

Child contingent self-esteem mediates the link between need frustration and psychological
control

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I declare that this thesis is my own account of my research and contains, as its main content, work that has not previously been submitted for a degree at any tertiary educational institution.

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Abstract

This research study explores why parents use more psychologically controlling parenting (PCP) when their basic needs are frustrated. Using a theory called Self-Determination Theory (SDT), these basic psychological needs, termed needs, are considered fundamental to wellbeing. Need frustration occurs when parents' needs are actively thwarted. Need frustration has been associated with PCP in parents of adolescents and this study aimed to replicate this association in parents of young children. Contingent self-esteem is theorised to arise in need frustration, so this study explored parents' child contingent self-esteem as an explanation, speculating that child contingent self-esteem might be the motivation for PCP when parents are need frustrated. Participants, parents ($N = 187$; 161 mothers, and 26 fathers) with children who were between five and 10 years old (age $M = 7.26$ years), participated in an online survey which measured parents' self-reported levels of PCP (measure derived from the Dependency and Achievement Oriented Psychological Control Scale), child contingent self-esteem (Child Contingent Self-Esteem Scale) and need frustration (Basic Need Frustration and Satisfaction Scale). Child contingent self-esteem was found to be correlated with need frustration and, further, child contingent self-esteem explained the association for between need frustration and PCP. These findings support the premise that parents' child contingent self-esteem and resultant PCP are compensatory activity and parents' attempts to meet their own needs. A limitation was that this study lacked sufficient measures to determine additional explanations for parents' PCP, so future studies could measure possible other factors such as stress and parents' psychological availability.

Introduction

One of the quandaries of parenthood is the balancing of the central task of helping children function effectively in society and the external world, with maintaining children's intrinsic motivation and self-expression, as well as meeting parents' own needs alongside their children's needs. This can become challenging when needing to develop children's capacity to engage with less enjoyable or uninteresting tasks, which may lead parents to resort to controlling tactics (Joussemet & Koestner, 2008). While control can be overt and clear (e.g. rewards and consequences), parents may exercise covert control through psychologically controlling parenting (PCP). PCP occurs when parents induce cooperation in children by eliciting uncomfortable emotions, such as anxiety or guilt, within them, or by exerting conditional regard, whereby care and affection are conditionally given or withdrawn (Assor, Roth, & Deci, 2004; Barber, 1996; Olsen et al., 2002). Since PCP adversely affects children's adaptive functioning (Scharf & Goldner, 2018), this present study will explore its predictors.

Self-determination theory (SDT; Deci & Ryan, 2000), a theory of human motivation, may help clarify why parents exert PCP. SDT theorises that individuals have basic psychological needs (hereafter referred to as needs) to feel autonomous, competent and related to significant others in their lives. Individuals develop and function optimally when needs are satisfied, but need frustration ensues when needs are actively thwarted or undermined (Deci & Ryan, 2000; Vansteenkiste & Ryan, 2013). Need frustration is associated with poorer adaptive functioning (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011), and parental need frustration is positively associated with PCP in parents of adolescents (Costa, Gugliandolo, Barberis, Cuzzocrea, & Liga, 2019; Mabbe, Soenens, Vansteenkiste, van der Kaap-Deeder, & Mouratidis, 2018; van der Kaap-Deeder et al., 2019).

Thus, one aim of the present study is to determine whether this association exists in parents of younger children.

However, there is little research regarding why need frustration is associated with PCP in parents. In other words, when parents are need frustrated, what makes them act as they do? What might precipitate PCP? To answer these questions, the present study will focus on seeking an explanation for this association by specifically exploring how parents' child contingent self-esteem, which occurs when parents' self-worth is based on their children's achievements or behaviour, relates to need frustration and PCP. This knowledge may help us further understand what happens within parents when they exert PCP.

Background to Psychological Control and Parenting

Control can be both helpful and undermining. However, the widely used taxonomy of authoritarian, authoritative and permissive styles of parenting (Baumrind, 1971) in parenting research (e.g., Pinquart, 2017) is insufficiently nuanced for exploring control. Authoritarian and authoritative parents are controlling, but exercise control differently due to different levels of warmth and responsiveness to children's perspectives, whereas permissive parents are low on control (Maccoby & Martin, 1983). Thus, researchers have taken a dimensional approach and broadly categorised controlling parent behaviour into behavioural control and psychological control (Schaefer, 1965a; Steinberg, 1990). Behavioural control is openly directive. For example, where parents tell their children that they may earn play time with their neighbours by completing homework and will lose that privilege if they do not. Thus, when parents openly create structures by setting and maintaining clear guidelines for behaviour (Barber, 1996), behavioural control can be protective against externalising disorders and enables academic achievement (Grolnick et al., 2014).

In contrast, PCP is covertly directive and psychologically intrusive. It is generally represented throughout the literature as controlling and manipulative and as way for parents

to impose their agenda on children (e.g. Barber, 1996; Schaefer, 1965b; Soenens, Vansteenkiste, & Luyten, 2010b; Steinberg, Elmen, & Mounts, 1989). Parents direct children's behaviour by eliciting uncomfortable emotions (e.g. guilt, anxiety) in children that create, in turn, an internal pressure that motivates children to act according to their parents' wishes to avoid or escape from the uncomfortable emotions (Schaefer, 1965b). Since these evoked emotions naturally arise because of the love bond between the children and their parents, psychological control is considered manipulative because it uses this bond inappropriately (Barber, 1996). Thus, when a child did not wish to do as they were asked, a parent might show disapproval or withdraw love, thus evoking guilt, shame or distress in the child, resulting in the child deciding to do as they were asked. Therefore, compared to behavioural control, where parents openly and unambiguously direct children through clear structures and guidelines, parents' directions through PCP are ambiguous and implied, rather than clearly stated. For example, a parent might behave coldly and be noticeably less friendly with their child, and even ignoring them, if they did not do their homework, rather than giving them a clear direction and telling their child that they need to do their homework.

PCP has been described in different ways: empirically (Barber, 1996; Olsen et al., 2002) and from a base of psychodynamic theory (Soenens et al., 2010b). In addition, love withdrawal, an empirically described PCP behaviour, was developed into the concept of conditional regard (Assor et al., 2004). Empirically, PCP behaviours are described as verbal attacks, invalidating children's thoughts and feelings, intrusively offering help that is not required, displaying erratic emotional behaviour, love withdrawal and inducing guilt or shame (Barber, 1996; Olsen et al., 2002). From a psychodynamic theory-based perspective (Blatt, 1974), PCP is described according to its theorised origins of parents' non-adaptive perfectionism (achievement-oriented PCP) and parents' need to keep their children close and dependent (dependency-oriented PCP) (Soenens et al., 2010b). Conditional regard describes

how parents give and withdraw love, care and attention, contingent upon children's cooperation, and involves a felt difference between the parents' usual warmth and the warmth given when exerting conditional regard (Assor, Kanat-Maymon, & Roth, 2014).

It is important to explore PCP's origins because it adversely affects children's adaptive functioning (for review, see Scharf & Goldner, 2018). For example, in adolescents, PCP is related to internalising and externalising problems such as anxiety, delinquency (Pettit, Laird, Dodge, Bates, & Criss, 2001), self-criticism, depressive symptoms (Bleys, Soenens, Claes, Vliegen, & Luyten, 2018), low self-esteem (Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005) and poorer academic results (Wang, Pomerantz, & Chen, 2007). It is also related to separation anxiety, extrinsic motivation and perfectionism (Roth, Assor, Niemiec, Ryan, & Deci, 2009; Rousseau, Scharf, & Smith, 2018), poorer maths results (Aunola & Nurmi, 2004), resentment towards parents, poor self-worth (Assor et al., 2004) and a tendency to suppress anger and fear (Roth et al., 2009). These adverse outcomes make it worth exploring conditions that might give rise to PCP.

Self-determination theory (SDT) and parenting

The three basic needs in SDT, autonomy, competence and relatedness, are considered to be the fundamental, psychological nutrients required for optimal psychological functioning and wellness, similar to how oxygen, water and food are essential for physiological health (Deci & Ryan, 2000). Autonomy concerns self-endorsed, volitional functioning, where individuals experience psychological freedom to act according to personally meaningful values and preferences. Competence describes the feeling of being effective and capable, and relatedness describes how individuals feel connected to significant others through warmth, caring and belonging (Ryan & Deci, 2000). These needs are argued to be innate and universal, across cultures, and were demonstrated in 1,051 individuals from Belgium, China, USA and Peru (Chen et al., 2015).

