more likely to belong to the Overinvolved or the Average profile (OR = 1.63 and 1.55) than to the Uninvolved profile. Third, mothers (compared to fathers) were likely to belong to the Autonomy-Supportive profile than the three other profiles (OR = 1.51 to 2.96). Mothers were also more likely to belong to the Overinvolved or Average than to the Uninvolved profile (OR = 1.72 to 1.94). We also found household income, perception of child academic competence, and child age also predicted a profile membership: parents with lower household income were more likely to belong to the Overinvolved profile than the other profiles (OR = 1.19 to 1.33); parents perceiving their child to be academically competent were more likely to belong to the Autonomy-Supportive or the Overinvolved than to the Average or Uninvolved profiles (OR = 1.14 to 1.24); and parents with an older child were more likely to belong to the Uninvolved and Average than to Overinvolved and Autonomy-Supportive profile (OR = 1.14 to 1.27). But the effect sizes were very small.

#### Discussion

The first aim of the present study was to identify naturally occurring parenting profiles, characterized by different configurations of autonomy support and control in a large multi-sample of parents with children at different developmental stages. As expected (Hypothesis 1), we identified four distinct profiles: (1) autonomy-supportive parents (high autonomy support, low control), (2) *Overinvolved* parents (high autonomy support, high control), (3) uninvolved parents (low autonomy support, low control), and (4) average parents (moderate levels of both). For over 80% of our sample (the latter three profiles), autonomy support and controlling parenting appeared to go hand in hand: While autonomy-supportive at times, parents tend to be controlling too; likewise, when *not* autonomy-supportive, they tend to show fewer controlling behaviors. Although not surprising given the positive correlations between these two parenting dimensions (see Table S3), our profile analyses revealed that a smaller proportion (17%) of parents engaged predominantly in autonomysupportive behaviors while avoiding controlling behaviors—an insight that might be overlooked in variable-centered analysis. Examining specific controlling behaviors (not presented in the results), we found the key difference in their links with rationale giving. Except for autonomy-supportive parents, most parents resorted to controlling practices, such as threats of punishment, guilt induction, and performance pressures, when trying to socialize their child, explaining the importance of rules and of parental requests (average correlations = .24, .30, and .15, for the last three profiles vs. .07 for the autonomy-supportive profile).

Theoretically, these results imply that the associations—and the co-occurrence—of autonomy support and control are not singular but variable across parenting behaviors and across groups of parents. Future studies should consider this heterogeneity, particularly focusing on how parents can enforce rules and foster value internalization in an autonomy-supportive rather than controlling way (Robichaud & Mageau, 2019; Robichaud, Mageau, et al., 2020). From a practical standpoint, the findings suggest that most parents could benefit from autonomy support parenting interventions (e.g., Mageau, Joussemet, Robichaud, et al., 2022), which can help them to distinguish between autonomy-supportive vs. controlling ways of being involved in their children's development; and ultimately learn to replace controlling practices with autonomy-supportive ones.

Our four profiles mostly concur with those identified in previous studies using child reports (Ahn, Plamondon, et al., 2022; Teuber et al., 2022). One notable difference is the absence of a parent profile characterized by predominant controlling behaviors. This could be due to social desirability effect, a methodological artifact that can be tackled by improving item wording. Alternatively, it can suggest a positive bias inherent in parent report, where parents are motivated "to portray themselves in a favorable light" in reporting their own parenting behaviors (Korelitz & Garber, 2016, p. 1991); it also may suggest an actor bias, where parents report their *desired* rather than *actual* behaviors (De Los Reyes et al., 2019). However, evidence also exists, albeit in a sports context, finding a controlling group of parents (Morbée et al., 2023). Further research comparing not only parent and child reports but also observer ratings of autonomy support and control, and in different life domains (e.g., general, sports, academics) could elucidate this issue.

#### **Implications of Parent Profiles for Child Perceptions and Functioning**

The second aim was to examine how parent profiles differ in child's appraisal of their parents and in child outcomes. As hypothesized, children perceived parents in the autonomysupportive profile as the least controlling and the most autonomy-supportive (Hypothesis 2a), even when compared to overinvolved parents who rated themselves highest in autonomy support. Not surprisingly, children of autonomy-supportive parents fared best in academic and psychosocial outcomes; they achieved slightly better grades (in language arts only) and had fewer externalizing problems (but not internalizing problems) than their peers (Hypothesis 2c). These findings add to the growing literature on autonomy support as a critical factor for children's optimal development and effective functioning (Bradshaw et al., 2024; Vasquez et al., 2015), resonating with intervention effects (Grolnick et al., 2021; Mageau, Joussemet, Paquin, et al., 2022). The relatively large difference between the children of autonomy-supportive parents and others in externalizing problems (ranging from 0.25 to 0.36) are noteworthy, considering the sample's sociodemographic homogeneity.

Overinvolved parents may need intervention support and further research. Despite engaging in (or believing to engage in) autonomy support, a behavior requiring "a great deal of top-down, effortful control" (Distefano & Meuwissen, 2022, p. 586; Grolnick, 2002), overinvolved parents were not perceived by their child to be highly autonomy-supportive, but rather quite controlling (Hypothesis 2b); and their children did not show evidence of better functioning (Hypothesis 2d). Overinvolved parents appear to be highly motivated and engaged in their child's development, as

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they resort to all possible parenting behaviors. Yet, their involvement seems to yield no developmental or parent-child relational benefits. Consistent with the research on overparenting or helicopter parenting (Pomerantz et al., 2007; Zhang & Ji, 2023), our findings suggest that parental efforts may not pay off when the quality of their involvement is poor (i.e., controlling). Such involvement may even backfire in the long term, leading to parental burnout (Desimpelaere et al., 2023) or low parenting efficacy (Jones & Prinz, 2005). More research is needed to delve deeper into the psychological mechanisms of parents in this profile.

Our findings shed light on a potential source of bias in parent-child agreement in parenting behaviors. Children may not perceive autonomy-supportive behaviors as truly supportive when these behaviors are paired with pressures, such as the need to choose, experience the "right" emotions, or agree with parental rationales. In the presence of controlling behaviors, children may feel coerced, threatened, and intimidated, which diminishes their perception of parental autonomy support. A similar undermining effect of controlling behaviors in perceived autonomy support is evident when comparing the uninvolved and average parents. Despite low levels of both autonomy support and control among uninvolved parents, these two profiles showed no differences in perceived autonomy support or developmental outcomes (although uninvolved parents were perceived to be slightly less controlling, particularly regarding performance pressures). Future research can explore the relative bias in perceived autonomy support and controlling behaviors, and how the presence of controlling behaviors contribute to parent-child discrepancies (De Los Reyes et al., 2019). From a practical standpoint, this finding highlights that minimizing controlling behaviors may be just as important as supporting a child's autonomy (Bradshaw et al., 2024; Vansteenkiste & Ryan, 2013).

#### Sociodemographic and Psychological Characteristics Associated with the Profiles

The third aim was to characterize the profiles of parents in terms of sociodemographic and psychological correlates. As expected, autonomy-supportive parents were generally more educated, less ego-involved, and perceived their child to be performing better in school (Hypothesis 3). Said

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differently, parents experiencing higher internal and external stress—those with lower education and income, perceiving their child to be struggling in school, and whose self-worth is tied to their child's success—were more likely to belong to suboptimal profiles rather than the autonomysupportive profile. This finding aligns with existing evidence suggesting that parents are more prone to controlling parenting under pressures (Ng et al., 2014; Robichaud, Roy, et al., 2020; Wuyts et al., 2017; Wuyts et al., 2015). Parents may feel pressure emanating from three sources (Grolnick & Apostoleris, 2002): from above (e.g., economic hardships), from below (e.g., perceiving low child competence), or from within (e.g., being ego-involved). Given these findings, interventions or government programs should assess parental stress in multifaceted ways, as it can emanate from diverse sources, provide necessary support, and help parents to provide an autonomy-supportive context for their child's optimal development.

