



Relations among Perceived Threat, Controlling Parenting, and Middle School Children's Control Beliefs

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Abstract

Prior work and evolutionary theory suggest that parents might become controlling with their children in the face of environmental threat, and that controlling parenting is associated with negative consequences for children. We tested a model of relations among parental perceived threat, controlling parenting, and children's control beliefs and school grades, with the hypothesis that parents' perceptions of the world as more threatening would be associated with more controlling parenting, which would in turn be associated with children's less adaptive control beliefs and poorer performance in school. Sixth-grade children and their parents responded to questionnaire measures initially and again at one-year follow-up. The children's schools provided their grades at both time points. Findings were largely consistent with our hypotheses. Greater perceived threat predicted more controlling parenting, which predicted children's concurrent less adaptive control beliefs and lower grades, as well as change in control beliefs and grades over time. Parents quite understandably turn to controlling parenting practices as a way of protecting their children, but in actuality such controlling parenting is associated with worse outcomes.

Keywords Perceived threat · Controlling parenting · Children's control beliefs · Children's perceived control · Self-determination theory

Highlights

- Parents are evolutionarily predisposed to protect their children from threat.
- When parents perceive threat, they may be more likely to become controlling with their children.
- Threat was associated with controlling parenting, which was in turn associated with children's maladaptive control beliefs.
- Controlling parenting is a protective response to threat that backfires, leaving children less able to achieve their goals.

The U.S. National Park Service advises hikers to “[b]e especially cautious if you see a female [bear] with cubs; [...] The chances of an attack escalate greatly if she perceives you as a danger to her cubs.” (National Park Service, 2022). This advice recognizes that mother bears in the wild are sensitive to contextual cues of threat and will respond to

protect their young. The idea that human parents might similarly go to extremes to protect their children from perceived harm is intuitively appealing and has biological theory to back it up. Specifically, over evolutionary time, a survival benefit would have accrued to the offspring of parents who were highly protective (Hahn-Holbrook et al., 2011; Trivers, 1974). Although such a response is perhaps no longer necessary for actual survival (for example, from predators), we are likely adapted to continue expressing it (Nesse, 2005). Parents thus seem to be biologically predisposed to protect children when they are threatened and there is thus good reason to believe that human parenting, like bears', varies with contextual threat.

Yet, the empirical investigation of perceived threat in human parenting is far more nuanced and broader in scope

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than the straightforward exercise of strength in the face of physical dangers. The threats humans encounter are varied and complicated, as are behaviors in the face of them, and though much is known about contextual influences on human parenting, little work has specifically investigated the threats parents perceive in the environment.

The types of threats that humans encounter include objective, perceived, and symbolic threats as varied as economic downturns (e.g., Torres-Vega et al., 2021), geopolitical risks (e.g., Asbrock & Fritsche, 2013), and transmissible diseases (e.g., Deng & Feng, 2022). A long line of empirical research shows that such threats are associated with human behaviors and cognitions focused on reducing or managing the threat or its concomitants (Oesterreich, 2005; Schnelle et al., 2021). Threat makes people feel compelled to act and they do so in ways that attempt to regain or impose a sense of order, certainty, and simplicity (Oesterreich, 2005; Schnelle et al., 2021).

Little work has directly investigated threat with respect to parenting, in particular (though for exceptions, see Gurland & Grolnick, 2005; Mauras et al., 2013; Robichaud et al., 2020), but it is well-established that various other contextual factors that pose challenges for parents predict parenting behavior (Belsky, 1984; Grolnick et al., 1996; Kotchick & Forehand, 2002). For example, neighborhood danger (e.g., Furstenberg, 2001; Levitt et al., 2020b), stress (e.g., Booth et al., 2018; Pereira et al., 2015), and low socioeconomic resources (e.g., Hoff-Ginsberg & Tardif, 1995; Klebanov et al., 1994) are all contextual factors that have been shown to relate to parenting. Specifically, less safe neighborhoods, higher stress, and lower available resources are associated with more harsh, controlling parenting, whereby parents push or pressure children toward specific outcomes.

Such contextual influences on controlling parenting are relevant to perceived threat. For example, unsafe neighborhoods and less access to material and other resources can signal danger for oneself and one's children, and make parents see the world as being out of their own control. Such feelings could lead to parenting behavior focused on expediently assuring positive outcomes for children. Thus, the degree to which parents are controlling with their children varies with contextual factors that have largely been studied individually. Given that they share threat as a common feature, however, it is worth investigating threat directly in relation to controlling parenting.

Understanding contextual factors that affect controlling parenting is important because controlling parenting itself is associated with a range of general and domain-specific outcomes for children. For example, controlling parenting has been associated with children's lower autonomous motivation (Grolnick et al., 2019; Grolnick & Ryan, 1989), perceived control (Skinner, 1986), and well-being (Fang

et al., 2022). We were therefore interested in studying how perceptions of threat in the world connect to parenting, particularly controlling parenting, and how such perceptions link to relevant outcomes for children. We asked: Are greater perceptions of threat associated with more controlling styles of parenting? Do children's beliefs about action-outcome relations vary as a function of the parenting they receive and/or their parents' view of the world as unpredictable and filled with threat? Answering such questions can help to illuminate why and in what circumstances parents become controlling, and ultimately contribute to interventions that promote optimal parenting and foster positive outcomes for children.

Threat

Threat is the presence of an impending danger or difficulty that places something valued at risk (Gurland & Grolnick, 2005), such as a sense of security, the social order, future wellbeing, or social status. Well-studied categories of threat include objective threats like economic downturns (e.g., Torres-Vega et al., 2021), security issues (e.g., Asbrock & Fritsche, 2013), and crime rates (e.g., McCann, 2008), and symbolic threats to the social order like sociopolitical issues (Jarmakowski & Radkiewicz, 2021). Extensive work on societal-level threat has documented relations between threat and personality traits (e.g., Carriere et al., 2019; Deason & Dunn, 2022; for a review, see Schnelle et al., 2021), political ideology (e.g., Hibbing et al., 2014; Jost et al., 2003), and inter-group attitudes (e.g., Duckitt, 2001; Jarmakowski & Radkiewicz, 2021). For example, during objectively threatening periods of time, relative to periods of less objective threat, there are increases in authoritarianism – believing in and/or enforcing strict rules about power and control, and favoring obedience to authority – as well as dogmatism, prejudice, and out-group derogation (e.g., Feldman & Stenner, 1997; Hetherington & Suhay, 2011). Similarly, experimental studies demonstrate that people exposed to hypothetical societal threats as opposed to neutral or societal safety information also show greater authoritarianism (Manzi et al., 2015; Manzi et al., 2017; Russo et al., 2017), though the strength of the authoritarian reaction is not uniform. For example, in one such study, Manzi et al. (2017) assigned participants to a hypothetical societal threat or societal safety condition and found that exposure to threat led to greater authoritarian reactions, but only among those whose parents provided little autonomy support. Those who reported high parental autonomy support did not show an authoritarian reaction to threat. In a similar study using almost an identical manipulation (Manzi et al., 2015), threat led to loss of perceived control, which in turn was associated with greater authoritarianism. However,

the latter association held true only for those with a low sense of life meaning. Those with a high sense of meaning in life sustained the threat and associated loss of perceived control without an authoritarian response.