The central aim of parenting according to SDT is to raise children who are autonomously functioning, able to make volitional (free will) choices, and intrinsically motivated (Grolnick & Ryan, 1989; Ryan & Deci, 2017). Autonomy supportive parents provide rationales, listen to children's perspectives and offer choice, and encourage initiative and exploration. This provides opportunities for children to develop their capacity for autonomy as they process their parents' rationales and experience freedom to choose while held in the safety of their parents' limits. In doing so, children whose autonomy is supported learn to volitionally accept adult guidance and eventually internalise it so that, for example, they follow their parents' rules freely, rather than resentfully, unlike children who are controlled through PCP. Thus, it is likely that too much parent control hinders children from developing their own autonomous capacity. In this way, PCP covertly, but actively, undermines autonomy supportive parenting when it elicits uncomfortable emotions in children so that they are no longer feel free to make a volitional choice (Soenens & Vansteenkiste, 2010). In contrast, the protective structures of behavioural control can support children's autonomy development: in the absence of PCP, behavioural control allows children to make volitional choices within the structures set by their parents (e.g. do homework or not do homework) and learn, experientially, to live with the consequences of their choices (e.g. choose to do homework and play with neighbours, or choose to do no homework, resulting in no play and completing homework anyway with parents). Thus, it is expected that autonomy support and PCP will be inversely related in this present study.

The Relationship Between Parents' Need Satisfaction, Need Frustration and PCP

In SDT, when individuals needs are satisfied, they have been shown to experience optimal emotional and social functioning, vitality and wellbeing (Chen et al., 2015; Ryan, Bernstein, & Brown, 2010; Ryan & Deci, 2000). However, need frustration is not the same as lack of need satisfaction. Need frustration occurs when there is active thwarting and

undermining of needs, and thus represents more than simply unmet needs. An absence or low levels of need satisfaction does not imply need frustration, but need frustration does imply a lack of need satisfaction (Deci & Ryan, 2000). Need frustration in just one need or domain can affect wellbeing in other domains (Sheldon & Niemiec, 2006). It is associated with illbeing and suboptimal ways of behaving and interacting with others (Chen et al., 2015; Costa, Ntoumanis, & Bartholomew, 2015), lower levels of self-control, possibly because available energy for self-control is eroded by need frustration (Moller, Deci, & Ryan, 2006) and, in athletes, burnout and negative affect (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011).

Consistent with theory (Deci & Ryan, 2000), self-reported parental need satisfaction has been found to correlate positively with overall levels of (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019, 2015) and daily fluctuations in (Mabbe et al., 2018; van der Kaap-Deeder et al., 2019) self- and adolescent-rated autonomy supportive parenting. Need satisfied parents have higher levels of psychological availability, which is parents' ability to be physically, emotionally and cognitively present for their child (Danner-Vlaardingerbroek, Kluwer, van Steenbergen, & van der Lippe, 2013), together with low levels of stress in daily interactions with their children (van der Kaap-Deeder et al., 2019). Therefore, parents' own need satisfaction generally promotes adaptive social functioning such as good, optimal parenting. In contrast, parents' self-reported need frustration was found to correlate significantly and positively with both self-rated (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019) and adolescent-rated (Costa et al., 2019; van der Kaap-Deeder et al., 2019) PCP. This generalised from cross-sectional survey of individual differences to daily fluctuations within person in two-week longitudinal studies (Mabbe et al., 2018; van der Kaap-Deeder et al., 2019). In studies that used both adolescent and parent self-reports, the adolescent and parent reports of PCP were significantly correlated (Costa et al.,

2019; van der Kaap-Deeder et al., 2019). Thus, in this present study, it is expected that the inverse association between need frustration and need satisfaction (Chen et al., 2015) and the associations of higher need frustration with higher PCP and lower autonomy and the associations of higher need satisfaction with lower PCP and high autonomy (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019) will be replicated.

Furthermore, parents' need frustration was found to be positively correlated to parents' stress in relation to their children and to psychological availability, which is parents' capacity to be psychologically or emotionally present with their children (van der Kaap-Deeder et al., 2019). However, although stress and lack of psychological availability in parenting may result in suboptimal parenting, where parents might act without thinking, those variables may not completely account for need frustration's association with PCP (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019) because of the active manipulateness implied in PCP.

Mediation Model: Possible Way in Which Need Frustration Translates to PCP

Contingent self-esteem may explain manipulateness implied in the association between need frustration and PCP. In SDT, true, stable self-esteem is purported to exist when needs are satisfied. SDT further posits that, because their needs are satisfied, need satisfied individuals do not seek to maintain their self-esteem – it does not motivate them because it is not salient (Deci & Ryan, 1995; Ryan & Brown, 2003). However, when individuals are need frustrated, contingent self-esteem arises. Contingent self-esteem is self-esteem that is dependent on external criteria, for example, extrinsic goals such as material success or standards imposed by others, which is linked to maladaptive perfectionism, where individuals strive for unattainable standards set by others (DiBartolo, Li, Yen, & Frost, 2008; Sturman, Flett, Hewitt, & Rudolph, 2009). These external criteria are transmuted into internal criteria of self-worth when self-esteem is contingent (Kasser & Ryan, 1996; Ryan & Deci, 2017).

Thus, parents' self-esteem, when destabilised by need frustration, may be the element that moves parents from frustrated behaviour to PCP.

Furthermore, when individuals are need frustrated, they engage and persist in compensatory goals and behaviour, in an attempt to satisfy their needs (Deci & Ryan, 2000). By extension, this present study proposes that need frustrated parents may possibly compensate for their need frustration and unstable self-esteem with the pride and joy they feel when their children achieve highly. If true, the fulfillment that is felt by parents upon their children's success may be a substitute for true need satisfaction. Thus, it is plausible that the form of contingent self-esteem that develops in parents is child contingent self-esteem, where parents' self-worth depends on their child's achievements, and motivates PCP. In contrast, need satisfied parents, who feel pride and joy when their children achieve highly, are empathically enjoying their children's successes, and do not need their children's achievements to boost their self-worth or to meet their needs.

Consequently, when parents' self-worth is invested in their child, parents may overidentify with their child (i.e., experience their child as a part of themselves), which may lead them to experience their children's successes and failures as if they were their own. This argument is supported by research that showed the more parents think of their child as part of themselves, the more parents are likely to desire that their child fulfils their parents' unfulfilled ambitions (Brummelman et al., 2013). Thus, this closeness and overidentification may make it more likely that parents would actively use PCP to pressure their children to succeed. Indeed, although no research links need frustration to child contingent self-esteem, child contingent self-esteem is positively correlated with empirically defined PCP (Ng, Pomerantz, & Deng, 2014) and with achievement-oriented PCP (Wuyts, Chen, Vansteenkiste, & Soenens, 2015; Wuyts, Vansteenkiste, Soenens, & Assor, 2015). In addition, these correlations are supported by observations that parents with the highest levels

of child contingent self-esteem were the most controlling (Grolnick, Price, Beiswenger, & Sauck, 2007). Therefore, it is expected that child contingent self-esteem may explain the association between need frustration and PCP, and that need satisfaction will be correlated with lower child contingent self-esteem. Furthermore, consistent with this line of reasoning, since parents' closeness and overidentification to their children is linked to dependency (Manzi, Vignoles, Regalia, & Scabini, 2006), this present study expects that child contingent self-esteem will partly account for the association between need frustration and dependency-oriented PCP.

Issues arising for this present study

Nevertheless, PCP research to date has focused mostly on parents of adolescents. Although this focus is justified because of the central importance of identity development and differentiation from one's parents is important to adolescents (Erikson, 1950), the gradual process of developing autonomy likely begins long before this phase, while children are still highly dependent upon their parents (Landry et al., 2008). It is, thus, important to determine whether these associations take the same form in parents of younger children, who may face different parenting challenges (Berk, 2012). Since controlling attitudes in parents of young children of five years old are significantly correlated to internalising and externalising disorders three to six years later (Pettit et al., 2001), it would be useful to extend current research to study the relationship between need frustration and PCP specifically in parents of young children. Thus, this present study aims to replicate the association between need frustration and PCP (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019).

Thus, the first issue lies with the treatment of PCP in research. The studies exploring need frustration and PCP have treated PCP as a single construct, using the same empirical measure of PCP (e.g. Barber, 1996). However, Soenens et al.'s (2010b) theoretical approach

to developing a measure of PCP defines PCP according to parent's orientations (i.e., perfectionism, separation anxiety), and their measure contains the subscales of achievement-oriented and dependency-oriented PCP. This latter approach of conceptualising PCP in two ways may allow this present study to differentiate between causes of PCP. Thus, if the PCP related to need frustration (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019) is related to other variables such as the stress and lack of psychological availability (van der Kaap-Deeder et al., 2019) or dependency related variables such as parents need to keep their children close, then both forms of PCP would be expected to show similar associations with need frustration and child contingent self-esteem. However, from the theorised relationships above, it would be expected that child contingent self-esteem is more pertinent to achievement and thus produces a stronger indirect effect on achievement-oriented PCP than with dependency-oriented PCP. Thus, child contingent self-esteem may fully account for the correlation between need frustration and achievement-oriented PCP and produce lesser effect on dependency-oriented PCP in the form of a complementary mediation (see Appendix BB; Zhao et al., 2010).