This study also innovates in showing that the three non-autonomy-supportive profiles were differentiated on some characteristics. Notably, parents with high ego involvement were more likely to be overinvolved rather than uninvolved. This highlights child-contingent self-worth as a key trigger for overinvolved and counterproductive parenting: When parents base their self-worth on their child's performance, they may be more inclined to intervene with a large array of behaviors to "minimize children's failure and maximize their success" (Ng et al., 2014, p. 357). Disassociating parents' self-worth from their child's performance may be one avenue for reducing overinvolved parents may be more positively biased in their self-reports, reporting high levels of *all* parenting behaviors and thereby increasing parent-child discrepancies. Future studies can directly test this hypothesis. **Strengths and Limitations** 

This study has three notable strengths. First, we used large data from six independent samples of parents with children of different age groups (primary through secondary school). The large sample size helps avoid common issues in mixture analyses, including nonconvergence, improper solutions, and spurious profiles (Bauer & Curran, 2003; Meyer & Morin, 2016), while PARENTING PROFILES

improving estimate precisions. Second, this study offered a portrait of parents and their unique needs, by situating them within an ecosystem and examining sociodemographic and psychological factors associated with parent profiles. Third, the multi-informant design (four of the six samples included both parent and child reports) allowed us to explore the links between parenting as reported by parents and appraised by children.

This study is not without limitations. First, merging multiple datasets that assessed parentreported autonomy support using the PASS resulted in substantial missing data on certain variables (e.g., 64% for school grades). Although we applied gold-standard techniques to handle missing data and minimize estimation biases, some missingness was systematic due to the study design. For example, child perceptions of parenting were available only for older children (ages 12 to 15; 38% of the sample), limiting the findings' generalizability to younger children. Second, sociodemographic characteristics of our sample were not representative of the general population: Parents in our study were well-educated, working full time, and were earning slightly more than the provincial level, with the majority in intact families. This limits the generalizability of our findings to lower-educated or single-family households living in more precarious situations. At the same time, the relative homogeneity of the sample may also have limited the magnitude of our effect sizes; the consistency of our results within such a homogeneous sample underscores the importance of the distinction between autonomy support versus controlling parenting for child development. Third, the crosssectional and descriptive (i.e., nonexperimental) nature of our data precludes any causal inferences in the study's findings. We chose our predictors and outcomes based on evidence from previous experimental or longitudinal studies suggesting a direction of influence from parental autonomy support to child outcomes, such as from externalizing problems (Mageau, Joussemet, Paquin, et al., 2022), school grades (Joussemet et al., 2005), school adjustment (Ratelle et al., 2020), and career decision-making (Ahn, Ratelle, et al., 2022). However, we cannot rule out bidirectional relationships where parenting behaviors predict, and are predicted by, child characteristics (Rothenberg et al., 2020). Further research is warranted to establish a more accurate effect size of the directionality of

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links between parental autonomy support/control and child functioning. Last, one critique against person-centered analyses is that due to their data-driven and exploratory nature (involving comparing models with different numbers of profiles, rather than comparing against one "perfect" model), they can yield sample-specific results, raising concerns about the replicability and generalizability of the findings. Our effort to overcome this limitation—by using a large sample merged from multiple independent samples—cannot fully address the replicability issues. More studies with socioeconomically diverse samples are needed to replicate our study's findings.

#### Conclusion

This study's three key messages are (1) parents who report high autonomy support coupled with low control are perceived by their child to be most autonomy-supportive and their children are found to fare better academically and psychosocially; (2) parents reporting a high level of controlling behaviors, even when accompanied by a high level of autonomy-supportive behaviors, are perceived by their child as less autonomy-supportive; and (3) parents exposed to greater pressures are more vulnerable to resorting to overly frequent and undifferentiated parenting behaviors. A system-wide intervention to help parents learn autonomy-supportive skills and minimize controlling practices would be beneficial for optimal child development.

#### References

- Achenbach, T., & Rescorla, L. (2001). Manual for the Aseba School-Age Forms and Profiles. Burlington, VT: University of Vermont Research Center for Children, Youth, and Families.
- Ahn, J. S., Plamondon, A., & Ratelle, C. F. (2022). Different Ways to Support and Thwart Autonomy: Parenting Profiles and Adolescents' Career Decision-Making. *Journal of Family Psychology, 37*(2),
- Ahn, J. S., Ratelle, C. F., Plamondon, A., Duchesne, S., & Guay, F. (2022). Testing Reciprocal
   Associations between Parenting and Youth's Motivational Resources of Career Decision Making Agency During the Postsecondary Transition. *Journal of Youth and Adolescence*, 51(12), 2396-2410.
- Asparouhov, T., & Muthén, B. (2021). Auxiliary Variables in Mixture Modeling: Using the Bch Method in Mplus to Estimate a Distal Outcome Model and an Arbitrary Secondary Model. https://www.statmodel.com/examples/webnotes/webnote21.pdf
- Bauer, D. J., & Curran, P. J. (2003). Distributional Assumptions of Growth Mixture Models:
   Implications for Overextraction of Latent Trajectory Classes. *Psychological Methods, 8*(3), 338-363.
- Bauer, D. J., & Curran, P. J. (2004). The Integration of Continuous and Discrete Latent VariableModels: Potential Problems and Promising Opportunities. *Psychological Methods*, 9(1), 3-29.
- Baumrind, D. (1967). Child Care Practices Anteceding Three Patterns of Preschool Behavior. *Genetic Psychology Monographs*, 75(1), 43-88.

Bradshaw, E. L., Duineveld, J., Conigrave, J. H., Steward, B. A., Ferber, K., Joussemet, M., Parker, P.
D., & Ryan, R. M. (2024). Disentangling Autonomy-Supportive and Psychologically Controlling
Parenting: A Meta-Analysis of Self-Determination Theory's Dual Process Model across
Cultures. American Psychologist, Advance online publication.

- Cheung, C. S., Pomerantz, E. M., Wang, M., & Qu, Y. (2016). Controlling and Autonomy-Supportive Parenting in the United States and China: Beyond Children's Reports. *Child Development*, *87*(6), 1992-2007. https://doi.org/10.1111/cdev.12567
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd Ed.)*. New York: Routledge.
- Crocker, J., Luhtanen, R. K., Cooper, M. L., & Bouvrette, A. (2003). Contingencies of Self-Worth in College Students: Theory and Measurement. *Journal of Personality and Social Psychology*, 85(5), 894-908. https://doi.org/10.1037/0022-3514.85.5.894
- De Los Reyes, A., Ohannessian, C. M., & Racz, S. J. (2019). Discrepancies between Adolescent and Parent Reports About Family Relationships. *Child Development Perspectives, 13*(1), 53-58.
- Desimpelaere, E. N., Soenens, B., Prinzie, P., Waterschoot, J., Vansteenkiste, M., Morbée, S.,
  Schrooyen, C., & De Pauw, S. S. W. (2023). Parents' Stress, Parental Burnout, and Parenting
  Behavior During the Covid-19 Pandemic: Comparing Parents of Children with and without
  Complex Care Needs. *Journal of Child and Family Studies*. https://doi.org/10.1007/s10826023-02702-0
- Distefano, R., & Meuwissen, A. S. (2022). Parenting in Context: A Systematic Review of the Correlates of Autonomy Support. *Journal of Family Theory & Review, 14*(4), 571-592. https://doi.org/10.1111/jftr.12465
- Duncan, L., Georgiades, K., Wang, L., Comeau, J., Ferro, M. A., Van Lieshout, R. J., Szatmari, P.,
  Bennett, K., MacMillan, H. L., Lipman, E. L., Janus, M., Kata, A., & Boyle, M. H. (2019). The
  2014 Ontario Child Health Study Emotional Behavioural Scales (Ochs-Ebs) Part I: A Checklist
  for Dimensional Measurement of Selected Dsm-5 Disorders. *Canadian Journal of Psychiatry,*64(6), 423-433. https://doi.org/10.1177/0706743718808250
- Enders, C. K. (2010). Applied Missing Data Analysis. Guildford Press.
- Grolnick, W. S. (2002). *The Psychology of Parental Control: How Well-Meant Parenting Backfires*. Psychology Press.

