

**Does the Apple Fall Far from the Tree? A Meta-Analysis Linking Parental Factors to  
Children's Intrinsic and Extrinsic Goals.**

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The study design for this systematic review and meta-analysis was preregistered at  
Open Science Framework. The R code, data, and supplementary materials have been made  
publicly available on Open Science Framework <https://osf.io/azbm5/>

### **Abstract**

*Self-determination theory* (SDT; Ryan & Deci, 2017) has highlighted the differential roles that intrinsic life goals (personal growth, close relationships, community connections, and physical health) and extrinsic life goals (i.e., for wealth, image, and status) play in supporting well-being. Less is known about how orientations towards these two types of aspirations develop. It is likely that early environmental influences, namely one's parents, impact individuals' aspirations. We address this gap by systematically reviewing the links between relevant parents' characteristics and the intrinsic and extrinsic goals of their children. We identified 49 eligible reports. Children's intrinsic aspirations were higher when parents provided a need-supportive environment (characterized by support for autonomy, relatedness, and competence) and when they endorsed intrinsic aspirations themselves, whereas children's extrinsic aspirations were higher when parents exhibited extrinsic aspirations themselves, promoted the pursuit of extrinsic aspirations, and provided environments characterized by need frustration. Therefore, fostering basic psychological need satisfaction may support children's intrinsic aspiring. In addition, parents should also be mindful of their own extrinsic goals, as they may influence extrinsic aspiring in their children and possibly compromise their well-being over the long-term.

*Keywords:* intrinsic aspirations, life goals, materialism, parenting, well-being.

**Public Significance Statement:** Goal contents theory (Ryan & Deci, 2017) posits that the pursuit of intrinsic goals such as personal growth, relationships, community, and health fosters a life of greater well-being, whereas prioritizing extrinsic goals of wealth, image, and fame reduces well-being. This systematic review and meta-analysis assessed evidence on which parent factors are related to the intrinsic and extrinsic goals of their children. The results indicated that intrinsic goals were associated with need-supportive parenting and parents valuing intrinsic goals themselves. Extrinsic goals were found to be associated with parents having extrinsic goals, parental promotion of extrinsic goals, and need-frustrating parenting. It has public significance because it informs parents how to promote children's well-being.

Parents play a vital role in cultivating and supporting the well-being of their children. Some of the ways in which parents influence well-being can be explained by *self-determination theory* (SDT) which offers insight into pathways in life that may be conducive to well-being (Ryan & Deci, 2017). Specifically, the types of goals—or aspirations—people strive for appear to predict well-being. The aspirations understood to be the most conducive to well-being are those that directly satisfy individuals' *basic psychological needs* for autonomy, competence, and relatedness (Ryan & Deci, 2017). SDT's *goal contents theory* (Ryan & Deci, 2017) suggests that such *intrinsic aspirations* (i.e., for personal growth, close relationships, community connections, and physical health) best satisfy individuals' basic psychological needs and foster well-being, compared to an orientation towards *extrinsic aspirations* (i.e., for wealth, image, and status).

A pervasive but contrasting view of what constitutes a happy or meaningful life is the pursuit of the 'goods life' (Kasser, 2004). The 'goods life' encompasses the idea that happiness and well-being come from the attainment of material goods, wealth, and services. Such messages are pervasive in modern life and can be seen within systems of government, business, education, media, and in our personal lives (Kasser, 2004). The pursuit of the 'goods life' is closely tied to an orientation towards materialistic extrinsic aspirations, as it focuses on the attainment of goals centered around fame, image, and wealth. Although a focus on extrinsic aspirations and materialism might provide some happiness, orienting towards one's goals in this way is less likely to promote consistent and direct satisfaction of psychological needs and well-being and can even lead to ill-being (Ryan & Deci, 2017). To harness a continued sense of happiness from extrinsic aspirations, one must continue to raise to a higher level of acquisition. That is because extrinsic aspirations are embedded with comparative social and interpersonal appraisals, with a continual cycle of up-leveling to new social models and groups (Csikszentmihalyi, 1999; Soenens et al., 2015). This cycle is

perpetually unattainable, frustrates psychological needs and is detrimental to well-being (Soenens et al., 2015).

A recent meta-analysis found that intrinsic aspirations had a positive link to well-being, whereas extrinsic aspirations were negatively related to well-being (Bradshaw et al, 2022). Research by Dittmar et al., (2014) also showed that materialism—which is equated with extrinsic aspiring—is negatively related to personal well-being. The literature finds that the pursuit of extrinsic goals, including for material possessions, is related to unhappiness, less life satisfaction, physical ill-being, and poorer social relationships (Anic & Toncic, 2013; Dittmar et al., 2014; Kasser & Ryan, 2001; Nickerson et al., 2003; Unanue et al., 2014; Zemojtel-Piotrowska et al., 2015).

Intrinsic aspirations are considered “first-order values” because they are not reducible to or exist for the sake of other values and aspiring for and attaining intrinsic goals directly satisfy innate psychological needs (Ryan et al., 2008, p.148). For example, spending quality time with friends actualizes the intrinsic aspiration for close relationships and directly satisfies the need for relatedness. In contrast, extrinsic aspirations are associated with “second and third order values” because they typically derive their value from serving more fundamental, underlying needs (Ryan et al., 2008, p.149). For example, someone may aspire for fame and may experience some degree of need satisfaction, but only when they receive a sense of relatedness from others. It is not the fame aspiration per se that is inherently satisfying, but the end-result of connection with others. The focus on fame does not guarantee relatedness satisfaction, because fame does not require meaningful and reciprocal connections.

Supporting children to pursue intrinsic aspirations, while preventing extrinsic aspirations from taking precedence, is therefore beneficial to well-being. Although people’s exact goals change over time, fostering the ability to prioritize intrinsic goals would place

children in a better position to experience ongoing basic psychological need satisfaction, and to possibly lead a life of greater well-being.

### **Families as Developmental Context**

Families are thought to play a substantial part in shaping and molding the values and aspirations of their children (Hart & Carlo, 2005; Schwartz & Bardi, 2001). Parents may influence their children's aspirations through their own aspirations, through some qualities of the parent-child relationship, and through parents' social and economic circumstances. SDT—and other developmental perspectives—suggest that children are likely to adopt similar aspirations to their parents (Grusec, 1994; Kytle & Bandura, 1978). SDT also posits that specific qualities of the parent-child environment are particularly pertinent to the development of children's aspirations (Ryan & Deci, 2017). Parenting practices that support children's basic psychological need satisfaction bolster their healthy development and their capacity to lean toward intrinsic goals that foster ongoing need satisfaction. Parenting practices that frustrate basic psychological need satisfaction may see children turn to extrinsic aspirations for wealth, image, and fame, as need substitutes.

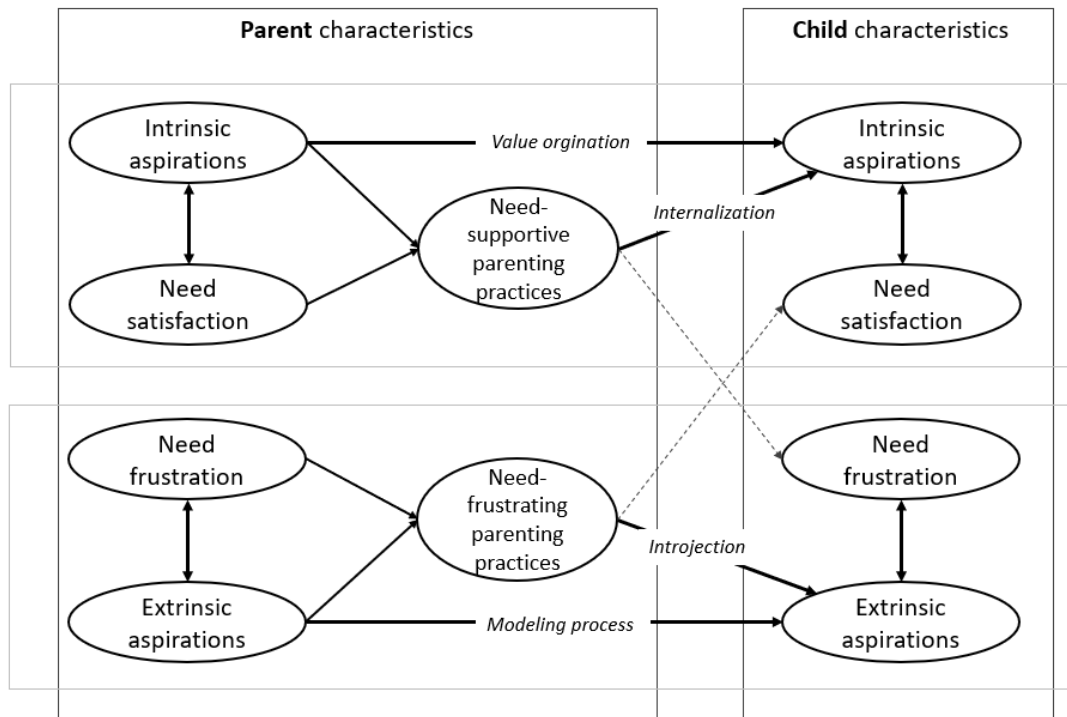
Parents' social and economic circumstances may also influence the parent-child system and the environments to which a child is exposed (Hill, 1949; Wu & Xu, 2020). When parents are under greater stress, they may adopt psychologically controlling parenting practices, such as harsh discipline and coercion (Conger et al., 1995; Dodge et al., 1994; Grolnick et al., 1996). We define psychological control in the context of parenting practices as the exploitation and manipulation of the parent-child relationship through practices like guilt induction, excessive control, and withdrawal of love (Barber, 1996). SDT posits that parenting practices characterized by psychological control (versus behavioral control) tend to frustrate children's psychological needs (Bradshaw et al., 2024). Behavioral control encompasses a range of parenting behaviors such as age-appropriate limit setting and having

firm but fair expectations. Behavioral control is not consistently linked to negative outcomes, depending on how it is conveyed (Affrunti & Woodruff-Borden, 2015; Annear & Yates, 2010; Ato et al., 2015; Barber et al., 2012; Copeland-Linder et al., 2010; Zhu et al., 2014). Thus, making it difficult to categorize as a need-frustrating parenting practice. When parents are under greater stress, they may adopt more psychologically controlling parenting practices. Hence, parent stressors could contribute to children adopting extrinsic aspirations as a result of that increased psychological control. Financial hardship is also thought to place an inherent focus on the need for more money and possessions, which could see children adopting extrinsic goals (Kasser et al., 1995). Although parent characteristics ranging from parents' own aspirations, parenting practices, and broader social and economic circumstances are plausible influences on their children's aspirations, the question remains as to the degree of influence these factors have in the development of children's intrinsic and extrinsic aspirations.

Researchers have found some evidence for parents' own aspirations being a key driver in the development of children's aspirations, whereas other research identifies parenting practices as a key driver. The mixed findings raise the question of whether the predominant influences in the development of intrinsic and extrinsic aspirations are different. Ahn and Reeve (2020) reported a strong longitudinal positive effect of parents' extrinsic aspirations on children's extrinsic aspirations, suggesting that parents' extrinsic aspirations play a fundamental role in the development of children's extrinsic aspirations. Ahn and Reeve (2020) propose a different developmental pathway for intrinsic aspirations that develops in accordance with psychological need satisfaction. Nishimura et al. (2021) found positive links between fathers' aspirations and those of their children, which were not moderated by autonomy support. Fathers' intrinsic aspirations and child-perceived autonomy support were found to be independent predictors of children's intrinsic aspirations.

In this systematic review and meta-analysis, using SDT as our primary theoretical framework, we examine the links between theoretically relevant parent characteristics, and the types of aspirations their children report. Research on parental attributes and children's intrinsic and extrinsic aspirations has grown substantially over the last three decades but a meta-analysis has yet to be conducted. This meta-analysis will assist in clarifying the pooled effect size of parents' aspirations and parenting practices on children's aspirations for both intrinsic and extrinsic aspirations. It is not yet possible to draw causal conclusions due to the scarcity of longitudinal studies. The results will provide a meta-analytic view of some means by which parents may support the healthy striving and wellness of their children. Figure 1 depicts an SDT-based theoretical framework encompassing the breadth of possible parent influence on the development of children's life aspirations.



**Figure 1***Proposed SDT-based Theoretical Framework*

*Note.* Within the figure we incorporate theoretical concepts, but we do not formally test for mediators such as internalization and introjection. Solid line represents proposed positive associations. Broken line signifies proposed negative associations.

## Parents May Influence Child Aspirations in Multiple Ways

### *Assimilation of Parents' Own Aspirations*

SDT argues that children are prone to internalizing ambient social values and regulations (Ryan & Deci, 2017), leading to the expectation that, because they are key figures in their proximal environment, children will adopt aspirations similar to those of their parents. People tend to take on similar goals to those with whom they are meaningfully connected. SDT also recognizes that people act and behave in ways that are aligned with their values and goals (Ryan & Deci, 2017). Thus, children are likely to adopt similar goals to their parents because they are exposed to pervasive modeling of the goals their parents deem important within their proximal environment. These SDT-based claims are also congruent with evidence from *social learning theory*, which holds that people often adopt beliefs and ways of behaving similar to those with whom they spend time (Grusec, 1994; Kytle &

Bandura, 1978). Thus, a plausible pathway by which parents may impact the aspirations of their children is through modeling their own aspirations. The process of direct transmission is thought to be particularly salient for extrinsic aspirations, whereas intrinsic aspirations are thought to be transmitted from a process called *value origination*, in which intrinsic aspirations emerge from within the self, under need-supportive conditions (Ahn & Reeve, 2020; Grolnick et al., 1997).

Based on the theoretical claims mentioned above, we would expect that parents who highly value and aspire toward extrinsic goals would have children who also orient towards goals for wealth, image, and fame. Indeed, SDT research has demonstrated that parents who particularly value extrinsic aspirations are likely to have children who adopt and enact similar aspirations (Henderson-King & Brooks, 2009; Kasser et al. 1995; Moulton et al., 2015). Henderson-King and Brooks (2009) found that fathers who valued appearance had daughters who were more accepting of cosmetic surgery for social reasons and had a greater desire for cosmetic procedures. In addition, Moulton et al. (2015) found that parents who identified popularity as the most important child quality were more likely to have children with extrinsic career aspirations. Similarly, we would expect that parents who prioritize intrinsic aspirations would have children who also prioritize goals involving personal growth, close relationships, health, and community. Kasser et al. (1995) demonstrated that mothers with higher intrinsic values of self-acceptance and affiliation had children who were also higher in self-acceptance and affiliation.

### ***Need Satisfaction and Frustration in the Development of Children's Aspirations***

SDT further proposes that parents influence the aspiration orientations of their children as a result of specific factors in the familial environment. Parents differ in the degree to which their parenting supports or frustrates the basic psychological needs of their children (Grolnick et al., 1997). When a parent provides basic psychological need support, their

children are more likely to develop a sense of unconditional worthiness, experience inherent joy, seek optimal challenges, and set goals that directly satisfy their psychological needs in the future (Şimşek & Demir, 2013). Early and ongoing psychological need satisfaction is therefore crucial in laying foundations that support children to engage in pursuits that provide direct satisfaction of their needs (intrinsic aspirations), whereas other environmental conditions may foster a trajectory of seeking indirect need satisfaction (extrinsic aspirations).

**Need-Supportive Environments and Intrinsic Aspirations.** SDT suggests that there are specific environmental nutrients that parents provide to support their children's basic psychological needs for autonomy, competence, and relatedness, and thereby facilitate a healthy parent-child system (Deci & Ryan, 1985; Ryan & Deci, 2017). Such nutrients include *autonomy support* (support and openness to their child's choices and volition), *involvement* (interest and engagement in their child's life, and the provision of warmth, emotional support, acceptance, and validation), and *structure* (clear expectations and optimal scaffolding for mastery and effectiveness; Grolnick et al., 2002; Grolnick et al., 1997; Robichaud et al., 2020). Broadly, experiences of need support tend to spur goal-directed behaviors, whereas amotivation stems from experiences of need frustration (Boggiano, 1998; Deci & Ryan, 2000). Thus, we would expect experiences of need support to be associated with *general* striving in children or their overall strength of aspiring. However, the nuance offered by SDT further contends that need satisfaction especially supports children's healthy, *intrinsic* aspiring.

There are several reasons why need-supportive environments are particularly conducive to the development of intrinsic aspirations. An optimal need-supportive environment offers conditions in which children are encouraged to explore and interact with their surroundings with their own propensity of curiosity, receive warmth and a sense of love without conditions, and experience opportunities that facilitate growth (Ryan & Deci, 2017).

Such environments foster experiences of personal growth and meaningful interpersonal and community relationships, which promote intrinsic aspirations because they are consistent with those experiences. In other words, optimal need satisfaction builds the capacity to have insight into what is inherently meaningful and to act in ways that support need satisfaction, both of which comprise the underpinnings of intrinsic aspiring.

Empirical research has demonstrated that parental need support is linked with children having greater intrinsic aspirations, across cultures. Lekes et al. (2010) found that autonomy-support was related to greater intrinsic aspirations in adolescents across cultures of North America and China. Chew and Wang (2008) found that student-athletes in Singapore had higher intrinsic aspirations when they perceived their parents being autonomy-supportive. Williams et al. (2000) demonstrated that the level of autonomy support available from a parent can impact the proportion of relative extrinsic aspirations in adolescents. Adolescents who perceived their parents as providing low levels of autonomy support had significantly higher relative extrinsic aspirations compared to those who perceived their parents as providing high levels of autonomy support. Taken together, there is good reason to expect that exposure to need-supportive parenting will be associated with children's general aspiring, but that the association will be stronger for intrinsic aspirations compared to extrinsic aspirations.

**Need-Frustrating Environments and Extrinsic Aspirations.** SDT specifies that parental need frustration can hinder children's optimal functioning (Deci & Ryan, 1985; Ryan & Deci, 2017). Such behaviors include autonomy thwarting (e.g., imposing directives of what their child should think, act, or feel), rigid or chaotic structure (e.g., inflexible standards, or passive communication), and psychological control (e.g., erratic outbursts, personal attacks, and conditional regard). Need-frustrating environments undermine the basic psychological needs for autonomy, relatedness, and competence.

