

Associations Between Parental Psychological Control and Autonomy Support, and Psychological Outcomes in Adolescents: The Mediating Role of Need Satisfaction and Need Frustration

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Abstract Relatively few studies have examined the mediating role of basic psychological needs in the relationship between parenting and psychological outcomes using a Self-Determination Theory (SDT) framework. This study aimed to examine the role of need satisfaction and need frustration as mediators of the association between parental psychological control, autonomy support and psychological outcomes. In a sample of 302 late adolescents, we found that parental psychological control was positively associated with feelings of need frustration and depression, whilst the concept of parental autonomy support was positively associated with feelings of need satisfaction and vitality. In turn, need satisfaction promoted feelings of vitality, whereas need frustration led to feelings of depression. Satisfaction of needs was a full mediator of the relationship between autonomy support and vitality, while frustration of needs was a full mediator of the relationship between psychological control and depression. These findings are discussed in terms of SDT. We also discuss how future research may further increase our understanding of the dynamics involved in psychological control, autonomy support and psychological outcomes.

Keywords Psychological control · Autonomy support · Need satisfaction · Need frustration · Self-determination theory

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1 Introduction

Parental psychological control refers to the display of a conditionally approving attitude towards children and, more specifically, involves engagement in a host of intrusive parenting tactics to make children think, behave, or feel in parentally approved ways (Barber 1996). Psychologically controlling parents rely on intrusive and manipulative strategies such as guilt induction, disappointment, shaming, isolation, personal attacks, and love withdrawal to make their child comply with their expectations and also to change the child's opinions, emotions, and thinking patterns (Barber 1996).

Psychological control is considered a destructive form of parental control rendering adolescents vulnerable to ill-being (Barber 1996). Abundant research has shown that parental psychological control is related to negative developmental outcomes during different life periods, including adolescence and emerging adulthood (Barber et al. 2005; Costa et al. 2015b; Soenens et al. 2005; Soenens and Vansteenkiste 2010). Several studies have underlined the necessity of understanding the associations between psychological control and negative outcomes (Barber et al. 2002; Costa et al. 2015d; Filippello et al. 2015; Gugliandolo et al. 2015).

Soenens and Vansteenkiste (2010) suggested that such mechanisms can be parsimoniously described within the Self-Determination Theory's heuristic framework. Self-Determination Theory (SDT; Deci and Ryan 1985; Ryan and Deci 2002) represents a broad framework for the study of human motivation and personality development. Specifically, SDT examines the degree to which human behaviours are autonomous or self-determined, as well as the personal and contextual factors which facilitate or undermine people's intrinsic motivation, psychological development and well-being (Ryan and Deci 2000). The concept of basic psychological needs plays a crucial role in this process. SDT postulates that there are three universal psychological needs that must be satisfied for effective functioning and psychological health, namely autonomy, competence, and relatedness (Ryan and Deci 2000). SDT defines these needs as nutriments that are essential for people's survival, growth, and integrity (Ryan et al. 1996).

The need for autonomy refers to the desire to self-organize one's experience and to feel one's behaviour as freely chosen (DeCharms 1968). The need for relatedness refers to the desire to feel connected to others, to love and to care (White 1959). Finally, the need for competence refers to the desire to feel effective and skilful in activities (Baumeister and Leary 1995). Deci and Ryan (2000) asserted that there was no instance of optimal, healthy development in which the basic needs were neglected, and that psychological health required satisfying all three needs. Many studies showed that satisfaction of these basic psychological needs was highly correlated with well-being (Reis et al. 2000; Sheldon et al. 1996). Well-being reflects a sense of vitality and inner wellness that characterizes the fully functioning organism (Ryan and Deci 2001). According to SDT, the indicator *par excellence* to assess eudaimonic well-being is subjective vitality, defined as one's conscious experience of possessing energy and aliveness (Ryan and Deci 2001; Ryan and Frederick 1997). Vitality is associated with feelings of positive mood states, vigor, and activated positive affect (Ryan and Deci 2008). all constructs entailing positively toned, energized states. Vitality has been shown to positively relate to need fulfilment and corresponds to the experience of oneself as a potential origin of action (Ryan and Frederick 1997).