- Grolnick, W. S., & Apostoleris, N. H. (2002). What Makes Parents Controlling? In *Handbook of Self-Determination Research*. (pp. 161-181). University of Rochester Press.
- Grolnick, W. S., Levitt, M. R., Caruso, A. J., & Lerner, R. E. (2021). Effectiveness of a Brief Preventive Parenting Intervention Based in Self-Determination Theory. *Journal of Child and Family Studies, 30*(4), 905-920.
- Grolnick, W. S., Price, C. E., Beiswenger, K. L., & Sauck, C. C. (2007). Evaluative Pressure in Mothers: Effects of Situation, Maternal and Child Characteristics on Autonomy Supportive Versus Controlling Behavior. *Developmental Psychology*, *43*(4), 991-1002.
- Guay, F., Ratelle, C. F., Duchesne, S., & Dubois, P. (2018). Mothers' and Fathers' Autonomy Supportive and Controlling Behaviors: An Analysis of Interparental Contributions. *Parenting*, *18*(1), 45-65.
- Haerens, L., Vansteenkiste, M., De Meester, A., Delrue, J., Tallir, I., Vande Broek, G., Goris, W., &
  Aelterman, N. (2017). Different Combinations of Perceived Autonomy Support and Control:
  Identifying the Most Optimal Motivating Style. *Physical Education and Sport Pedagogy,*23(1), 16-36.
- Hill, C. J., Bloom, H. S., Black, A. R., & Lipsey, M. W. (2008). Empirical Benchmarks for Interpreting Effect Sizes in Research. *Child Development Perspectives*, *2*(3), 172-177.
- Jones, T. L., & Prinz, R. J. (2005). Potential Roles of Parental Self-Efficacy in Parent and Child Adjustment: A Review. *Clinical Psychology Review*, *25*(3), 341-363.
- Joussemet, M., Koestner, R., Lekes, N., & Landry, R. (2005). A Longitudinal Study of the Relationship of Maternal Autonomy Support to Children's Adjustment and Achievement in School. *Journal of Personality, 73*(5), 1215-1235.
- Joussemet, M., Landry, R., & Koestner, R. (2008). A Self-Determination Theory Perspective on Parenting. *Canadian Psychology/Psychologie Canadienne, 49*(3), 194-200.

- Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting Limits on Children's Behavior: The Differential Effects of Controlling Vs. Informational Styles on Intrinsic Motivation and Creativity. *Journal of Personality, 52*(3), 233-248.
- Korelitz, K. E., & Garber, J. (2016). Congruence of Parents' and Children's Perceptions of Parenting: A Meta-Analysis. *Journal of Youth and Adolescence, 45*(10), 1973-1995.
- Kovacs, M. (2014). Children's Depression Inventory (Cdi and Cdi 2). In *The Encyclopedia of Clinical Psychology* (pp. 1-5).
- Liga, F., Lo Coco, A., Musso, P., Inguglia, C., Costa, S., Lo Cricchio, M. G., & Ingoglia, S. (2018).
   Parental Psychological Control, Autonomy Support and Italian Emerging Adult's Psychosocial
   Well-Being: A Cluster Analytic Approach. *European Journal of Developmental Psychology,* 17(1), 37-55.
- Loeb, E. L., Kansky, J., Tan, J. S., Costello, M. A., & Allen, J. P. (2020). Perceived Psychological Control in Early Adolescence Predicts Lower Levels of Adaptation into Mid-Adulthood. *Child Development*.
- Losier, G. F., Vallerand, R. J., & Blais, M. R. (1993). Construction Et Validation De L'échelle Des Perceptions De Compétence Dans Les Domaines De Vie (Epcdv). *Science et comportement, 23*(1), 1-16.
- Maccoby, E., & Martin, J. (1983). Socialization in the Context of Family: Parent-Child Interaction. In P.
  H. Mussen & E. M. Hetherington (Eds.), *Handbook of Child Psychology: Vol. 4. Socialization, Personality, and Social Development* (pp. 1-101). New York: Wiley.
- Mageau, G. A., Joussemet, M., Paquin, C., & Grenier, F. (2022). How-to-Parenting-Program: Change in Parenting and Child Mental Health over One Year. *Journal of Child and Family Studies, 31*(12), 3498-3513.
- Mageau, G. A., Joussemet, M., Robichaud, J.-M., Larose, M.-P., & Grenier, F. (2022). How-to Parenting Program: A Randomized Controlled Trial Evaluating Its Impact on Parenting. *Journal of Applied Developmental Psychology, 79*.

- Mageau, G. A., Ranger, F., Joussemet, M., Koestner, R., Moreau, E., & Forest, J. (2015). Validation of the Perceived Parental Autonomy Support Scale (P-Pass). *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement, 47*(3), 251-262.
- Mageau, G. A., Ratelle, C. F., Moreau, E., & Koestner, R. (2014). *The Parental Autonomy Support Scale (Pass).* [Unpublished scale]. Université de Montréal.
- Meyer, J. P., & Morin, A. J. S. (2016). A Person-Centered Approach to Commitment Research: Theory, Research, and Methodology. *Journal of Organizational Behavior*, *37*(4), 584-612.
- Morbée, S., Waterschoot, J., De Muynck, G.-J., Haerens, L., Soenens, B., & Vansteenkiste, M. (2023). Identifying Profiles of Parental (De)Motivating Behaviors in Youth Sports: a Multi-Informant Approach. *Motivation and Emotion*.
- Morin, A. J. S., & Litalien, D. (2019). Mixture Modeling for Lifespan Developmental Research. Oxford Research Encyclopedia of Psychology.
- Ng, F. F., Pomerantz, E. M., & Deng, C. (2014). Why Are Chinese Mothers More Controlling Than American Mothers? "My Child Is My Report Card". *Child Development, 85*(1), 355-369.
- Pomerantz, E. M., Moorman, E. A., & Litwack, S. D. (2007). The How, Whom, and Why of Parents' Involvement in Children's Academic Lives: More Is Not Always Better. *Review of Educational Research, 77*(3), 373-410.
- Pomerantz, E. M., & Wang, Q. (2009). The Role of Parental Control in Chidlren's Development in Western and East Asian Countries. *Current Directions in Psychological Science, 18*(5), 285-289.
- Power, T. G. (2013, Aug). Parenting Dimensions and Styles: A Brief History and Recommendations for Future Research. *Childhood Obesity*, *9*(1), S14-S21. https://doi.org/10.1089/chi.2013.0034
- Ratelle, C. F., Duchesne, S., & Guay, F. (2017). Predicting School Adjustment from Multiple Perspectives on Parental Behaviors. *Journal of Adolescence, 54*, 60-72.