Need-frustrating parenting is thought to contribute to the development of extrinsic aspirations for several reasons. Need-frustrating parenting practices foster motives of *introjection* that see people adopt actions for reasons such as avoiding shame or seeking approval. Introjection is a controlled form of behavioral regulation that is based on motives aimed at enhancing self-esteem, which is often achieved through the attainment of external indicators (Ryan & Brown, 2003). Thus, introjected motivations are thought to be closely tied to extrinsic aspirations, which center around external contingencies. In addition, when children are frequently motivated by what others think of them, they are more likely to engage with a range of aspirations that appease others. As Ryan and Deci (2017) describe, need-frustrating parenting may foster pathways by which children come to rely on extrinsic aspirations for a sense of relatedness and acceptance. That is because children may be more likely to take on identities that conform to psychologically controlling environments, rather than identities in line with their authentic selves that satisfy their basic psychological needs. Need-frustrating environments arguably lead to extrinsic aspirations because they can deprive a sense of inherent self-worth, which may lead to an over-reliance on external indicators of value or need satisfaction. For example, psychologically controlling practices or a lack of interest in a child may contribute to feelings of being rejected, unloved, or disconnected. *Need substitution* is thought to be a compensatory technique for experiences of need frustration (Deci & Ryan, 2000; Ryan et al., 1996). That is, some may have a sense that obtaining extrinsic goals will assist in correcting for their frustrated needs. Chronic need frustration also generates a sense of insecurity, so pursuing extrinsic goals can act as a mechanism by which an individual seeks external indicators of worth (Deci & Ryan, 2000; Ryan et al., 1996; Vansteenkiste & Ryan, 2013). Research indicates that children and adolescents tend to exhibit higher levels of extrinsic aspirations when they have experienced parenting practices that are cold (Kasser et al., 1995), rejecting (Fu et al., 2015; Poraj-Weder,

2014), and psychologically controlling (Geng et al., 2022; Tessier et al., 2022). Thus, children who experience more need-frustrating parenting may be more likely to have higher levels of extrinsic, rather than intrinsic aspirations.

Taken together, the relevance of parental need support and psychological needs is twofold, in that early and ongoing experiences of psychological need satisfaction have the potential to support flourishing for children but also influence the trajectories of children's own future need satisfaction strategies. Accordingly, intrinsic aspirations are believed to be more likely to develop when children experience psychological need satisfaction (Ryan & Deci, 2017). Conversely, when a child's psychological needs are frustrated, they are more likely to develop a sense of self that is contingent on external reinforcement, adopt goals that please others, and set goals that may only indirectly satisfy their psychological needs (Şimşek & Demir, 2013). As such, extrinsic aspirations are believed to be more likely to develop in children when their parents provide environments that frustrate needs.

### ***Parents' Own Basic Psychological Need Satisfaction***

There are two possible mechanisms by which parents' high levels of need satisfaction foster intrinsic aspirations in their children. First, children with parents who are higher in need satisfaction are more likely to observe the presence and value of intrinsic aspirations modeled by their parents (Assor, 2018; Yu et al., 2015). Need satisfaction has been consistently linked to a range of outcomes akin to well-being and flourishing (Chen et al., 2015; Kasser & Ryan, 2001; Kasser & Ryan, 1999; Ryan et al., 2010; Sheldon et al., 2004). We would therefore expect that parents who are higher on need satisfaction would also have higher levels of optimal functioning such as vitality, life satisfaction, subjective well-being, a sense of meaning in life, and, therefore, intrinsic aspiring. Second, children of parents higher in need satisfaction may be more likely to be surrounded by environments of need-supportive qualities such as autonomy support, structure, and warmth. Need satisfaction has also been

suggested to be conducive to more positive experiences within relationships (La Guardia & Patrick, 2008; Patrick et al., 2007). Patrick et al. (2007) found that greater fulfillment of psychological needs was related to greater individual and relationship well-being.

### ***Parent Goal Promotion***

SDT posits that parental goal promotion, including perceived parental pressure to pursue extrinsic goals, could contribute to children adopting a more controlling regulatory style, which can increase their likelihood of prioritizing extrinsic aspirations (Deci & Ryan, 1985; Duriez, 2011, Ryan & Deci, 2017). Mouratidis (2013) found that perceived parental promotion of extrinsic aspirations was associated with children's greater endorsement of extrinsic aspirations. Parental promotion of extrinsic goals and the pressure to achieve them may see a child feeling that they need to pursue certain activities or goals in order to please their parents or gain their approval, rather than because they are genuinely interested or invested in those pursuits. Perceived pressure to pursue extrinsic goals may contribute to children's extrinsic aspirations by making extrinsic aspirations more visible through their modeling and by increasing parents' need-frustrating practices in interacting with their child.

### ***Social and Economic Influences on Parents***

The interactions and experiences that occur between a parent and child are influenced by the broader spheres of social and economic influence (Bronfenbrenner, 1979; Ryan & Deci, 2017). Parents can face both external and internal pressures, which can reduce their own emotional, social, and physical resources and thus their capacity to be autonomy-supportive (Ryan & Deci, 2017). SDT evidence shows that when parents are under greater stress, such as financial strain and stressful life events, they are more likely to adopt controlling parenting practices (Conger et al., 1995; Dodge et al., 1994; Grolnick et al., 1996). Claims about the link between stress and parenting practices are also demonstrated within *family stress theory* (Hill, 1949; Wu & Xu, 2020), which suggests that stress can

contribute to parents becoming more controlling in their parenting practices (Hill, 1949; Wu & Xu, 2020). Although stress in general influences parenting practices, specific economic stressors, such as financial strain, offer additional layers of influence that may see children adopt extrinsic aspirations. Some claim that, compared to two-parent families, single-parent families may experience more socioeconomic disadvantage and be more socially isolated (Jackson et al., 2000). Children may experience lower emotional and parental support if a parent is required to work longer hours (Jackson et al., 2000). Less access to resources and parent unavailability may also compromise psychological need satisfaction and conduce to extrinsic aspiring.

SDT research suggests that socioeconomic disadvantage may also see both parents and their children overemphasize the need for financial success, relative to intrinsic aspirations (Dávila et al., 2017; Kasser et al., 1995). The overemphasis on financial success was suggested to occur out of motivation to improve one's socioeconomic circumstances, lack of opportunity to actualize intrinsic aspirations, or parents' valuing of conformity (Kasser et al., 1995). Thus, there are two pathways via which socioeconomic status may be related to extrinsic aspirations: both indirectly via parenting practices and directly by favoring extrinsic aspirations as a means of trying to ameliorate financial hardship. Taken together, there is evidence to suggest that lower family socioeconomic status may be related to greater child extrinsic aspiring.

### ***Examining Moderators of the Links Between Parent Factors and Children's Intrinsic and Extrinsic Aspirations.***

We examined other potential moderators including age, proportion of females, region, parent type, and informant of parent characteristics in an exploratory fashion, because these constructs have shown relevance in the fields of child and adolescent development and goal contents theory. For instance, the impact of autonomy support and psychological control on



children's development may vary depending on age (Soenens & Vansteekiste, 2010; Ryan & Deci, 2000). Soenens & Vansteekiste (2010) suggest that the specific manifestations of psychological control could differ depending on the developmental stage. For adolescence, identity development could be the psychosocial stage most influenced by psychological control. The literature on goal content has consistently found that females have higher intrinsic aspirations than males, and the inverse for extrinsic aspirations (Bradshaw et al., 2022). Exploring proportion of females as a moderator would assist in establishing whether any differences exist in relation to parent characteristics and children's aspirations, such as females having stronger associations than males in the links between parent characteristics and intrinsic goals. There may also exist potential cultural differences in the relationship between parenting practices and children's intrinsic and extrinsic goals. One study found that autonomy support was negatively related to extrinsic life goals in North America but not in China (Lekes et al., 2010). Including region (countries clustered roughly by continent) as a moderator could clarify such evidence. Further, studies have generally found that parent reports and child reports of parent aspirations and parent characteristics show consistent links with child aspirations. However, Sutton (2013) found that child-reported 'supportive parenting' had a statistically significant negative link to child's materialism, whereas parent-reported 'supportive parenting' was not statistically significantly linked. We also explored whether the parent type influenced the relations between parent characteristics and children's aspirations given that the field of research has expanded from a predominant focus on mothers, to also considering the influence of both parents or fathers (Nishimura et al., 2021, Tessier et al., 2022; Zawadzka et al., 2022). Including informant (i.e., child or parent) as a moderator could meta-analytically inform this emerging evidence.

## The Current Study

To synthesize the links between intrinsic and extrinsic aspirations and a variety of possible parent factors, we formulated a series of hypotheses based on SDT. As mentioned, it is thought that parent factors that impact a child's aspirations could stem from a broader ecological perspective of the influence of parents' socioeconomic status (i.e., education, income, tangible resources), parenting practices, and parent-specific characteristics (i.e., their own aspirations, and basic psychological needs). Seven key hypotheses were formulated to cover this breadth, including two exploratory hypotheses pertaining to parent characteristics associated with greater stress and parents' own need satisfaction<sup>1</sup>.

## Research Questions and Hypotheses

**Hypothesis 1a.** Consistent with the literature reviewed above, we expect there will be a positive correlation between parents' extrinsic aspirations and the extrinsic aspirations of their children. We also hypothesize that parents' extrinsic aspirations will be unrelated to their children's intrinsic aspirations.

**Hypothesis 1b.** We hypothesize that we will find a positive correlation between parents' intrinsic aspirations and the intrinsic aspirations of their children. We expect that parents' intrinsic aspirations will be unrelated to their children's extrinsic aspirations.

**Hypothesis 2a.** Need-supportive parenting practices characterized by autonomy support, involvement, and structure will be positively correlated with child intrinsic aspirations. We expect that need-supportive parenting will either not be statistically significantly related to child extrinsic aspirations or have a small positive correlation.

**Hypothesis 2b.** Need-frustrating parenting practices characterized by psychological control, rejection, or permissiveness will foster child extrinsic aspirations. Conversely, need-

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<sup>1</sup> Hypothesis 3 and hypothesis 5 are exploratory were not preregistered.

frustrating parenting should be either not statistically significantly related to child intrinsic aspirations, or have a small negative correlation.

**Hypothesis 3.** Parent's own need satisfaction will be positively associated with children's intrinsic aspirations.

**Hypothesis 4.** Also based on the preceding evidence, we hypothesize that parental goal promotion, including perceived parental pressure to pursue extrinsic goals will be positively associated with children's extrinsic aspirations.

**Hypothesis 5.** Based on the preceding evidence, we expect that parent characteristics representative of greater stress, such as low parent socioeconomic status, will be positively associated with children's extrinsic aspirations.

We did not make explicit hypotheses pertaining to the other potential moderators, because we examined them in an exploratory way with the aim of gaining clarity on the existing evidence base.

## **Method**

### **Transparency and Openness**

The method was developed in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement (Page et al., 2021). This review was preregistered at Open Science Framework, where all R code, data and supplementary materials can be found <https://osf.io/azbm5/>. Two exploratory hypothesis statements were added after preregistration to effectively encompass the breadth of relevant parenting characteristics including sources of parental stress and parents' own need satisfaction. The preregistered hypothesis statement regarding contingent self-esteem was also modified to represent a broader construct of parental goal promotion. There was also a deviation in the original search terms that were preregistered. Specifically, the search term goal\* was replaced

by the search terms life goal\*, extrinsic goal\*, intrinsic goal\*, extrinsic value\*, and intrinsic value\*.

### **Eligibility Criteria**

For studies to be included in the review, they needed to include at least one parenting variable and one variable measuring children's intrinsic or extrinsic aspirations. Aspiration measures were included if studies used a measure explicitly or historically aligned with SDT's intrinsic and extrinsic aspiration constructs, such as the Aspiration Index (Kasser & Ryan, 1996; Kasser & Ryan, 1993, 2001), the Aspirations Index (Grouzet et al., 2005), a language-adapted version of either Aspiration Index measure (i.e., Nishimura et al., 2021), or a measure of materialism. There are a range of measures designed to capture various aspects of values, goals, and aspirations. Studies that did not include both a parenting factor and one of these measures of children's intrinsic and/or extrinsic aspirations were excluded. No populations were excluded so as to maximize the range of demographic variables represented, including socioeconomic status, ethnicity, and the age of both parents and children. Both published and unpublished studies were included.

In order to capture the range of parent factors that have been explored in the context of children's aspirations, the inclusion criteria were kept broad regarding parent factors (see the search terms included below). Parent factors ranged from parents' own aspirations to parents' socioeconomic status or education level. Parent factors could be self-reported or other-reported, such as their child's perception of their parenting practices.

### **Search Strategy**

An academic librarian was consulted in the development of the search strategy. Bidirectional citation searching was also utilized to enhance inclusion of relevant studies (Hinde & Spackman, 2015). The systematic search was then conducted using the databases ERIC, APA PsychInfo, PsychArticles, Psychology and Behavioral Sciences Collection, and

Open Dissertations. The searches included keywords for (a) parent factors (parent\* OR mother\* OR father\* OR paternal OR maternal) and (b) child aspirations (aspiration\* OR life goal\* OR extrinsic goal\* or intrinsic goal\* OR extrinsic value\* OR intrinsic value\* materialism OR materialistic). The publication date was also restricted from 1993 until the present, as the Aspiration Index did not exist prior to this date. This initial search strategy yielded 6,765 records. In addition, we contacted the international community of SDT researchers via the electronic mailing list (LISTSERVS) in order to access any work that might have been missed in the search. We also included grey literature, such as doctoral theses and data provided to us by authors from unpublished work and poster presentations. In December 2022, we repeated the search, as well as contacted main authors from included articles, to ensure our review included the most recent research. We also conducted backward and forward citation searching on all of the included reports collected from both searches (Greenhalgh & Peacock, 2005; Robinson et al., 2014). We repeated the search once more in September 2023.

### **Study Selection**

Relevant studies were stored in an Endnote library and duplicate records were removed. A total of 9460 records were yielded across all searches. For the initial search, a total of 6,989 records went through to title and abstract screening. The program AS Review (van de Schoot et al., 2021) was used to conduct the title and abstract screening. AS Review is an open-source machine-learning-assisted pipeline with active learning for systematic reviews (Van de Schoot et al., 2021). The benefits of utilizing AS Review include the ability to title and abstract screen thousands of records with greater speed and efficiency. The process involves providing AS Review with examples of relevant and irrelevant records. Machine learning algorithms then acquire the pattern of record relevance and prioritize studies that fit the pattern by bringing forward the most relevant records to be screened by the

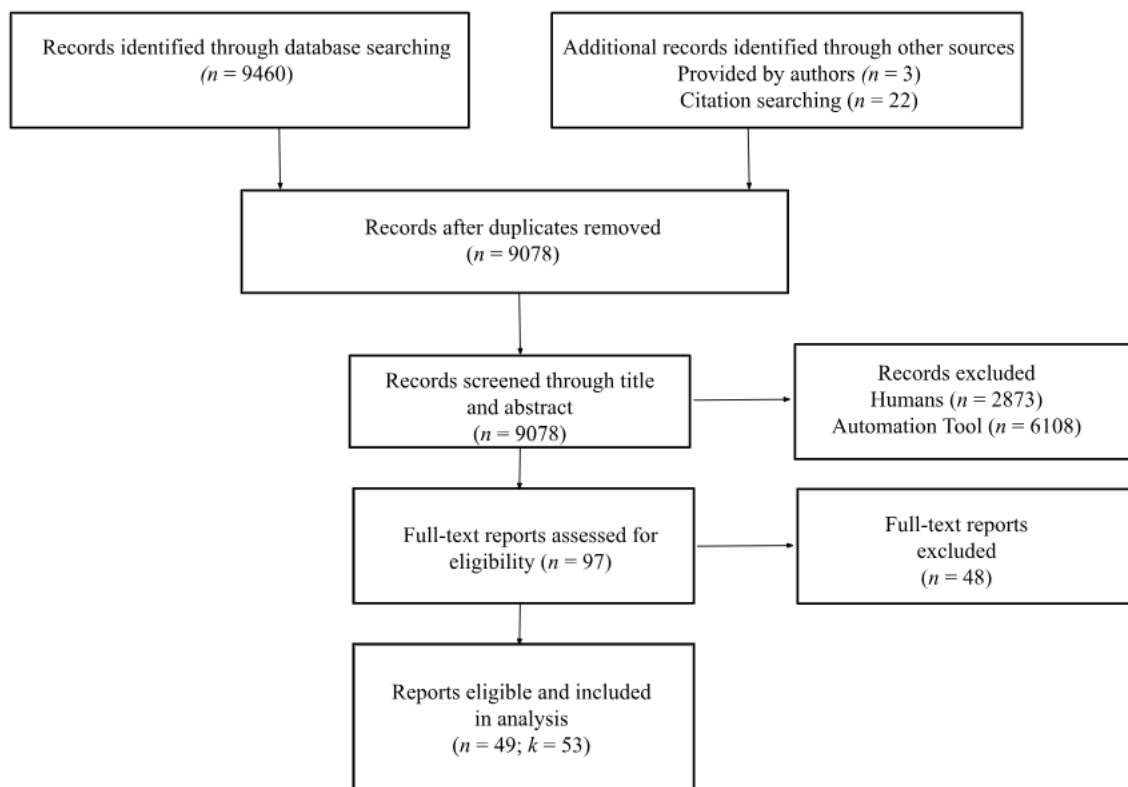
researcher. Researchers then continue to make inclusion/exclusion decisions for presented records. Van de Schoot et al (2021) indicated that 95% of the eligible records will be found after screening between 8% to 33% of the records using AS Review. Van de Schoot and colleagues (2021) found that after screening 10% of studies with AS Review, 70%-100% of relevant abstracts were discovered. Such findings demonstrate the capacity of AS Review to bring the most relevant records forward with efficacy and accuracy.