The second issue was only partly resolvable. This present study required a PCP measure that measured parents' achievement and dependency orientations in PCP and was validated for use with younger children. The only available scales were the Dependency and Achievement Psychological Control Scale (DAPCS; Soenens et al., 2010b) and a version of the DAPCS (Soenens et al., 2010b) that had been adapted and validated for young children (Scharf, Rousseau, & Smith, 2016). There were two concerns with these scales. The first concern was that studies in PCP have generally used adolescent reports (Scharf & Goldner, 2018), where PCP is operationalised as adolescents' perception of their parents' behaviour in order to match a research aim of predicting the outcomes of PCP. However, this present study will explore parents' intentions underlying PCP and it is possible that child reporting may not

correspond to the parents' intentions. This point is pertinent because the present study involves parents of young children and young children, in particular, may not have reliably developed the comprehension of written statements required to report accurately on relatively abstract concepts such as their parents' underlying intentions (Soto, John, Gosling, & Potter, 2008). Furthermore, items measuring PCP for adolescents may be less applicable to younger children. Thus, to explore parent intent, parent self-report was appropriate for the purpose of this present study. However, the only parent self-report which assessed achievement- and dependency-oriented PCP was the DAPCS (Soenens et al., 2010b) published in Dutch. This produced the difficulty of translating between languages, as well as social desirability effects: issues that can be expressed matter-of-factly and politely in Dutch may seem discourteous in English, given that there is a higher degree of indirectness in English than Dutch (Hendriks, 2008; Ogiermann, 2009). The second concern with the scales measuring achievement- and dependency-oriented PCP was the overlay of conditional regard. This meant that two questions were contained within each item i.e., double-barrelled (Kaplan & Saccuzzo, 2018): if the behaviour occurred, and if it occurred contingently. For example, an item in the Scharf, Rousseau and Smith (2016) version was "My parents only show their love for me if I get good grades" and "My parents are only happy with me if I rely on them exclusively for advice". These concerns were not fully resolvable given the requirements of this present study because no other suitable measure was available in literature.

Study aims

To date, research has found positive correlations between need frustration and PCP (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019). Additionally, positive correlations have been found between child contingent self-esteem and PCP (Ng et al., 2014; Wuyts, Chen, et al., 2015; Wuyts, Vansteenkiste, et al., 2015). There is no research linking need frustration and contingent self-esteem or need frustration and child contingent

self-esteem. Research on PCP has also largely focused on parents of adolescents (Scharf & Goldner, 2018). Therefore, this present study aims to test whether the association between need frustration and PCP, which exists in parents of adolescents (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019), replicates in parents of younger children. Additionally, this study aims to provide evidence for an association between need frustration and child contingent self-esteem, and to test this study's proposition that PCP may be a compensatory behaviour in need frustration by demonstrating that child contingent self-esteem mediates the association between need frustration and achievement-oriented PCP (see Figure 1) and partly accounts for the association between need frustration and dependency-oriented PCP.

Hypotheses

It was hypothesised that there will be a positive correlation between need frustration and achievement-oriented PCP (Hypothesis 1) and a significant indirect effect between need frustration and achievement-oriented PCP, via child contingent self-esteem (Hypothesis 1a). After accounting for this indirect effect, there will be no significant direct effect (Hypothesis 1b). In addition, there will be a positive correlation between need frustration and dependency-oriented PCP (Hypothesis 2) and a significant indirect effect between need frustration and dependency-oriented PCP, via child contingent self-esteem (Hypothesis 2a). After accounting for this indirect effect, there will be a significant direct effect (Hypothesis 2b).

Furthermore, autonomy supportive parenting will be negatively correlated with both achievement- and dependency-oriented PCP (Hypothesis 4). Additionally, parents' need satisfaction will be associated with lower need frustration, lower child contingent self-esteem and greater autonomy supportive parenting (Hypothesis 5).

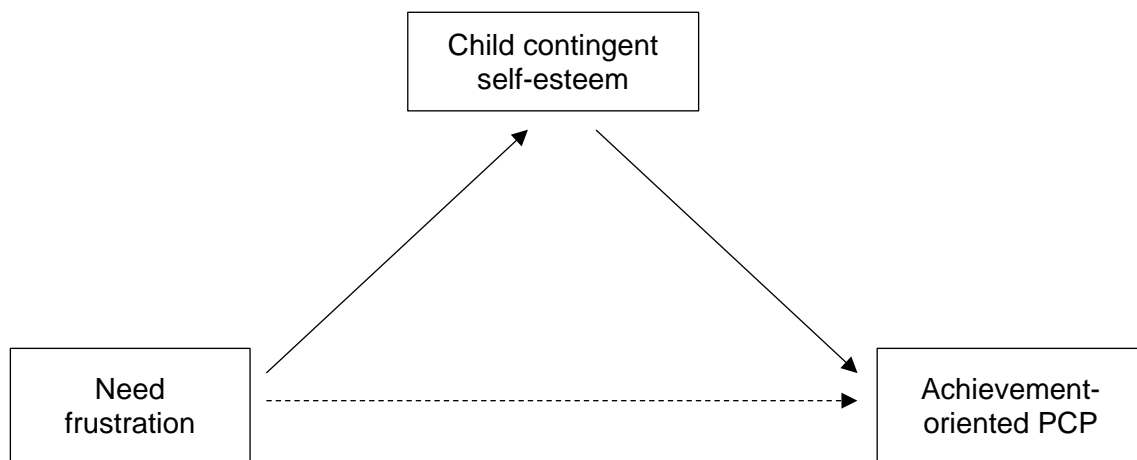


Figure 1. Hypothesised mediation: child contingent self-esteem as a mediator between parental need frustration and achievement-oriented PCP

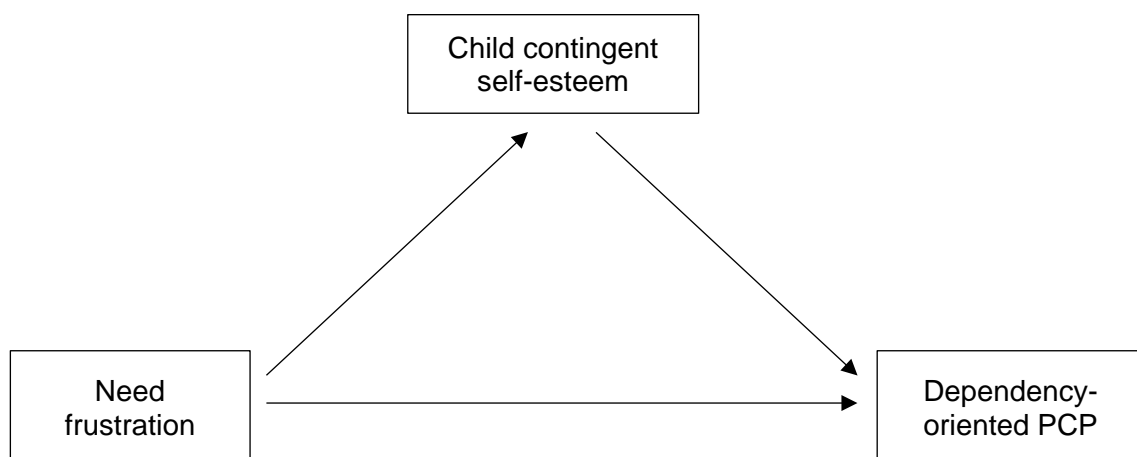


Figure 2. Hypothesised mediation: child contingent self-esteem as a mediator between parental need frustration and dependency-oriented PCP

Method

Participants

Participants were a convenience sample of parents with at least one child aged between five and 10 years old (age $M = 7.26$ years, $SD = 1.64$; 98 boys, 89 girls), from 187 families. Families were recruited by poster, word-of-mouth and snowball sampling from the research team's social contacts (see Appendices D and E). Eligible undergraduate psychology students at Murdoch University (South Street campus) were also invited to participate for course credit. The inclusion criteria were for participants to be Australian residents and fluent in English. A priori power analysis (Aberson, 2019) revealed a 76% probability for detecting a significant mediation effect with 200 participants (assuming pairwise correlations of .3 between predictor and mediator, and mediator and outcome, $\alpha = .05$).

The final data set comprised 187 parents (mothers = 160, fathers = 25, stepmother = 1, stepfather = 1). The majority of the sample consisted of the primary caregiver ($n = 180$). If primary caregiver responses were unavailable, secondary caregiver ($n = 7$) data was used. Educationally, 61% of parents held university qualifications (28.3% Bachelor's degrees, 10.7% graduate diplomas/certificates, 21.9% postgraduate degrees), 27.2% held diplomas/certificates, 6.4% had finished high school only, and 4.3% had junior secondary education as their highest education level. Income levels were \$100,000 per year or more for 60.5% of participants, 14.4% earned \$65,000-\$99,999 per year, 17.6% earned less than \$64,999 per year (see Appendix A).