- Ratelle, C. F., Duchesne, S., Litalien, D., & Plamondon, A. (2020). The Role of Mothers in Supporting Adaptation in School: A Psychological Needs Perspective. *Journal of Educational Psychology, 113*(1).
- Reynolds, C. R., & Richmond, B. O. (1978). What I Think and Feel: A Revised Measure of Children's Manifest Anxiety. *Journal of Abnormal Child Psychology, 6*, 271-280.
- Robichaud, J. M., Bureau, J. S., Ranger, F., & Mageau, G. A. (2019). The Relation between Children's Task-Specific Competence and Mothers' Controlling Practices. *Social Development, 28*(1), 120-135.
- Robichaud, J. M., & Mageau, G. A. (2019). The Socializing Role of Logical Consequences, Mild Punishments, and Reasoning in Rule-Breaking Contexts Involving Multifaceted Issues. *Social Development, 29*(1), 356-372.
- Robichaud, J. M., Mageau, G. A., & Soenens, B. (2020, Apr). The Role of Logical Consequences in Adolescents' Cognitive Precursors of Compliance and Internalization. *Journal of Experimental Child Psychology, 192*, 104777.
- Robichaud, J. M., Roy, M., Ranger, F., & Mageau, G. A. (2020). The Impact of Environmental Threats on Controlling Parenting and Children's Motivation. *Journal of Family Psychology, 34*(7), 804-813.
- Rothenberg, W. A., Lansford, J. E., Alampay, L. P., Al-Hassan, S. M., Bacchini, D., Bornstein, M. H., Chang, L., Deater-Deckard, K., Di Giunta, L., & Dodge, K. A. (2020). Examining Effects of Mother and Father Warmth and Control on Child Externalizing and Internalizing Problems from Age 8 to 13 in Nine Countries. *Development and psychopathology, 32*(3), 1113-1137.
- Ryan, R. M., & Deci, E. L. (2017). Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness. The Guilford Press.
- Skinner, E., Johnson, S., & Snyder, T. (2005). Six Dimensions of Parenting: A Motivational Model. Parenting: Science and Practice, 5(2), 175-235. https://doi.org/10.1207/s15327922par0502 3

- Soenens, B., Deci, E. L., & Vansteenkiste, M. (2017). How Parents Contribute to Children's
   Psychological Health: The Critical Role of Psychological Need Support. In L. Wehmeyer, T. D.
   Little, S. J. Lopez, K. A. Shogren, & R. Ryan (Eds.), *Handbook on the Development of Self-Determination* (pp. 171-187). Springer.
- Soenens, B., & Vansteenkiste, M. (2020). Taking Adolescents' Agency in Socialization Seriously: The Role of Appraisals and Cognitive-Behavioral Responses in Autonomy-Relevant Parenting. *New Directions for Child and Adolescent Development, 2020*(173).
- Soenens, B., Vansteenkiste, M., & Sierens, E. (2009). How Are Parental Psychological Control and Autonomy-Support Related? A Cluster-Analytic Approach. *Journal of Marriage and Family, 71*, 187-202.
- Soenens, B., Vansteenkiste, M., Van Petegem, S., Beyers, W., & Ryan, R. (2018). How to Solve the Conundrum of Adolescent Autonomy? On the Importance of Distinguishing between Independence and Volitional Functioning. In B. Soenens, M. Vansteenkiste, & S. Van Petegem (Eds.), *Autonomy in Adolescent Development: Towards Conceptual Clarity* (pp. 1-32). Psychology Press.
- Teuber, Z., Tang, X., Sielemann, L., Otterpohl, N., & Wild, E. (2022). Autonomy-Related Parenting Profiles and Their Effects on Adolescents' Academic and Psychological Development: A Longitudinal Person-Oriented Analysis. *Journal of Youth and Adolescence, 51*(7), 1333-1353.
- Turgeon, L., & Brousseau, L. (1998). Traduction Et Adaptation Du Revised Children's Manifest Anxiety
   Scale (Rcmas) [Unpublished manuscript]. Centre de recherche Fernand Seguin, Hôpital Louis H.-Lafontaine, Montréal, Québec.
- Van Der Kaap-Deeder, J., Soenens, B., Mabbe, E., Dieleman, L., Mouratidis, A., Campbell, R., &
   Vansteenkiste, M. (2019). From Daily Need Experiences to Autonomy-Supportive and
   Psychologically Controlling Parenting Via Psychological Availability and Stress. *Parenting*, *19*(3),

- Vansteenkiste, M., & Ryan, R. M. (2013). On Psychological Growth and Vulnerability: Basic Psychological Need Satisfaction and Need Frustration as a Unifying Principle. *Journal of Psychotherapy Integration, 23*(3), 263-280.
- Vasquez, A. C., Patall, E. A., Fong, C. J., Corrigan, A. S., & Pine, L. (2015). Parent Autonomy Support, Academic Achievement, and Psychosocial Functioning: A Meta-Analysis of Research. *Educational Psychology Review*, 28(3), 605-644.
- Vrolijk, P., Van Lissa, C. J., Branje, S. J. T., Meeus, W. H. J., & Keizer, R. (2020). Longitudinal Linkages
   between Father and Mother Autonomy Support and Adolescent Problem Behaviors:
   Between-Family Differences and within-Family Effects. *Journal of Youth and Adolescence*.
- Wuyts, D., Vansteenkiste, M., Mabbe, E., & Soenens, B. (2017). Effects of Social Pressure and Child Failure on Parents' Use of Control: An Experimental Investigation. *Contemporary Educational Psychology, 51*, 378-390.
- Wuyts, D., Vansteenkiste, M., Soenens, B., & Assor, A. (2015). An Examination of the Dynamics Involved in Parental Child-Invested Contingent Self-Esteem. *Parenting*, *15*(2), 55-74.
- Zhang, Q., & Ji, W. (2023, May 30). Overparenting and Offspring Depression, Anxiety, and Internalizing Symptoms: A Meta-Analysis. *Developmental Psychopathology*, 1-16.

### Figure 1

4-Profile Solution of Parenting Behaviors (N=3,843)



*Note.* AS = autonomy supportive. The lines represent the profile-specific means of parenting behaviors in z scores (M = 0, SD = 1).

#### Figure 2

*Comparing Standardized Scores of Child-Reported Parenting and Child Functioning as a Function of Parenting Profiles (N = 3,843)* 



*NOTE.* Lang = language arts; Ext = externalizing problems; Int = internalizing problems. AS = autonomy support; CON = controlling parenting. AS and CON were calculated by averaging the scores on their respective subdimensions. The point represents profile-specific means in *z* scores (*M* = 0, *SD* = 1). The error bars denote the 95% confidence interval.

#### **Online Supplemental Materials:**

## Profiles of Autonomy Support and Controlling Parenting: Mixing the Two Predicts Lower

## **Child-Perceived Autonomy Support**

## Authors' Note:

These online supplemental materials were developed to disclose all pertinent information on the analyses and to keep the manuscript from becoming needlessly long.

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#### **Section S1. Sample Characteristics**

#### Sample 1

A total of 1,151 Canadian parents (from 1,017 families) participated in a longitudinal study on parents' involvement in children's schooling. Participants' mean age was 38 years. Most of them identified themselves as mothers (77%), working full time (72%), in intact families (81%), and with a high school diploma (99%). Their median household income bracket was \$75,001 to \$100,000, which is comparable to the median household income in the province of Quebec in 2020 (\$100,540; Statistics Canada, 2023). Of the participating parents, 37% reported having female children, and child mean age reported by parents was 7 years (*SD* = 1). Families were recruited via a governmentissued list of 1<sup>st</sup> and 2<sup>nd</sup> graders attending a school in the province of Quebec in 2020. The list was stratified based on gender, geographic location, and socioeconomic status. Parents of children with special needs were intentionally oversampled, constituting 50% of the sample. Consenting parents completed an online questionnaire (paper format also available). Data from the first wave was used because this was the wave with the most participants. Ethics approval was obtained from Université Laval's Research Ethics Committee of the Psychological and Educational Research (#2018-361, "Identifying parents' needs in supporting their children's schooling").

#### Sample 2

A total of 900 Canadian parents (from 624 families) participated in the same longitudinal study as Sample 1 but were recruited differently: In collaboration with a provincial parents' association, emails were sent out to parent committees around the province. Participants' mean age was 41 years (SD = 5). Most of them identified themselves as mothers (64%), working full time (82%), in intact families (87%), and with a high school diploma (99%). Their median household income bracket was \$100,000 to \$125,000, which is higher than the median household income in the province of Quebec in 2019 (\$94,040; Statistics Canada, 2023). Of the participating parents, 49% reported having female children, and child mean age reported by parents was 9 years (SD = 2). Data

from the second wave (in 2019) was used because this was the wave with the most participants. Consenting parents completed an online questionnaire (paper format also available).