We had two screeners involved in the title and abstract phase who initially provided AS Review with nine articles deemed to be highly relevant. Based on these articles, AS Review then presented articles it deemed to be most relevant. The first screener responded by selecting whether the presented article was either relevant or non-relevant. As expected, relevant articles were detected early in the screening process (Van de Schoot et al., 2021). AS Review's capacity to prioritize and bring forth more relevant articles was evident. In the early stages of the review process, AS Review prioritized records involving key search terms and papers concerning SDT and materialism. The majority of relevant articles were detected during the beginning of the AS Review screening process, after which, irrelevant articles became more prominent. For example, irrelevant records shifted from including SDT articles with irrelevant constructs to records which were very clearly irrelevant toward the end of the procedure. The following excerpt from the abstract of an irrelevant records offers an example of a record that showed relevance to the field of SDT but had the wrong constructs i.e., intrinsic motivation and achievement goals rather than intrinsic goals: "This study evaluated how contextual factors contribute to adolescents' intrinsic motivation and academic achievement and whether their perceived competence and achievement goals explain these links." For the initial search, the first screener continued to screen through an additional 500 irrelevant records in a row. At this point, over 10% of all articles had been screened. The second screener conducted title and abstract screening with the same 10% of articles. For the

second updated search in December 2022, the first screener continued to screen until 100 irrelevant records appeared consecutively, marking over 10% of all records being screened. A total of 8,981 records were excluded based on the title and abstract screening and 97 reports were agreed to be included in the full-text round of review. Four independent screeners then went on to dual screen the full texts. Discrepancies were resolved through discussing the different reasoning until a consensus was reached. The majority of the reports omitted were excluded because the report did not include a measure of children's aspirations ( $n = 19$ ). Other reasons for excluding reports included not using a measure of intrinsic or extrinsic aspirations ( $n = 8$ ), no parent characteristics being measured ( $n = 12$ ), the report or the data was not available after contacting authors ( $n = 5$ ), wrong design (i.e. theoretical report or no quantitative component, ( $n = 3$ ), and duplicate data ( $n = 1$ ). The final number of reports that were included after full-text screening was 49, see Figure 2.

**Figure 2**

*Flow Diagram of Reports Screened and Included in Systematic Review and Meta-Analysis.*



## Data Extraction

Three researchers conducted data extraction. We extracted data according to our moderators: 'Child Age Group,' 'Region,' 'Proportion of Females,' 'Specific Aspiration,' 'Parenting Practice,' 'Parent,' and 'Rater.' To code the 'Child Age Group' moderator, we extracted the average age of the child in samples and then coded the samples according to whether they were from early adolescence (ages 11-14), middle adolescence (ages 15-17), late adolescence (ages 18-20), and adulthood (ages 21 and above). To code the 'Region' moderator, we first extracted the specific country in which the research was conducted. A total of 16 countries were included in the database. We then coded the countries according to continent: 'Europe' was comprised of Belgium, Poland, France, Greece, Spain, and the United Kingdom; 'Asia' was comprised of China, Japan, Singapore, South Korea, and Thailand; 'Africa' included only South Africa; 'South America' included only Brazil; 'North America' included the United States and Canada; 'Oceania' included only Australia; and 'Mixed' included studies that included countries from several continents. To code the 'Proportion of Females' moderator, we extracted the number of female children and coded the study as having either <33% females, Mixed (33-66%), or >66% female. We coded 'Specific Aspiration' by coding whether an effect size pertained to a particular domain such as 'wealth,' 'image,' 'fame,' 'affiliation,' 'personal growth,' 'community,' or 'physical health' or an 'overall' index. Studies vary in their inclusion of the 'physical health' domain of intrinsic aspirations because some show that it can load equivalently as an intrinsic and extrinsic aspiration (Schmuck et al., 2000). It aligns theoretically as an intrinsic aspiration in that the prioritization of health is inherently valuable and self-actualizing (Kasser & Ryan, 1996; Rogers, 1963). However, it is important to clarify that although physical health was considered within the 'overall' estimation of intrinsic aspirations in some studies, many of these studies did not provide results specific to physical health. This distinction is why it does



not appear as a separate category in the moderator analysis under ‘Specific Aspiration’. To code ‘Parenting Practice,’ we drew on SDT concepts of need-supportive practices to include those that offered ‘autonomy support,’ ‘involvement,’ or ‘structure,’ we also included ‘authoritative parenting’. To code need-frustrating parenting practices, we considered whether the practice fell into the categories of ‘psychological control,’ ‘rejection,’ ‘chaos,’ or ‘permissiveness’. We also coded ‘Parent’ and ‘Rater’ to indicate whether the parenting practices were pertaining to ‘mother,’ ‘father,’ or ‘both,’ and whether they were ‘parent self-report’ or ‘child-report’. Dual extraction was conducted for 80% of the papers for the collection of data on scales used for parent factors and aspirations, effect sizes, and variance. Corrections were needed in just 1% of the cases. We examined, discussed, and resolved any inconsistencies.

### **Data Analysis**

We extracted effect sizes pertaining to the relationship between a parent factor and child intrinsic or extrinsic aspirations. The majority of the effect sizes were in the form of Pearson’s  $r$ . Effect sizes in the form of standardized regression coefficients ( $\beta$ ), were also extracted and converted into a correlation coefficient. When the correlation coefficient was not available to us, we followed the protocol that a regression coefficient can be reliably converted to  $r$  if it ranges from  $-.50$  to  $.50$  (Bowman, 2012; Hunter & Schmidt, 2004; Peterson & Brown, 2005). Peterson & Brown’s (2005) review found regression coefficients ranging between  $-.50$  and  $.50$  were highly correlated with their respective correlation coefficients. We used the formula by Peterson and Brown (2005) to convert  $\beta$  to  $r$ . Of the total effects, only 10% were regression coefficients and they mainly featured in the pooled effect for two models (i.e., parent stress and extrinsic aspirations, and need-frustrating parenting practices and extrinsic aspirations). We then transformed all effect sizes from  $r$  into Fisher’s  $z$  and calculated variance ( $v$ ) and standard errors ( $SE$ ). Effect size magnitudes were

defined as the following: 0.05 (very small), 0.10 (small), 0.20 (medium), 0.30 (large) and > 0.40 (very large; Funder & Ozer, 2019). We conducted a moderation analysis of ‘Coefficient Type’ in the models exploring the link between parent stress and extrinsic aspirations and the link between need-frustrating parenting practices and extrinsic aspirations, in order to determine whether the models would yield different results for correlation coefficient and regression coefficient. There was no statistically significant difference of ‘Coefficient Type.’ There were insufficient studies that had regression coefficients to conduct a moderation analysis for any of the other hypotheses.

The analysis plan utilized both meta-analysis and qualitative synthesis. We used a data extraction sheet to record the study details, effect sizes, and pertinent qualitative data (aims, methods, and key findings) from the full text screening of articles that met the inclusion criteria. Effect sizes were pooled for the hypotheses in which multiple effect sizes existed and the effect being measured was theoretically aligned with the broader construct. The broader construct of need-supportive parenting practices, for example, included effects for autonomy support, structure, involvement and warmth. The broader construct of need-frustrating parenting included effects for psychological control, chaotic structure, passive structure, overindulgence, rejection, permissiveness, and authoritarian practices.

We used a multilevel structural equation modeling (SEM) approach (Cheung, 2014). The package used was metaSEM (Version 1.2.5; Cheung, 2015) in R (Version 4.0.3; R Core Team, 2020). A three-level random effects model was used to enable heterogeneity to be explored both within and between studies. Further moderation analyses were conducted when there was evidence of at least medium heterogeneity ( $I^2$  above 0.25). A substantial amount of between-study heterogeneity was detected in the majority of our models, making moderators that varied between studies of particular interest such as Region, Proportion of Females, Child Age Group, Specific Aspiration, Parent, and Rater. Several models also demonstrated

at least medium-sized within-study heterogeneity. For instance, some studies had included multiple effect sizes within one study, such as effect sizes for the subscales of intrinsic and extrinsic aspirations, multiple forms of need-supportive and need-frustrating parenting practices, different raters, and different parents. A qualitative synthesis was used for the hypotheses for which the number of effect sizes was too few to justify pooling. Publication bias was examined using a funnel plot and multilevel meta-analytic Egger's regression tests (Egger MLMA; Rodgers & Pustejovsky, 2021).

### **Results**

Included in the meta-analysis were 300 effect sizes derived from 53 studies described in 49 reports. These studies contained 300 effects. The characteristics of the eligible studies are listed in Supplementary Materials S1. The included studies were conducted in North America (35.6%), Asia (26.3%), Europe (20%), Oceania (0.04%), Africa (0.04%), South America (0.01%), and Mixed (0.09%). The mean child age averaged across the studies was 17.75 years (Median: 15.91; Mode: 14.4; Range of average child ages: 10-38). The mean proportion of females across studies was 55% (Median: 53%; Mode: 56%; Range: 37-100). A summary of sample descriptives by study and effect frequencies is provided in Table 1.

**Table 1***Descriptive Summary of Sample, by Study and Effect Frequencies*

| Category              | Studies | Effects |
|-----------------------|---------|---------|
| Proportion of Females |         |         |
| <33%                  | 0       | 0       |
| 33-66%                | 39      | 235     |
| >66%                  | 9       | 65      |
| Average Child Age     |         |         |
| 11-14                 | 5       | 54      |
| 15-17                 | 28      | 145     |
| 18-20                 | 3       | 19      |
| 21 and above          | 13      | 82      |
| Region                |         |         |
| Europe                | 15      | 60      |
| Oceania               | 1       | 12      |
| North America         | 20      | 107     |
| South America         | 2       | 4       |
| Asia                  | 11      | 79      |
| Africa                | 1       | 12      |
| Mixed                 | 1       | 26      |
| Year                  |         |         |
| 1990 – 1999           | 3       | 6       |
| 2000 – 2009           | 9       | 58      |
| 2010 – 2019           | 24      | 123     |
| 2020 – later          | 12      | 113     |
| Parent                |         |         |
| Mother                | 18      | 96      |
| Father                | 16      | 57      |
| Both                  | 28      | 124     |
| Not reported          | 8       | 23      |
| Rater                 |         |         |
| Parent Self-report    | 14      | 88      |
| Child Report          | 40      | 206     |
| Not reported          | 3       | 6       |

**Parents' Extrinsic Aspirations Predict Higher Children's Extrinsic Aspirations (H1a)**

We found 17 studies that measured parent extrinsic aspirations and child extrinsic aspirations. As shown in Table 2, there was a statistically significant, large, positive association between parent extrinsic and child extrinsic aspirations ( $r = 0.33$ ,  $p < 0.001$ , 95% CI [0.26, 0.41], level 2  $I^2 = 0\%$ , level 3  $I^2 = 85\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.03$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(40) = 321.21$ ,  $p < 0.001$ . Moderation by 'Child Age Group' indicated the link between parent extrinsic aspirations and child extrinsic aspirations varied from early adolescence (ages 11-14), middle adolescence (ages 15-17), late adolescence (ages 18-20), and adulthood (ages 21 and above). Specifically, for middle adolescence, the link between parent extrinsic aspirations and child extrinsic aspirations was very large and positive ( $r = .42$ , 95% CI [0.35, 0.49]). For late adolescence and adulthood, the link was medium-sized and positive ( $r = .27$ , 95% CI [0.12, 0.41];  $r = 0.27$ , 95% CI [0.09, 0.42]). For early adolescence, the link was small-sized and positive ( $r = .15$ , 95% CI [0.01, 0.29]). We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 2.73$ ,  $p = 0.10$ .

**Table 2***Parent Extrinsic and Child Extrinsic Aspirations Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]  | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test          |
|-----------------------|----------|----------|--------------------|-----------|------|----------|----------------|----------------|-------------|-------------|--------------------------------|
| Baseline              | 17       | 41       | 0.33 [0.26, 0.41]  | 0.35      | 0.04 | < 0.001  | 0.00           | 0.03           |             |             |                                |
| Region                | 17       | 41       |                    |           |      |          | 0.00           | 0.03           | 0.00        | 5.33        | $\chi^2(2) = 0.97, p = 0.62$   |
| Asia                  | 5        | 15       | 0.32 [0.18, 0.44]  | 0.33      | 0.08 | < 0.001  |                |                |             |             |                                |
| Europe                | 3        | 7        | 0.41 [0.24, 0.56]  | 0.44      | 0.10 | < 0.001  |                |                |             |             |                                |
| North America         | 9        | 19       | 0.32 [0.21, 0.41]  | 0.33      | 0.06 | < 0.001  |                |                |             |             |                                |
| Child Age Group       | 17       | 41       |                    |           |      |          | 0.00           | 0.01           | 100.00      | 48.58       | $\chi^2(3) = 10.10, p = 0.018$ |
| Early                 | 3        | 13       | 0.15 [0.01, 0.29]  | 0.16      | 0.07 | 0.035    |                |                |             |             |                                |
| Middle                | 9        | 19       | 0.42 [0.35, 0.49]  | 0.45      | 0.04 | < 0.001  |                |                |             |             |                                |
| Late                  | 3        | 5        | 0.27 [0.12, 0.41]  | 0.28      | 0.08 | < 0.001  |                |                |             |             |                                |
| Adult                 | 2        | 4        | 0.27 [0.09, 0.42]  | 0.27      | 0.09 | 0.003    |                |                |             |             |                                |
| Proportion of Females | 17       | 41       |                    |           |      |          | 0.00           | 0.03           | 3.60        | 7.69        | $\chi^2(1) = 1.25, p = 0.26$   |
| >66% female           | 1        | 2        | 0.16 [-0.17, 0.45] | 0.16      | 0.17 | 0.33     |                |                |             |             |                                |
| Mixed (33-66%)        | 16       | 39       | 0.34 [0.27, 0.41]  | 0.36      | 0.04 | < 0.001  |                |                |             |             |                                |
| Specific Aspiration   | 10       | 24       |                    |           |      |          | 0.00           | 0.01           | 0.00        | 34.43       | $\chi^2(3) = 3.02, p = 0.39$   |
| Overall               | 9        | 14       | 0.34 [0.28, 0.40]  | 0.36      | 0.03 | < 0.001  |                |                |             |             |                                |
| Fame                  | 1        | 3        | 0.24               | 0.24      | -    |          |                |                |             |             |                                |
| Image                 | 1        | 2        | 0.26               | 0.26      | -    |          |                |                |             |             |                                |
| Wealth                | 2        | 5        | 0.26               | 0.26      | -    |          |                |                |             |             |                                |
| Parent                | 16       | 40       |                    |           |      |          | 0.00           | 0.03           | 7.77        | 3.70        | $\chi^2(2) = 0.50, p = 0.78$   |
| Both                  | 8        | 16       | 0.36 [0.24, 0.46]  | 0.37      | 0.06 | < 0.001  |                |                |             |             |                                |

| Moderation         | <i>k</i> | <i>n</i> | <i>r</i> [95% CI] | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test        |
|--------------------|----------|----------|-------------------|-----------|------|----------|----------------|----------------|-------------|-------------|------------------------------|
| Father             | 6        | 7        | 0.30 [0.18, 0.41] | 0.31      | 0.07 | < 0.001  |                |                |             |             |                              |
| Mother             | 7        | 17       | 0.30 [0.18, 0.41] | 0.31      | 0.06 | < 0.001  |                |                |             |             |                              |
| Rater              | 17       | 41       |                   |           |      |          | 0.00           | 0.03           | 0.00        | 5.12        | $\chi^2(1) = 0.82, p = 0.36$ |
| Child Report       | 6        | 9        | 0.38 [0.25, 0.49] | 0.40      | 0.07 | < 0.001  |                |                |             |             |                              |
| Parent Self-Report | 11       | 32       | 0.31 [0.21, 0.40] | 0.32      | 0.05 | < 0.001  |                |                |             |             |                              |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed correlation, *p* = *p* values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

**Parents' Extrinsic Aspirations Unrelated to Children's Intrinsic Aspirations**

We found eight studies that measured parent extrinsic aspirations and child intrinsic aspirations. The pooled effect size for the association between parent extrinsic aspirations and child intrinsic aspirations was not statistically significant,  $r = 0.06$ ,  $p = 0.11$ , 95% CI [-.01, 0.12], level 2  $I^2 = 0$ , level 3  $I^2 = 57.05\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.01$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(11) = 25.16$ ,  $p < 0.01$ . As shown in Table 3, the baseline model (albeit not statistically significant) was not improved by any of the moderators. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 0.26$ ,  $p = 0.61$ .