Research Design

The research design was a cross-sectional survey design. The predictor variable was need frustration, outcome variables were achievement-oriented PCP and dependency-oriented PCP. The mediator variable was child contingent self-esteem.

Measures

To support the hypotheses, parents' need frustration, psychologically controlling parenting (PCP), child contingent self-esteem, need satisfaction and autonomy support were measured.

Parent Attitude Scale (PAS, Gurland & Grolnick, 2005; see Table B1, Appendix B). The PAS autonomy support subscale was used to measure autonomy supportive parenting. This subscale consisted of 10 items (six reverse-scored) to which participants responded on a 6-point Likert scale, 1 "Strongly disagree" to 6 "Strongly agree". Validity was established against the Parent as Teacher Inventory (Strom & Slaughter, 1978) and the Parental Locus of Control Scale (Campis, Lyman, & Prentice-Dunn, 1986). Cronbach's α was 0.72. It included items such as "I encourage my child to make his/her own decisions". The maximum score was 60. Higher scores indicated more autonomy supportive parenting.

Psychologically controlling parenting (PCP) measure (see Table B2, Appendix B). This measure was based on the Dependency-oriented and Achievement-oriented Psychological Control Scale (DAPCS, Soenens et al., 2010b), originally an adolescent report measure of parents' PCP. The version of the DAPCS (Soenens et al., 2010b) adapted for this present study was validated for use with young children aged six to 11 (Scharf et al., 2016). Validity for the original scale (DAPCS; Soenens et al., 2010b) was established against an empirical measure of PCP, the Psychological Control Scale (Barber, 1996), autonomy support items from the Perceptions of Parents Scale (Grolnick, Ryan, & Deci, 1991), parents' supportiveness through the Support items in the Children's Report on Parent Behaviour Inventory (CRPBI; Schaefer, 1965b). In addition, it was validated against the Concern over Mistakes, Parent Expectations and Parent Criticism subscales of the Maladaptive Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990), the enmeshment subscale of the Colorado Self-Report of Family Functioning Inventory (Bloom, 1985; Manzi et al.,

2006). Validity for the Scharf et al. (2016) version was established against the original DAPCS (Soenens et al., 2010b), parent emotional support items from the CRPBI (Schaefer, 1965b), children's self-report of social problems items from the Child Behaviour Checklist (Achenbach & Edelbrock, 1983). Additionally, the scale was validated against scales of perfectionism: the Adaptive/Maladaptive Perfectionism Scale (Rice & Preusser, 2002) and the Piers-Harris Self-Concept Scale (Rice, 2004).

The parent self-report for the PCP measure for this present study was created by modifying the items of the child report measure that had been validated for younger children (Scharf et al., 2016). The Scharf et al.'s (2016) scales were modified to a parent self-form, and to make the item less direct and more socially acceptable (Hendriks, 2008), words such as "only" were removed. For example, the original child report item "My parents only show their love for me as long as we keep doing everything together" was changed to be parent report, e.g., "I feel more affection towards my child when we keep doing everything together". (See Appendix C).

The original Soenens et al.'s (2010a) parent report form in Dutch was translated into English using Google Translate (www.translate.google.com), and the translation was then validated by a bilingual, native Dutch-English speaker. Modified items were cross-checked against original DAPCS (Soenens et al., 2010b) parent self-report, to ensure fidelity with Soenens et al.'s (2010b) original intentions.

The original DAPCS (Soenens et al., 2010b) 5-point Likert scale was retained. All 15 items were scored from 1 "Not at all true" to 5 "Very true". High scores indicated high levels of high levels of dependency and achievement-oriented PCP. Due to the translation and other modifications, the psychometric properties of the modified DAPCS were evaluated prior to its use in the main analysis, and scoring procedure is described in the Results section..

Child-invested Contingent Self-Esteem Scale (CCSES, Wuyts, Vansteenkiste, et al., 2015; see Table B3). This 5-point, 15-item scale, where Cronbach's $\alpha = 0.91$ for mothers, $.89$ for fathers. Validity was established against subscales Concern Over Mistakes, Parental Expectations, Parental Criticism, Doubt Over Actions and Personal Standards subscales of the Maladaptive Perfectionism Scale (Frost et al., 1990). Items, e.g., "When my child succeeds, I feel good about myself", were scored from 1 "Not at all/never true" to 5 "Often/very true". The maximum score was 75. Higher scores indicated more child contingent self-esteem.

Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS, Chen et al., 2015; see Table B4, Appendix B). This 5-point, 24-item scale, Cronbach's α ranged from 0.64 to 0.89, across the four countries tested (Belgium, China, USA, Peru). There were 12 items each for need frustration, for example, "I feel pressured to do too many things" and need satisfaction e.g., "I feel my choices express who I really am", scored from 1 "Completely untrue" to 5 "Completely true". Each subscale's maximum score was 60. Higher scores indicated greater need frustration and satisfaction, respectively. The convergent validity of the scale was established with the Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985; α ranged from $.66 - .86$ over the four countries tested) and the Subjective Vitality Scale (Ryan & Frederick, 1997; α ranged from $.81$ to $.88$ over the four countries tested). Discriminant validity was established against a self-report depression scale for use with the general population (CES-D; Radloff, 1977).

Procedure

Murdoch University Human Research Ethics Committee granted ethical approval prior to recruitment (see Appendices F and G). The survey was loaded onto QUALTRICS, with forced responses (i.e. null responses were disallowed). To standardize administration procedures, researchers were trained prior to presenting the survey to participants. Following

recruitment (see Appendices D and E re: recruitment; see Appendices H and I for information letter about the study's purpose and consent, respectively), researchers met with volunteer participants to present the survey, in person, due to a pencil-and-paper component. The survey took place at designated public places (e.g. libraries, cafés) or participants' homes and was presented to participants on researchers' laptops or iPads. Using a random number generator (www.random.org), a child was chosen from amongst participants' children who were aged between five and 10. Parents held the chosen child in mind during the survey. Participants were free to withdraw any time prior to submission of the anonymous, online survey (total estimated completion time 30-40 minutes), when electronic submission of the survey implied full, informed consent.

The complete survey questionnaire comprised 296 items and this present study's measures were part of a larger survey on parenting. Demographic questions came first, parenting attitudes and behaviours next, and parent individual factors at the end. Amongst this larger survey, measures were presented in the following order: the PAS (Gurland & Grolnick, 2005) measuring autonomy supportive parenting, the measure of PCP, the CCSES (Wuyts, Vansteenkiste, et al., 2015) measuring child contingent self-esteem and finally, the BPNSFS (Chen et al., 2015) measuring parents' need satisfaction and frustration (see Appendix B). After analysis and reporting, a project summary was compiled (see Appendix AA).

Data analysis

A mediation analysis was conducted using the PROCESS Macro (Version 3.4; Hayes, 2018, 2019) in SPSS (IBM Corp., 2019). To test the statistical significance of the indirect effect of need frustration on PCP, bias corrected bootstrapping (10,000 resamples) was performed, allowing for non-normal distribution of variables. Decision making criteria from Zhao et al. (2010) will be used when interpreting the mediation analysis (see Appendix BB).

Results

PCP Measure

The factor structure of the PCP measure was checked, with initial analysis indicating no missing values in the data. All assumptions for running an exploratory factor analysis (EFA) were met, with participants' responses were independent, sample size was greater than 100 ($N = 187$) and scatterplots indicating linearity between relationships. Although Shapiro-Wilk's statistics were significant ($p < .001$; see Appendix J), EFA is reasonably robust to violations of normality (Field, 2014). Outliers were not influential since trimmed means lay within confidence intervals of the means (Pallant, 2016; see Table K1). There was no multicollinearity (determinant = .007; Tabachnick & Fidell, 2014; see Table N1). Thus, EFA (maximum likelihood) was conducted on the 15 items of the PCP measure with oblique rotation (direct oblimin). Kaiser-Meyer-Olkin value was .80, verifying sampling adequacy (Hutcheson & Sofroniou, 1999). Bartlett's test was significant (Field, 2014; see Table N2). Four factors (eigenvalues > 1) were identified, explaining 47.74% of the total variance (see Table N4). The scree plot justified retaining two or four factors (see Figure K1).

To maintain consistency with the two-factor structure of the original measures (Scharf et al., 2016; Soenens et al., 2010b), a forced 2-factor solution, $\chi^2 = 259.27$ (76, $N = 187$), $p < .001$, was conducted (see Appendix L). However, some items reflecting achievement clustered with items that represented dependency, indicating poor discrimination (see Appendix M). Thus, although the 2-factor structure was very similar to Scharf et al.'s (2016) measure (see Appendix C), the 4-factor solution, $\chi^2 = 69.49$ (51, $N = 187$), $p = .044$, was deemed more interpretable. In support of this, factors for the 4-factor structure correlated with each other within acceptable limits (Tabachnick & Fidell, 2014; see Table 1).