A variety of theoretical models have been proposed for the link between threat and these particular correlates, but a parsimonious one proposed by Oesterreich (2005) and echoed by Schnelle et al. (2021) is that the presence of threat invites a desire for simplicity and clarity. With threat comes uncertainty and feelings of being subject to forces outside of one's own control. Authoritarianism, dogmatism, and prejudice provide narrow, simplistic answers to questions such as who is in charge, what behaviors are and are not permitted, what is right and what is wrong, who is good and who is bad, and thus satisfy the wish for clarity and a sense of restored order in the presence of threat.

Threat within the parenting domain can be conceptualized evolutionarily. From such a perspective, natural selection has shaped many responses to threat or danger, often referred to as inducible responses (Nesse, 2001), that would increase the possibility of the organism surviving and reproducing. Parents' detecting and responding to threat for their children would increase the probability that their children can compete and survive (Geary & Flinn, 2001). It stands to reason that parents would be especially attuned to threat for their children and evolution would have favored quick, decisive actions that prevent children from being hurt or killed. Evolved systems, especially those with specific survival significance, are calibrated for optimal benefit: if the risk of not responding could be deadly, the system would be extremely sensitive. Nesse (2005) suggested that when danger is uncertain, the response mechanism would err on the side of excessive protection even if this results in many false alarms that may have their own costs. Even in our modern society where children are often not physically at risk, as an evolved system, the mechanism is likely to be oversensitive. Thus, parents may easily perceive threat when the environment seems competitive, dangerous, or challenging and respond with targeted, protective and decisive behavior. This narrow focus would likely be expressed as controlling parenting.

Controlling Parenting

Parental control has been conceptualized a number of ways, including in constructs such as behavioral control, psychological control (Barber et al., 2005), and controlling parenting (Grolnick & Ryan, 1989). We approach controlling parenting from the perspective of self-determination theory (SDT; Deci & Ryan, 2004; Ryan et al., 2021). According to SDT, people have a psychological need to feel choiceful, or autonomous, in their behavior. People feel

autonomous when they engage in behaviors of their own volition, or because they personally endorse those behaviors. The opposite of feeling autonomous is feeling controlled, experiencing behavior as being pressured or coerced with a sense of "should" or "have to." SDT posits, and a wealth of evidence supports, that autonomy is associated with optimal behavior and well-being (e.g., Bradshaw et al., 2022; van der Kaap-Deeder et al., 2017).

The environment can be relatively supportive or undermining of the need for autonomy. For example, when individuals' perspectives are taken into account, their initiations are valued and encouraged, and their choices are honored, their sense of autonomy is supported. By contrast, when their perspectives are overlooked, their initiations are dismissed or redirected, and their preferences are ignored, their autonomy is thwarted and they feel controlled.

Controlling parenting, from an SDT perspective (Ryan & Deci, 2017), is parenting that pressures or coerces children to behave in particular ways or achieve particular outcomes (Grolnick, 2002). It includes both external pressures and intrusive behavior as well as more internally pressuring behaviors such as guilt evoking and love withdrawal (Levitt et al., 2020a). The pressuring, coercive nature of parental controllingness is distinct from notions of control that focus more on guidance, rules and organization, such as behavioral control, which may be positive for children (Barber et al., 2005). Within SDT, such a form of control would fall under the rubric of structure and structure would satisfy the need for competence (for a review of different parental control constructs, see Grolnick & Pomerantz, 2009). Controlling parenting involves a narrow focus on expediently eliciting immediate outcomes such as obedience, compliance, or performance, without full regard for more nuanced considerations such as children's feelings, whether they are developing an enduring value for the desired behavior, and whether they are developing their own abilities to achieve that behavior. For example, in the context of a child's school project, a parent narrowly focused on the goal of getting the project completed might take over and do parts of the project for the child. This expediently achieves the goal of completing the project but robs the child of the practice and learning opportunities afforded by the assignment, focuses on the product rather than the process, and conveys to the child that their input is unnecessary or not valued. More broadly, parents who routinely adopt a controlling approach, across contexts, tend to pressure their children toward certain paths or decisions, and take their own rather than the children's perspectives in their parenting.

In many cases, parents do not set out to be controlling with their children. Rather, they may experience contextual factors as so demanding that they focus on achieving particular outcomes for their children. For example, in a study

of parenting, neighborhood safety, and children's symptomatology (e.g., Levitt et al., 2020b), the less safe mothers perceived their neighborhood to be, the more controlling their children reported their parenting style to be. While some might suggest that controllingness is better for children in dangerous neighborhoods (Furstenberg, 2001), it was actually associated with more negative outcomes for children in Levitt et al.'s study (though more structure, a separate variable involving establishing clear expectations and guidelines, was associated with more positive outcomes). In a daily diary study (Van Der Kaap-Deeder et al. 2019), parents were more controlling on days when they experienced greater stress and were less psychologically available. Parents' stress and psychological availability were a function of the extent to which their own psychological needs were met on that day, consistent with the idea that contextual factors affected their day-to-day parenting by limiting their psychological resources.

Parents can also be experimentally induced to become controlling by narrowly focusing their attention on children's performance. When parents completed a homework-like task with their school-age children (Grolnick et al., 2002), those who reported a controlling style to begin with and who were placed under a pressuring condition in which they believed they would be evaluated on the basis of their children's task performance were the most controlling of their children during the task and had children who later performed less well by themselves on a similar task. Wuyts et al. (2017) had parents work with their 5th–6th grade children on puzzle tasks in a condition that either did or did not pressure them with the belief that the child's performance was a reflection of the child's intelligence. Parents were also led to believe their child failed or succeeded on the task based on false information they were given about the average number of puzzles children were expected to solve. Parents who received the pressuring induction were more controlling with their children on the task, doing things like speeding the child along, taking over the puzzles in ways that excluded the child, and criticizing the child. Further, parents who believed their child was failing were more controlling than those who believed their child was succeeding.