**Table 3***Parent Extrinsic and Child Intrinsic Aspirations Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]   | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test         |
|-----------------------|----------|----------|---------------------|-----------|------|----------|----------------|----------------|-------------|-------------|-------------------------------|
| Baseline              | 8        | 12       | 0.06 [-0.01, 0.12]  | 0.06      | 0.04 | 0.11     |                | 0.01           |             |             |                               |
| Region                | 8        | 12       |                     |           |      |          |                | 0.00           |             | 100.00      | $\chi^2(2) = 8.73, p = 0.013$ |
| Asia                  | 2        | 2        | 0.18 [0.09, 0.26]   | 0.18      | 0.04 | < 0.001  |                |                |             |             |                               |
| Europe                | 2        | 3        | 0.11 [0.02, 0.20]   | 0.11      | 0.05 | 0.017    |                |                |             |             |                               |
| North America         | 4        | 7        | -0.01 [-0.06, 0.04] | -0.01     | 0.02 | 0.75     |                |                |             |             |                               |
| Child Age Group       | 8        | 12       |                     |           |      |          |                | 0.00           |             | 23.94       | $\chi^2(2) = 1.27, p = 0.53$  |
| Early                 | 1        | 1        | 0.05 [-0.14, 0.23]  | 0.05      | 0.10 | 0.62     |                |                |             |             |                               |
| Middle                | 5        | 7        | 0.09 [0.00, 0.17]   | 0.09      | 0.04 | 0.039    |                |                |             |             |                               |
| Late                  | 2        | 4        | 0.00 [-0.12, 0.12]  | 0.00      | 0.06 | 1.00     |                |                |             |             |                               |
| Proportion of Females | 8        | 12       |                     |           |      |          |                | 0.01           |             | 10.92       | $\chi^2(1) = 0.54, p = 0.46$  |
| >66% female           | 1        | 2        | -0.01 [-0.18, 0.17] | -0.01     | 0.09 | 0.96     |                |                |             |             |                               |
| Mixed (33-66%)        | 7        | 10       | 0.07 [0.00, 0.14]   | 0.07      | 0.04 | 0.066    |                |                |             |             |                               |
| Parent                | 8        | 12       |                     |           |      |          |                | 0.00           |             | 57.21       | $\chi^2(2) = 3.66, p = 0.16$  |
| Both                  | 2        | 3        | -0.02 [-0.12, 0.08] | -0.02     | 0.04 | 0.72     |                |                |             |             |                               |
| Father                | 5        | 5        | 0.11 [0.04, 0.19]   | 0.12      | 0.04 | 0.004    |                |                |             |             |                               |
| Mother                | 4        | 4        | 0.04 [-0.04, 0.13]  | 0.04      | 0.04 | 0.31     |                |                |             |             |                               |
| Rater                 | 8        | 12       |                     |           |      |          |                | 0.00           |             | 30.31       | $\chi^2(1) = 1.41, p = 0.24$  |
| Child Report          | 2        | 3        | 0.00 [-0.11, 0.11]  | 0.00      | 0.06 | 0.96     |                |                |             |             |                               |
| Parent Self-Report    | 6        | 9        | 0.08 [0.01, 0.16]   | 0.08      | 0.04 | 0.028    |                |                |             |             |                               |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed

correlation,  $p = p$  values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

**Parents' Intrinsic Aspirations Predict Higher Children's Intrinsic Aspirations (H1b)**

We found 10 studies that measured parent intrinsic aspirations and child intrinsic aspirations. As shown in Table 4, there was a statistically significant, medium-sized, positive pooled association between parent intrinsic and child intrinsic aspirations ( $r = 0.25$ ,  $p < 0.001$ , 95% CI [0.16, 0.34], level 2  $I^2 = 6.18\%$ , level 3  $I^2 = 77.12\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.02$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(21) = 90.41$ ,  $p < 0.001$ . The pooled effect between parent intrinsic aspirations and child intrinsic aspirations and moderators can be found in Table 4. None of the moderators improved the baseline model. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 3.03$ ,  $p = 0.08$ .

**Table 4***Parent Intrinsic and Child Intrinsic Aspirations Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]   | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test         |
|-----------------------|----------|----------|---------------------|-----------|------|----------|----------------|----------------|-------------|-------------|-------------------------------|
| Baseline              | 10       | 22       | 0.25 [0.16, 0.34]   | 0.26      | 0.05 | < 0.001  | 0.00           | 0.02           |             |             |                               |
| Region                | 10       | 22       |                     |           |      |          | 0.00           | 0.02           | 19.39       | 24.32       | $\chi^2(2) = 2.95, p = 0.23$  |
| Asia                  | 2        | 11       | 0.39 [0.21, 0.53]   | 0.41      | 0.10 | < 0.001  |                |                |             |             |                               |
| Europe                | 2        | 3        | 0.25 [0.05, 0.42]   | 0.25      | 0.10 | 0.015    |                |                |             |             |                               |
| North America         | 6        | 8        | 0.20 [0.09, 0.31]   | 0.20      | 0.06 | < 0.001  |                |                |             |             |                               |
| Child Age Group       | 10       | 22       |                     |           |      |          | 0.00           | 0.02           | 0.00        | 7.68        | $\chi^2(3) = 0.43, p = 0.93$  |
| Early                 | 1        | 10       | 0.21 [-0.06, 0.45]  | 0.21      | 0.14 | 0.13     |                |                |             |             |                               |
| Middle                | 6        | 7        | 0.27 [0.15, 0.38]   | 0.28      | 0.07 | < 0.001  |                |                |             |             |                               |
| Late                  | 2        | 4        | 0.21 [0.00, 0.40]   | 0.21      | 0.11 | 0.047    |                |                |             |             |                               |
| Adult                 | 1        | 1        | 0.30 [0.00, 0.55]   | 0.31      | 0.16 | 0.052    |                |                |             |             |                               |
| Proportion of Females | 10       | 22       |                     |           |      |          | 0.00           | 0.01           | 0.69        | 33.44       | $\chi^2(1) = 3.49, p = 0.062$ |
| >66% female           | 1        | 1        | -0.03 [-0.32, 0.26] | -0.03     | 0.15 | 0.84     |                |                |             |             |                               |
| Mixed (33-66%)        | 9        | 21       | 0.28 [0.19, 0.36]   | 0.29      | 0.05 | < 0.001  |                |                |             |             |                               |
| Parent                | 9        | 21       |                     |           |      |          | 0.00           | 0.03           | 36.84       | 0.00        | $\chi^2(2) = 0.23, p = 0.89$  |
| Both                  | 2        | 2        | 0.23 [-0.02, 0.46]  | 0.24      | 0.13 | 0.070    |                |                |             |             |                               |
| Father                | 3        | 3        | 0.22 [0.05, 0.38]   | 0.23      | 0.09 | 0.012    |                |                |             |             |                               |
| Mother                | 6        | 16       | 0.26 [0.13, 0.39]   | 0.27      | 0.07 | < 0.001  |                |                |             |             |                               |
| Rater                 | 10       | 22       |                     |           |      |          | 0.00           | 0.02           | 0.00        | 0.38        | $\chi^2(1) = 0.01, p = 0.92$  |
| Child Report          | 3        | 4        | 0.25 [0.07, 0.40]   | 0.25      | 0.09 | 0.006    |                |                |             |             |                               |
| Parent Self-Report    | 7        | 18       | 0.26 [0.14, 0.36]   | 0.26      | 0.06 | < 0.001  |                |                |             |             |                               |

| Moderation          | <i>k</i> | <i>n</i> | <i>r</i> [95% CI] | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test        |
|---------------------|----------|----------|-------------------|-----------|------|----------|----------------|----------------|-------------|-------------|------------------------------|
| Specific Aspiration | 10       | 22       |                   |           |      |          | 0.00           | 0.02           | 85.71       | 0.00        | $\chi^2(3) = 2.75, p = 0.43$ |
| Overall             | 9        | 11       | 0.27 [0.16, 0.36] | 0.27      | 0.05 | < 0.001  |                |                |             |             |                              |
| Affiliation         | 2        | 4        | 0.23 [0.08, 0.37] | 0.24      | 0.08 | 0.002    |                |                |             |             |                              |
| Community Giving    | 1        | 3        | 0.22 [0.06, 0.36] | 0.22      | 0.08 | 0.007    |                |                |             |             |                              |
| Personal Growth     | 2        | 4        | 0.17 [0.01, 0.31] | 0.17      | 0.08 | 0.032    |                |                |             |             |                              |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed correlation, *p* = *p* values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

### **Parents' Intrinsic Aspirations Related to Children's Extrinsic Aspirations**

We found six studies that measured parent intrinsic aspirations and child extrinsic aspirations. There was a statistically significant, small-sized, positive pooled association between parent intrinsic and child extrinsic aspirations,  $r = 0.13$ ,  $p = 0.02$ , 95% CI [0.03, 0.24], level 2  $I^2 = 0$ , level 3  $I^2 = 76.41\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.02$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(9) = 42.58$ ,  $p < 0.001$ . As shown in Table 5, 'Rater' was a statistically significant moderator of the pooled effect. Moderation by 'Rater' showed that the link between parents' intrinsic aspirations and children's extrinsic aspirations was medium-sized and positive when parents self-reported their own intrinsic aspirations ( $r = 0.21$ , 95% CI [0.13, 0.28]), but not significant when child-reported. As shown in Table 5, the baseline model was not improved by any of the other moderators. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 0.00$ ,  $p = 0.99$ .

**Table 5***Parent Intrinsic and Child Extrinsic Aspirations Meta-Analysis Results by Moderator Variables*

| Moderation         | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]   | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test          |
|--------------------|----------|----------|---------------------|-----------|------|----------|----------------|----------------|-------------|-------------|--------------------------------|
| Baseline           | 6        | 10       | 0.13 [0.03, 0.24]   | 0.13      | 0.06 | 0.015    |                | 0.02           |             |             |                                |
| Region             | 6        | 10       |                     |           |      |          |                | 0.00           |             | 100.00      | $\chi^2(2) = 13.63, p = 0.001$ |
| Asia               | 2        | 2        | 0.30 [0.13, 0.45]   | 0.31      | 0.09 | < 0.001  |                |                |             |             |                                |
| Europe             | 1        | 2        | 0.16 [0.06, 0.26]   | 0.16      | 0.05 | 0.001    |                |                |             |             |                                |
| North America      | 3        | 6        | 0.01 [-0.47, 0.48]  | 0.01      | 0.26 | 0.98     |                |                |             |             |                                |
| Child Age Group    | 6        | 10       |                     |           |      |          |                | 0.01           |             | 28.27       | $\chi^2(2) = 1.73, p = 0.42$   |
| Early              | 1        | 1        | 0.25 [0.01, 0.46]   | 0.25      | 0.12 | 0.041    |                |                |             |             |                                |
| Middle             | 4        | 7        | 0.14 [0.02, 0.25]   | 0.14      | 0.06 | 0.020    |                |                |             |             |                                |
| Late               | 1        | 2        | 0.02 [-0.21, 0.24]  | 0.02      | 0.12 | 0.90     |                |                |             |             |                                |
| Parent             | 6        | 10       |                     |           |      |          |                | 0.01           |             | 43.59       | $\chi^2(2) = 2.86, p = 0.24$   |
| Both               | 2        | 4        | 0.02 [-0.13, 0.16]  | 0.02      | 0.07 | 0.82     |                |                |             |             |                                |
| Father             | 3        | 3        | 0.18 [0.06, 0.30]   | 0.19      | 0.06 | 0.003    |                |                |             |             |                                |
| Mother             | 3        | 3        | 0.20 [0.07, 0.31]   | 0.20      | 0.06 | 0.002    |                |                |             |             |                                |
| Rater              | 6        | 10       |                     |           |      |          |                | 0.00           |             | 78.15       | $\chi^2(1) = 5.86, p = 0.015$  |
| Child Report       | 2        | 3        | -0.01 [-0.11, 0.09] | -0.01     | 0.05 | 0.85     |                |                |             |             |                                |
| Parent Self-Report | 4        | 7        | 0.21 [0.13, 0.28]   | 0.21      | 0.04 | < 0.001  |                |                |             |             |                                |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed correlation, *p* = *p* values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

**Need-Supportive Parenting Predicts Higher Child Intrinsic Aspirations (H2a)**

We found eight studies that measured a need-supportive parenting practice and included a measure of children's intrinsic aspirations. There was a statistically significant, medium-sized, positive pooled effect of need-supportive parenting on child intrinsic aspirations ( $r = 0.22$ ,  $p < 0.001$ , 95% CI [0.14, 0.30], level 2  $I^2 = 21.67\%$ , level 3  $I^2 = 61.87\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.01$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(25) = 165.64$ ,  $p < 0.001$ .

As shown in Table 6, 'Specific Aspiration' was a statistically significant moderator of the pooled effect. Moderation by 'Specific Aspiration' showed that aggregate intrinsic aspirations had a medium-sized positive link with need-supportive parenting ( $r = 0.25$ , 95% CI [0.11, 0.37]), whereas the specific intrinsic aspirations may not relate to need satisfying parenting. 'Parenting Practice', 'Parent', 'Region', and 'Proportion of Females' did not moderate the baseline model. These results suggest that need-supportive parent practices may be associated with child intrinsic aspirations, regardless of which parent is offering the need-supportive parenting practice. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 0.29$ ,  $p = 0.59$ .



**Table 6***Need-Supportive Parent Practices and Child Intrinsic Aspirations Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]  | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test         |
|-----------------------|----------|----------|--------------------|-----------|------|----------|----------------|----------------|-------------|-------------|-------------------------------|
| Baseline              | 8        | 26       | 0.22 [0.14, 0.30]  | 0.23      | 0.04 | < 0.001  | 0.00           | 0.01           |             |             |                               |
| Parenting Practice    | 8        | 26       |                    |           |      |          | 0.00           | 0.01           | 39.46       | 1.33        | $\chi^2(3) = 4.19, p = 0.24$  |
| Authoritative         | 2        | 4        | 0.17 [0.01, 0.32]  | 0.17      | 0.08 | 0.032    |                |                |             |             |                               |
| Autonomy support      | 5        | 10       | 0.26 [0.17, 0.35]  | 0.27      | 0.05 | < 0.001  |                |                |             |             |                               |
| Involvement           | 3        | 9        | 0.21 [0.11, 0.31]  | 0.22      | 0.06 | < 0.001  |                |                |             |             |                               |
| Structure             | 1        | 3        | 0.15 [0.01, 0.29]  | 0.15      | 0.07 | 0.034    |                |                |             |             |                               |
| Region                | 8        | 26       |                    |           |      |          | 0.00           | 0.00           | 0.00        | 61.94       | $\chi^2(3) = 3.58, p = 0.31$  |
| Africa                | 1        | 2        | 0.09 [-0.08, 0.25] | 0.09      | 0.09 | 0.29     |                |                |             |             |                               |
| Asia                  | 4        | 18       | 0.28 [0.20, 0.36]  | 0.29      | 0.05 | < 0.001  |                |                |             |             |                               |
| North America         | 3        | 4        | 0.17 [0.06, 0.29]  | 0.18      | 0.06 | 0.004    |                |                |             |             |                               |
| Oceania               | 1        | 2        | 0.26 [0.09, 0.41]  | 0.26      | 0.09 | 0.003    |                |                |             |             |                               |
| Child Age Group       | 8        | 26       |                    |           |      |          | 0.01           | 0.00           | 0.00        | 100.00      | $\chi^2(3) = 9.40, p = 0.024$ |
| Early                 | 1        | 10       | 0.38 [0.33, 0.43]  | 0.40      | 0.03 | < 0.001  |                |                |             |             |                               |
| Middle                | 5        | 13       | 0.20 [0.15, 0.25]  | 0.20      | 0.03 | < 0.001  |                |                |             |             |                               |
| Late                  | 1        | 2        | 0.05 [-0.10, 0.19] | 0.05      | 0.07 | 0.54     |                |                |             |             |                               |
| Adult                 | 1        | 1        | 0.24 [0.08, 0.39]  | 0.25      | 0.08 | 0.003    |                |                |             |             |                               |
| Proportion of Females | 8        | 26       |                    |           |      |          | 0.00           | 0.01           | 0.25        | 1.32        | $\chi^2(1) = 0.10, p = 0.76$  |
| >66% female           | 1        | 2        | 0.26 [0.03, 0.46]  | 0.26      | 0.12 | 0.029    |                |                |             |             |                               |
| Mixed (33-66%)        | 7        | 24       | 0.22 [0.13, 0.30]  | 0.22      | 0.05 | < 0.001  |                |                |             |             |                               |
| Parent                | 7        | 25       |                    |           |      |          | 0.00           | 0.01           | 6.05        | 10.02       | $\chi^2(2) = 1.02, p = 0.60$  |

| Moderation          | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]   | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test          |
|---------------------|----------|----------|---------------------|-----------|------|----------|----------------|----------------|-------------|-------------|--------------------------------|
| Both                | 1        | 2        | 0.16 [-0.08, 0.37]  | 0.16      | 0.12 | 0.19     |                |                |             |             |                                |
| Father              | 5        | 7        | 0.21 [0.10, 0.31]   | 0.21      | 0.06 | < 0.001  |                |                |             |             |                                |
| Mother              | 5        | 16       | 0.25 [0.15, 0.35]   | 0.25      | 0.05 | < 0.001  |                |                |             |             |                                |
| Specific Aspiration | 7        | 24       |                     |           |      |          | 0.00           | 0.03           | 100.00      | 0.00        | $\chi^2(3) = 17.90, p < 0.001$ |
| Overall             | 7        | 15       | 0.25 [0.11, 0.37]   | 0.25      | 0.07 | < 0.001  |                |                |             |             |                                |
| Affiliation         | 1        | 3        | 0.09 [-0.11, 0.28]  | 0.09      | 0.10 | 0.39     |                |                |             |             |                                |
| Community Giving    | 1        | 3        | -0.09 [-0.28, 0.11] | -0.09     | 0.10 | 0.37     |                |                |             |             |                                |
| Personal Growth     | 1        | 3        | 0.03 [-0.17, 0.23]  | 0.03      | 0.10 | 0.76     |                |                |             |             |                                |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed correlation, *p* = *p* values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

### **Need-Supportive Parenting Unrelated to Child Extrinsic Aspirations**

We found 13 studies that measured a need-supportive parenting practice and included a measure of children's extrinsic aspirations. The pooled effect for the link between need-supportive parenting and child extrinsic aspirations was not statistically significant ( $r = -0.09$ ,  $p = 0.09$ , 95% CI [-0.19, 0.01], level 2  $I^2 = 0\%$ , level 3  $I^2 = 93.96\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.03$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q (25) = 280.47$ ,  $p < 0.001$ . As shown in Table 7, the baseline model (albeit not statistically significant) was moderated by 'Region'. The link between need-supportive parenting and child extrinsic aspirations was medium-sized and negative in Europe ( $r = -0.21$ , 95% CI [-0.31, -0.11]), compared to other regions for which the link was small or not statistically significant, except for Oceania in which the link was medium and positive ( $r = 0.26$ , 95% CI [0.07, 0.43]). We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2 (1) = 3.33$ ,  $p = 0.07$ .