In SDT it is assumed also that need supportive parental behaviours would facilitate satisfaction of basic psychological needs, while need thwarting parental behaviours would forestall satisfaction of needs (Deci and Ryan 2000). The constructs of parental need thwarting and need support refer to parents' actual or perceived behaviours, that is, what they do (or are perceived to do) to either thwart or support children's needs (Soenens and Vansteenkiste 2010). Soenens and Vansteenkiste (2010) suggested that parental psychological control, as a feature of a need-thwarting parenting style, could have a direct influence on all three needs and could explain why parental psychological control is related to ill-being. Specifically, through the use of intrusive techniques, psychologically controlling parents press children to comply with the parents' own personal standards and needs, irrespective of the children's needs and values. Psychological control thwarted experiences of autonomy in children and adolescents (Vansteenkiste et al. 2005). It was thought to disrupt the development of emotional autonomy by interfering with adolescents' ability to establish and express their own thoughts and feelings and by disturbing the psycho-emotional boundary between parents and their children (Barber and Harmon 2002). Whereas psychologically controlling parental behaviours would represent need thwarting behaviours, autonomy-supportive behaviours would represent need supportive behaviours (Soenens and Vansteenkiste 2010; Vansteenkiste and Ryan 2013). Autonomy-supportive parenting is one important dimension of a need-supportive parenting style. Autonomy-supportive parents support their children's volitional functioning, for instance, taking the child's frame of reference, providing meaningful choices, encouraging initiative, and providing a relevant rationale when introducing rules (Grolnick et al. 1997). For such parents it is important to support their offspring's autonomous regulation, because various developmental and motivational researchers (Hill and Holmbeck 1986; Ryan and La Guardia 2000; Steinberg 1989) consider the emergence of a more autonomous functioning as a crucial developmental process for adolescents. Adolescents, in fact, should develop their own opinion and try to get their ideas across even when their parents disagree with them. Parental autonomy support refers to the active support of the child's capacity to be self-initiating and autonomous (Ryan et al. 2006) and is not akin to promoting permissiveness, or neglect. Permissiveness, in fact, would reflect the opposite of parental structure while neglect would reflect the opposite of parental involvement rather than a lack of autonomy support (Chirkov et al. 2010).

Previous research in sport, religion, parenting, and education contexts showed that autonomy-supportive and controlling environmental context, although negatively correlated, were not perfectly opposite (Bartholomew et al. 2011a; Costa et al. 2014; Costa et al. 2015d; Haerens et al. 2015). More importantly, it was suggested that processes of need thwarting (psychological control) and need support (autonomy support) may predict different outcomes, such that need thwarting would be particularly predictive of ill-being and psychopathology, and that need support would be particularly predictive of well-being (Vansteenkiste and Ryan 2013). In fact, parents low on psychological control may not necessarily actively promote autonomy, as they might for instance also be relatively uninvolved (Silk et al. 2003). Parents who fail to nurture autonomous development are not necessarily psychologically intrusive and controlling. For instance, a mother may not be very attentive to her children (low autonomy support); yet, this form of parenting clearly differs from parenting practices such as personal attacks, love withdrawal or intrusive shaming and guilt induction. While low

need support represents a more “passive” and “indirect” socialisation style, need thwarting involves a more “active” and “direct” way of obstructing psychological needs. Because in these latter cases the children’s needs are actively undermined, these parenting practices are more likely to be a risk factor for malfunctioning (Vansteenkiste and Ryan 2013).

Parallel to the distinction in experience of need thwarting and need supportive social environments, SDT distinguishes between experience of need frustration and need satisfaction. Specifically, several studies (Bartholomew et al. 2011b; Costa et al. 2015a, c) posited that low scores on measures of psychological need satisfaction may simply reflect need dissatisfaction and not adequately tap the active nature and intensity of need frustration described by Deci and Ryan (2000). In line with such theorising, several studies (Bartholomew et al. 2011b; Haerens et al. 2015) demonstrated that need frustration, as opposed to low need satisfaction, was more likely to predict negative outcomes and ill-being. Several findings in different contexts provided clear evidence for the utility of measuring need frustration alongside need satisfaction (Vansteenkiste and Ryan 2013). However, to date research has never examined a combination of such variables in the parental context. Further support for the proposed distinction between need satisfaction and need frustration, and for the contribution of need frustration to our understanding of well- and ill-being must be sought in other life domains such as the family (Ryan 1995).