These studies show that parenting is responsive to contextual factors, and specifically that threatening contexts are associated with parents directing their children's behavior and solving problems for them. Importantly, being stressed, pressured, or subjected to neighborhood dangers might have parallels to experiencing threat. Indeed, the search for clear, simplistic solutions that accompany perceived threat resembles the expedient solutions that come with controlling parenting. However, while controlling parenting might seem on the surface to protect children from negative outcomes, it is actually linked to negative outcomes.

Children's Outcomes

In considering relations among perceived threat, controlling parenting, and children's outcomes, an outcome closely linked theoretically to parental perceptions of threat and controlling parenting is children's perceptions of control. Perceived control refers to children's beliefs about what causes their success and failure outcomes (Skinner, Wellborn, & Connell, 1990) – for instance, the extent to which they see an outcome such as success in school, as caused by their own effort, by their innate ability, by luck, by powerful others (such as teachers or parents), or by unknown sources of control. Thus, although children's control beliefs and parental controllingness both involve “control,” they are conceptually distinct: control beliefs refer to children's beliefs about the determinants of their successes and failures and controlling parenting has to do with parents' pushing, pressuring, or coercing their children. Control beliefs have implications for the strategies children use in navigating the world around them. For example, in the academic realm, children who see themselves as having more control over success and failure display higher achievement (Findley & Cooper, 1983; Schmitz & Skinner, 1993), are most actively engaged in the classroom (Patrick et al., 1993; Skinner et al., 1990), and report more positive emotional engagement in the classroom (Patrick et al., 1993). Perceived control has also been linked to coping and to anxiety. Children who feel more in control of outcomes use more actively engaged, problem-focused forms of coping when faced with stress (for a review, see Compas et al., 1991); children who develop the sense that outcomes are out of their control are more susceptible to anxiety, both acutely immediately after a stressful event, and chronically (for a review, see Chorpita & Barlow, 1998). Control beliefs, both adaptive and maladaptive, therefore have important implications for children's approach to their goals and their degree of success in reaching them.

Theoretically, both threat and controlling parenting may be linked to children's perceptions of control. First, threat makes people feel that outcomes are outside of their own control. Thus, parents who perceive a high degree of threat around them might directly convey to their children, by example, a sense that actions have little to do with outcomes. Second, parents who are controlling tend to decrease their children's sense of agency by pushing them in particular directions or taking over for them. Such an approach limits children's own experience of producing outcomes through their own actions. If there are indeed links, then, among parental perceptions of threat, controlling parenting, and children's outcomes, a key outcome to measure would be children's perceived control.

We measured adaptive and maladaptive perceived control, both in a domain-general way and in a school-specific

way to achieve broad coverage of children's control beliefs. As an additional, more objective outcome, we also examined school performance, operationalized as school-reported grades.

Threat, Parenting, and Children's Outcomes

Direct support for the idea that parental perceptions of threat in the world would be associated with controlling parenting and children's outcomes comes primarily from three studies. In one (Gurland & Grolnick, 2005), parental perceptions of threat were measured using the "World Out There" questionnaire, which has three subscales, worry, scarcity, and unpredictability. Parents were observed interacting with their children in the laboratory on homework-like tasks and were rated as more versus less controlling. Parents who perceived the world as more threatening – i.e., saw reason to worry, instability, and scarcity of resources – behaved in more controlling ways with their children and had children who reported more performance-oriented achievement orientations. In a second study, mother-daughter pairs engaged in conversations about everyday topics and about the topic of sex (Mauras et al., 2013). Mothers who perceived more threat in the world were more controlling in the everyday conversations, and had daughters who were less engaged, related, and satisfied in the conversations, and less interested in having more such conversations. In a third study, parents were either induced to see the world as threatening by listening to a mock news report about the harsh future world their children would inherit, or were given a neutral induction (Robichaud et al., 2020). Parents who received the threat induction were perceived by their children as more controlling in a guided learning activity than were the parents given the neutral induction (Robichaud et al., 2020).

The current study used the Gurland and Grolnick (2005) measure, the World Out There, to measure threat, and similarly measured controlling parenting and children's outcomes. But the current study extends and improves upon Gurland and Grolnick (2005) by including a larger, more diverse sample, and an outcome measure that is theoretically related to perceived threat, in addition to a standard academic outcome. In addition, the current study included 6th-grade children who were studied across the transition to middle school (7th grade), a time of much upheaval as the structure of the school, number of teachers, and expectations for children change (e.g., Eccles et al., 1984). Thus, we expected there might be change in children's perceived control and grades that might be predicted from variables in our study. We evaluated a model linking parental perceptions of threat to controlling parenting, which is in turn linked to children's perceived control. We also explored the

possibility of direct relations between parental perceived threat and children's perceived control. In our model, we included parents' available resources, operationalized by a measure of income, as we recognize that socioeconomic circumstances create danger and difficulty and likely contribute to parents' beliefs about threats in the world. Income is a more variable factor relative to education and thus may better reflect parents' current circumstances.

Method

Participants

Participants were 213 parents and their 6th-grade children. After excluding data from twelve families due to substantial missing data, the sample included 201 parents ($n_{\text{mothers}} = 193$, $n_{\text{fathers}} = 8$) and their 6th-grade children ($n_{\text{girls}} = 106$, $n_{\text{boys}} = 95$). The large majority of participating parents reported their ethnicity as European American or Hispanic/Latine, with 87 (43.3%) European American, 84 (41.8%) Hispanic/Latine, 14 (7%) African American, 6 (3%) African, 4 (2%) Asian, 2 (1%) Other, 2 (1%) Eastern European, 1 (0.5%) Native American, and 1 (0.5%) Western European. Regarding family structures, 110 parents (54.7%) reported two-parent family arrangements, while 91 parents reported single-parent family arrangements (45.3%). Thirteen parents (6.5%) described their family as a step-family. Participating parents reported a wide range of educational attainment, with 33 (16.4%) who did not complete high school, 50 (24.9%) who completed high school or earned a GED, 7 (3.5%) who completed technical or vocational training, 60 (29.9%) who completed some college or earned an Associate's degree, 37 (18.4%) who completed college, and 14 (7%) who earned an advanced degree beyond college.