**Table 7***Need-Supportive Parent Practices and Child Extrinsic Aspirations Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]    | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test          |
|-----------------------|----------|----------|----------------------|-----------|------|----------|----------------|----------------|-------------|-------------|--------------------------------|
| Baseline              | 13       | 26       | -0.09 [-0.19, 0.01]  | -0.09     | 0.05 | 0.09     |                | 0.03           |             |             |                                |
| Region                | 13       | 26       |                      |           |      |          |                | 0.01           |             | 72.46       | $\chi^2(4) = 17.22, p = 0.002$ |
| Africa                | 1        | 2        | 0.06 [-0.13, 0.24]   | 0.06      | 0.10 | 0.53     |                |                |             |             |                                |
| Asia                  | 3        | 8        | 0.02 [-0.08, 0.12]   | 0.02      | 0.05 | 0.76     |                |                |             |             |                                |
| Europe                | 4        | 8        | -0.21 [-0.31, -0.11] | -0.21     | 0.05 | < 0.001  |                |                |             |             |                                |
| North America         | 5        | 6        | -0.12 [-0.21, -0.03] | -0.12     | 0.05 | 0.007    |                |                |             |             |                                |
| Oceania               | 1        | 2        | 0.26 [0.07, 0.43]    | 0.27      | 0.10 | 0.007    |                |                |             |             |                                |
| Child Age Group       | 13       | 26       |                      |           |      |          |                | 0.03           |             | 3.12        | $\chi^2(2) = 0.52, p = 0.77$   |
| Middle                | 10       | 19       | -0.11 [-0.22, 0.01]  | -0.11     | 0.06 | 0.067    |                |                |             |             |                                |
| Late                  | 1        | 2        | -0.07 [-0.40, 0.28]  | -0.07     | 0.18 | 0.72     |                |                |             |             |                                |
| Adult                 | 2        | 5        | -0.01 [-0.25, 0.23]  | -0.01     | 0.13 | 0.95     |                |                |             |             |                                |
| Proportion of Females | 13       | 26       |                      |           |      |          |                | 0.03           |             | 18.72       | $\chi^2(1) = 2.51, p = 0.11$   |
| >66% female           | 2        | 6        | 0.09 [-0.14, 0.30]   | 0.09      | 0.11 | 0.44     |                |                |             |             |                                |
| Mixed (33-66%)        | 11       | 20       | -0.12 [-0.22, -0.02] | -0.12     | 0.05 | 0.019    |                |                |             |             |                                |
| Parent                | 13       | 26       |                      |           |      |          |                | 0.02           |             | 35.53       | $\chi^2(2) = 5.95, p = 0.051$  |
| Both                  | 6        | 7        | -0.21 [-0.32, -0.09] | -0.21     | 0.06 | 0.001    |                |                |             |             |                                |
| Father                | 7        | 10       | 0.01 [-0.10, 0.12]   | 0.01      | 0.06 | 0.81     |                |                |             |             |                                |
| Mother                | 6        | 9        | 0.01 [-0.10, 0.12]   | 0.01      | 0.06 | 0.80     |                |                |             |             |                                |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed

correlation,  $p = p$  values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

**Need-Frustrating Parenting Predicts Higher Child Extrinsic Aspirations (H2b)**

A total of 10 studies were found that measured need-frustrating practices and a measure of children's extrinsic aspirations. There was a statistically significant, small-sized, positive pooled effect of need-frustrating parenting on child extrinsic aspirations ( $r = 0.15$ ,  $p < 0.001$ , 95% CI [0.11, 0.20], level 2  $I^2 = 37.01\%$ , level 3  $I^2 = 37.96\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.00$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(57) = 235$ ,  $p < 0.001$ . As shown in Table 8, the pooled effect was moderated by 'Region'. Moderation by 'Region' indicated that the link between need-frustrating parenting and child extrinsic aspirations was small-to-medium and positive in all regions except Oceania, for which the link was not statistically significant, and 'mixed' regions had a stronger effect than other regions. None of the other moderators improved the baseline model. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 0.53$ ,  $p = 0.47$ .

**Table 8***Need-Frustrating Parent Practices and Child Extrinsic Aspiration Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]  | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test          |
|-----------------------|----------|----------|--------------------|-----------|------|----------|----------------|----------------|-------------|-------------|--------------------------------|
| Baseline              | 10       | 58       | 0.15 [0.11, 0.20]  | 0.16      | 0.02 | < 0.001  | 0.00           | 0.00           |             |             |                                |
| Parenting Practice    | 10       | 53       |                    |           |      |          | 0.00           | 0.00           | 14.19       | 0.00        | $\chi^2(3) = 3.16, p = 0.37$   |
| Chaos                 | 3        | 7        | 0.16 [0.08, 0.23]  | 0.16      | 0.04 | < 0.001  |                |                |             |             |                                |
| Permissiveness        | 5        | 24       | 0.14 [0.09, 0.20]  | 0.14      | 0.03 | < 0.001  |                |                |             |             |                                |
| Psychological control | 6        | 13       | 0.18 [0.12, 0.23]  | 0.18      | 0.03 | < 0.001  |                |                |             |             |                                |
| Rejection             | 4        | 9        | 0.12 [0.05, 0.19]  | 0.12      | 0.04 | < 0.001  |                |                |             |             |                                |
| Region                | 10       | 58       |                    |           |      |          | 0.00           | 0.00           | 6.07        | 100.00      | $\chi^2(5) = 15.49, p = 0.008$ |
| Africa                | 1        | 4        | 0.18 [0.11, 0.24]  | 0.18      | 0.03 | < 0.001  |                |                |             |             |                                |
| Asia                  | 4        | 14       | 0.15 [0.11, 0.19]  | 0.15      | 0.02 | < 0.001  |                |                |             |             |                                |
| Europe                | 1        | 8        | 0.09 [0.04, 0.14]  | 0.09      | 0.03 | < 0.001  |                |                |             |             |                                |
| Mixed                 | 1        | 13       | 0.26 [0.22, 0.30]  | 0.27      | 0.02 | < 0.001  |                |                |             |             |                                |
| North America         | 2        | 15       | 0.14 [0.10, 0.18]  | 0.14      | 0.02 | < 0.001  |                |                |             |             |                                |
| Oceania               | 1        | 4        | 0.04 [-0.04, 0.11] | 0.04      | 0.04 | 0.31     |                |                |             |             |                                |
| Child Age Group       | 10       | 58       |                    |           |      |          | 0.00           | 0.00           | 0.00        | 0.41        | $\chi^2(2) = 0.04, p = 0.98$   |
| Early                 | 3        | 12       | 0.15 [0.05, 0.24]  | 0.15      | 0.05 | 0.002    |                |                |             |             |                                |
| Middle                | 5        | 13       | 0.16 [0.09, 0.22]  | 0.16      | 0.03 | < 0.001  |                |                |             |             |                                |
| Adult                 | 3        | 33       | 0.16 [0.08, 0.23]  | 0.16      | 0.04 | < 0.001  |                |                |             |             |                                |
| Proportion of Females | 10       | 58       |                    |           |      |          | 0.00           | 0.00           | 1.70        | 0.00        | $\chi^2(1) = 0.30, p = 0.58$   |
| >66% female           | 3        | 25       | 0.14 [0.06, 0.21]  | 0.14      | 0.04 | < 0.001  |                |                |             |             |                                |
| Mixed (33-66%)        | 7        | 33       | 0.16 [0.11, 0.22]  | 0.17      | 0.03 | < 0.001  |                |                |             |             |                                |
| Parent                | 10       | 58       |                    |           |      |          | 0.00           | 0.00           | 2.93        | 38.82       | $\chi^2(2) = 3.76, p = 0.15$   |

| Moderation              | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]  | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test        |
|-------------------------|----------|----------|--------------------|-----------|------|----------|----------------|----------------|-------------|-------------|------------------------------|
| Both                    | 6        | 32       | 0.19 [0.14, 0.24]  | 0.19      | 0.03 | < 0.001  |                |                |             |             |                              |
| Father                  | 3        | 8        | 0.11 [0.04, 0.18]  | 0.11      | 0.04 | 0.002    |                |                |             |             |                              |
| Mother                  | 4        | 18       | 0.11 [0.05, 0.17]  | 0.11      | 0.03 | < 0.001  |                |                |             |             |                              |
| Specific Aspirations    | 4        | 30       |                    |           |      |          | 0.00           | 0.00           | 38.55       | 0.00        | $\chi^2(3) = 5.65, p = 0.13$ |
| Overall                 | 4        | 9        | 0.21 [0.15, 0.28]  | 0.22      | 0.03 | < 0.001  |                |                |             |             |                              |
| Fame                    | 2        | 7        | 0.13 [0.05, 0.21]  | 0.13      | 0.04 | 0.002    |                |                |             |             |                              |
| Image                   | 2        | 7        | 0.20 [0.12, 0.28]  | 0.21      | 0.04 | < 0.001  |                |                |             |             |                              |
| Wealth                  | 2        | 7        | 0.19 [0.11, 0.27]  | 0.19      | 0.04 | < 0.001  |                |                |             |             |                              |
| Coefficient Type        | 10       | 58       |                    |           |      |          | 0.00           | 0.00           | 0.19        | 6.23        | $\chi^2(1) = 0.46, p = 0.50$ |
| Correlation coefficient | 9        | 46       | 0.16 [0.11, 0.21]  | 0.16      | 0.02 | < 0.001  |                |                |             |             |                              |
| Regression coefficient  | 1        | 12       | 0.11 [-0.01, 0.24] | 0.11      | 0.06 | 0.071    |                |                |             |             |                              |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed correlation, *p* = *p* values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.



**Need-Frustrating Parenting Predicts Lower Child Intrinsic Aspirations**

A total of five studies were found that both measured parental need frustrating and included a measure of children's intrinsic aspirations. The pooled effect size for the association between need frustrating parenting, and child intrinsic aspirations was negative and very weak,  $r = -0.05$ ,  $p = 0.02$ , 95% [-0.09, -0.01], level 2  $I^2 = 65.46\%$ , level 3  $I^2 = 6.37\%$ , level 2  $\tau^2 = 0.00$ , level 3  $\tau^2 = 0.00$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(27) = 91.72$ ,  $p < 0.001$ . Such results suggest that need-frustrating parenting is not likely to be meaningfully associated with intrinsic aspirations. As shown in Table 9, none of the moderators improved the baseline model, indicating that there appears to be little evidence that parental need frustration is associated with children's healthy aspiring. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 0.54$ ,  $p = 0.46$ .

**Table 9***Need-Frustrating Parent Practices and Child Intrinsic Aspiration Meta-Analysis Results by Moderator Variables*

| Moderation            | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]    | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test          |
|-----------------------|----------|----------|----------------------|-----------|------|----------|----------------|----------------|-------------|-------------|--------------------------------|
| Baseline              | 5        | 28       | -0.05 [-0.09, -0.01] | -0.05     | 0.02 | 0.016    | 0.00           | 0.00           |             |             |                                |
| Region                | 5        | 28       |                      |           |      |          | 0.00           | 0.00           | 31.34       | 100.00      | $\chi^2(4) = 7.97, p = 0.093$  |
| Africa                | 1        | 4        | -0.02 [-0.08, 0.05]  | -0.02     | 0.03 | 0.66     |                |                |             |             |                                |
| Europe                | 1        | 4        | -0.15 [-0.22, -0.07] | -0.15     | 0.04 | < 0.001  |                |                |             |             |                                |
| Mixed                 | 1        | 13       | -0.03 [-0.07, 0.01]  | -0.03     | 0.02 | 0.20     |                |                |             |             |                                |
| North America         | 1        | 3        | -0.08 [-0.16, 0.00]  | -0.08     | 0.04 | 0.039    |                |                |             |             |                                |
| Oceania               | 1        | 4        | -0.02 [-0.09, 0.05]  | -0.02     | 0.04 | 0.58     |                |                |             |             |                                |
| Child Age Group       | 5        | 28       |                      |           |      |          | 0.01           | 0.00           | 0.00        | 100.00      | $\chi^2(1) = 0.95, p = 0.33$   |
| Adult                 | 1        | 13       | -0.03 [-0.08, 0.02]  | -0.03     | 0.02 | 0.25     |                |                |             |             |                                |
| Middle                | 4        | 15       | -0.06 [-0.10, -0.02] | -0.06     | 0.02 | 0.004    |                |                |             |             |                                |
| Proportion of Females | 5        | 28       |                      |           |      |          | 0.00           | 0.00           | 0.86        | 0.00        | $\chi^2(1) = 0.05, p = 0.83$   |
| >66% female           | 3        | 21       | -0.05 [-0.10, 0.00]  | -0.05     | 0.03 | 0.041    |                |                |             |             |                                |
| Mixed (33-66%)        | 2        | 7        | -0.04 [-0.11, 0.02]  | -0.04     | 0.03 | 0.19     |                |                |             |             |                                |
| Parent                | 5        | 28       |                      |           |      |          | 0.00           | 0.00           | 18.06       | 0.00        | $\chi^2(2) = 3.28, p = 0.19$   |
| Both                  | 3        | 20       | -0.07 [-0.12, -0.02] | -0.07     | 0.03 | 0.009    |                |                |             |             |                                |
| Father                | 2        | 4        | 0.02 [-0.06, 0.10]   | 0.02      | 0.04 | 0.68     |                |                |             |             |                                |
| Mother                | 2        | 4        | -0.05 [-0.13, 0.03]  | -0.05     | 0.04 | 0.20     |                |                |             |             |                                |
| Specific Aspiration   | 4        | 24       |                      |           |      |          | 0.00           | 0.00           | 87.78       | 0.00        | $\chi^2(3) = 16.89, p < 0.001$ |
| Overall               | 4        | 12       | -0.09 [-0.14, -0.03] | -0.09     | 0.03 | 0.001    |                |                |             |             |                                |
| Affiliation           | 1        | 4        | 0.08 [-0.01, 0.17]   | 0.08      | 0.05 | 0.081    |                |                |             |             |                                |

| Moderation       | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]    | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test |
|------------------|----------|----------|----------------------|-----------|------|----------|----------------|----------------|-------------|-------------|-----------------------|
| Community Giving | 1        | 4        | -0.09 [-0.18, -0.01] | -0.09     | 0.05 | 0.038    |                |                |             |             |                       |
| Personal Growth  | 1        | 4        | 0.01 [-0.08, 0.10]   | 0.01      | 0.05 | 0.86     |                |                |             |             |                       |

*Note.* *k* = number of studies, *n* = number of effect sizes. *r* = Pearson's correlation pooled and weighted, which is Fisher's *z* back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's *z* transformed correlation, *p* = *p* values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

**Parents' Own Need Satisfaction Predicts Higher Intrinsic Aspirations (H3)**

Little research has been conducted on the link between parents' own need satisfaction and children's aspirations, so the results for Hypothesis 3 will be presented narratively. One study measured the relationship between parents' own psychological need satisfaction and child intrinsic aspirations (Nishimura et al., 2021). The study by Nishimura et al. (2021) found a statistically significant and medium-sized positive association between fathers' own psychological need satisfaction and child intrinsic aspirations. A similar association was found between fathers' own psychological need satisfaction and child extrinsic aspirations, suggesting that higher satisfaction of fathers' basic psychological needs could be related to greater aspiring more generally in their children.

**Parental Goal Promotion Predicts Higher Extrinsic Aspirations (H4)**

Regarding Hypothesis 4, the review found four studies that included perceived parental promotion of child extrinsic goal pursuit and child extrinsic aspirations. The pooled effect size for the association between perceived parental promotion of child extrinsic goals and child extrinsic aspirations was positive and very large,  $r = 0.48$ ,  $p < 0.001$ , 95% [.37, 0.58]. Moderation analysis was not conducted, as there were too few studies.

**Some Indicators of Parent Stress Predict Higher Child Extrinsic Aspiring (H5)**

We found 23 studies that included an indicator of parent stress and extrinsic aspirations. The pooled effect for the link between indicators of parent stress and extrinsic aspirations was not statistically significant ( $r = 0.01$ , 95% CI [-0.03, 0.04], level 2  $I^2 = 82.20\%$ , level 3  $I^2 = 0.02\%$ , level 2  $\tau^2 = 0.02$ , level 3  $\tau^2 = 0.00$ ). Inspection of the  $Q$  statistic revealed statistically significant heterogeneity,  $Q(63) = 354.50$ ,  $p < 0.001$ . Such results suggest that indicators of parent stress may not be meaningfully associated with extrinsic aspirations. As shown in Table 10, none of the moderators improved the baseline model, indicating that there appears to be little evidence that indicators of parent stress are associated with children's extrinsic aspiring. We did not detect evidence of publication bias using the MLMA Egger's test,  $\chi^2(1) = 0.47$ ,  $p = .49$ . A summary of the results of all hypotheses explored in this review can be found in Table 10.