Recent studies examined the mediating role of basic needs in the relationship between parental psychological control and ill-being. Ahmad et al. (2013) showed that low need satisfaction mediated the relation between psychological control and teacher ratings of adolescents’ adjustment at school. Costa et al. (2015d) showed that parental psychological control was a better (and even unique) predictor of internalising distress compared to autonomy-support; psychological basic needs fully mediated the association between psychological control and internalising distress. Unfortunately, the measures for psychological basic needs used in these studies did not allow for differentiation between experiences of need satisfaction and need frustration; furthermore, they did not include both measures of well- and ill-being as outcomes. The current study aimed to contribute to the literature about parental psychological control and parental autonomy support: (a) by including both measures of experiences of need satisfaction and need frustration, and (b) by examining the mediating role of need satisfaction and need frustration in association with vitality and depression – developmental outcomes typically measured in SDT as outcomes for well- and ill-being.

Accordingly, the purpose of the present research was to propose and test an integrative SDT model that examined the role of psychological basic needs as mechanisms through which parental behaviours (e.g., psychological control and autonomy support) related to well- and ill-being. Specifically, the goal of this research was to test the SDT-based model in which parental psychological control was hypothesised to primarily predict feelings of psychological need frustration that, in turn, were expected to lead to patterns of behaviours and affects more strongly associated with diminished functioning and ill-being (e.g., depression). Contrastingly, in the same model, parental autonomy support was hypothesised to primarily predict need satisfaction, which, consistent with previous research, was expected to primarily facilitate optimal psychological well-being (e.g., vitality).

2 Method

2.1 Participants

The sample consisted of 302 late adolescents (Male = 137; Female = 162; Unreported = 3), aged between 14 and 17 ($M=15.72$; $SD=1.49$), that were unmarried and still lived with their parents. All participants were of Italian nationality and Italian-speaking. In terms of education level, the majority of participants ($n=244$) reported that they had a lower secondary education diploma (81 %), 53 had a higher secondary education diploma (17 %), 3 had a primary education level (1 %) and 2 participants did not report this information (1 %). All the participants came from two married parent families: fathers' age ranged between 37 and 69 years ($M=48.97$, $SD=5.32$), and age of mothers ranged from 34 to 61 years ($M=45.39$, $SD=4.66$). Families varied in number of children: 57 % of the families had 2 children, 22 % had 3 children, 15 % had only 1 child, 4 % had 4 children and 2 % of the families had more than 4 children.

2.2 Procedure

All participants voluntarily decided to take part in the research. Our convenience sample was recruited by soliciting volunteers through friends and appeals to community groups such as clubs, associations and organisations in Sicily (Italy). The researchers asked several community groups to contact their affiliates to present the research project and some participants were contacted directly through friends and acquaintances. Adolescents were free to provide their willingness to complete the questionnaires. After describing the study's purpose, adolescents' parents signed the informed consent to allow their offspring to participate in the study. Participants completed the questionnaire in a room of their house without the presence of their parents and under the supervision of an experimenter. Privacy and the anonymity of their answers were guaranteed. The questionnaires took about 20 min to complete. There were 36 subjects (20 men and 16 women) who failed to complete the questionnaires after they started.

2.3 Measures

Parental Autonomy Support and Parental Psychological Control Autonomy support and controlling parenting were assessed using the Italian version of the Perceived Parental Autonomy Support Scale (P-PASS; Mageau et al. 2015). The P-PASS contained 24 items measuring parental autonomy support (12 items; e.g., 'My parents encouraged me to be myself') and parental psychological control (12 items; e.g., 'My parents used guilt to control me'). The dimensions of autonomy support were: providing a rationale, providing choice, and acknowledging feelings. The dimensions of controlling parenting were: inducing guilt, cultivating performance goals, and threatening. Subjects responded on a 7-point Likert-type scale ranging from 1 '*Do not agree at all*' to 7 '*Very strongly agree*'. Items were rated separately for mothers and fathers. Previous studies using the P-PASS supported its psychometric properties (Bureau and Mageau 2014; Fournier et al. 2010; Mageau et al. 2015). In the present study the internal consistency was good (see Table 1) and the CFA indicated good model fit for