Thirty-one participants did not complete the Year 2 assessment at Time 2. To check for systematic differences between those who continued at Time 2 and those who did not, we ran chi-square tests. Retention status was independent of all demographic variables, χ^2 's ranging from 0.41 to 12.90, p 's > 0.05, except maternal employment status, $\chi^2_{(4)} = 13.47$, $p < 0.01$. Follow-up analyses indicated this was entirely accounted for by the two mothers who reported their employment status as "student," neither of whom provided data at Time 2.

Procedure

With approval from the Institutional Review Board at Clark University, sixth-grade students were informed about the project at school and asked to bring a letter home to their parents describing the project and requesting a response. Sixty-one percent responded, and of those, 66% agreed to participate. Participation took place in families' homes or at

the university laboratory, depending on parent preference, and sessions were conducted by trained research assistants using an administration script. Families were re-contacted one year later and similarly scheduled to participate at home or at the laboratory. At each visit, parents signed consent forms and were thanked with \$60. Sessions took place over the course of one year.

Measures

Demographics

Parents reported on race/ethnicity, employment status, marital status, education, child's gender, and household yearly income. Income categories ranged from <\$10,000 to >\$100,000 annually.

Parental perceived threat

We measured parental perceptions of threat using the 10-item "World Out There" questionnaire (Gurland & Grolnick, 2005), which includes three subscales: Worry, which captures parents' worry about their children, given the state of the future world they will inherit (e.g., I don't worry too much about today's kids [reverse-scored], These are troubling times. Parents these days have reasons to be concerned); Scarcity, which taps parents' perceptions of the bounty versus scarcity of resources and opportunities for their children (e.g., It's competitive out there. Only some kids can make it., There are only so many good jobs to go around); and Unpredictability, which measures parents' views of the world as fickle and unpredictable versus relatively stable and reliable (e.g., These days you could work for the same company for 30 years and then suddenly get fired without warning or explanation). Parents rated each item from 1 (*strongly disagree*) to 6 (*strongly agree*). We removed one item that was unreliable with the other items. The subscales, with only two to four items each, had alphas ranging from 0.65 to 0.72. When combined as overall parental perceived threat, Cronbach's $\alpha = 0.73$.

Controlling parenting

Children completed two questionnaire measures of their parents' use of controlling parenting behaviors. Eight items on the Parenting Context Questionnaire (Wellborn & Grolnick, 1988) asked children to rate their parents' controllingness (e.g., My parents try to control everything I do; My parents insist I do school things their way) from 1 (*not true at all*) to 4 (*very true*). These items showed reasonable internal consistency, $\alpha = 0.70$. On the 10-item psychological control subscale of the Children's Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965), they

indicated on a 3-point scale (not like, somewhat like, a lot like) their parents' use of guilt or love withdrawal to control their behavior (e.g., ... will avoid looking at me when I've disappointed her; ...tells me of all the things she has done for me). The internal consistency of these items was $\alpha = 0.80$.

Children's perceived control

Children completed 29 items of the Student Perceptions of Control Questionnaire (Skinner et al., 1990), which measures their perceptions of who or what controls success or failure outcomes generally in their lives, and specifically with respect to school. Children rate items on a scale from 1 (*not true at all*) to 4 (*very true*). Subscales ranging from four to seven items each tapped children's adaptive perceptions that they themselves are in control of outcomes (e.g., If I decide to do something hard, I can do it; I can do well in school if I want to; general $\alpha = 0.58$, school $\alpha = 0.65$), their maladaptive perceptions that outcomes are controlled by luck (e.g., If I don't succeed, it is because of bad luck; To do well in school, I have to be lucky; general $\alpha = 0.82$, school $\alpha = 0.83$), and their maladaptive perceptions that outcomes are controlled by unknown sources (e.g., When good things happen to me, many times there doesn't seem to be any reason why; If I get a bad grade in school, I usually don't understand why I got it; general $\alpha = 0.63$, school $\alpha = 0.65$). The two maladaptive subscales were highly intercorrelated with respect to control over general, $r = 0.533$, and academic outcomes, $r = 0.655$. As others have done (e.g., Skinner et al., 1998), we therefore combined them to create a general maladaptive perceived control composite and a school-related maladaptive perceived control composite. The alphas for the general and school maladaptive perceived control composites were 0.81 and 0.84, respectively.

Children responded to the same questions again one year later. The two maladaptive perceived control subscales were again highly intercorrelated for general outcomes, $r = 0.592$, and for school outcomes, $r = 0.631$, so we again formed maladaptive perceived control composites. At the one year follow-up, Cronbach's alphas were 0.66 for general adaptive perceived control, 0.74 for school-related adaptive perceived control, 0.84 for general maladaptive perceived control, and 0.85 for school-related maladaptive perceived control.

Grades

Children's schools reported their grades in English, math, social studies, and science as standard letter-grades, which we translated into a 12-point numeric scale, with higher numbers indicating higher grades. We averaged across the

Table 1 Descriptive Statistics for All Variables

	<i>N</i>	Min	Max	<i>M</i>	SD
Time 1					
Household yearly income	201	1.00	6.00	3.19	1.45
Parental perceived threat – worry	201	1.00	6.00	4.69	0.78
Parental perceived threat – scarcity	201	1.00	6.00	3.90	0.98
Parental perceived threat – unpredictability	201	1.00	6.00	4.66	0.91
Parental perceived threat	201	1.00	6.00	4.42	0.67
Parental controllingness	201	1.00	4.00	2.40	0.51
Parental psychological control	201	1.00	3.00	1.73	0.41
Adaptive perceived control, general	201	1.00	4.00	3.27	0.45
Adaptive perceived control, school	201	1.00	4.00	3.68	0.39
Maladaptive perceived control, general	201	1.00	4.00	2.03	0.56
Maladaptive perceived control, school	201	1.00	4.00	1.62	0.56
Grades	173	1.00	12.00	8.14	2.39
Time 2					
Adaptive perceived control, general	170	1.00	4.00	3.32	0.46
Adaptive perceived control, school	170	1.00	4.00	3.71	0.42
Maladaptive perceived control, general	170	1.00	4.00	1.78	0.53
Maladaptive perceived control, school	170	1.00	4.00	1.51	0.50
Grades	146	1.00	12.00	8.01	2.44

four subjects to create a single variable, given that children's subject-specific grades were highly intercorrelated both initially, r 's ranging from 0.654 to 0.825, and at follow-up, r 's ranging from 0.674 to 0.747.