**Table 10***Indicators of Parent Stress and Child Extrinsic Aspiration Meta-Analysis Results by Moderator Variables*

| Moderation              | <i>k</i> | <i>n</i> | <i>r</i> [95% CI]   | <i>z'</i> | SE   | <i>p</i> | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test        |
|-------------------------|----------|----------|---------------------|-----------|------|----------|----------------|----------------|-------------|-------------|------------------------------|
| Baseline                | 23       | 64       | 0.01 [-0.03, 0.04]  | 0.01      | 0.02 | 0.75     | 0.02           | 0.00           |             |             |                              |
| Region                  | 23       | 64       |                     |           |      |          | 0.01           | 0.00           | 6.87        | 0.00        | $\chi^2(3) = 2.03, p = 0.57$ |
| Asia                    | 4        | 8        | 0.02 [-0.08, 0.11]  | 0.02      | 0.05 | 0.75     |                |                |             |             |                              |
| Europe                  | 9        | 18       | 0.04 [-0.02, 0.11]  | 0.04      | 0.03 | 0.21     |                |                |             |             |                              |
| North America           | 10       | 34       | -0.02 [-0.07, 0.03] | -0.02     | 0.03 | 0.49     |                |                |             |             |                              |
| South America           | 2        | 4        | 0.01 [-0.15, 0.16]  | 0.01      | 0.08 | 0.94     |                |                |             |             |                              |
| Child Age Group         | 23       | 64       |                     |           |      |          | 0.01           | 0.00           | 10.69       | 100.00      | $\chi^2(2) = 6.18, p = 0.05$ |
| Early                   | 2        | 7        | 0.07 [-0.04, 0.17]  | 0.07      | 0.05 | 0.21     |                |                |             |             |                              |
| Middle                  | 13       | 35       | 0.03 [-0.02, 0.08]  | 0.03      | 0.02 | 0.20     |                |                |             |             |                              |
| Adult                   | 8        | 22       | -0.05 [-0.11, 0.01] | -0.05     | 0.03 | 0.092    |                |                |             |             |                              |
| Parent                  | 17       | 46       |                     |           |      |          | 0.01           | 0.00           | 5.75        | 100.00      | $\chi^2(2) = 1.57, p = 0.46$ |
| Both                    | 15       | 36       | 0.04 [0.00, 0.08]   | 0.04      | 0.02 | 0.066    |                |                |             |             |                              |
| Father                  | 4        | 5        | -0.03 [-0.13, 0.07] | -0.03     | 0.05 | 0.58     |                |                |             |             |                              |
| Mother                  | 4        | 5        | 0.01 [-0.10, 0.11]  | 0.01      | 0.05 | 0.91     |                |                |             |             |                              |
| Coefficient Type        | 23       | 64       |                     |           |      |          | 0.02           | 0.00           | 0.00        | 25.63       | $\chi^2(1) = 0.10, p = 0.75$ |
| Correlation coefficient | 20       | 56       | 0.00 [-0.04, 0.04]  | 0.00      | 0.02 | 0.87     |                |                |             |             |                              |
| Regression coefficient  | 4        | 8        | 0.02 [-0.07, 0.11]  | 0.02      | 0.05 | 0.68     |                |                |             |             |                              |
| Proportion of Females   | 23       | 64       |                     |           |      |          | 0.02           | 0.00           | 0.01        | 38.50       | $\chi^2(1) = 0.38, p = 0.54$ |
| >66% female             | 2        | 5        | 0.04 [-0.08, 0.17]  | 0.04      | 0.06 | 0.49     |                |                |             |             |                              |
| Mixed (33-66%)          | 21       | 59       | 0.00 [-0.04, 0.04]  | 0.00      | 0.02 | 0.90     |                |                |             |             |                              |
| Rater                   | 20       | 60       |                     |           |      |          | 0.02           | 0.00           | 0.00        | 100.00      | $\chi^2(1) = 0.64, p = 0.42$ |

| Moderation         | $k$ | $n$ | $r$ [95% CI]       | $z'$ | SE   | $p$  | $\tau_{(2)}^2$ | $\tau_{(3)}^2$ | $R_{(2)}^2$ | $R_{(3)}^2$ | Likelihood Ratio Test |
|--------------------|-----|-----|--------------------|------|------|------|----------------|----------------|-------------|-------------|-----------------------|
| Child Report       | 17  | 41  | 0.00 [-0.05, 0.05] | 0.00 | 0.02 | 0.99 |                |                |             |             |                       |
| Parent Self-Report | 4   | 19  | 0.04 [-0.03, 0.10] | 0.04 | 0.04 | 0.32 |                |                |             |             |                       |

*Note.*  $k$  = number of studies,  $n$  = number of effect sizes.  $r$  = Pearson's correlation pooled and weighted, which is Fisher's  $z$  back-transformed for ease of interpretation, positive value denotes a positive association, negative value denotes a negative association, SE = standard error of Fisher's  $z$  transformed correlation,  $p = p$  values of each slope.  $R_{(2)}^2$  = percent of within study heterogeneity explained by a given model,  $R_{(3)}^2$  = percent of between study heterogeneity explained by a given model, Likelihood Ratio Test = tests if the model that includes the moderator is an improvement over the baseline model.

### **Risk of Bias and Quality Assessment of Studies**

The included papers were also assessed for risk of bias and quality assessment. There are various suggestions regarding which areas of bias should be assessed when reviewing observational studies. Nine key areas have been identified within the literature, including: selection bias, exposure bias, outcome bias, confounding bias, attrition bias, analysis bias, selective reporting bias, conflicts of interest, and other (Wang et al., 2019). A template incorporating all nine areas was utilized to ensure a comprehensive risk of bias and quality assessment (Online Supplementary Materials S3).

There was a high level of interrater agreement regarding risk of bias within individual studies, with 92% agreement in coding for the papers in which a dual risk of bias assessment occurred. The nine risks of bias categories were evaluated for each study. The majority of studies were deemed to be low risk. The highest number of categories rated as high risk for any given study was three out of the nine. As such, we have not conducted a quantitative analysis of the risk of bias but instead provided a qualitative overview. In regard to selection bias, several studies did not discuss the level of response rate but for those that did, the response rate was deemed high relative to the method used. Selection bias concerning the types of populations being reflective of the target population was mixed, with university and convenience sampling occurring particularly in studies in which participants were adults. The risk regarding attrition was deemed to be low. The majority of the studies were cross-sectional in nature, requiring only one point of data collection. The longitudinal studies generally had <20% of attrition across waves, with the exception of two studies that had >20% observed at Wave 3. The risk regarding not including confounding variables was deemed low across the majority of the studies. Exposure bias was rated as low, as most measures utilized to assess parent factors were highly cited and deemed valid and reliable. Analysis bias was rated as low, as studies provided sufficient information about the analysis



and analyses were deemed appropriate to meet the aims of the studies. There were two domains that were predominantly unclear across all studies (selective reporting bias and conflicts of interest), as information was not reported in these areas.

Publication bias was examined using a funnel plot and multilevel meta-analytic Egger's regression tests (Egger MLMA; Rodger & Pustejovsky, 2021). We did not detect evidence of publication bias in any of the studies. Funnel plots were used to examine the distribution of the relationship between the effect sizes and standard error. A symmetrical funnel suggests that there is no publication bias (Sterne et al., 2011). The funnels plots indicated that effect sizes were spread symmetrically (Online Supplementary Materials S2).

**Table 11**

*Summary of Parent Factors and their Associations with Child Intrinsic and Extrinsic Aspirations*

| Parent factors                      | Child aspirations                      | Hypothesis |
|-------------------------------------|--|------------|
| Life aspirations                    |  |            |
| <i>Extrinsic aspirations</i>        | (+++)<br>Extrinsic (null) Intrinsic    | <b>H1a</b> |
| <i>Intrinsic aspirations</i>        | (++)<br>Intrinsic (+) Extrinsic        | <b>H1b</b> |
| Parenting practices                 |  |            |
| <i>Need-supportive</i>              | (++)<br>Intrinsic and (null) Extrinsic | <b>H2a</b> |
| <i>Need-frustrating</i>             | (+)<br>Extrinsic and (-) Intrinsic     | <b>H2b</b> |
| <i>Promotion of extrinsic goals</i> | (++++)<br>Extrinsic                    | <b>H4</b>  |
| Need experiences                    |  |            |
| <i>Need satisfaction</i>            | (++)<br>Intrinsic                      | <b>H3</b>  |
| Parent stressors                    | (null)<br>Extrinsic                    | <b>H5</b>  |

*Note.* The “+” symbol denotes a statistically significant positive association, and the “-” denotes a statistically significant negative association. The quantity of symbols signifies strength of association.  $r_s = .10, .20, \text{ and } .30, \text{ and } .40$  are interpreted as small (+), medium (++), large (+++), and very large (++++) effect sizes.

## Discussion

Parents affect children in myriad ways, including influencing the goals for which they strive. The aim of this systematic review was to summarize the various ways that parents contribute to the development of intrinsic or extrinsic aspirations in their children. We expected that children's intrinsic aspirations would be related to their parents' intrinsic aspirations, need-satisfying parenting, and parents' own need satisfaction. All of these main hypotheses were supported. We expected that extrinsic aspirations would be related to parents' extrinsic aspirations, need-frustrating parenting, and parental extrinsic goal promotion. These hypotheses were also largely supported. However, the pattern of results did contain some unexpected results, such as indicators of parent stress—like socioeconomic status— not being linked to child extrinsic aspirations. Below, we discuss these findings in more detail as well as situate the results in terms of their theoretical contribution.

### Parent-Child Aspiration Assimilation

The results of this review suggest that parents' and children's aspirations are positively linked, regardless of whether they are intrinsic or extrinsic (Hypothesis 1, see Tables 2 and 4). The results highlight the importance of role modeling and value demonstration within the parent-child system. Being around those who aspire in a particular way can influence the way in which proximal others aspire. The findings are consistent with parenting literature that emphasizes the salience of role modeling within the parent-child system (Grusec, 1994; Kytte & Bandura, 1978). Congruence between parents' and children's extrinsic aspirations is consistent with SDT, which has consistently found that materialistic values are being transmitted between parent and child (Henderson-King & Brooks 2009; Kasser et al. 1995; Moulton et al. 2015; Nishimura et al., 2021). A high level of between-study heterogeneity was detected. Age was found to moderate the link between parent and child extrinsic aspirations, suggesting that middle-adolescence is a formative time period in

which extrinsic aspirations are more likely to be shared between parents and children, compared to early-and late-adolescence or adulthood.

Although the pooled effect for Hypothesis 1 mainly included cross-sectional data due to this being the predominant study design, we note that there was one study that did explore the predictive nature of parents' aspirations on children's aspirations (Ahn & Reeve, 2020). Ahn and Reeve found causal evidence for a direct effect between parent extrinsic aspirations and child extrinsic aspirations longitudinally. The same study did not find any evidence for parent intrinsic aspirations predicting a change in their child's intrinsic aspirations over time. These findings suggest that the nature and course of development for intrinsic and extrinsic aspirations is nuanced. In our meta-analysis, we explored a form of discriminant validity by testing the cross-dimensional relationships of parent-child aspirations. We found no support for a link between parents' extrinsic aspirations and their children's intrinsic aspirations, whereas there was evidence of a link between parents' intrinsic aspirations and children's extrinsic aspirations. The evidence for direct transmission of extrinsic aspirations is arguably more pertinent than intrinsic aspirations. It may be plausible that extrinsic aspirations are highly transmissible and malleable to change in response to parents' aspirations. Yet, it makes sense that parents' extrinsic aspirations would not be linked to children's intrinsic aspirations, because extrinsic aspirations teach little about the types of goals that offer direct need satisfaction. Perhaps the development of intrinsic aspirations hinges more on the provision of need-supportive parenting practices.

### **Need-Supportive Parenting Fosters Intrinsic Aspirations**

The results of the current review showed that need-supportive parent practices are conducive to children's intrinsic aspirations but not for their extrinsic aspirations (Hypothesis 2a, see Table 6). Such findings are consistent with the SDT literature, suggesting that environments that foster the satisfaction of psychological needs of autonomy, competence,

and relatedness increase the likelihood of the development of intrinsic aspirations. That is, being able to engage with the world in an autonomous manner, feeling related to others and experiencing optimal challenges facilitates the adoption of values that are healthier for optimal functioning. Moderation analysis revealed that need-supportive parenting was more strongly related to children's intrinsic aspirations as an aggregate. This suggests that need-supportive parenting may be conducive to an intrinsic atmosphere encompassing aspirations inclusive of personal growth, affiliation, physical health, and community giving, rather than just one domain. The specific type of need-supportive parenting did not serve as a moderator, suggesting that qualities of autonomy support, structure, and involvement are all relevant in the link between need-supportive parenting and children's intrinsic aspirations.

Although some of our hypotheses suggest a directional relationship from parent to child, it is important to note that our cross-sectional dataset cannot speak to directionality or temporality. Longitudinal studies have been conducted, but the number of studies available is currently insufficient to meta-analyze. Nonetheless, these longitudinal studies have alluded to a potential causal relationship between parent practices and children's intrinsic and extrinsic aspirations (Ahn & Reeve, 2020; Duriez et al., 2013; Mouratidis et al., 2013; Williams & Ciarrochi, 2020). Williams and Ciarrochi (2020) found that need-supportive practices provided by mothers when their child was in grade 7 yielded a positive, medium-sized association with their child's intrinsic goals post-school. Ahn and Reeve (2020) found that perceived need-supportive parenting yielded statistically significant, large-to-very-large associations with children's intrinsic aspirations at the beginning of a 12-month period and medium-sized associations with children's intrinsic aspirations at the end a 12-month period. However, Ahn and Reeve (2020) also suggest that the distinction between perceiving one's parents to be need-supportive and experiencing need satisfaction is crucial in understanding the development of intrinsic aspirations. That is, a parent offering a need-supportive

environment may only influence a child's intrinsic aspirations to the extent to which the environment actually leads to need satisfaction. This highlights the importance of considering actual need satisfaction in the context of need-supportive parenting in fostering intrinsic aspirations. Further research is required to explore the prospect of an indirect relationship between need-supportive parenting practices and children's intrinsic aspirations, via need satisfaction.

### **Need-Frustrating Parenting Fosters Extrinsic Aspirations**

Need-frustrating parenting practices were found to be linked with children's extrinsic aspirations, as well as having a small negative link with intrinsic aspirations (Hypothesis 2b, see Table 8). Such findings are consistent with the SDT literature, suggesting that environments that frustrate need satisfaction see children turning to external contingencies in their values and aspirations (Deci & Ryan, 2000; Ryan & Deci, 2017; Ryan et al., 1996). The particular type of need-frustrating parenting did not act as moderator, suggesting that practices of psychological control, chaos, rejection, and permissiveness are all linked to extrinsic aspirations. We propose two theoretical explanations for the link between need-frustrating parenting practices and children's extrinsic aspiration. Need-frustrating environments, particularly psychologically controlling or rejecting environments, see children adopt the types of pursuits they believe others would approve of due to introjected motivation. Alternatively, an environment low in need support may call for the search to gain a sense of need fulfillment from external contingencies, such as wealth, image, and fame, acting as a form of need substitution (Vansteenkiste & Ryan, 2013).

Need frustration has consistently been found to negatively impact the lives of children in domains such as social relationships, learning and well-being (Bartholomew et al., 2011; Hein et al., 2015; Ryan et al., 2016). These current results show that need-frustrating parenting practices are also linked to extrinsic aspirations, which could be detrimental to their

well-being. If children overemphasize the importance of extrinsic aspirations in life, they may be setting goals for themselves that will at best indirectly satisfy their needs and could even take them down a path of ill-being (e.g., Niemiec et al., 2010). The findings of the current review highlight the importance of considering the role of need-frustrating environments in the development children's extrinsic aspirations. Again, children's or adolescents' experience of needs frustration, as opposed to need-frustrating parenting needs to be considered in order to better understand the developmental mechanisms. Ahn and Reeve (2020) investigated whether adolescents' experience of need frustration predicted a change in their extrinsic aspirations over time. They found that need frustration did not predict a longitudinal change in extrinsic aspirations and suggest that extrinsic aspirations are more likely to develop from a process of internalization from socializing agents. Further research using similar methodology is required to investigate this proposition and determine its generalizability across different populations.

The finding that need-frustrating parenting practices were only weakly associated with intrinsic aspirations suggests that the provision of need-frustrating parenting practices may to some degree undermine children's intrinsic aspirations. Further research is required to determine whether a causal relationship exists. Should further support be found for this pathway, need-frustrating parenting practices could be deemed a double threat for children prioritizing extrinsic aspirations relative to intrinsic aspirations given it could both foster extrinsic aspirations, as well as diminish the pursuit of intrinsic aspirations.

### **The Impact of Parents' Own Need Satisfaction, Parent Goal Promotion, and Sources of Stress**

There is emerging evidence to suggest that parents may influence their children's aspirations through their own need satisfaction, goal promotion, and sources of stress. We proposed that parents higher in their own need satisfaction would foster intrinsic aspirations

in their children (Hypothesis 3). Despite finding some support for this claim, parents' own need satisfaction was also found to be related to children having higher extrinsic aspirations (Nishimura et al., 2021). Further clarity is required to determine whether fostering parents' own need satisfaction has utility for fostering intrinsic aspirations or just aspiring more generally. Possibly parents experiencing greater basic psychological need satisfaction may have more resources such as time, energy, and attention to devote to their children's goals whether they are of an intrinsic or extrinsic nature.

The results of the review suggest that parental goal promotion, including the perceived promotion of extrinsic goals, is strongly linked with their children's extrinsic aspirations (Hypothesis 4). Further support for Hypothesis 4 is provided by the longitudinal findings from Mouratidis et al. (2013) who found that perceived parental promotion of extrinsic aspirations at the beginning of a school year yielded statistically significant, very large positive associations with their children's extrinsic aspirations at the beginning and end of the school year, and into the next school year. In addition, a longitudinal study by Duriez et al. (2013) found that perceived maternal and paternal promotion of extrinsic aspirations had statistically significant, large-to-very-large positive associations with adolescents' extrinsic aspirations, one year later. This suggests that children may value their parents' opinions and adopt extrinsic goals if they believe their parents want them to pursue these goals. Although extrinsic goals may have some value, it is vital to avoid overemphasizing them at the expense of intrinsic goals. SDT further suggests that encouraging children to pursue goals that are aligned with their personal values and interests can lead to greater well-being and fulfillment.

Contrary to Hypothesis 5, we found no evidence that sources of parent stress—such as lower socioeconomic status—link to extrinsic aspirations (see Table 10). Although the majority of the studies found no meaningful link between indicators of parent stress and

children's extrinsic aspirations, there still remains inconsistent findings amongst the literature. Kasser (1995) found that teenagers with lower socioeconomic status valued financial success aspirations more than intrinsic aspirations such as self-acceptance, affiliation and community feeling. Yet, other studies have found small, positive associations between father's education and family affluence and their children's extrinsic aspirations (Williams et al., 2000; Zawadzka et al., 2018). Further research is warranted to explore how parents' stress may impact their children's strivings. Future research could examine how different sources of stress affect the development of extrinsic aspirations in children. It is possible that low socioeconomic status may create conditions that promote extrinsic goals for some individuals, whereas high socioeconomic status may foster extrinsic goals in others.