#### Sample 3

A total of 828 Canadian parents (from 612 families) participated in a longitudinal study on adolescents' vocational development. Participants' mean age was 45 years (SD = 5). Most of them identified themselves as mothers (64%), working full time (82%), in intact families (88%), and with a high school diploma (93%). Their median household income bracket was \$70,000 to \$79,999, which is comparable to the median household income in the province of Quebec in 2011 (\$74,060; Statistics Canada, 2023). Of the participating families, 486 children's data were matched to their parents. Child mean age was 14 years (SD = 1), and 53% identified themselves as girls. Families were recruited via a government-issued list of 9<sup>th</sup> graders attending school in the province of Quebec in 2011. The list was stratified based on gender, geographic location, socioeconomic status, and school type (private vs. public). Data from the first wave was used because this was the wave with the most participants. Consenting parents and children completed an online questionnaire (paper format also available). Ethics approval was obtained from Université Laval's Research Ethics Committee of the Psychological and Educational Research (#2010-243/04-03-2011, "Self-determination in making a vocational choice and successful school adaptation: The role of parenting").

#### Sample 4

We used data from 605 Canadian parents (from 426 families) who participated in a longitudinal study on school transitions and adjustment. Families were recruited via a governmentissued list of 6<sup>th</sup> graders attending school in the province of Quebec in 2004. The list was stratified based on gender, geographic location, and socioeconomic status. Consenting parents and children completed an online questionnaire (paper format also available). Data from the fourth wave was used because this was the first wave where the measurement of parenting behaviors took place. Participants' mean age was 45 years (*SD* = 5). Most of them identified themselves as mothers (62%), working full time (80%), in intact families (91%), and with a high school diploma (96%). Their median household income bracket was \$60,000 to \$69,999, which is comparable to the median household income in the province of Quebec in 2008 (\$69,600; Statistics Canada, 2023). Of the participating families, 401 children's data were matched to their parents. Child mean age was was 12 years (*SD* = 1). Of them, 57% identified as girls. Ethics approval was obtained from Université Laval's Research Ethics Committee of the Psychological and Educational Research (#2004-136, " School trajectories of at-risk students during the transition to high school: examining personal, family, and school determinants").

#### Sample 5

A total of 204 Canadian parents (from 151 families) participated in a study on parent goals. Participants' mean age was 44 years (*SD* = 6). Most of them identified themselves as mothers (66%), working full time (75%), with a high school diploma (84%). Their median household income bracket was \$40,000 to \$49,999, which is lower than the median household income in the province of Quebec in 2009 (\$70,070; Statistics Canada, 2023). Of the participating families, 77 children's data were matched to their parents. Children's mean age was 14 (*SD* = 1) and 81% identified as girls. Families were recruited in a public high school located in the province of Quebec in 2009. Consenting parents and children completed a paper questionnaire, at school (for children) or at home (for parents). Ethics approval was obtained from Université de Montréal's Research Ethics Committee of the Arts and Sciences Faculty (2009-10-112-P, " The role of parental goals in parental autonomy support and controlling behaviors").

#### Sample 6

A total of 155 Canadian parents (from 113 families) participated in a study on parenting practices and cultural identity. Participants' mean age was 44 years (*SD* = 5). Most of them identified themselves as mothers (71%), working full time (80%), in intact families (69%), and with a high school diploma (97%). Their median household income bracket was \$80,000 to \$89,999, which is higher than the median household income in the province of Ontario in 2008 (\$69,600; Statistics Canada, 2023). Of the participating families, 92 children's data were matched to their parents. Children's mean age was 15 years (*SD* = 2) and 54% identified as girls. Families were recruited in a public high school located in the province of Ontario in 2008. Consenting parents and children completed a paper questionnaire, at school (for children) or at home (for parents). Ethics approval was obtained from Université de Montréal's Ethics Committee ("The impact of parenting style and self-integration on satisfaction and academic progress"; no protocol number was awarded in 2007).

#### Section S2. Measures

#### Perceived Parental Autonomy Support and Controlling Parenting

Children completed the 24-item Perceived Parental Autonomy Support Scale (P-PASS; Mageau et al., 2015), indicating how much each item described their mother or father, using a 7point Likert scale ranging from 1 (do not agree at all) to 7 (very strongly agree). Similar to the parents' self-reported scales, the child version assessed three autonomy-supportive behaviors, including (1) acknowledging feelings and taking perspectives (4 items;  $\omega$  = .83; e.g., "My mother/father is open to my thoughts and feelings even when they are different from hers/his."); (2) offering choices within limits (4 items;  $\omega$  = .78; e.g., "My mother/father gives me many opportunities to make my own decisions about what I am doing."); and (3) providing rationales (4 items;  $\omega = .82$ ; e.g., "When my mother/father asks me to do something, she/he explains why she/he wants me to do it."). The scale assessed three controlling behaviors, including (1) threatening to punish the child (4 items;  $\omega$  = .86; e.g., "When I refuse to do something, my mother/father threatens to take away certain privileges in order to make me do it."); (2) inducing guilt (4 items;  $\omega$  = .84; e.g., "When my mother/father wants me to act differently, she/he makes me feel ashamed in order to make me change."); and (3) encouraging performance goals (4 items;  $\omega$  = .78; e.g., "In order for my mother/father to be proud of me, I have to be the best."). Children completed the scale for their respective two parents. The order of the target parent alternated for each item to avoid making one parent the anchor on which the other is compared.

#### Section S3. Preliminary Analyses: Approximate Measurement Invariance Testing

Prior to conducting a main person-oriented analysis, we performed a series of confirmatory factor analyses (CFA) on parent reports of autonomy-supportive and controlling parenting to test the measurement invariance of the Parental Autonomy Support Scale (PASS) across mothers and fathers; and across multiple samples. Invariance testing starts by estimating the same factor structure across groups (configural), then involves imposing constraints across groups, on factor loadings (metric) and on intercepts (scalar). While some intercept differences were expected due to known group differences (e.g., child age, historical timing), scalar invariance was nevertheless tested (1) to control for any group differences in the parenting scores that may be due to sampling errors before merging the samples for the main analysis, and (2) to facilitate interpretations (in line with our decision to standardize many of the scales). Moreover, ensuring scalar invariance is important when the research goal is to compare latent means across groups (Putnick & Bornstein, 2016), as was the case in this study.

Models were considered excellent when CFI was greater than .95, and RMSEA and SRMR were smaller than .06 (Hu & Bentler, 1999). When comparing nested models, restrictive models (i.e., models with constraints, with larger degrees of freedom) were chosen if the loss in model fit was smaller than -.010 for CFI and +.015 for RMSEA (Chen, 2007). In case of non-invariance, we resorted to an alignment method, which arrives at approximate measurement invariance (i.e., one that minimizes the amount of non-invariance by finding a solution where most parameters are approximately equal with only a few parameters allowed to vary across groups). This method is a recommended alternative to traditional approaches for handling non-invariance, particularly when the model involves many groups, because identifying the source of non-invariance and testing the partial invariance in multigroup CFA can be challenging and arbitrary (Asparouhov & Muthén, 2014; Luong & Flake, 2022). The alignment optimization is considered to perform well if less than 25% of the parameters showed group differences (Asparouhov & Muthén, 2014). To test configural invariance, a multigroup 6-factor CFA was conducted, where each latent factor corresponds to either autonomy-supportive or controlling behaviors. Because the PASS includes items with the same stems setting the situation for parental behaviors (e.g., "When I try to help my child do something that is difficult for them, ..." or "When my child does not want to follow house rules, ..."), we allowed residual covariances among items with the same stems to account for the shared method variance.