maternal perception [$\chi^2(245)=431.48, p<.001$; S-B $\chi^2(245)=324.63; p<.001$, R-CFI=0.95; R-RMSEA=0.03 (90 % CI=0.02–0.04)] and paternal perception [$\chi^2(245)=596.10, p<.001$; S-B $\chi^2(245)=424.65; p<.001$, R-CFI=0.93; R-RMSEA=0.05 (90 % CI=0.04–0.06)].

Basic Psychological Needs We administered an Italian version of Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al. 2015). The BPNSFS contained 24 items, to tap both the negative and positive experiential state that occurs when people perceive their psychological basic need satisfied and frustrated in their life in general: autonomy satisfaction (4 items; e.g., ‘I feel a sense of choice and freedom in the things I undertake’), competence satisfaction (4 items; e.g., ‘I feel confident that I can do things well’), relatedness satisfaction (4 items; e.g., ‘I feel that the people I care about also care about me’), autonomy frustration (4 items; e.g., ‘I feel forced to do many things I wouldn’t choose to do’), competence frustration (4 items; e.g., ‘I have serious doubts about whether I can do things well’), and relatedness frustration (4 items; e.g., ‘I feel that people who are important to me are cold and distant towards me’). Participants responded on a 5-point Likert scale ranging from 1 “*completely disagree*” to 5 “*completely agree*”. Previous studies using the BPNSFS supported its validity, reliability and factor structure in different national groups (Campbell et al. 2015; Chen et al. 2015; Mabbe et al. 2015). In the present study the internal consistency was good (see Table 1) and a CFA indicated good model fit [$\chi^2(245)=463.23, p<.001$; S-B $\chi^2(245)=326.09; p<.001$, R-CFI=0.97; R-RMSEA=0.03 (90 % CI=0.02–0.04)].

Vitality The six item Italian version of the Subjective Vitality Scale (SVS; Ryan and Frederick 1997) was employed as a positive indicator of mental health and well-being. Participants responded regarding how they felt over the last 2 weeks, using a scale anchored by 1 “*not at all true*” to 7 “*very true*”; an example item was ‘I feel alive and full of vitality’. The SVS had demonstrated good internal consistency, validity and factor structure in past works (Bostic et al. 2000; Gagne et al. 2003; Salama-Younes et al. 2009). In the present study the internal consistency was good (see Table 1) and a CFA indicated good model fit [$\chi^2(9)=54.88, p<.001$; S-B $\chi^2(9)=34.60; p<.001$, R-CFI=0.95; R-RMSEA=0.10 (90 % CI=0.06–0.13)].

Depression The Italian version of the 20-item Center for Epidemiological Studies-Depression scale (Radloff 1991) assessed the frequency of depressive mood during the past week. Ratings were made on a scale of 0 “*rarely or none of the time (less than 1 day)*”, 1 “*a couple of times (1–2 days)*”, 2 “*sometimes or regularly (3–4 days)*”, and 3 “*most or all of the time (5–7 days)*”. An example item was: ‘During the past week, I felt sad’. For each individual, a total severity of depression score was calculated by summing the responses. This produced a possible range of depression scores from 0 (low depression) to 60 (high depression). The reliability, factor structure and validity of the Center for Epidemiological Studies-Depression scale (CES-D) are well-documented in previous studies (Andrews et al. 1993; Radloff 1991). In the present study the internal consistency was good (see Table 1) and a CFA indicated good model fit [$\chi^2(98)=171.58, p<.001$; S-B $\chi^2(98)=146.42; p<.001$, R-CFI=0.96; R-RMSEA=0.04 (90 % CI=0.03–0.05)].