### **Limitations**

Our research has contributed to our understanding of the breadth of parent factors that have been studied in relation to child aspirations, but for some of our questions there was not enough literature to provide summary statistics. Although we found sufficient studies and effects sizes relating to our main effect hypotheses concerning parent's aspirations and parenting practices as they related to child aspirations, one of the moderation results had to be conducted in an exploratory fashion due to a limited number of studies. There were not enough cross-regional effects for us to make any conclusions about the role of region in the link between need-frustrating parenting practices and children's intrinsic aspirations. Even though research in this field has advanced its scope regarding the parent type, we still found fewer studies exploring the role of fathers than what was available for mothers. This highlights where future research could be helpful in uncovering the mechanisms relating to our research questions. For example, our review supports the notion that 'what' a parent aspires towards matters, but the exact mechanisms through which aspirations transmit from parent to child need further clarity for both extrinsic and intrinsic aspirations. Perhaps the



degree to which a child adopts similar aspirations to their parents depends on *which parent* models the aspirations, *how* parents model their aspirations, and whether the aspiration is modeled in autonomous versus controlling ways.

Given that parental need support appears to be particularly relevant to children's intrinsic aspirations, further research is required to better our understanding of the types of factors that contribute to parents being more or less need-supportive. The following questions could be considered: Does increasing parents' own need satisfaction bolster their child's need satisfaction? Does a parent's sense of providing a need-supportive environment match their child's experience of need satisfaction? Further clarity is also required surrounding how socioeconomic conditions impact the parent-child system and the development of aspirations. It is not clear whether a parent valuing money in the context of deficit or low socioeconomic status is different from a parent valuing money in the context of abundance or high socioeconomic status and how this translates to a child's aspirations surrounding wealth. Although stress has been found to contribute to more psychologically controlling parenting, it would be worth uncovering whether family stressors are always detrimental to the parent-child context? This poses questions such as, can adversity foster intrinsic aspirations, and under what circumstances?

This systematic review also highlighted that research in this field is predominantly cross-sectional and correlational. Further longitudinal studies, such as that seen in a recent study by Ahn and Reeve (2020), are required to better understand the causal nature of the development of aspirations. Intervention studies could also offer insight into whether changes in parenting characteristics are linked to changes in children's intrinsic and extrinsic aspirations. The conclusions are limited given we cannot provide evidence about the temporal ordering of these variables. Our framing has centered on the directional flow of parent characteristics to child aspirations, but our claim is not that the links are unidirectional. We

cannot preclude the possibility of reciprocal effects in which a child's aspirations has the capacity to shape their parent's aspirations, parenting practices, stress, or need satisfaction. Further research could offer insight into the causal flow by including analyses that examine whether children's intrinsic and extrinsic aspirations predict any changes in parent characteristics. Nonetheless, parents' characteristics are likely to still play a fundamental role in a reciprocal relationship given the prominent role that parents play in their child's development. We also acknowledge the possibility of other unseen variables which could impact the link between parenting characteristics and children's aspirations given the unique interplay between genes and environmental factors in child development (DiLalla & Gottesman, 1991).

Parenting was predominately rated from the perspective of the child. Future studies could broaden the insight by measuring both the parent's and the child's perceptions. This would offer particular utility in the case in which a parent perceives that they are stylistically autonomy-supportive, whereas the child's perception is that the parent is low in autonomy support. Although we aimed to consider possible moderators in an exploratory fashion, we were limited in that descriptive data pertaining to details of parents included in the studies such as ethnicity and age, were rarely provided.

## **Conclusions**

We aimed to provide clarity regarding the parent characteristics associated with the life aspirations that children develop. Shedding light on this issue could help identify parent characteristics that foster healthy trajectories of goal setting for children. Equally valuable is the capacity to know how to minimize children excessively aspiring to extrinsic aspirations, external contingencies, and hedonic treadmills. Goal contents theory (Ryan & Deci, 2017) suggests that well-being is optimized by the pursuit of intrinsic aspirations, whereas an emphasis on extrinsic aspirations leads to ill-being.

The findings of this review suggest that parents do impact the aspirations that their children develop. The ways in which parents may influence children's intrinsic aspirations are different to the ways in which they may influence children's extrinsic aspirations. This suggests that parents should not just focus solely on optimizing intrinsic aspirations but also need to be mindful of the ways in which they can mitigate extrinsic aspirations. Intrinsic aspirations are most likely to be fostered with parenting that is conducive to need satisfaction and when parents aspire intrinsically themselves. Extrinsic aspirations will be most prominent in environments in which parents hold extrinsic aspirations themselves and promote and encourage their children to pursue extrinsic aspirations. Parenting that embodies need frustration was also found to be related to children's extrinsic aspirations.

Approaches and interventions aimed at promoting children's intrinsic aspirations could aim to promote environments conducive to psychological need satisfaction (Joussemet et al., 2018). Whereas interventions aimed at children's extrinsic aspiring might focus on supporting parents to understand their own relationships with extrinsic aspirations and minimize the extent that wealth, image, and fame are endorsed and modeled as dominant pursuits (Kasser, 2016; Kasser et al., 2014). Extrinsic aspirations may also be minimized by supporting parents to reduce need-frustrating behaviors. Strategies could involve supporting parents to explore the function behind their use of need-frustrating techniques, such as psychological control. For example, some parents who exhibit psychologically controlling parenting practices do so with the intention of supporting their child to live a good life. However, they may not realize that adopting psychologically controlling practices or forcing values upon their child may restrict their autonomy and be counterproductive in working toward the development of intrinsic aspirations and well-being.

We highlighted that parents have the capacity to impact the aspirations that their children hold. Too much emphasis and modeling on the 'things' they should acquire, the

‘fame’ they could achieve, and the way they should ‘look,’ is unlikely to lead to a path of authentic well-being. Instead, creating the environmental conditions that satisfy their psychological needs will optimize their ability to set goals in ways that bring well-being through personal growth, authentic connections, community, and health.

### References

- \* References marked with an asterisk indicate reports included in the meta-analysis.
- Affrunti, N. W., & Woodruff-Borden, J. (2015). Parental perfectionism and overcontrol: Examining mechanisms in the development of child anxiety. *Journal of Abnormal Child Psychology*, *43*(3), 517-529. <https://doi.org/10.1007/s10802-014-9914-5>
- \*Ahn, J. S., & Reeve, J. (2020). Developmental pathways of preadolescents' intrinsic and extrinsic values: The role of basic psychological needs satisfaction. *European Journal of Personality*, *35*(2), 151-167. <https://doi.org/10.1002/per.2274>
- Anic, P., & Tonicic, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psychological Topics* *22*(1), 135-153.
- Annear, K. D., & Yates, G. C. (2010). Restrictive and supportive parenting: Effects on children's school affect and emotional responses. *Australian Educational Researcher*, *37*(1), 63-82. <https://doi.org/10.1007/BF03216914>
- Assor, A. (2018). The striving to develop an authentic inner compass as a key component of adolescents' need for autonomy: Parental antecedents and effects on identity, well-being, and resilience. In B. Soenens, M. Vansteenkiste, & S. Van Petegem (Eds.), *Autonomy in adolescent development: Towards conceptual clarity* (1st ed., Vol. 1, pp. 119–144). Routledge. <https://doi.org/10.4324/9781315636511-6>
- Ato, E., Galián, M. D., & Fernández-Vilar, M. A. (2015). The moderating role of children's effortful control in the relation between marital adjustment and parenting. *Journal of Child and Family Studies*, *24*(11), 3341-3349. <https://doi.org/10.1007/s10826-015-0136-4>
- \*Baker, A. M., Moschis, G. P., Benmoyal-Bouzaglo, S., & Pizzutti dos Santos, C. (2013). How family resources affect materialism and compulsive buying: A cross-country life course perspective. *Cross-Cultural Research*, *47*(4), 335–362.

<https://doi.org/10.1177/1069397112473074>

- Barber, B. K. (1996). Parental Psychological Control: Revisiting a Neglected Construct. *Child Development, 67*(6), 3296–3319. <https://doi.org/10.2307/1131780>
- Barber, B. K., Xia, M., Olsen, J. A., McNeely, C. A., & Bose, K. (2012). Feeling disrespected by parents: Refining the measurement and understanding of psychological control. *Journal of Adolescence, 35*(2), 273–287.  
<https://doi.org/https://doi.org/10.1016/j.adolescence.2011.10.010>
- Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-determination theory and diminished functioning: The role of interpersonal control and psychological need thwarting. *Personality & Social Psychology Bulletin, 37*(11), 1459–1473. <https://doi.org/10.1177/0146167211413125>
- Boggiano, A. K. (1998). Maladaptive achievement patterns: A test of a diathesis-stress analysis of helplessness. *Journal of Personality and Social Psychology, 74*, 1681–1695.  
<https://doi.org/10.1037/0022-3514.74.6.1681>
- Bowman, N. A. (2012). Effect sizes and statistical methods for meta-analysis in higher education. *Research in Higher Education, 53*, 375–382.  
<http://dx.doi.org/10.1007/s11162-011-9232-5>
- Bradshaw, E. L., Conigrave, J. H., Steward, B. A., Ferber, K. A., Parker, P. D., & Ryan, R. M. (2022). A meta-analysis of the dark side of the American dream: Evidence for the universal wellness costs of prioritizing extrinsic over intrinsic goals. *Journal of Personality and Social Psychology, 124*(4), 873–899.  
<https://doi.org/10.1037/pspp0000431>
- Bradshaw, E. L., Duineveld, J. J., Conigrave, J. H., Steward, B. A., Ferber, K. A., 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*.

\*Bredehoff, D., & Ralston, E. (2008). *Factors Connecting Childhood Overindulgence and Adult Life Aspirations Executive Summary Study 6*. [Unpublished manuscript]. Social and Behavioral Sciences Department, Concordia University, St. Paul, MN.

<https://www.researchgate.net/publication/238088595>

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

\*Burroughs, J. E., & Rindfleisch, A. (1997). Materialism as a coping mechanism: An inquiry into family disruption. *ACR North American Advances*.

\*Chaplin, L. N., & John, D. R. (2010). Interpersonal influences on adolescent materialism: A new look at the role of parents and peers. *Journal of Consumer Psychology: The Official Journal of the Society for Consumer Psychology*, 20(2), 176–184.

<https://doi.org/10.1016/j.jcps.2010.02.002>

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R. M., Sheldon, K. M., Soenens, B., Van Petegem, S., & Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, 39(2), 216–236. <https://doi.org/10.1007/s11031-014-9450-1>

Cheung, M. W.-L. (2014). Modeling dependent effect sizes with three-level meta-analyses: A structural equation modeling approach. *Psychological Methods*, 19, 211–229.

<http://doi:10.1037/a0032968>

Cheung, M. W.-L. (2015). metaSEM: An R package for meta-analysis using structural equation modeling. *Frontiers in Psychology*, 5, Article 1521.

<https://doi.org/10.3389/fpsyg.2014.01521>

\*Chew, E., & Wang, J. (2008). Perceptions of parental autonomy support and control, and

aspirations of student athletes in Singapore. In M. Chia & J. Chiang (Eds.), *Sport Science and Studies in Asia* (pp. 231-248). Taiwan: World Scientific.

[https://doi.org/10.1142/9789814304092\\_0015](https://doi.org/10.1142/9789814304092_0015)

\*Chia, S. C. (2010). How social influence mediates media effects on adolescents' materialism. *Communication Research*, 37(3), 400–419.

<https://doi.org/10.1177/0093650210362463>

Conger, R. D., Patterson, G. R., & Ge, X. (1995). It takes two to replicate: A mediational model for the impact of parents' stress on adolescent adjustment. *Child Development*, 66(1), 80–97. <https://doi.org/10.1111/j.1467-8624.1995.tb00857.x>

Copeland-Linder, N., Lambert, S. F., & Ialongo, N. S. (2010). Community violence, protective factors, and adolescent mental health: A profile analysis. *Journal of Clinical Child & Adolescent Psychology*, 39(2), 176-186.

<https://doi.org/https://doi.org/10.1080/15374410903532601>

Csikszentmihalyi, M. (1999). If we are so rich, why aren't we happy? *American Psychologist*, 54(10), 821–827. <https://doi.org/10.1037/0003-066X.54.10.821>

\*Dávila, C. M., & Singh, J. J. (2017). A world beyond family: How external factors impact the level of materialism in children. *The Journal of Consumer Affairs*, 51(1), 162–182.

<https://doi.org/10.1111/joca.12103>

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19(2), 109–134.

[https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268.

[https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)

DiLalla, L. F., & Gottesman, I. I. (1991). Biological and genetic contributors to violence-



widom's untold tale. *Psychological Bulletin*, 109(1), 125–129.

<https://doi.org/10.1037/0033-2909.109.1.125>

Dittmar, H., Bond, R., Hurst, M., & Kasser, T. (2014). The relationship between materialism and personal well-being: A meta-analysis. *Journal of Personality and Social Psychology*, 107(5), 879–924. <https://doi.org/10.1037/a0037409>

Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development*, 65(2), 649–665. <https://doi.org/10.1111/j.1467-8624.1994.tb00774.x>

\*Duriez, B. (2011). Adolescent ethnic prejudice: Understanding the effects of parental extrinsic versus intrinsic goal promotion. *The Journal of Social Psychology*, 151(4), 441–454. <https://doi.org/10.1080/00224545.2010.490571>

\*Duriez, B., Giletta, M., Kuppens, P., & Vansteenkiste, M. (2013). Extrinsic relative to intrinsic goal pursuits and peer dynamics: Selection and influence processes among adolescents. *Journal of Adolescence*, 36(5), 925–933. <https://doi.org/10.1016/j.adolescence.2013.07.009>

Ferber, K. A., Bradshaw, E. L., Noetel, M., Wong, T. Y., Ahn, J. S., Parker, P. D., Ryan, R. (2020, June 25). The links between parent characteristics and children's intrinsic and extrinsic aspirations: A systematic review and meta-analysis. Retrieved from [osf.io/azbm5](https://osf.io/azbm5)

\*Flouri, E. (2004). Exploring the relationship between mothers' and fathers' parenting practices and children's materialist values. *Journal of Economic Psychology*, 25(6), 743–752. <https://doi.org/10.1016/j.joep.2003.06.005>

\*Fu, X., Kou, Y., & Yang, Y. (2015). Materialistic values among Chinese adolescents: Effects of parental rejection and self-esteem. *Child & Youth Care Forum*, 44(1), 43–57. <https://doi.org/10.1007/s10566-014-9269-7>

- Funder, D. C., & Ozer, D. J. (2019). Evaluating Effect Size in Psychological Research: Sense and Nonsense. *Advances in Methods and Practices in Psychological Science* 2 (2): 156–68. <https://doi.org/10.1177/2515245919847202>
- \*Geng, J., Wang, P., Zeng, P., Liu, K., & Lei, L. (2022). Relationship between honesty-humility and cyberbullying perpetration: A moderated mediation model. *Journal of Interpersonal Violence*, 37(15-16), NP14807–NP14829. <https://doi.org/10.1177/08862605211016346>
- \*Gong, Y., Tang, X., Xie, J., & Zhang, L. (2022). Exploring the nexus between work-to-family conflict, material rewards parenting and adolescent materialism: Evidence from Chinese dual-career families. *Journal of Business Ethics*, 176(3), 593–607. <https://doi.org/10.1007/s10551-020-04681-4>
- Greenhalgh, T., & Peacock, R. (2005). Effectiveness and efficiency of search methods in systematic reviews of complex evidence: Audit of primary sources. *Bmj*, 331(7524), 1064-1065. doi/10.1136/bmj.38636.593461.68
- Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 78–99). New York: Wiley.
- Grolnick, W. S., Gurland, S. T., Jacob, K. F., & Decourcey, W. (2002). The development of self-determination in middle childhood and adolescence. In A. Wigfield & J.S. Eccles (Eds.), *Development of achievement motivation* (pp. 147–171). San Diego, CA: Academic Press. <https://doi.org/10.1016/B978-012750053-9/50008-5>
- Grolnick, W. S., Weiss, L., McKenzie, L., & Wrightman, J. (1996). Contextual, cognitive, and adolescent factors associated with parenting in adolescence. *Journal of Youth and Adolescence*, 25(1), 33–54. <https://doi.org/10.1007/BF01537379>

- \*Grougiou, & Moschis, G. P. (2015). Antecedents of young adults' materialistic values. *Journal of Consumer Behaviour*, *14*(2), 115–126.  
<https://doi.org/10.1002/cb.1505>
- Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., Ryan, R. M., Saunders, S., Schmuck, P., & Sheldon, K. M. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, *89*(5), 800–816.  
<https://doi.org/10.1037/0022-3514.89.5.800>
- Grusec, J. E. (1994). Social learning theory and developmental psychology: The legacies of Robert R. Sears and Albert Bandura. In R. D. Parke, P. A. Ornstein, J. J. Rieser, & C. Zahn-Waxler (Eds.), *A century of developmental psychology*. (pp. 473–497). American Psychological Association. <https://doi.org/10.1037/10155-016>
- Hart, D., & Carlo, G. (2005). Moral development in adolescence. *Journal of Research on Adolescence: The Official Journal of the Society for Research on Adolescence*, *15*(3), 223–233. <https://doi.org/10.1111/j.1532-7795.2005.00094.x>
- Hein, V., Koka, A., & Hagger, M. S. (2015). Relationships between perceived teachers' controlling behaviour, psychological need thwarting, anger and bullying behaviour in high-school students. *Journal of Adolescence*, *42*, 103–114.  
<https://doi.org/10.1016/j.adolescence.2015.04.003>
- \*Henderson-King, D., & Brooks, K. D. (2009). Materialism, sociocultural appearance messages, and paternal attitudes predict college women's attitudes about cosmetic surgery. *Psychology of Women Quarterly*, *33*(1), 133–142.  
<https://doi.org/10.1111/j.1471-6402.2008.01480.x>
- Hill, R. (1949). *Families under stress: Adjustment to the crisis of war, separation and reunion*. New York: Harper & Row.
- Hinde, S., & Spackman, E. (2015). Bidirectional citation searching to completion: An

exploration of literature searching methods. *Pharmacoeconomics*, 33(1), 5–11.

<https://doi.org/10.1007/s40273-014-0205-3>

Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). Thousand Oaks, CA: Sage.