Table 1

Factor Correlation Matrix for 4-Factor Solution

Factor Number, Factor Name	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1, Excelling PCP	-			
Factor 2, Negative PCP	.378	-		
Factor 3, Positive PCP	.432	.220	-	
Factor 4, Dependency PCP	.225	.315	.260	-

Note. Extraction: Maximum Likelihood. Rotation: Oblimin with Kaiser Normalization.

For the 4-factor solution, the first factor captured two items describing PCP oriented towards excelling (Excelling PCP), the second factor (five items) described disapproving responses to poor achievement (Negative PCP), the third factor (three items) described conditional positive regard given for good achievement (Positive PCP), and the fourth factor (five items) described involvement and dependency (Dependency PCP; see Table 2). Achievement-related PCPs will be referred to hereafter as achievement PCPs. Factor scores were used for bivariate correlations and mediation analysis.

Table 2

*Four-Factor Structure of PCP Measure, with Factor Names: Direct Oblimin Rotated**Structure*

Item No.	Item	Loadings			
		Factor 1	Factor 2	Factor 3	Factor 4
Factor 1: Excelling PCP					
13	I show more pride in my child if he/she excels in everything that he/she does.	.89			
12	I respect my child more if he/she is best at everything.	.80			
Factor 2: Negative PCP					
10	I show that I am not pleased when my child doesn't perform well.		.88		
8	I tell my child off if he/she is underperforming.		.71		
6	I express my disappointment when my child makes a mistake.		.50		
4	I am less friendly with my child if he/she performs less than perfectly.		.46		
7	I pay less attention to my child if he/she doesn't do his/her best.		.40		
Factor 3: Positive PCP					
9	I show my child lots of affection when he/she achieves well at school.			.92	
14	I show I'm especially proud of my child when he/she does well in school.			.52	
11	I show special appreciation for my child when he/she pursues high standards.			.42	
Factor 4: Dependency PCP					
1	I like my child to rely on only me for advice.				.66
5	I get involved with my child's problems even when he/she prefers to solve his/her own problems.				.57
2	My disapproval shows when my child's point of view differs from mine.				.53
3	I feel more affection towards my child when we keep doing everything together.				.43
15	When my child leaves home permanently, I will find it very hard to let go.				.40

Note. Factor loadings < .3 have been suppressed. See Appendix N for all factor loadings

Internal reliabilities, Descriptive Statistics and Correlations

For each factor, Excelling, Negative, Positive and Dependency PCP, Cronbach's was calculated at $\alpha = .84, .74, .74$ and $.69$, respectively and maximum scores were 10, 25, 15 and 25, respectively. For the PAS (Gurland & Grolnick, 2005), $\alpha = 0.75$; for the CCSES (Wuyts, Vansteenkiste, et al., 2015), $\alpha = 0.92$; for BPNSFS (Chen et al., 2015), $\alpha = 0.85$ and 0.87 for the need frustration and satisfaction subscales, respectively.

Because achievement-oriented PCP split into three factors when factor analysed, the hypothesis of a positive correlation between need frustration and achievement-oriented PCP (Hypothesis 1) was tested with respect to all three achievement PCP factors (Excelling, Negative, Positive PCP).

Descriptive data are displayed in Table 3 (see Appendix O) and bivariate correlations are displayed in Table 4 (see Appendix P).

Table 3

Mean Scores for Predictor Variables (Excelling PBCP, Negative PCP, Positive PCP, Dependency PCP), Mediator Variable (Child Contingent Self-Esteem), Outcome Variable (Need Frustration) and Supporting Variables (Need Satisfaction and Autonomy Supportive Parenting); N = 187

Variable (max. Likert score)	Mean Likert ratings, <i>M (SD)</i>	Range	Min-Max values of Likert ratings
PCP, Excelling (5.00)	1.87 (1.06)	4.00	1.00-5.00
PCP, Negative (5.00)	1.84 (0.63)	3.60	1.00-4.60
PCP, Positive (5.00)	3.46 (0.94)	4.00	1.00-5.00
PCP, Dependency (5.00)	2.58 (0.79)	4.00	1.00-5.00
Child contingent self-esteem (5.00)	2.46 (0.74)	3.87	1.00-4.87
Need frustration (5.00)	1.99 (0.51)	3.17	1.00-4.17
Need satisfaction (5.00)	4.15 (0.49)	2.58	2.42-5.00
Autonomy Support (6.00)	4.60 (0.75)	3.60	3.60-6.00

Table 4

Bivariate Correlations for Predictor Variables (Excelling PCP, Negative PCP, Positive PCP, Dependency PCP), Mediator Variable (Child Contingent Self-Esteem) and Outcome Variable (Need Frustration) and Supporting Variables (Need Satisfaction and Autonomy Supportive Parenting); N = 187.

	Excelling PCP	Negative PCP	Positive PCP	Dependency PCP	CCSE	NF	NS	Autonomy Support
Excelling PCP (factor score)	-							
Negative PCP (factor score)	.44***	-						
Positive PCP (factor score)	.50***	.27***	-					
Dependency PCP (factor score)	.27***	.35***	.33***	-				
Child contingent self-esteem (CCSE)	.56***	.48***	.46***	.41***	-			
Need frustration (NF)	.21**	.29***	.09	.30***	.32***	-		
Need satisfaction (NS)	-.08	-.21**	-.00	-.18*	-.19**	-.65***	-	
Autonomy supportive parenting	-.19**	-.38***	-.31**	-.45***	-.31***	-.31***	.22**	-

*** $p < .001$. ** $p < .01$ (2-tailed). * $p < .05$ (2-tailed)

Need frustration showed moderate, positive correlations with Excelling PCP and Negative PCP, supporting the hypothesis, but not with Positive PCP. The hypothesised positive correlation between need frustration and Dependency PCP was found, and the correlation was moderate and significant (Hypothesis 2). Hypothesis 4 was met: autonomy supportive parenting was negatively correlated with both achievement- and dependency-oriented PCP. Hypothesis 5 also was met: parents' need satisfaction was associated with lower need frustration (large correlation), lower child contingent self-esteem (small correlation) and greater autonomy support (small correlation).

Mediation Analysis

Hypothesis 1a, that there would be an indirect effect between need frustration and achievement-oriented PCP via child contingent self-esteem, and Hypothesis 1b, that there would be no significant direct effect after accounting for the indirect effect, were tested separately for each achievement PCP (Excelling, Negative, Positive PCP) since achievement-oriented PCP split into three factors when factor analysed. Hypothesis 2a, that there would be an indirect effect between need frustration and dependency-oriented PCP via child contingent self-esteem, and Hypothesis 1b, that there would be a significant, positive direct effect after accounting for the indirect effect, was tested with respect to the Dependency PCP factor.

Prior to mediation analysis, assumptions for all four models were checked according to Tabachnick and Fidell (2014). Bootstrapping was performed (10,000 resamples) because normality was violated for most variables (see Appendix Q). The casewise diagnostics tables indicated five univariate outliers with residuals greater than ± 2.5 for the mediation model for Excelling, three for Negative, three for Positive and two for Dependency PCPs (see Appendix R). Multivariate outliers were present since Mahalanobis' distance was larger than critical χ^2 ($df = 2$) = 13.82 (Tabachnick & Fidell, 2014), but Cook's distances (all < 1.00) indicated that these outliers were not overly influential (see Appendix S). All cases were retained. Number

of cases ($N = 187$) was adequate, Durbin-Watson values indicated that the independence of errors assumption was not violated (see Appendix T). Inspection of scatterplots of standardised residuals indicated that assumptions of linearity and homoscedasticity were met (see Appendix U). High tolerances ($> .90$) and variance inflation factor values below 10 for all models indicated no multicollinearity (see Appendix V). According to Zhao et al. (2010), indirect-only and complementary mediations were found.

Specifically, there was an indirect-only mediation by child contingent self-esteem of the relationship between need frustration and Excelling PCP (see figure 3). The significant indirect effect was 81.85% of the total effect (unstandardized $b = 0.39$, BaCI [0.13, 0.66], $p = 0.003$). The completely standardized indirect effect was small, $b = 0.17$, BaCI [0.09, 0.27] (Cheung, 2009). This model accounted for significant variance in Excelling PCP, $R^2 = .32$, $F(2, 184) = 42.75$, $p < .001$ (see Appendix W). Effect size of this mediation is $v = .03$, which is a small effect size (Cohen, 1988; Lachowicz, Preacher, & Kelley, 2018).