Results

Missing Data and Analysis Plan

We imputed household yearly income for the five participants (2.9%) who did not provide this information by assigning them the same income category as the participant in the dataset who most closely matched them on parents' employment status, job type, parental education, and marital status. Mothers in these families were somewhat more likely to be unemployed or disabled, $\chi^2_{(4)} = 13.40$, $p < 0.01$, relative to families who provided their income. Five participants (2.9%) were missing the child's grades in one of the four subject areas (math, English, science, and social studies). Since grades were measured as a mean across the four subjects, these missing values had no effect, but we nonetheless checked that they were not missing systematically. Those missing a grade did not differ demographically from those for whom all grades were reported, χ^2 's ranging from 0.15 to 7.23, p 's > 0.05 . There were 29 students whose schools did not report any grades.

We examined descriptive statistics and correlations before conducting our primary analyses to determine whether we needed to control for any demographic variables.

We then conducted the primary analyses using structural equation modeling (SEM) in IBM SPSS Amos version 28. To assess model fit, we relied primarily on the commonly-used comparative fit index (CFI), which should be greater than 0.95 for good fit (Bentler, 1990; Hu & Bentler, 1999), the root mean square error of approximation (RMSEA), which should be between 0.05 and 0.08, but ideally lower (Byrne, 2016) for a model and sample size like ours, as well as the overall chi-square with greater chi-square probabilities indicating better fit (Byrne, 2016).

Descriptive Statistics and Correlations

Means and standard deviations for all variables are presented in Table 1. Correlations are presented in Table 2. Household yearly income was negatively associated with parental perceptions of threat, parental controllingness, and psychological control, and positively associated with adaptive perceived control and grades. Parental perceived threat was positively correlated with parental controllingness and psychological control. That is, the more parents perceived the world as a threatening place, the more controlling they were rated to be, on both measures, by their children. The two measures of controlling parenting were highly intercorrelated, and both of them were related, in expected directions, to adaptive and maladaptive perceived control variables, and to grades, across Time 1 and Time 2. That is, the more controlling and psychologically controlling children reported their parents to be, the more they

Table 2 Correlations Among Key Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Household income	–															
2. Perc'd threat – worry	–0.21**	–														
3. Perc'd threat – scarcity	–0.20**	0.17*	–													
4. Perc'd threat - unpred	–0.14*	0.39**	0.45**	–												
5. Parent perc'd threat	–0.24**	0.65**	0.76**	0.83**	–											
6. Parent controllingness	–0.19**	0.20**	0.04	0.10	0.14*	–										
7. Parent psych control	–0.29**	0.24**	0.17*	0.13	0.24**	0.61**	–									
Time 1 Outcomes																
8. Adaptive PC, gen	0.26**	–0.03	–0.14*	–0.19**	–0.17*	–0.23**	–0.22**	–								
9. Adaptive PC, sch	0.21**	–0.16*	–0.17*	–0.23**	–0.25**	–0.20**	–0.35**	0.55**	–							
10. Maladaptive PC, gen	–0.23**	0.14*	0.07	0.15*	0.16*	0.39**	0.31**	–0.48**	–0.51**	–						
11. Maladaptive PC, sch	–0.24**	0.18**	0.19**	0.15*	0.24**	0.32**	0.31**	–0.47**	–0.68**	0.81**	–					
12. Grades	0.38**	–0.19*	–0.06	–0.21**	–0.19*	–0.20**	–0.41**	0.24**	0.35**	–0.29**	–0.28**	–				
Time 2 Outcomes																
13. Adaptive PC, gen	0.12	–0.05	–0.10	–0.10	–0.11	–0.30**	–0.24**	0.47**	0.43**	–0.24**	–0.36**	0.16*	–			
14. Adaptive PC, sch	0.21**	–0.16*	–0.07	–0.11	–0.15	–0.24**	–0.21**	0.29**	0.41**	–0.27**	–0.36**	0.24**	0.49**	–		
15. Maladaptive PC, gen	–0.23**	0.18*	0.10	0.13	0.18*	0.33**	0.32**	–0.36**	–0.35**	0.48**	0.57**	–0.23**	–0.37**	–0.54**	–	
16. Maladaptive PC, sch	–0.20*	0.09	0.12	0.10	0.16*	0.30**	0.28**	–0.29**	–0.42**	0.45**	0.57**	–0.31**	–0.30**	–0.60**	0.76**	–
17. Grades	0.33**	–0.27**	–0.12	–0.17*	–0.24**	–0.25**	–0.41**	0.24**	0.36**	–0.32**	–0.33**	0.70**	0.21**	0.32**	–0.34**	–0.36**

Perc'd Perceived, Unpred Unpredictability, PC Perceived control, gen General, sch School

* $p < 0.05$, ** $p < 0.01$

viewed outcomes as being controlled by luck or unknown sources, the less they viewed outcomes as being under their own control, and the lower their grades were in school. Parental perceptions of threat were also associated with multiple outcomes in the expected directions.

Before testing our full hypothesized model, we tested whether any variables differed systematically by gender or ethnicity. Independent-samples *t*-tests indicated that at Time 1, girls had higher grades, $M = 8.54$, than boys, $M = 7.71$, $t(171) = 2.33$, $p = 0.02$. Girls were also higher on general maladaptive perceived control at Time 2, $M = 1.85$, relative to boys, $M = 1.69$, $t(168) = 1.97$, $p = 0.05$. We therefore included gender as a covariate in further analyses. A multivariate ANOVA indicated that ethnic/racial groups differed on multiple variables, F 's ranging from 2.12 to 5.12, p 's < 0.05 . We therefore included race/ethnicity as a covariate in our model, as well.

While our sample was notably diverse with nine different ethnicities represented across our 201 participating families, just two of those ethnicities – European American and Hispanic/Latine – accounted for fully 85% of our sample, leaving too few participants in each of the remaining groups to create meaningful groups. We therefore tested the full hypothesized model with a narrower sample of 171 that included our Hispanic/Latine and European American participants (with ethnicity re-coded to 0 and 1).

Measurement Model

The two measures of controlling parenting were strongly correlated, $r = 0.608$, and both had the same pattern of relations with the other variables (see Table 2). For the sake of parsimony, we therefore tested whether parental controllingness and psychological control could be treated as composite indicators of a first-order latent controlling parenting variable. Following Little et al. (2002), we initially

used the item-to-construct balance method to create four parcels of two items each for the parental controllingness construct and five parcels of two items each for the psychological control construct. In this initial measurement modeling, these parcels were modeled as indicators of first-order composite constructs (parental controllingness and psychological control), which were in turn modeled as indicators of the second-order latent construct of controlling parenting. This model fit the data well, $\chi^2_{(25)} = 35.40$, $p = 0.081$, CFI = 0.98, RMSEA = 0.05, with standardized estimates ranging from 0.61 to 0.71, all p 's < 0.001 , and we therefore used parental controllingness and psychological control as composite indicators of controlling parenting, subsequently modeled as a first-order latent construct, in subsequent analyses.