Table 1 Descriptive statistic, reliability, and correlation

| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|----------------|-------|------|---------|---------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| AS Mat | 5.58 | 0.91 | 0.83 | | | | | | | | | | | | | |
| AS Pat | 5.41 | 1.05 | 0.60** | 0.84 | | | | | | | | | | | | |
| PC Mat | 2.69 | 1.08 | -0.35** | -0.16** | 0.90 | | | | | | | | | | | |
| PC Pat | 2.60 | 1.17 | -0.25** | -0.33** | 0.75** | 0.87 | | | | | | | | | | |
| Autonomy Sa | 4.04 | 0.73 | 0.39** | 0.43** | -0.13* | -0.19** | 0.82 | | | | | | | | | |
| Autonomy Fr | 2.15 | 0.93 | -0.31** | -0.23** | 0.41** | 0.36** | -0.40** | 0.84 | | | | | | | | |
| Relatedness Sa | 4.33 | 0.67 | 0.28** | 0.26** | -0.11 | -0.17 | 0.55** | -0.32** | 0.78 | | | | | | | |
| Relatedness Fr | 1.77 | 0.89 | -0.28** | -0.18** | 0.33** | 0.29** | -0.39** | 0.56** | -0.43** | 0.84 | | | | | | |
| Competen Sa | 4.00 | 0.77 | 0.27** | 0.35** | -0.07 | -0.17 | 0.59** | -0.31** | 0.42** | -0.37** | 0.85 | | | | | |
| Competen Fr | 2.08 | 0.95 | -0.19** | -0.17** | 0.24** | 0.20** | -0.34** | 0.47** | -0.32** | 0.59** | -0.52** | 0.86 | | | | |
| Need Sa | 4.12 | 0.60 | 0.38** | 0.42** | -0.13* | -0.21** | 0.87** | -0.42** | 0.78** | -0.48** | 0.83** | -0.48** | 0.89 | | | |
| Need Fr | 2.00 | 0.77 | -0.31** | -0.23** | 0.39** | 0.34** | -0.45** | 0.81** | -0.43** | 0.86** | -0.48** | 0.83** | -0.55** | 0.90 | | |
| Depression | 18.75 | 9.50 | -0.16** | -0.14* | 0.24** | 0.17** | -0.25** | 0.41** | -0.18** | 0.48** | -0.33** | 0.55** | -0.31** | 0.58** | 0.85 | |
| Vitality | 5.40 | 1.17 | 0.34** | 0.34** | -0.08 | -0.09 | 0.49** | -0.29** | 0.45** | -0.32** | 0.52** | -0.43** | 0.59** | -0.42** | -0.43** | 0.86 |

AS Mat Maternal autonomy support, AS Pat Paternal autonomy support, PC Mat Maternal psychological control, PC Pat Paternal psychological control, Sa Satisfaction, Fr Frustration, Competen Competence, Scores of the diagonal = Cronbach's coefficient alpha; ** $p < 0.01$; * $p < 0.05$

3 Results

The descriptive statistics, Cronbach's alpha values, and correlations for the study variables are presented in Table 1. The reliabilities of the measures were adequate. Correlations showed that both maternal and paternal autonomy support were related positively to vitality, but there were non-significant correlations with depression. Ratings of autonomy support were also related positively to need satisfaction and negatively to need frustration. Ratings of psychological control were correlated negatively with ratings of autonomy support and showed an opposite pattern of associations with need satisfaction and need frustration compared to ratings of autonomy support. Ratings of psychological control were also associated positively with depression but were not significantly correlated with vitality. Finally need satisfaction was related negatively with depression and positively with vitality, while need frustration was related positively with depression and negatively with vitality.

To examine whether need satisfaction and need frustration could mediate the associations between perceived parenting dimensions (parental autonomy support and parental psychological control) and outcomes (vitality and depression), we used Structural Equation Modelling (SEM) with latent variables. We estimated two models: one for paternal psychological control and autonomy support and one for maternal psychological control and autonomy support. Psychological control and autonomy support were represented by the three subscales of each measure (for psychological control: inducing guilt, cultivating performance goals, and threatening; for autonomy support: providing a rationale, providing choice, and acknowledging feelings). The indicators of the latent variables for need satisfaction and need frustration were the three need scores (autonomy, competence and relatedness). Vitality and depression were represented by three parcels. Each latent construct's parcels consisted of randomly selected items from the scale tapping into that construct. Parcelling was used to ensure that we would have enough observations per estimated parameter, and to obtain the optimal number of three indicators per factor (Little et al. 2002). In addition, parcelling has several advantages in the modelling of latent variables, relative to the use of individual items (Little et al. 2002; Marsh et al. 1998) and is a widely used procedure for both vitality and depression (Bartholomew et al. 2011b; Berking et al. 2014; Costa et al. 2014; Lorenzo-Blanco et al. 2012; Reinboth et al. 2004). Analysis of the covariance matrices was conducted using EQS 6.2 and solutions were generated on the basis of maximum-likelihood estimation.