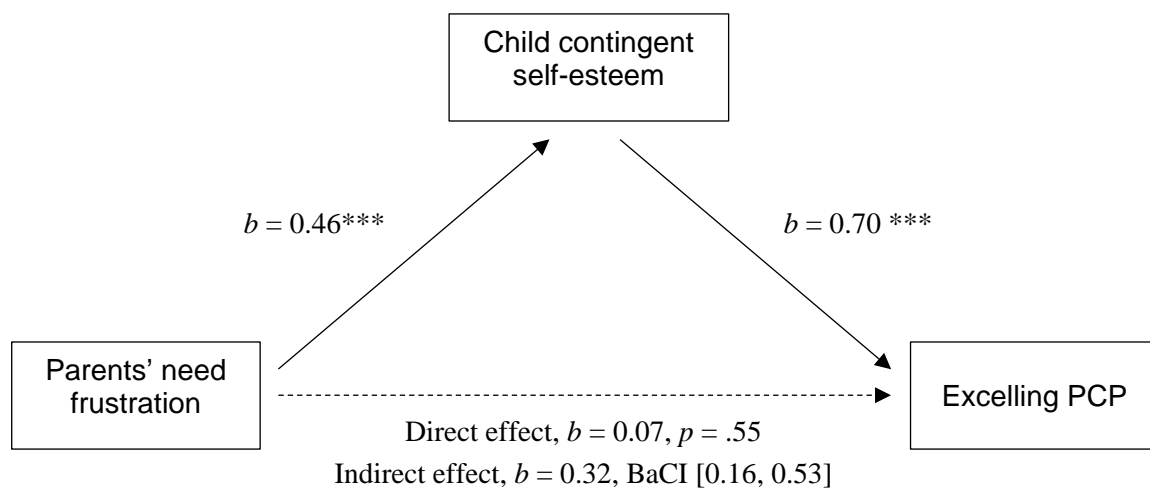


Figure 3. Indirect-only mediation by child contingent self-esteem of the association between parents' need frustration and Excelling PCP (Factor 1); *** $p < .001$. ** $p < .01$ (2-tailed). * $p < .05$ (2-tailed).

There was a complementary mediation by child contingent self-esteem of the relationship between need frustration and Negative PCP (see Figure 4). The significant indirect effect was 46.49% of the total effect (unstandardized $b = 0.54$, BaCI [0.28, 0.79], $p < .001$). The completely standardized indirect effect was small, $b = 0.14$, BaCI [0.07, 0.22] (Cheung, 2009). This model accounted for significant variance in Negative PCP, $R^2 = .25$, $F(2, 184) = 31.07$, $p < .001$ (see Appendix X). The effect size of this mediation was small, $v = .02$, (Cohen, 1988; Lachowicz et al., 2018).

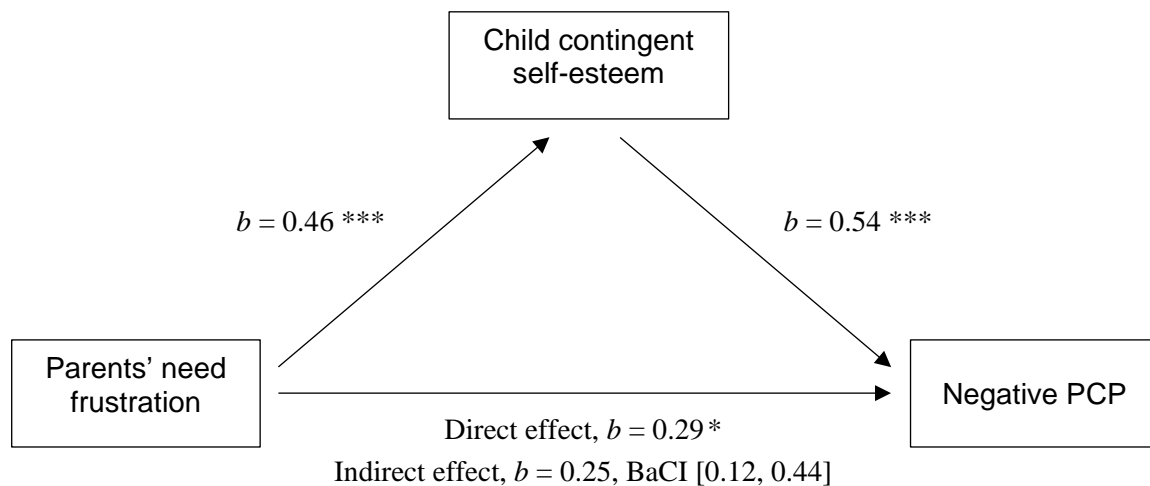


Figure 4. Complementary mediation by child contingent self-esteem of the association between parents' need frustration and Negative PCP (Factor 2); *** $p < .001$. ** $p < .01$ (2-tailed). * $p < .05$ (2-tailed).

Child contingent self-esteem mediated the relationship between need frustration and Positive PCP. Although the bivariate correlation between need frustration and Positive PCP was not significant ($r = .09$, $p = .217$), mediation was still examined, following Zhao, Lynch

and Chen's (2010) recommendation as, even with non-significant total effects, meaningful, significant indirect effects may be present. This was an indirect-only mediation with no significant direct effect (see Figure 5). The significant indirect effect was 166.85% of the total effect (unstandardized $b = 0.16$, BaCI [-0.10, 0.42], $p = .22$). Since the proportion of the indirect effect was calculated at more than 100% of the total effect, it is likely that this model is not correct. The completely standardized indirect effect was small, $b = 0.15$, BaCI [0.79, 0.24] (Cheung, 2009). This model accounted for significant variance in Positive PCP, $R^2 = .22$, $F(2, 184) = 24.81$, $p < .001$ (see Appendix Y). Effect size of this mediation is $v = .03$, which is a small effect size (Cohen, 1988; Lachowicz et al., 2018). This mediation had a small effect size of $v = .02$ (Cohen, 1988; Lachowicz et al., 2018).

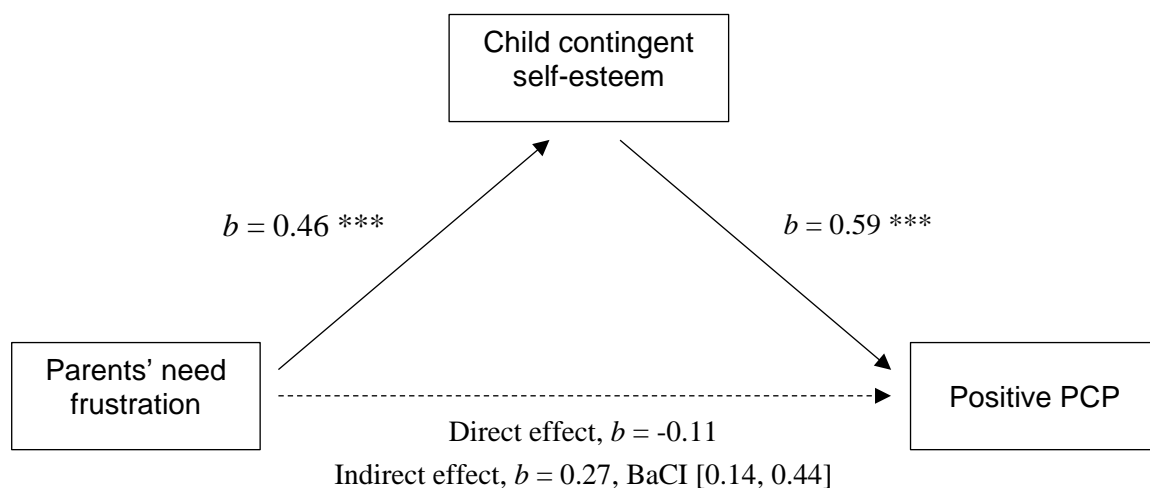


Figure 5. Indirect-only mediation by child contingent self-esteem of the association between parents' need frustration and Positive PCP (Factor 3); *** $p < .001$. ** $p < .01$ (2-tailed). * $p < .05$ (2-tailed).

The relationship between need frustration and Dependency PCP was mediated by child contingent self-esteem. It was a complementary mediation with a significant direct effect (see Figure 6). The significant indirect effect (unstandardized $b = 0.19$, BaCI [0.09, 0.31]) was 37.33% of the total effect (unstandardized $b = 0.51$, BaCI [0.27, 0.74], $p < .001$). The completely standardized indirect effect was small, $b = 0.11$, BaCI [0.06, 0.18] (Cheung, 2009). This model accounted for significant variance in Dependency PCP, $R^2 = .20$, $F(2, 184) = 23.45$, $p < .001$ (see Appendix Z). This was an extremely small effect size of $\nu = .01$, (Cohen, 1988; Lachowicz et al., 2018).