Consistent with previous work (Gurland & Grolnick, 2005), perceived threat was modeled as a first-order latent variable with each composite subscale as an indicator: worry, stability, and unpredictability. The measurement model was a reasonable fit for the data, $\chi^2_{(24)} = 49.49$, $p = 0.002$, CFI = 0.94, RMSEA = 0.08, with standardized estimates ranging from 0.34 to 0.88, all p 's < 0.001 . Given these findings, we used the latent variable of perceived threat in model testing.

Primary Analyses

We hypothesized a model whereby parental perceptions of the world as threatening would predict controlling parenting as measured by child-report, which in turn would predict children's perceived control and grades, as well as change in children's perceived control and grades over time. Our hypothesized model also recognizes the realities of families' circumstances and access to resources (operationalized as household yearly income), and how these contribute to perceptions of threat, parenting, and children's outcomes.

Fig. 1 Basic Hypothesized Model. Note. For the sake of simplicity, the measurement models for controlling parenting and perceived threat are not depicted, but are described in the text

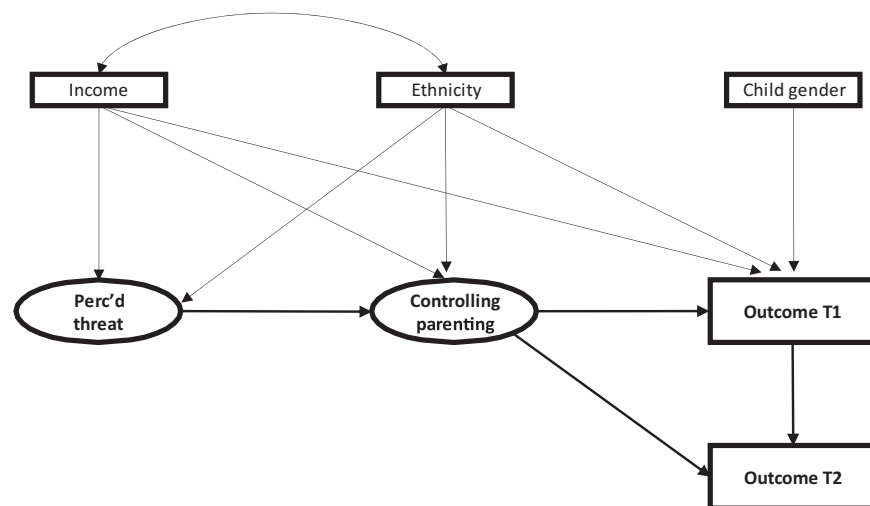


Table 3 Model Fit for Each of the Five Outcome Variables

Outcome	χ^2	df	$p(\chi^2)$	CFI	RMSEA
Maladaptive perceived control, General	33.64	28	0.213	0.98	0.03
Maladaptive perceived control, School	28.50	28	0.438	0.99	0.01
Adaptive perceived control, General	36.35	28	0.134	0.97	0.04
Adaptive perceived control, School	30.62	28	0.334	0.99	0.02
Grades	30.36	28	0.346	0.99	0.02

Fig. 2 Model Showing Standardized Estimates for Adaptive Perceived Control (General, School) as Outcome. Note. For the sake of simplicity, the measurement models for controlling parenting and perceived threat are not depicted, but are described in the text. PC Perceived Control. Standardized estimates before comma are for general adaptive perceived control; those after comma are for school-related adaptive perceived control. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

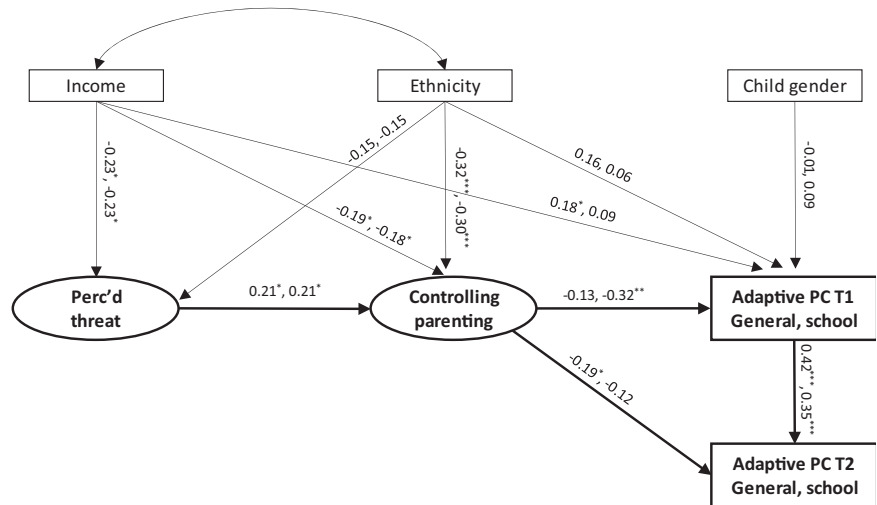
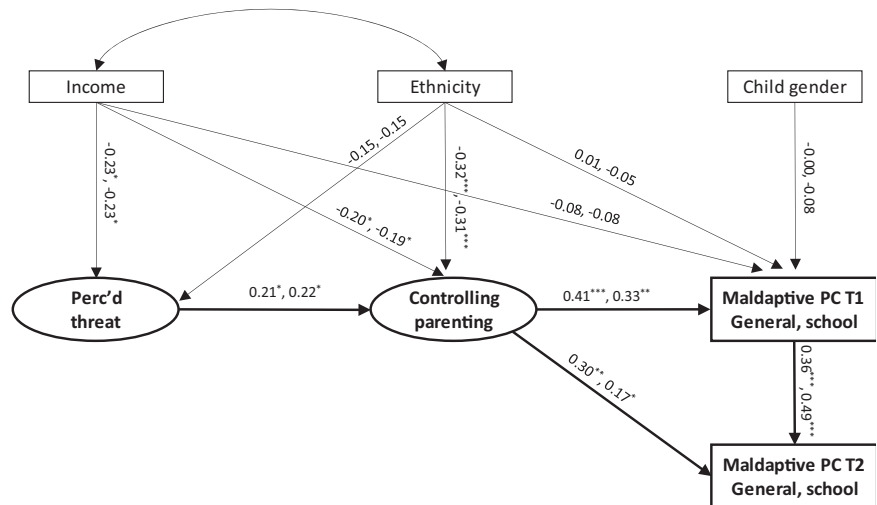