Prior to testing the hypothesised models, we examined associations between the variables and a number of background variables using multiple regression analyses. These background variables (father's age, mother's age, adolescents' age, gender of adolescent, and number of siblings) were entered into the regression to predict each study variable (paternal psychological control, maternal psychological control, paternal autonomy support, maternal autonomy support, need satisfaction, need frustration, vitality, and depression). Background variables accounted for only between 0 and 3 % of the variance. Therefore, these variables were not utilised in subsequent analyses.

For testing mediation, the SEM approach advanced by Baron and Kenny (1986). Holmbeck (1997) and Shrout and Bolger (2002) was used. This approach involved fitting multiple structural models that tested a number of direct and indirect paths between a predictor (X), a mediator (M), and an outcome variable (Y). The relative

goodness of fit between full mediation models and the partial mediation models were analysed via the S-B χ^2 difference test (Satorra and Bentler 2001) using the “sbdiff” software (Crawford 2007; Crawford and Henry 2003), and via a change in CFI of ≤ 0.01 (Cheung and Rensvold 2002). Additionally, bootstrapping was used to estimate the standard errors (SEs) and 95 % bias-corrected confidence intervals (CIs) for all model estimates (Shrout and Bolger 2002).

First, we tested a model estimating the direct paths from the predictors (i.e., the two parenting variables: psychological control and autonomy support entered simultaneously) with the outcome variables (i.e., vitality and depression entered simultaneously). This model did not include need satisfaction and need frustration. Estimation of the maternal model, $\chi^2(48)=59.32, p>.05$, S-B $\chi^2(48)=56.87, p>.05$; R-CFI=0.99, R-NNFI=0.99, SRMR=0.04, R-RMSEA=0.03 (90 % CI=0.00–0.05), showed a significant path from psychological control to depression ($\beta=0.31; p<.001$), and a non-significant path to vitality ($\beta=0.06; p>.05$), while maternal autonomy support was not significantly related to depression ($\beta=0.04; p>.05$), but was significantly related to vitality ($\beta=0.43; p<.001$). Similarly, estimation of the paternal model, $\chi^2(48)=91.55, p<.001$, S-B $\chi^2(48)=85.38, p<.001$; R-CFI=0.97, R-NNFI=0.95, SRMR=0.05, R-RMSEA=0.05 (90 % CI=0.03–0.07), showed a significant path from psychological control to depression ($\beta=0.26; p<.001$), and a non-significant path to vitality ($\beta=0.01; p>.05$), while paternal autonomy support did not have a direct association with depression ($\beta=-0.07; p>.05$), but was significantly related to vitality ($\beta=0.40; p<.001$).

Second, we tested a full mediation model in which psychological control and autonomy support were related only indirectly to depression and vitality through need satisfaction and need frustration. Estimation of this model yielded acceptable fit for both the maternal data (Fig. 1), $\chi^2(124)=246.31, p<.01$; S-B $\chi^2(124)=213.67, p<.001$; R-CFI=0.96, R-NNFI=0.95, SRMR=0.05, R-RMSEA=0.05 (90 % CI=0.04–0.06), and the paternal data (Fig. 2), $\chi^2(124)=232.31, p<.01$; S-B $\chi^2(124)=204.26, p<.001$; R-CFI=0.96, R-NNFI=0.95, SRMR=0.05, R-RMSEA=0.05 (90 % CI=0.04–0.06). Psychological control was related positively with need frustration in both the maternal ($\beta=0.41, p<.001$) and paternal model ($\beta=0.41, p<.001$), and also autonomy support was positively related to need satisfaction in both the maternal ($\beta=0.57, p<.001$) and paternal model ($\beta=0.50, p<.001$). In the maternal model, autonomy support negatively related with need frustration ($\beta=-0.17, p<.01$), while in the paternal model autonomy support did not have a significant association with need frustration ($\beta=-0.10, p>.05$). Psychological control was not related to need satisfaction in both the maternal ($\beta=0.08, p>.05$) and paternal model ($\beta=-0.07, p>.05$). In turn, need satisfaction was related positively to vitality in both the maternal ($\beta=0.71, p<.001$) and paternal model ($\beta=0.72, p<.001$), while need frustration was related positively to depression in both the maternal ($\beta=0.84, p<.001$) and paternal model ($\beta=0.82, p<.001$). Furthermore need frustration was not related to vitality in both the maternal ($\beta=0.01, p>.05$) and paternal model ($\beta=0.01, p>.05$). Similarly need satisfaction was not associated with depression in both the maternal ($\beta=0.17, p>.05$) and paternal model ($\beta=0.14, p>.05$).