Testing measurement invariance across mothers and fathers, we found support for configural invariance,  $\chi^2(410) = 2058.04$ , p < .001, CFI = .957, RMSEA [90% CI] = .045 [.043, .047], SRMR = .052; metric invariance,  $\chi^2(429) = 2093.76$ , p < .001, CFI = .957, RMSEA [90% CI] = .044 [.043, .046], SRMR = .053,  $\Delta$ CFI = 0,  $\Delta$ RMSEA = -.001; and scalar invariance,  $\chi^2(448) = 2260.24$ , p< .001, CFI = .953, RMSEA [90% CI] = .045 [.044, .047], SRMR = .054,  $\Delta$ CFI = -.004,  $\Delta$ RMSEA = +.001.

Likewise, testing measurement invariance across multiple samples, we found support for configural invariance,  $\chi^2(1230) = 3175.80$ , p < .001, CFI = .951, RMSEA [90% CI] = .049 [.047, .051], SRMR = .060; and metric invariance,  $\chi^2(1325) = 3317.90$ , p < .001, CFI = .950, RMSEA [90% CI] = .048 [.046, .050], SRMR = .064,  $\Delta$ CFI = -.001,  $\Delta$ RMSEA = -.001, suggesting the factor structure and the loadings of PASS remained the same across groups. However, weaker support was found for scalar invariance,  $\chi^2(1420) = 4154.76$ , p < .001, CFI = .931, RMSEA [90% CI] = .054 [.052, .056], SRMR = .070,  $\Delta$ CFI = -.019,  $\Delta$ RMSEA = +.006, suggesting that some intercepts were variant across groups.

Given the lack of support for scalar invariance, we proceeded to an alignment method. As suggested by the results of the measurement invariance, non-invariance was found among intercepts only (7%; 21 out of 150), while all factor loadings were invariant.

After testing for measurement invariance, factor scores were saved from the most invariant model (i.e., fixing factor loadings and intercepts to be equal across samples) using Mplus' regression method (also known as the maximum a posteriori method). While factor scores do not completely adjust for measurement errors as latent factors do, they are a viable alternative for complex models. They serve as proxies of true latent scores by giving more weight to more reliable items (with higher factor loadings) and therefore yield more reliable scores than composite scores (McNeish & Wolf, 2020). Factor scores from the aligned model, estimated on a *Z*-scale (M = 0, SD = 1), were saved and used as indicators in the subsequent profile analysis.

#### Section S4. Missing Data

Missing data were handled using the full information maximum likelihood estimation (FIML), uses all available data to yield unbiased estimates under the assumption that data is missing at random (MAR). Because no test thus far can sufficiently detect MCAR (missing completely at random)—the "most random" type of missing data—FIML is considered the "gold standard" of treating missing data (Enders, 2010).

Nevertheless, we tested if there were any systematic differences between those with vs. without missing data. Given a high rate of missing data in school grades (64%), we compared if families with school grades (whether reported by parent or child) differed from those with missing school grades, on a host of variables, including parenting (i.e., autonomy support and control) as well as education, income, and parent-perceived competence. Although MANOVA results showed statistically significant differences, F(5, 3043) = 5.89, p < 0.001, statistical significance (p-value) is heavily influenced by sample sizes—hence a low bar to pass when the sample size is large like in our study—and does not indicate "substantive" differences. We thus examined the effect sizes of these differences. Across all variables, we found negligible differences, with the biggest effect size being ges = .002, falling far from the threshold of a small effect for a generalized eta-squared (ges = .02; Cohen, 1988). Missingness in our data thus seems unsystematic for school grades.

#### Section S5. Mplus Analytic Codes

#### Preliminary Analysis: Alignment Model for Autonomy Support and Control

#### VARIABLE:

USEVARIABLES = dataID famID uniqueID childID feel1 feel2 feel3 feel4 choic1 choic2 choic3 choic4 rati1 rati2 rati3 rati4 rati5 threat1 threat2 thret3 threat4 guilt1 guilt2 guilt3 guilt4 perf1 perf2 perf3 perf4; CLUSTER = famID; IDVARIABLE = uniqueID; *! To include this variable when saving factor scores* 

CLASSES = C(6) ; ! The number of independent samples KNOWNCLASS = C(dataID = 1-6) ; MISSING = all(-999) ;

#### ANALYSIS:

TYPE = complex mixture ; ESTIMATOR = mlr ; ALIGNMENT = fixed (3 configural) ;

#### MODEL:

%OVERALL% feel BY feel1 feel2 feel3 feel4 ; choice BY choi1 choi2 choi3 choi4 ; rationale BY rati1 rati2 rati3 rati4 rati5 ; threat BY threat1 threat2 threat3 threat4 ; guilt BY guilt1 guilt2 guilt3 guilt4 ; perform BY perf1 perf2 perf3 perf4 ;

! To account for method factors – items involving the same situation
 ! Child is struggling
 feel2 feel3 choi3 rati1 rati2 perf1 perf2 WITH feel2 feel3 choi3 rati1 rati2 perf1 perf2;

! Child disobeys house rules rati4 rati5 guil3 guil4 WITH rati4 rati5 guil3 guil4 ;

*! Child does free activities* choi4 perf3 perf4 WITH choi4 perf3 perf4 ;

! Child doesn't want to do what I request feel1 choi1 choi2 threat1 guil1 WITH feel1 choi1 choi2 threat1 guil1;

! Child doesn't want to follow rules feel4 rati3 threat2 threat3 threat4 guil2 WITH feel4 rati3 threat2 threat3 threat4 guil2 ;

## OUTPUT:

align sampstat stdyx svalues cinterval ;

#### SAVEDATA:

File = fscores.dat ; Save = fscores ;

## Latent Profile Analysis: Unconditional Model

## VARIABLE:

USEVARIABLES = [...] feel choice rationale threat guilt perform ; CLASS = profile (4); *! We changed this value (1 to 8)* MISSING = all(-999); CLUSTER = famID;

## ANALYSIS:

TYPE = complex mixture ; ESTIMATOR = mlr ; MODEL = nocov; ! No covariance between indicators of profiles – an assumption of LPA STARTS = 5000 300; ! Use 5,000 random start values and retain only 300 for final stage optimization STITERATIONS = 200; ! Run 200 iterations for each random start LRTSTARTS = 0 0 500 200; ! 0 random start, retain 0 for final stage optimization for the k-1 model ! 500 random start and retain 200 for final stage optimization for k model ! when the data generated by bootstrap draws are analyzed

#### MODEL:

% profile #1% [feel choice rationale threat guilt perform] ; feel choice rationale threat guilt perform ;

% profile #2% [feel choice rationale threat guilt perform] ; feel choice rationale threat guilt perform ;

% profile #3% [feel choice rationale threat guilt perform] ; feel choice rationale threat guilt perform ;

% profile #4% [feel choice rationale threat guilt perform] ; feel choice rationale threat guilt perform ;

## OUTPUT:

sampstat stdyx svalues tech7 tech11 ; ! Tech7 provides the profile-specific sample statistics ! Tech11 provides information on the LMR and aLMR

#### Latent Profile Analysis: Comparing Child Perceptions and Outcomes

## VARIABLE:

USEVARIABLES = [...] cfeel1 cfeel2 cfeel3 cfeel4 cchoi1 cchoi2 cchoi3 cchoi4 crat1 crat2 crat3 crat4 cthre1 cthre2 cthre3 cthre4 cguilt1 cguilt2 cguilt3 cguilt4 cperf1 cperf2 cperf2 cperf3 cperf4 cauto ccont

grade\_ma grade\_lang extprob intprob;

CLASS = class (4);

MISSING = all(-999);