Fig. 3 Model Showing Standardized Estimates for Maladaptive Perceived Control (General, School) as Outcome. Note. For the sake of simplicity, the measurement models for controlling parenting and perceived threat are not depicted, but are described in the text. PC Perceived Control. Standardized estimates before comma are for general adaptive perceived control; those after comma are for school-related adaptive perceived control. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

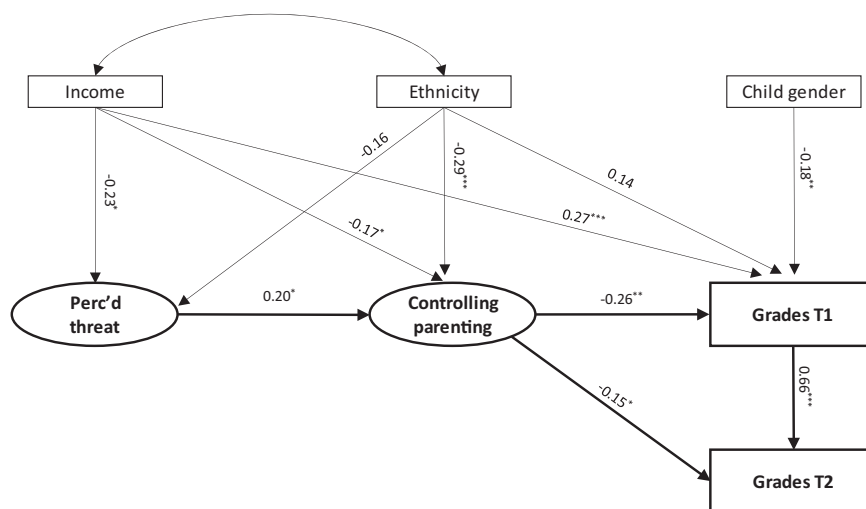


Finally, we included gender and ethnicity as covariates. The hypothesized model is presented in Fig. 1. We ran the model separately for each of our five outcomes because of the number of parameters in each model (including the longitudinal component). Given our sample size, including them in a single model would have resulted in insufficient power. In each case we achieved good model fit as reported in Table 3.

The standardized estimates for each path and for each outcome are presented in Figs. 2 (maladaptive perceived control, general and school), 3 (adaptive perceived control,

general and school) and 4 (grades). The pattern of findings was consistent across all five outcomes. The paths from household yearly income to perceived threat and children's perceptions of controlling parenting were significant, with higher income predicting lower perceived threat and less controlling parenting. Central to our hypothesized model, parental perceptions of threat predicted more controlling parenting, which in turn predicted not only children's perceived control and grades initially, but also change in perceived control and grades over the one-year follow-up period. In one exception to this pattern, perceived

Fig. 4 Model Showing Standardized Estimates for Grades as Outcome. Note. For the sake of simplicity, the measurement models for controlling parenting and perceived threat are not depicted, but are described in the text. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



controlling parenting predicted change in general adaptive perceived control over time, but not initially, whereas the opposite was true for school-related adaptive perceived control: controlling parenting predicted it initially, but did not predict change in it over time. Finally, child gender predicted school grades, with girls earning higher grades than boys.

We compared our models to direct-effects models in which paths were added from perceived threat to Time 1 and Time 2 outcomes. For every outcome except school-related adaptive perceived control, the indirect effects model fit the data better, χ^2_{diff} values ranging from 1.03 to 5.03, p 's > 0.05 . For adaptive perceived control – school, the direct effects model improved the fit, $\chi^2_{diff} = 6.63$, $p < 0.05$. Perceived threat still predicted controlling parenting, which still predicted adaptive perceived control – school at Time 1 (but not Time 2), but perceived threat also directly predicted adaptive perceived control – school at Time 1 (but not Time 2), $\beta = -0.24$, $p < 0.05$.

Discussion

Previous studies have mostly examined threat in relation to human behavior and cognition generally, but not in relation to parenting, specifically. The few studies that have investigated threat in relation to parenting and children's outcomes used standard academic outcomes. The goal of this study was to extend previous work by investigating relations among parental perceptions of the world as threatening, controlling parenting styles, and children's outcomes that are theoretically related to perceived threat and controlling parenting. We found overall that the more threat parents perceived, the more controlling their parenting was perceived to be, and in turn, the lower their children's grades were in school and the more maladaptive their

children's perceived control over outcomes was. Findings from one-year follow-up revealed that controlling parenting also predicted change in children's grades and perceived control over time.

As hypothesized, the more threatening parents perceived the world to be, the more controlling their children reported them to be. This finding aligns with an earlier study in which parental perceived threat predicted self-reported controlling parenting styles as well as independently rated parental control during a homework-like task with their children (Gurland & Grolnick, 2005). Similarly, in an experiment that induced mothers either to perceive threat (by listening to a simulated journalistic report about a harsh future world for their children) or not (by listening to a neutral simulated journalistic report), those who already evidenced a controlling style and who received the threat manipulation were coded by independent raters as more controlling in a guided learning activity with their children relative to those who did not receive the threat manipulation (Robichaud et al., 2020). In our study, controlling parenting was not restricted to parenting behavior during an experimental task, but rather, was rated by children as parenting style. This pattern of findings suggests that parents may, quite understandably, turn to controlling parenting practices as a way of protecting their children from harm and assuring good outcomes for them, not only in specific task-oriented settings, but also more generally. Yet, such controlling parenting "backfires," (Grolnick, 2002) in that it is not actually protective but rather, counter to parents' intuition, is associated with worse outcomes. The finding adds to our understanding of how contextual characteristics shape parenting, focusing specifically on threat and its theoretically tied outcome – namely, control beliefs.