Third, we estimated a partially mediated model by adding a direct path from psychological control and autonomy support to vitality and depression whilst controlling for psychological needs (satisfaction and frustration). This model did not provide a

significantly better fit than the full mediation model in both the maternal ratings ($\Delta\chi^2(4)=3.34; p>.05; \Delta S-B \chi^2(4)=2.62, p>.05; \Delta R-CFI<0.01$) and the paternal ratings ($\Delta\chi^2(4)=3.14, p>.05; \Delta S-B=2.35, p>.05; \Delta R-CFI<0.01$), suggesting that the full mediation model provided the most parsimonious representation of the data. Moreover, both in the maternal and paternal ratings, the originally significant paths from psychological control to depression (maternal: $\beta=-0.12, p>.05$; paternal: $\beta=-0.13, p>.05$) and from autonomy support to vitality (maternal: $\beta=0.08, p>.05$; paternal: $\beta=0.08, p>.05$), were no longer significant after entering need satisfaction and need frustration as mediators. Therefore, the full mediation model was retained as the most parsimonious and the best fitting model. In this model, the indirect relation of psychological control with depression and that of autonomy support with vitality through basic needs were statistically significant for both maternal and paternal ratings (Table 2).

4 Discussion

The present study aimed to contribute to the growing literature on the application of the SDT framework in the parenting context. This study provided insight into the processes underlying the parental psychological control–maladjustment link and the parental autonomy support–adjustment link. Specifically, perceived parental autonomy support yielded beneficial correlations with vitality, through its positive relation with satisfaction of the basic psychological needs. In contrast, perceived psychological control was

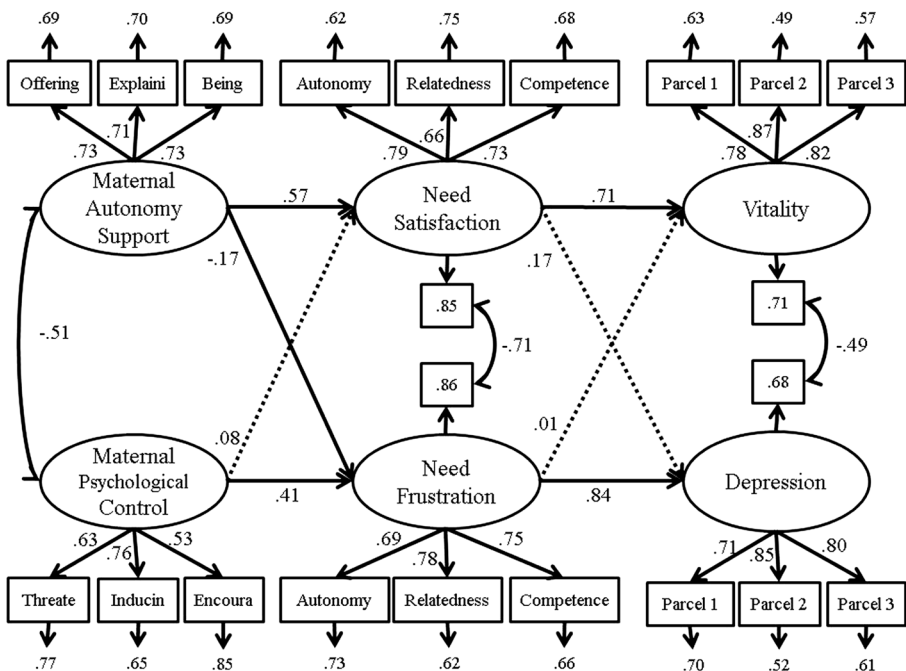


Fig. 1 Full mediation model for maternal psychological control and maternal autonomy support Note: Coefficients shown are standardized path coefficients. Dotted lines represent no significant parameters