Jackson, A. P., Brooks-Gunn, J., Huang, C. C., & Glassman, M. (2000). Single mothers in low-wage jobs: Financial strain, parenting, and preschoolers' outcomes. *Child Development*, 71(5), 1409–1423.

<https://doi.org/10.1111/1467-8624.00236>

Joussemet, M., Mageau, G. A., Larose, M.-P., Briand, M., & Vitaro, F. (2018). How to talk so kids will listen & listen so kids will talk: A randomized controlled trial evaluating the efficacy of the how-to parenting program on children's mental health compared to a wait-list control group. *BMC Pediatrics*, 18(1), 257. <https://doi.org/10.1186/s12887-018-1227-3>

Kasser, T. (2004). The good life or the goods life? Positive psychology and personal well-being in the culture of consumption. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 55–67). Hoboken, NJ: Wiley.

Kasser, T. (2016). Materialistic values and goals. *Annual Review of Psychology*, 67, 489–514. <https://doi.org/10.1146/annurev-psych-122414-033344>

\*Kasser, T., Rosenblum, K. L., Sameroff, A. J., Deci, E. L., Niemiec, C. P., Ryan, R. M., Árnadóttir, O., Bond, R., Dittmar, H., Dungan, N., & Hawks, S. (2014). Changes in materialism, changes in psychological well-being: Evidence from three longitudinal studies and an intervention experiment. *Motivation and Emotion*, 38(1), 1–22.

<https://doi.org/10.1007/s11031-013-9371-4>

Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology*, 65(2), 410–422.

<https://doi.org/10.1037/0022-3514.65.2.410>

- Kasser, T., & Ryan, R. M. (1996). Further examining the american dream: Differential correlates of intrinsic and extrinsic goals. *Personality & Social Psychology Bulletin*, 22(3), 280–287. <https://doi.org/10.1177/0146167296223006>
- Kasser, T., & Ryan, R. M. (2001). *Be careful what you wish for: Optimal functioning and the relative attainment of intrinsic and extrinsic goals*. In P. Schmuck & K. M. Sheldon (Eds.), *Life goals and well-being: Towards a positive psychology of human striving* (pp. 116-131). Ashland, OH: Hogrefe & Huber. <https://psycnet.apa.org/record/2001-01629-007>
- \*Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. *Developmental Psychology*, 31(6), 907–914. <https://doi.org/10.1037/0012-1649.31.6.907>
- Kasser, V., & Ryan, R. M. (1999). The relation of psychological needs for autonomy and relatedness to vitality, well-being, and mortality in a nursing home. *Journal of Applied Social Psychology*, 29, 935-454. <https://doi.org/10.1111/j.1559-1816.1999.tb00133.x>
- Kytle, J., & Bandura, A. (1978). Social learning theory. *Contemporary Sociology*, 7(1), 84. <https://doi.org/10.2307/2065952>
- La Guardia, J. G., & Patrick, H. (2008). Self-determination theory as a fundamental theory of close relationships. *Canadian Psychology/Psychologie Canadienne*, 49(3), 201–209. <https://doi.org/10.1037/a0012760>
- \*Lekes, N., Gingras, I., Philippe, F. L., Koestner, R., & Fang, J. (2010). Parental autonomy-support, intrinsic life goals, and well-being among adolescents in China and North America. *Journal of Youth and Adolescence*, 39(8), 858–869. <https://doi.org/10.1007/s10964-009-9451-7>
- \*Lekes, N., Joussemet, M., Koestner, R., Taylor, G., Hope, N. H., & Gingras, I. (2011). Transmitting intrinsic value priorities from mothers to adolescents: The moderating role

of a supportive family environment. *Child Development Research*, 2011.

<https://doi.org/10.1155/2011/167146>

\*Li, J., Wang, X., Wu, X., & Guo, Y. (2021). Early material parenting and adolescents' materialism: the mediating role of overt narcissism. *Current Psychology (New Brunswick, N.J.)*. <https://doi.org/10.1007/s12144-021-02196-3>

\*Liu, M., & Koivula, A. (2023). Greed doesn't grow on trees: the indirect association between proenvironmental behaviour and materialism through adolescents' psychological entitlement. *Young Consumers*, 24(1), 1–17. <https://doi.org/10.1108/YC-09-2021-1388>

\*Manchiraju, S., & Son, J. (2014). Materialistic (and unhappy?) adult now, economically deprived child then: How are felt formative economic deprivation, materialism, and well-being measures related. *Journal of Business and Management Research*, 5, 125-127.

Moulton, V., Flouri, E., Joshi, H., & Sullivan, A. (2015). The role of aspirations in young children's emotional and behavioural problems. *British Educational Research Journal*, 41(6), 925–946. <https://doi.org/10.1002/berj.3188>

\*Mouratidis, A., Vansteenkiste, M., Lens, W., Michou, A., & Soenens, B. (2013). Within-person configurations and temporal relations of personal and perceived parent-promoted aspirations to school correlates among adolescents. *Journal of Educational Psychology*, 105(3), 895–910. <https://doi.org/10.1037/a0032838>

\*Murdock, C. L. (2013). *Do perceptions of parental goal promotion and autonomy support explain the relationship between generational status and academic processes and outcomes?* [Unpublished dissertation] University of Oklahoma.

\*Nguyen, H. V., Moschis, G. P., Shannon, R., & Gotthelf, K. (2009). The effects of family structure and socialization influences on compulsive buying: A life course study in

Thailand. *Journal of Global Academy of Marketing Science*, 19(2), 27–39.

<https://doi.org/10.1080/12297119.2009.9707289>

Nickerson, C., Schwarz, N., Diener, E., & Kahneman, D. (2003). Zeroing in on the dark side of the American Dream: A closer look at the negative consequences of the goal for financial success. *Psychological Science*, 14(6), 531–536.

[https://doi.org/10.1046/j.0956-7976.2003.psci\\_1461.x](https://doi.org/10.1046/j.0956-7976.2003.psci_1461.x)

\*Nicolotti, M., Marini, E., & Magrin, M. E. (2018). Well-being orientations within the family: hypotheses of intergenerational transmission [Poster presentation]. EHPS.

Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2010). Self-determination theory and the relation of autonomy to self-regulatory processes and personality development. In *Handbook of personality and self-regulation* (pp. 169–191). Wiley-Blackwell.

<https://doi.org/10.1002/9781444318111.ch8>

\*Nishimura, T., Bradshaw, E. L., Deci, E. L., & Ryan, R. M. (2021). Satisfaction of basic psychological needs in an interdependence model of fathers' own aspirations and those of their adolescent children. *Social Development*, 30(1), 293–310.

<https://doi.org/10.1111/sode.12473>

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71.

<https://doi.org/10.1136/bmj.n71>

Patrick, H., Knee, C. R., Canevello, A., & Lonsbary, C. (2007). The role of need fulfillment in relationship functioning and well-being: A self-determination theory perspective.

*Journal of Personality and Social Psychology*, 92(3), 434–457.

<https://doi.org/10.1037/0022-3514.92.3.434>

Peterson, R. A., & Brown, S. P. (2005). On the use of beta coefficients in meta-analysis.

*Journal of Applied Psychology, 90*, 175–181. [http://dx.doi.org/10.1037/0021-](http://dx.doi.org/10.1037/0021-9010.90.1.175)

9010.90.1.175

\*Pinto, M. de R., Mota, A. O., Leite, R. S., & Alves, R. C. (2017). Investigating the influencers of materialism in adolescence. *Tourism & management studies, 13*(1), 66–

74. <https://doi.org/10.18089/tms.2017.13109>

\*Poraj-Weder, M. (2014). Perceived parental upbringing and the materialism of young adults. *SAGE Open, 4*(2). <https://doi.org/10.1177/2158244014537499>

\*Poraj-Weder, M. (2018). Overabundance and privation as predictors of materialism in young adults. *Roczniki Psychologiczne, 21*(3), 207-229.

\*Proctor, C., Tweed, R. G., & Morris, D. B. (2021). Unconditional positive self-regard: The role of perceived parental conditional regard. *The Humanistic Psychologist, 49*(3), 400.

R Core Team. (2020). R: A language and environment for statistical computing (Version 2022.07.01). In R Foundation for Statistical Computing. <http://www.r-project.org>

Robinson, K. A., Dunn, A. G., Tsafnat, G., & Glasziou, P. (2014). Citation networks of related trials are often disconnected: Implications for bidirectional citation searches.

*Journal of clinical epidemiology, 67*(7), 793-799. [doi.org/10.1016/j.jclinepi.2013.11.015](https://doi.org/10.1016/j.jclinepi.2013.11.015)

Rodgers, M. A., & Pustejovsky, J. E. (2021). Evaluating meta-analytic methods to detect selective reporting in the presence of dependent effect sizes. *Psychological Methods, 26*(2), 141–160. <https://doi.org/10.1037/me t0000300>

\*Rindfleisch, A., Burroughs, J. E., & Denton, F. (1997). Family structure, materialism, and compulsive consumption. *The Journal of Consumer Research, 23*(4), 312–.

<https://doi.org/10.1086/209486>



- \*Richins, & Chaplin, L. N. (2015). Material Parenting: How the use of goods in parenting fosters materialism in the next generation. *The Journal of Consumer Research*, *41*(6), 1333–1357. <https://doi.org/10.1086/680087>
- \*Roberts, J. A., Manolis, C., & Tanner Jr, J. F. (2003). Family structure, materialism, and compulsive buying: A reinquiry and extension. *Journal of the Academy of Marketing Science*, *31*(3), 300–311. <https://doi.org/10.1177/0092070303031003007>
- 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. <https://doi.org/10.1037/fam0000657>
- \*Roman, N. V., Davids, E. L., Moyo, A., Schilder, L., Lacante, M., & Lens, W. (2015). Parenting styles and psychological needs influences on adolescent life goals and aspirations in a South African setting. *Journal of Psychology in Africa*, *25*(4), 305–312. <https://doi.org/10.1080/14330237.2015.1078087>
- \*Rothman, A.M. (2009). *Affluent adolescents: Attachment, entitlement, and subjective well-being*. [Unpublished dissertation]. Adelphi University.
- \*Russell, C. A., & Shrum, L. J. (2021). The cultivation of parent and child materialism: A parent–child dyadic study. *Human Communication Research*, *47*(3), 284–308. <https://doi.org/10.1093/hcr/hqab004>
- Ryan, R. M., Bernstein, J. H., & Brown, K. W. (2010). Weekends, work, and well-being: Psychological need satisfactions and day of the week effects on mood, vitality, and physical symptoms. In *Journal of Social and Clinical Psychology; New York* (Vol. 29, Issue 1, pp. 95–122). Guilford Press. <https://doi.org/10.1521/jscp.2010.29.1.95>
- Ryan, R. M., & Brown, K. W. (2003). Why we don’t need self-esteem: On fundamental needs, contingent love, and mindfulness. *Psychological Inquiry*, *14*(1), 71–76.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of

intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78. <http://dx.doi.org/10.1037/0003-066X.55.1.68>

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York: Guilford Press.

Ryan, R. M., Deci, E. L., & Vansteenkiste, M. (2016). Autonomy and autonomy disturbances in self-development and psychopathology: Research on motivation, attachment, and clinical process. In D. Cicchetti (Ed.), *Developmental psychopathology: Vol. 1. Theory and method* (3rd ed., pp. 385-438). New York: Wiley.

Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: a self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, 9(1), 139–170. <https://doi.org/10.1007/s10902-006-9023-4>

Ryan, R. M., Sheldon, K. M., Kasser, T., & Deci, E. L. (1996). All goals were not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer, & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 7–26). New York: Guilford.

Schwartz, S. H., & Bardi, A. (2001). Value hierarchies across cultures: Taking a similarities perspective. *Journal of Cross-Cultural Psychology*, 32(3), 268–290. <https://doi.org/10.1177/0022022101032003002>

\*Sekarasih, L. (2015). Parents' television viewing and the cultivation of materialism among families with young adult offspring [Unpublished Dissertation]. University of Massachusetts Amherst.

\*Sheldon, K. M., Arndt, J., & Houser-Marko, L. (2003). In search of the organismic valuing process: The human tendency to move towards beneficial goal choices. *Journal of Personality*, 71(5), 835–869. <https://doi.org/10.1111/1467-6494.7105006>

Sheldon, K. M., Ryan, R. M., Deci, E. L., & Kasser, T. (2004). The independent effects of

goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality & Social Psychology Bulletin*, 30(4), 475–486.

<https://doi.org/10.1177/0146167203261883>

Şimşek, Ö. F., & Demir, M. (2013). Parental support for basic psychological needs and happiness: The importance of sense of uniqueness. *Social Indicators Research*, 112(3), 661–678. <https://doi.org/10.1007/s11205-012-0075-z>

Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review*, 30(1), 74–99. doi:10.1016/j.dr.2009.11.001

Soenens, B., Wuyts, D., Vansteenkiste, M., Mageau, G. A., & Brenning, K. (2015). Raising trophy kids: The role of mothers' contingent self-esteem in maternal promotion of extrinsic goals. *Journal of Adolescence*, 42, 40–49.

<https://doi.org/10.1016/j.adolescence.2015.04.001>

Sterne, J., Egger, M., & Moher, D. (2011). Addressing reporting biases. In J. Higgins & S. Green (Eds.), *Cochrane handbook for systematic reviews of intervention* (Version 5.1.0). <http://handbook.cochrane.org/>

\*Sutton, C. (2013). Adolescent materialism, parental and peer materialism, parental and peer support and adolescent well-being. (masters thesis) University of Bedfordshire.

\*Tessier, J., Joussemet, M., Kurdi, V., & Mageau, G. A. (2022). How perceived detrimental parenting relates to adolescents' intrinsic and extrinsic values. *Journal of Child and Family Studies*. <https://doi.org/10.1007/s10826-022-02483-y>

Unanue, W., Dittmar, H., Vignoles, V. L., & Vansteenkiste, M. (2014). Materialism and well-being in the UK and Chile: Basic need satisfaction and basic need frustration as underlying psychological processes. *European Journal of Personality*, 28(6), 569–585. <https://doi.org/10.1002/per.1954>

- van de Schoot, R., de Bruin, J., Schram, R., Zahedi, P., de Boer, J., Weijdemans, F., Kramer, B., Huijts, M., Hoogerwerf, M., Ferdinands, G., Harkema, A., Willemsen, J., Ma, Y., Fang, Q., Hindriks, S., Tummers, L., & Oberski, D. L. (2021). An open source machine learning framework for efficient and transparent systematic reviews. *Nature Machine Intelligence*, 3(2), 125–133. <https://doi.org/10.1038/s42256-020-00287-7>
- 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. <https://doi.org/10.1037/a0032359>
- Wang, Z., Taylor, K., Allman-Farinelli, M., Armstrong, B., Askie, L., Ghersi, D., McKenzie, J., Norris, S., Page, M., Rooney, A., & Woodruff T, Bero L. (2019) *A systematic review: Tools for assessing methodological quality of human observational studies*. NHMRC. <https://doi.org/10.31222/osf.io/pnqmy>.
- \*Williams, K. E., & Ciarrochi, J. (2020). Perceived parenting styles and values development: A longitudinal study of adolescents and emerging adults. *Journal of Research on Adolescence: The Official Journal of the Society for Research on Adolescence*, 30(2), 541–558. <https://doi.org/10.1111/jora.12542>
- \*Williams, G. C., Hedberg, V. A., Cox, E. M., & Deci, E. L. (2000). Extrinsic life goals and health-risk behaviors in adolescents. *Journal of Applied Social Psychology*, 30(8), 1756–1771. <https://doi.org/10.1111/j.1559-1816.2000.tb02466.x>
- \*Wright, A. N. (2012). *Value development in emerging adulthood: The influence of family* [Unpublished dissertation]. University of North Texas.
- Wu, Q., & Xu, Y. (2020). Parenting stress and risk of child maltreatment during the COVID-19 pandemic: A family stress theory-informed perspective. *Developmental Child Welfare*, 2(3), 180–196. <https://doi.org/10.1177/2516103220967937>
- Yu, S., Assor, A., & Liu, X. (2015). Perception of parents as demonstrating the inherent

merit of their values: Relations with self-congruence and subjective well-being. *International Journal of Psychology*, 50(1), 70–74.

<https://doi.org/10.1002/ijop.12074>

\*Zawadzka, A. M., Iwanowska, M., & Borchet, J. (2018). The role of parents, social media and materialism in teenage activism. *Social Psychological Bulletin*, 13(4), 1–17.

<https://doi.org/10.32872/spb.v13i4.26706>

\*Zawadzka, A. M., Iwanowska, M., & Borchet, J. (2020). The role of teenagers' materialism and self-esteem, parental materialism, and family SES in achievement goal orientations of adolescents. *Materializm–przyczyny i konsekwencje*, 331.

\*Zawadzka, A. M., Kasser, T., Niesiołędzka, M., Lewandowska-Walter, A., & Górnik-Durose, M. (2022). Environmental correlates of adolescent' materialism: Interpersonal role models, media exposure, and family socio-economic status. *Journal of Child and Family Studies*, 31(5), 1427–1440. <https://doi.org/10.1007/s10826-021-02180-2>

\*Zawadzka, A. M., Lewandowska-Walter, A., Borchet, J., & Iwanowska, M. (2022). Risk factors for materialistic attitudes and values of teenagers - role of parents and peers. *Journal of Family Studies*, ahead-of-print(ahead-of-print), 1–18.

<https://doi.org/10.1080/13229400.2022.2060120>

Zemojtel-Piotrowska, M., Piotrowski, J., & Clinton, A. (2015). Materialism subjective well-being and psychological entitlement: Interplay between materialism and social functioning. *Ceskoslovenska Psychologie; Praha*, 59(1), 56–66.

Zhu, H., Luo, X., Cai, T., Li, Z., & Liu, W. (2014). Self-control and parental control mediate the relationship between negative emotions and emotional eating among adolescents.

*Appetite*, 82, 202-207. <https://doi.org/https://doi.org/10.1016/j.appet.2014.06.106>