We found that the more controlling parents were reported to be, the more maladaptive were their children's school-specific and domain-general control beliefs, as indicated by

beliefs that outcomes are determined by luck or other unknown causes. This suggests that the more parents see the world as threatening and unpredictable, the more controlling they are, and the more their children similarly see outcomes as outside of their own control. The specificity of the association between parental perceived threat and children's maladaptive control beliefs, as mediated by controlling parenting, suggests that perceived threat might not be associated with blanket negative outcomes for children, but rather, that parental perceptions of threat and unpredictability, specifically, might be transmitted to children via controlling parenting. The link we found from controlling parenting to control beliefs held more strongly and consistently for the presence of maladaptive control beliefs among children than for the absence of adaptive ones, likely because we were specifically examining controlling parenting. We anticipate that if we had measured autonomy-supportive parenting, it might have been associated with children's greater adaptive control beliefs. The absence of controlling parenting might be enough to minimize maladaptive control beliefs, but not enough to foster adaptive ones; for that, we suspect autonomy-supportive parenting would be necessary.

Controlling parenting also mediated the link between parental perceived threat and children's grades in school: the greater the perceived threat, the more controlling the parenting, and the lower the children's grades. Other studies have linked situational controlling parenting to children's performance on school-like tasks in the same situation (Grolnick et al., 2002) or have demonstrated that children do not learn as well in situations when they are subject to controlling conditions (Grolnick & Ryan, 1987). Our findings are consistent with these and extend them beyond a specific situation to more general patterns of association among perceived threat, controlling parenting, and children's achievement in school. The relationship between controlling parenting and children's performance has been understood, in experimental settings, to be the result of parents' taking over and solving problems for children, decreasing the opportunity for children to learn and solve problems for themselves. We propose that our finding might be explained the same way, but more generally: as parents tend toward controllingness across situations in understandable efforts to protect their children, they may inadvertently and routinely shield their children from opportunities to struggle and achieve mastery on their own.

Most of our findings supported controlling parenting as a mediator of relations between perceived threat and children's outcomes, but it is of course possible that parental perceptions of threat in the environment could be directly conveyed to children, as well. Our findings for the adaptive perceived control outcome suggested this possibility. Consistent with this possibility, a study in which parents were induced to perceive the world as threatening (Robichaud

et al., 2020) found that some effects on children's motivation were absent when tested as a function of researcher-coded parenting, but were present when tested as a function of children's ratings. The researchers suggested that children may pick up on subtle cues from their parents, such as shifts in tone of voice, that would go unrecognized by researchers. We suggest that children may detect cues from their parents that go beyond the parents' actual parenting styles. They might detect affective cues, for example, such as the worry associated with perceived threat. Beginning in infancy, children are able to detect affective cues from their parents through social referencing (Kim et al., 2010), and experimental evidence from laboratory tasks suggests that the quality of children's interactions with their parents is negatively affected by their parents' negative affect even when parents try to suppress their emotions (Karnilowicz et al., 2019; Waters et al., 2020).

The choice of control beliefs as our main outcome was theoretically driven, and the direct effect could also be due to children literally seeing the world as out of control. Thus, while controlling parenting is clearly one important pathway through which parental perceptions of threat and children's outcomes are linked, there may also be other ways that parental perceptions of threat are conveyed to children.

In addition to predicting control beliefs and grades concurrently, perceived threat also predicted – via controlling parenting or directly – change in children's control beliefs and grades over time. These over-time findings increase our confidence in our proposed model.

Parents differ in their perceptions of threat in the world, likely due to a combination of individual differences in perception and the realities of families' circumstances and lived experiences. It is important to acknowledge that the world simply *is* a more threatening, unpredictable place for some families than for others, and in the U.S. where we conducted our study, our data show that these differences can fall along socioeconomic and ethnic lines. For example, higher income was associated with less perceived threat, presumably because families of greater means have greater access to plentiful resources, stable living circumstances, and secure environments, while families of lesser means have lesser access. The impulse to protect one's children in the face of threatening circumstances is not only understandable, but likely evolutionarily adaptive. Exercising that impulse through controlling parenting, however, could backfire.

Although our findings are helpful in identifying relations among parental perceptions of threat, controlling parenting, and children's outcomes, and linking these to practical and theoretical implications, it is important to note several limitations. First, the study is based on correlational data, so while we have theoretical reasons to believe the relations might be causal, we can demonstrate only associations with

the current study. It is possible, for instance, that children's low grades make their parents more controlling and start to view the world as a threatening place that their children cannot manage. The fact that we did predict change over time, however, suggests cohesion between the causal links we hypothesize from perceived threat to controlling parenting to children's outcomes and the associations we observed. A second limitation is that our measures were all self-report with the exception of grades reported by schools. Mitigating this limitation, however, we did have multiple reporters (e.g., parents' reports of perceived threat, children's reports of parents' controllingness). For certain measures, self-report made the most sense. For example, perceived threat must be self-reported, and we were specifically interested in children's experience of, and global perspective on, their parents' parenting. Future studies could perhaps capitalize on a longitudinal design like ours, but pair it with an experimental induction like that of Robichaud et al. (2020), with the same sample. That would allow for a test of causality alongside a replication of our change-over-time effects. A third limitation is that our relatively small sample size prevented us from including all outcomes in a single model, which would have been advantageous. Finally, our study focused on parental controllingness and not its opposite, parental support for autonomy. A valuable future extension of this work could examine associations among perceived threat, children's control beliefs, and the presence of parental autonomy support as distinct from the absence of parental controllingness.

Practical Implications

One practical implication of our findings concerns the need to assure that parents have the resources that could make their world less threatening. This is particularly so given that parents' perceptions of threat are grounded in the objective realities of their circumstances. The best way to decrease parents' perceptions of threat is to decrease threat itself. Social and structural inequities such as poverty, racism, discrimination, and toxic physical environments to which families are exposed, do indeed make the context more threatening, as do public policies that contribute to such inequities (Biglan et al., 2023). On this score, it would be helpful to connect families with community-based and other resources focused on creating more stable and less threatening circumstances, particularly if such efforts are informed by a rigorous research agenda aimed at addressing risk factors and prevention programs (Biglan et al., 2023). A second implication of our findings is the need to help parents channel their worries into positive parenting practices. Parents are bound to worry about their children regardless of circumstances, but our findings point to the likely benefits of channeling that worry toward parenting practices that build

children's competence and facilitate their view of themselves as able to affect their own outcomes. In this regard, interventions in or outside schools may teach parents autonomy supportive practices such as perspective taking and joint problem solving. Notably, parenting interventions typically focus on teaching child management skills without focus on the crucial dimension of autonomy support. Recent interventions focusing on autonomy support (Grolnick et al., 2021; Mageau et al., 2022) could serve as models for this.

Compliance with ethical standards

Conflict of interest The authors declare no conflicts of interest.

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