AUXILIARY = (bch) cfeel1 cfeel2 cfeel3 cfeel4 cchoi1 cchoi2 cchoi3 cchoi4 crat1 crat2 crat3 crat4 cthre1 cthre2 cthre3 cthre4 cguilt1 cguilt2 cguilt3 cguilt4 cperf1 cperf2 cperf2 cperf3 cperf4 cauto ccont

grade\_ma grade\_lang extprob intprob;

#### ANALYSIS:

TYPE = complex mixture; ESTIMATOR = mlr; STARTS = 0;

#### MODEL:

%OVERALL%

	[ feel*0.21507 ];	feel*0.35458;
[ class#1*-0.33732 ];	[ choice*0.09501 ];	choice*0.40832;
[ class#2*0.44706 ];	[ rat*0.11337 ];	rat*0.56663;
[ class#3*-0.14024 ];	[ threat*0.24181 ];	threat*0.71210;
	[guilt*0.18692];	guilt*0.43456;
%CLASS#1%	[ perform*0.01862 ];	perform*0.53599;
[ feel*0.75245 ];	feel*0.19284;	%CLASS#4%
[ choice*0.62296 ];	choice*0.18503;	
[ rat*0.24923 ];	rat*0.17898;	[ feel*1.31863 ];
[ threat*-1.03907 ];	threat*0.66066;	[ choice*1.21938 ];
[ guilt*-1.15037 ];	guilt*0.47098;	[ rat*1.05052 ];
[ perform*-1.25517 ];	perform*0.68538;	[ threat*0.52669 ];
		[guilt*0.73228];
feel*0.37268;	%CLASS#3%	[ perform*0.42853 ];
choice*0.42570;		
rat*0.36754;	[ feel*-0.90885 ];	feel*0.20961;
threat*0.14108;	[ choice*-1.10814 ];	choice*0.20387;
guilt*0.12740;	[ rat*-1.09358 ];	rat*0.14879;
perform*0.28123;	[ threat*-0.37324 ];	threat*1.14596;
	[guilt*-0.69035];	guilt*0.82060;
%CLASS#2%	[ perform*-0.72770 ];	perform*1.13006;

**OUTPUT**: sampstat stdyx svalues

#### Latent Profile Analysis: Predictors of Profile Membership

! Only syntaxes new to this model (vis-à-vis the outcome model above) are shown **VARIABLE:** 

USEVARIABLES = [...] gender age job marry educate income cgender cage egoinvolve competence ; [...]

AUXILIARY = (r3step) gender age job marry educate income cgender cage egoinvolve competence ;

#### **ANALYSIS:**

[...]

## MODEL:

[...]

## OUTPUT:

[...]

## Table S1

## Sample Characteristics

Characteristic	N	<b>Overall</b> N = 3,843	<b>Sample 1</b> n = 1,151	<b>Sample 2</b> n = 900	<b>Sample 3</b> n = 828	<b>Sample 4</b> n = 605	<b>Sample 5</b> , n = 204	<b>Sample 6</b> , n = 155
Parent age <sup>1</sup>	3,407	41.52 (5.89)	38.10 (5.61)	41.25 (5.07)	44.74 (4.93)	44.64 (4.59)	44.10 (5.73)	44.43 (4.65)
Female parent	3,843	2,619 (68%)	890 (77%)	576 (64%)	534 (64%)	374 (62%)	135 (66%)	110 (71%)
Working full-time	3,835	3,000 (78%)	820 (72%)	740 (82%)	683 (82%)	483 (80%)	151 (75%)	123 (80%)
Intact families	3,585	3,054 (85%)	923 (81%)	779 (87%)	726 (88%)	543 (91%)	NA (NA%)	83 (69%)
No high school diploma	3,817	129 (3.4%)	7 (0.6%)	2 (0.2%)	61 (7.4%)	25 (4.1%)	30 (16%)	4 (2.6%)
Household income below the median	3,713	1,694 (46%)	691 (63%)	308 (36%)	336 (41%)	214 (36%)	112 (61%)	33 (24%)
French-speaking	3,410	3,095 (91%)	1,035 (90%)	842 (94%)	457 (95%)	505 (97%)	190 (93%)	66 (43%)
Girl child	3,531	1,705 (48%)	422 (37%)	441 (49%)	362 (53%)	328 (57%)	85 (81%)	67 (54%)
Child age <sup>1</sup>	3,528	10.08 (3.15)	6.79 (0.73)	8.98 (1.68)	14.19 (0.47)	11.82 (0.48)	14.10 (0.97)	14.80 (1.58)
Year of data collection	-	-	2020	2019	2011	2008	2009	2008

<sup>1</sup> Mean (SD); n (%).

#### Table S2

Model	LL	AIC	BIC	aBIC	Entropy	aLMR
1-profile solution	-31845.52	63715.03	63790.08	63751.95		
2-profile solution	-28580.46	57210.92	57367.27	57287.83	0.82	0.00
3-profile solution	-26741.10	53558.20	53795.85	53675.11	0.86	0.00
4-profile solution	-25635.55	51373.10	51692.06	51530.00	0.87	0.00
5-profile solution	-24633.61	49395.22	49795.48	49592.12	0.88	0.00
6-profile solution	-24074.52	48303.04	48784.60	48539.93	0.87	0.00
7-profile solution	-23620.55	47421.09	47983.95	47697.97	0.87	0.17
8-profile solution	-23257.49	46720.98	47365.14	47037.86	0.87	0.33

Comparison of Fit Indices of the LPA (N = 3,843)

*Note.* LPA = latent profile analyses; AIC = Akaike information criterion (AIC); BIC = the Bayesian information criterion; aBIC = sample size–adjusted BIC; aLMR = adjusted Lo, Mendell, and Rubin likelihood ratio tests.

## Table S3

Correlations between Key Study Variables (N=3,843)

	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16
Child perceived pa	arenting														
1. Perspective															
2. Choice	.75*														
3. Rationale	.70*	.64*													
4. Threat	39*	36*	30*												
5. Guilt	47*	47*	37*	.55*											
6. Performance	35*	33*	25*	.37*	.52*										
Parent self-report	s of pare	enting													
7. Perspective	.10*	.07*	11*	07*	06	03									
8. Choice	.10*	.06	.11*	06*	06*	01	.93*								
9. Rationale	.02	02	.05	.07*	.02	.06*	.83*	.84*							
10. Threat	21*	24*	18*	.26*	.16*	.17*	.09*	.11*	.35*						
11. Guilt	10*	13*	06*	.08*	.13*	.16*	.32*	.30*	.45*	.66*					
12. Performance	12*	12*	05	.06*	.12*	.26*	.21*	.24*	.30*	.51*	.64*				
Child developmen	ntal outco	omes													
13. Grade Lang	.06*	.11*	.11*	03	.01	03	.02	.02	.02	09*	10*	04*			
14. Grade Math	.05	.14*	.10*	02	.01	.02	.03	.04	.01	10*	08*	01	.62*		
15. Extern Prob	22*	19*	21*	.22*	.11*	.08*	07*	06*	.01	.22*	.14*	.01	19*	17*	
16. Intern Prob	21*	16*	23*	.21*	.17*	.08*	02	04	01	.05*	.02	06*	15*	22*	.46*

*Note.* Autonomy supportive behaviors include taking perspective, offering choices, and giving rationales; controlling behaviors include using threats of punishment, inducing guilt, and imposing performance pressures. Correlations were calculated using the full information maximum likelihood. Gray boxes indicate the degree of parent-child agreement on the same parenting behavior.  $rs \ge |.10|$  are bolded.