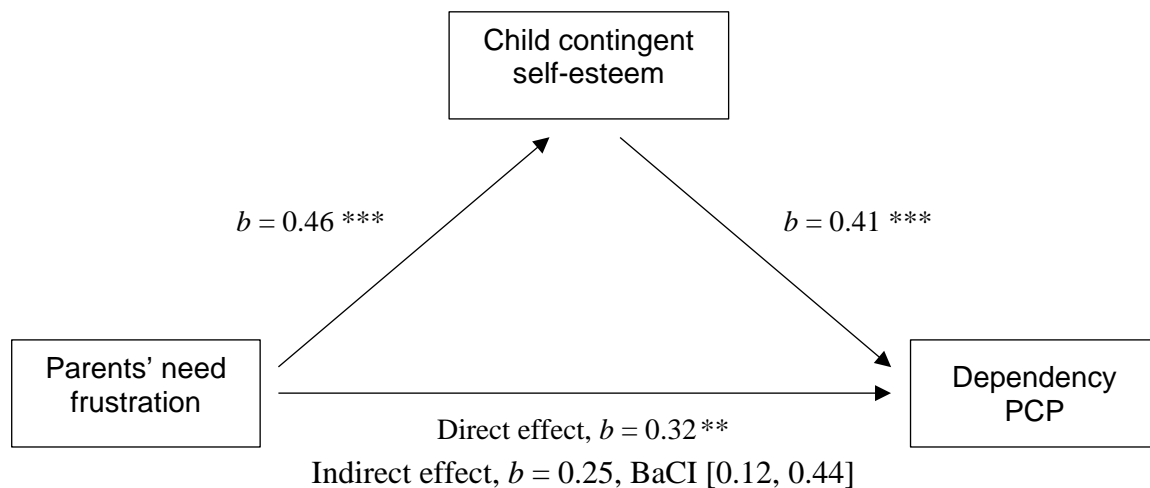


Figure 6. Complementary mediation by child contingent self-esteem of the association between parents' need frustration and Dependency PCP (Factor 4); *** $p < .001$. ** $p < .01$ (2-tailed). * $p < .05$ (2-tailed).

Discussion

Child contingent self-esteem was found to mediate the positive relationship between need frustration and PCP for all three achievement PCPs and Dependency PCP, in the present study are novel findings. The mediations for the Excelling and Positive achievement PCPs were indirect-only, while Negative achievement and Dependency PCPs were complementary (Zhao et al., 2010) mediations. The effect sizes of all mediations were small, assessed according to Cohen (1988), as recommended by Lachowicz et al. (2018). Within the mediation model, as hypothesised, the associations between need frustration and PCP found in parents of adolescents (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019) were replicated by this present study in parents of young children. The positive correlations found between need frustration and Excelling, Negative and Dependent PCPs were small to moderate (see Table 4). The correlations were comparable to prior research, where the correlations between need frustration and PCP for mothers and fathers, respectively, were $r = .21$ and $.23$, (Costa et al., 2019) and $.20$ and $.13$ (van der Kaap-Deeder et al., 2019) and when explored together, the correlation was $.26$ (Mabbe et al., 2018).

In addition, this present study's moderate to large positive correlations between child contingent self-esteem and PCP (see Table 4) were consistent with prior research findings (Ng et al., 2014; Wuyts, Chen, et al., 2015; Wuyts, Vansteenkiste, et al., 2015). Correlations were $.53$ and $.54$ for Belgian and Chinese mothers, respectively (Wuyts, Chen, et al., 2015), and $.19$ and $.29$ for American and Chinese mothers, respectively (Wuyts, Vansteenkiste, et al., 2015). Standardized β correlations ranged from $.22$ to $.37$ between American and Chinese mothers, respectively (Ng et al., 2014). Furthermore, this study produced the novel finding that need frustration is positively correlated with child contingent self-esteem, consistent with the theory that contingent self-esteem arises when individuals are need frustrated (Deci & Ryan, 1995, 2000; Ryan & Brown, 2003; Ryan & Deci, 2017). Thus, together, these findings

are consistent with the theory that contingent self-esteem arises from need frustration (Ryan & Brown, 2003) and the interpretation that parents' child contingent self-esteem and consequent PCP may, together, be compensatory activity that occurs when parents needs are frustrated.

Need frustration in relation to SDT. The population of this present study appears to have high levels of need satisfaction, as a whole, and low levels of need frustration. Levels of need satisfaction and frustration in parents of young children in this study were comparable to those studying parents of adolescents in previous research (Mabbe et al., 2018; van der Kaap-Deeder et al., 2019). This present study's levels of mean need frustration and satisfaction (see Table 3) were comparable to prior research that used of the same measure of need frustration and satisfaction as this study (BPNSFS, Chen et al., 2015), where mean need frustration and satisfaction scores were 1.78 and 3.82 for Mabbe et al. (2018). In mothers and fathers, need frustration was 1.60 and 1.59 respectively, and need satisfaction 4.08 and 4.07 respectively (van der Kaap-Deeder et al., 2019). Scores were skewed but internal consistency for each scale was good, at .85 and .87 for need frustration and satisfaction scales, respectively.

The measure of PCP. No parent self-report measure that distinguished between achievement- and dependency-oriented PCP for young children was available in English, so a measure was created for this present study by modifying Scharf et al.'s (2016) scale.

Social desirability. There was a concern that items in original child-report scale (Scharf et al., 2016) might be too direct for the population of this present study due to the directness of the original items in Dutch (Hendriks, 2008; Ogiermann, 2009). Responses were skewed, as demonstrated by variable means and skew statistics (see Tables 2 and K1), but skewed responses more likely indicated common attitudes towards parenting practices in the population rather than offence taken. Item modification appeared successful since parents

were not confused or offended by the questions and the range of responses (see Table 2) demonstrates the population, as a whole, made use of the full range of possible responses such that the measure was sufficiently discriminating (Kaplan & Saccuzzo, 2018).

Factor analysis. The 4-factor solution was chosen over the 2-factor solution because it was clearly interpretable and distinguished between achievement and dependency items (compare Table 2 and Appendix M), unlike the original scale (Scharf et al., 2016). Achievement-related PCP split into three achievement PCP factors and factors were appropriately correlated (Table 1). Thus, the findings of this present study could cleanly represent the concepts of achievement- and dependency-related PCP.

Appropriateness of this measure of PCP. Despite having a different distribution of items to Scharf et al.'s (2016) scale, PCP levels obtained from this measure were correlated with need frustration at comparable levels to prior research on parents of adolescents (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019), as discussed above. In addition, the use of this PCP measure also produced findings consistent with SDT theories underpinning this present study. PCP is theorised to undermine autonomy support (Soenens & Vansteenkiste, 2010) and, consistent with this, small to moderate inverse correlations were found between all PCPs and autonomy support. These correlations were comparable with previous findings (Costa et al., 2019; Mabbe et al., 2018; van der Kaap-Deeder et al., 2019), where respective correlations for mothers and fathers were $-.29$ and $-.16$ (Costa et al., 2019) and $-.20$ and $-.16$. (van der Kaap-Deeder et al., 2019) when parents were explored separately, and $-.52$ when together (Mabbe et al., 2018).

In addition, this present study found moderate and small inverse correlations between need satisfaction and Negative and Dependency PCPs but no correlations between need satisfaction and Excelling or Positive PCP. The correlations for Excelling and Positive PCP were comparable with prior research, which were $-.32$ and $-.33$ (Costa et al., 2019), $-.20$ and -

.16 (van der Kaap-Deeder et al., 2019) for mothers and fathers, respectively and -.24 for both parents together (Mabbe et al., 2018). Nevertheless, taken as a whole, need frustration was a stronger correlate with PCP variables than need satisfaction and consistent with SDT theory that need frustration is more than simple need dissatisfaction (Deci & Ryan, 2000).

Furthermore, this study's correlations of all PCPs with child contingent self-esteem, as measured by a well validated measure of autonomy support (Gurland & Grolnick, 2005), were also consistent with findings from prior research (Ng et al., 2014; Wuyts, Chen, et al., 2015; Wuyts, Vansteenkiste, et al., 2015). Thus, although the factors of this measure were different to those of previous measures, and items were modified, this measure of PCP produced results consistent with underlying theory and previous research, supporting its use as appropriate for the present study (Costa et al., 2019; Deci & Ryan, 2000; Mabbe et al., 2018; Ryan & Brown, 2003; van der Kaap-Deeder et al., 2019; Wuyts, Chen, et al., 2015; Wuyts, Vansteenkiste, et al., 2015).

Mediation by child contingent self-esteem of the association between need frustration and PCP. In general, child contingent self-esteem mediated the association between need frustration and all four dimensions of PCP. However, there were differences in the four models. The key debate centres on whether this mediation is specifically due to child contingent self-esteem, or possibly because of the generalised effects of stress and lack of psychological availability or, even, other mediators.

Excelling PCP and Positive PCP. Hypothesis 1, 1a and 1b were met for Excelling and Positive PCPs. These were both indirect-only mediations, where child contingent self-esteem fully accounted the relationship between need frustration and Excelling and Positive PCP, respectively. Excelling PCP items referred to parents promoting excellence, high achievement and being the best. These are associated with perfectionism (Frost et al., 1990). Thus, parents' child contingent self-esteem might motivate them to pressure their children to

succeed highly. Parent perfectionism can involve high personal standards, resulting constant striving to excel and achieve highly (Frost et al., 1990). If parents are perfectionist and overidentified with their child through child contingent self-esteem, they transfer their unfulfilled ambitions onto their child (Brummelman et al., 2013), it is not implausible that this then extends into pressuring their child through PCP so as to maintain their (the parents) feelings of self-worth. Whether or not participants practice these behaviours conditionally or habitually, PCP is still being exerted. Thus, the double-barrelled nature of Excelling PCP items is less relevant to its validity of this section of the measure. Thus, the indirect-only mediation of Excelling PCP by child contingent self-esteem is consistent with the idea that child contingent self-esteem and attendant PCP is compensatory behaviour in need frustrated parents.

However, with Positive PCP, the double-barrelled nature of the items means different things according to how parents interpret the statements. The original authors (Soenens et al., 2010b) intended these to describe conditional behaviour, where positive *conditional* regard relies on the felt difference between the levels of warmth in parents' usual manner and conditional warmth (Assor et al., 2014). However, alternatively, items could be describing the affection, appreciation and pride that parents might naturally feel when their child succeeds. Especially since being positive with children is generally endorsed as good parenting (Chau & Giallo, 2015), it is plausible that Positive PCP items might also be endorsed by parents who are habitually warm and positive in their response to their children, as well as those who are conditionally regarding. If so, Positive PCP items might also be susceptible to social desirability bias, where individuals present the better side of themselves. (Krumpal, 2013). Indeed, Positive PCP items were the most highly endorsed items of the whole scale (see Table K4).

If parents are describing typical warmth, it is unlikely that parents would become warmer with children as they become more need frustrated. Thus, since typical warmth is unlikely to be positively correlated with need frustration, and this might then account for the negative direct effect. Thus, this might be a phantom suppressor effect (Ludlow & Klein, 2014) since there was no significant bivariate correlation (no significant total effect) between need frustration and Positive PCP. Hence, Positive PCP may represent a combination of conditional regard with classic, warm parenting. In relation to other findings in this study, this explanation would be consistent with the higher mean Likert scores of individual Positive PCP items (see Table K4) and would also be consistent with the absence of correlation between Positive PCP and both need frustration and need satisfaction ($r = .09, -.00$, respectively). Thus, the assessment of Positive PCP is compromised by the conditionality in the items of this section of the measure, and it is likely that it has not given an especially accurate measure of Positive PCP.

Negative PCP. Hypotheses 1 and 1a were met, but Hypothesis 1b was not because this was a complementary mediation with a significant direct effect. Child contingent self-esteem partly accounted for Negative PCP, where additional variables missing from this model (Zhao et al., 2010). Thus, since these items are expressed as conditional negative regard (see Table 2), these statements describe how need frustrated parents respond to children's underperformance or failure. However, reasons other than parents' need to maintain their self-worth (i.e., child contingent self-esteem) account for Negative PCP responses, as represented by the missing variables in the complementary mediation (Zhao et al., 2010). As previously suggested, possible candidates for the missing variables are parents' stress and psychological availability towards their children (van der Kaap-Deeder et al., 2019). Other possibilities are generalised negativity, lack of vitality and lower levels of self-control since these have been association with need frustration in individuals (Bartholomew,

Ntoumanis, Ryan, Bosch, et al., 2011; Moller et al., 2006; Ryan et al., 2010). Self-control may be particularly pertinent since it is possible that need frustrated parents might be aware that they are exerting PCP, but might be unable to stop themselves if their self-control has been depleted by need frustration (Moller et al., 2006). Thus, in addition to child contingent self-esteem, it is also possible that a general state of negativity may partly account for Negative PCP when parents are need frustrated. If so, this would be similar Positive PCP, where Positive PCP may involve general positive feelings towards the child in addition to the effect that is mediated by child contingent self-esteem.

Dependency PCP. As hypothesised (Hypothesis 2, 2a and 2b), this was a complementary mediation (Zhao et al., 2010) where child contingent self-esteem partly accounted for Dependency PCP. While this pattern is similar to Negative PCP, there may be different reasons, particularly as Dependency PCP items were a mixture of positive and negative conditional regard. The indirect path through child contingent self-esteem is interesting because Dependency PCP does not concern achievement. It is possible that this occurs because young children do generally need to be still dependent on parents and this is being detected. However, it could also be that PCP as a whole, as measured in this study, is linked to parents' stress (van der Kaap-Deeder et al., 2019) or parents might simply have a need to keep their children close when feeling stressed by need frustration. Indeed, keeping children close strengthens connection, which in turn, might lend power to PCP. A possibility might be that need frustration is linked to depressive symptoms (Chen et al., 2015) and depressive symptoms have been linked to friendship contingent self-esteem and dependency, involving a fear of abandonment (Cambron, Acitelli, & Steinberg, 2010). Although this research was done with university undergraduates and not parents, they provide possible route for exploring the connection between child contingent self-esteem and dependency.

Strengths, Limitations and Future Directions

The size of a sample was a strength of this study, particularly given the small effect sizes of the mediations. However, there were limitations due to the population of the sample. Studies have found some differences between maternal and paternal PCP (Costa et al., 2019). Additionally, it is not known if the role of primary or secondary caregivers are important, and there were two stepparents amongst the participants. Although inspection of outliers demonstrated that secondary caregiver and stepparent data lay well within the norm for this population as they were not responsible for any influential outlying data, it may be worth investigating differences between primary and secondary caregivers since the quality of the relational bond might differ (Cabrera, Volling, & Barr, 2018). Furthermore, the sample was relatively well-educated and from higher socio-economic bracket. Future studies could seek a sample more representative of the community as a whole.

There were limitations in measurement. The inclusion of conditional regard for all items meant that all items were inherently double-barrelled, where two questions were asked in each item: whether the behaviour occurred, and whether the behaviour was conditional. Observational and naturalistic data gathering might provide more objective information, or if data gathering by survey, partners of parents might provide reports of parent behaviour.

Future studies could also contain measures of parents self-reflectiveness (Luyten, Mayes, Nijssens, & Fonagy, 2017), unavailable at the start of this study. Together with a measure of the extent to which parents feel their child is a part of themselves (Aron, Aron, & Smollan, 1992), these measures might provide a way of gathering data on parents' levels of self-awareness of closeness and dependency. In addition, measures for stress, psychological availability, vitality levels could be included to shed light on the additional explanations that are yet to be established in the relationship between need frustration, child contingent self-esteem and PCP, given the complementary mediations observed.

Implications

Child contingent self-esteem, in particular, tends to be viewed pejoratively as parents meeting parents' needs instead of children's needs. In one sense, this might be true if child contingent self-esteem and its effects are viewed as parents' compensatory activity, and the aim of compensatory activity is an attempt (albeit futile) to meet one's own needs (Deci & Ryan, 1995, 2000; Ryan & Deci, 2017). For example, engagement in parenting interventions might be another form of compensatory activity, which would simply perpetuate and not resolve what might be the real parenting issue, i.e. need frustration. Parents might be viewed as self-serving, self-centred and motivated by satisfying their self-worth issues through child contingent self-esteem. However, these findings indicate that child contingent self-esteem does not constitute the whole picture.

While SDT theories of self-esteem (Deci & Ryan, 1995; Ryan & Brown, 2003; Ryan & Deci, 2017) partly explain some aspect of PCP, they do not constitute the whole picture. Parents' stress and lack of psychological availability (van der Kaap-Deeder et al., 2019) appear to play a part. Thus, recognising and looking after parents' own needs and troubleshooting blocks to need satisfaction may stave off need frustration and the consequent development of child contingent self-esteem, resulting in naturally better parenting and possibly reducing the need for excessive parenting intervention. Additionally, the novel finding that need frustration is correlated with child contingent self-esteem (and negatively correlated with need satisfaction) supports the SDT premise that child contingent self-esteem is due to need frustration (Deci & Ryan, 1995; Ryan & Brown, 2003; Ryan & Deci, 2017), rather than a dysfunctional character trait. Hence, child contingent self-esteem could be thought of as individuals being out of balance, where the approach would be to restore balance rather than fix a problem.

Conclusion

The present study provides support for the idea that psychological control of children, or PCP, can arise when parents' needs are frustrated, and that PCP happens when parents' self-worth becomes entwined with their children's achievements, and they attempt to satisfy their needs by pressuring their children to succeed. Thus, child contingent self-esteem and the ensuing PCP may be seen as compensatory activity that arises because of need frustration. Thus, these findings do not support the idea that parents are selfish or self-centred when seeming to seek to satisfy their own needs through their children's successes because the findings, instead, support the premise that child contingent self-esteem arises from need frustration, rather than from defective character. The findings support the idea that if parents brought their lives back into balance with true need satisfaction, rather than compensatory satisfaction via children, so that naturally better parenting may then flow forward. Hence, the results of this present study suggest that parents' PCP need not be ill-intended and, rather, in most parents is an extension of their natural love for their children and a desire that they do well. This stance would be helpful in parenting programmes so that clinicians do not take a view that parents intend ill towards their child even though their behaviour might appear controlling. For parents, it can be reassuring to know this concretely, so that they have a fuller and more self-compassionate understanding of why they do what they do.

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