\* *p* < .05

## PARENTING PROFILES

## Table S4

## Results of Multinomial Logistic Regressions: Predictors of Profile Memberships (N = 3,835)

		Reference Profile									
Membership Profile		A S	utonomy upportive	Ov	erinvolved		Average	L	Uninvolved		
	Predictors		OR 95% CI OR 95% CI		OF	OR 95% CI		95% CI			
Autonomy	Mothers			1.51	[1.10, 2.07]	2.6	1 [1.93, 3.53]	2.96	[2.19, 4.00]		
Supportive	Older parent			1.03	[1.01, 1.06]	1.0	3 [1.01, 1.05]	0.98	[0.96, 1.01]		
	Intact family			1.16	[0.81, 1.67]	1.0	6 [0.75, 1.50]	1.35	[0.90, 2.02]		
	Higher edu			3.54	[2.49, 5.04]	3.3	2 [2.34, 4.71]	3.92	[2.72, 5.66]		
	Girl child			1.31	[1.02, 1.69]	1.1	4 [0.90, 1.46]	1.02	[0.78, 1.33]		
	Older child			0.94	[0.89, 0.99]	0.8	2 [0.78, 0.87]	0.79	[0.75 <i>,</i> 0.83]		
	Higher income*			1.33	[1.14, 1.54]	1.0	9 [0.95, 1.25]	1.11	[0.95 <i>,</i> 1.30]		
	Contingent SE*			0.42	[0.35 <i>,</i> 0.50]	0.4	4 [0.38, 0.51]	0.68	[0.56, 0.84]		
	Competent child*			1.02	[0.88, 1.17]	1.2	4 [1.08, 1.41]	1.16	[0.99, 1.36]		
	Working full-time			0.90	[0.66, 1.22]	0.9	1 [0.67, 1.23]	0.95	[0.68, 1.31]		
Overinvolved	Mothers	0.66	[0.49, 0.91]			1.7	3 [1.39, 2.15]	1.97	[1.54, 2.51]		
	Older parent	0.97	[0.95, 1.00]			1.0	0 [0.98, 1.02]	0.95	[0.93 <i>,</i> 0.98]		
	Intact family	0.86	[0.60, 1.23]			0.9	1 [0.69, 1.22]	1.16	[0.81, 1.66]		
	Higher edu	0.28	[0.20, 0.40]			0.9	4 [0.77, 1.14]	1.11	[0.89, 1.38]		
	Girl child	0.76	[0.593, 0.98]			0.8	7 [0.71, 1.07]	0.78	[0.61, 0.99]		
	Older child	1.07	[1.01, 1.12]			0.8	8 [0.84, 0.92]	0.84	[0.80, 0.89]		
	Higher income*	0.75	[0.65, 0.87]			0.8	2 [0.73, 0.92]	0.84	[0.73 <i>,</i> 0.96]		
	Contingent SE*	2.39	[2.02, 2.83]			1.0	5 [0.93, 1.20]	1.63	[1.35, 1.97]		
	Competent child*	0.99	[0.86, 1.14]			1.2	2 [1.09, 1.40]	1.14	[0.99 <i>,</i> 1.32]		
	Working full-time	1.11	[0.82, 1.52]			1.0	1 [0.79, 1.28]	1.05	[0.79, 1.39]		
Average	Mothers	0.38	[0.28, 0.52]	0.58	[0.47, 0.72]			1.14	[0.91, 1.42]		
	Older parent	0.97	[0.95, 1.00]	1.00	[0.98, 1.02]			0.96	[0.93 <i>,</i> 0.98]		

	Intact family	0.94	[0.67, 1.33]	1.10	[0.82, 1.46]			1.27	[0.90 <i>,</i> 1.80]
	Higher edu	0.30	[0.21, 0.43]	1.07	[0.88, 1.30]			1.18	[0.97, 1.44]
	Girl child	0.80	[0.69, 1.11]	1.15	[0.94, 1.41]			0.89	[0.72, 1.11]
	Older child	1.21	[1.16, 1.28]	1.14	[1.09, 1.19]			0.96	[0.92, 1.00]
	Higher income*	0.92	[0.80, 1.06]	1.22	[1.08, 1.37]			1.02	[0.90 <i>,</i> 1.16]
	Contingent SE*	2.27	[1.96, 2.65]	0.95	[0.84, 1.08]			1.55	[1.31, 1.83]
	Competent child*	0.81	[0.71, 0.93]	0.82	[0.74, 0.92]			0.94	[0.82, 1.08]
	Working full-time	1.10	[0.82, 1.49]	0.99	[0.78, 1.261]			1.04	[0.80, 1.37]
Uninvolved	Mothers	0.34	[0.25, 0.46]	0.51	[0.40, 0.64]	0.88	[0.70, 1.10]		
	Older parent	1.02	[0.99, 1.04]	1.05	[1.02, 1.07]	1.05	[1.02, 1.07]		
	Intact family	0.74	[0.49, 1.12]	0.86	[0.60, 1.24]	0.79	[0.56, 1.12]		
	Higher edu	0.26	[0.18, 0.37]	0.90	[0.73, 1.13]	0.85	[0.70, 1.03]		
	Girl child	0.98	[0.75, 1.29]	1.29	[1.01, 1.64]	1.12	[0.90, 1.40]		
	Older child	1.27	[1.20, 1.33]	1.19	[1.13, 1.24]	1.04	[1.00, 1.09]		
	Higher income*	0.90	[0.77, 1.05]	1.19	[1.04, 1.37]	0.98	[0.86, 1.11]		
	Contingent SE*	1.47	[1.20, 1.80]	0.61	[0.51, 0.74]	0.65	[0.55, 0.76]		
	Competent child*	0.86	[0.74, 1.01]	0.88	[0.76, 1.01]	1.07	[0.93, 1.22]		
	Working full-time	1.06	[0.77, 1.46]	0.95	[0.72, 1.26]	0.95	[0.72, 1.26]		

*Note.* OR = odds ratio; 95% CI = 95% confidence interval; Contingent SE = contingent self-esteem. Columns shaded in green represent OR greater than 1, with CI not including 1, which represent a greater likelihood of classification into a given profile (relative to the reference profile). Columns shaded orange represent OR smaller than 1, with CI not including 1, which represent a reduced likelihood of classification into a given profile (relative to the reference profile). The coefficients above and below the diagonals are mirrored images, whose interpretations are virtually identical, the only difference being the profile that serves as a reference profile.  $OR \ge 1.44$  or its equivalent  $OR \le 0.69$  are bolded.

\*These variables were standardized within each sample for easier interpretation, where 0 represents the mean specific to each sample.

## Figure S1



Elbow Plot of the Information Criteria of 1- to 8-Profile Solutions

*Note*. AIC = Akaike information criterion (AIC); BIC = the Bayesian information criterion; aBIC = sample size–adjusted BIC.

## Figure S2

Child-perceived AS Child-perceived CON 7 -6 3 Mean Mean 5 2 -4 perspective rationale choice AS guilt perform threat CON Profile AS Overinvolved Uninvolved Average

*Comparing Raw Scores of Child-Reported Parenting as a Function of Profiles (N = 3,843)* 

*NOTE.* AS = autonomy support; CON = controlling parenting. AS and CON were calculated by averaging the scores on their respective subdimensions. The point represents profile-specific means; the error bars denote the 95% confidence interval. While the scale ranges from 1 to 7, the axes were restrained to 1 to 4, and 4 to 7 for visualizations.

#### PARENTING PROFILES

## Figure S3

Comparing Standardized Scores of Child Functioning Using Subsamples (n = 1,792 and 2,206 for left and



right panel, respectively).

*NOTE.* AS = autonomy support; CON = controlling parenting. AS and CON were calculated by averaging

the scores on their respective subdimensions. The point represents profile-specific means; the error bars

denote the 95% confidence interval.

Ratelle, C. F., Duchesne, S., Litalien, D., & Plamondon, A. (2020). The role of mothers in supporting adaptation in school: A psychological needs perspective. *Journal of Educational Psychology*, *113*(1). <u>https://doi.org/10.1037/edu0000455</u>