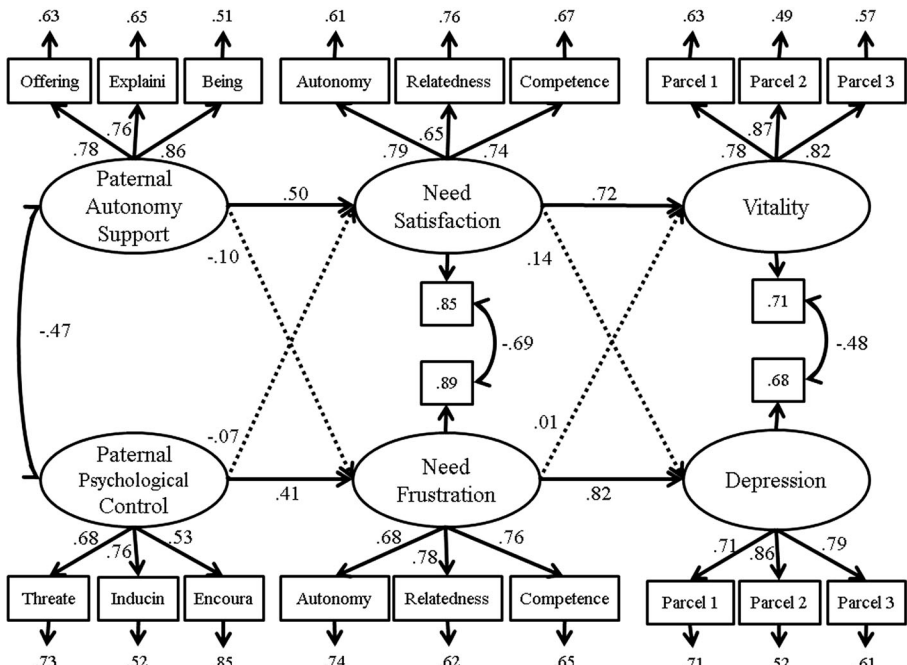


Fig. 2 Full mediation model for paternal psychological control and paternal autonomy support. Note: Coefficients shown are standardized path coefficients. Dotted lines represent no significant parameters

associated with more depression problems because of its positive association with need frustration. For both maternal and paternal ratings of psychological control and autonomy support, need frustration and need satisfaction were full mediators of the association with ill- and well-being. The results of the present study were strikingly consistent with previous studies (Ahmad et al. 2013; Costa et al. 2015d), yet extended those findings by examining the mediating role of need frustration in relation to positive and negative outcomes.

Of importance, the present research examined also the relation of perception of parental autonomy support and psychological control with both feelings of need satisfaction and need frustration. Results showed that when parents were perceived as adopting an autonomy-supportive interpersonal style, feelings of satisfaction of autonomy, competence and relatedness were likely to occur. Based on these research results, autonomy support will influence the lives of individuals, creating conditions for experiencing a sense of personal volition in their behaviours, a sense of effectiveness and security in carrying out activities, and a sense of being cared for. Inversely, perception of parental psychological control will thwart psychological basic needs for autonomy, competence and relatedness, providing a feeling of pressure and coercion in the activities and in life in general. Possibly because adolescents experience to be forced to act, feel, or think in a way dictated by parents. Furthermore, parental psychological control may also undermine the development of children’s competence by not providing them with the opportunity to solve problems on their own. As a consequence, children may develop a set of generalised insecurities about their competence (Soenens and Vansteenkiste 2010). Further, psychological control could

Table 2 Path estimates, SEs and 95 % CIs for partial mediation models with autonomy support and psychological control

| | β | B-SE | Lower bound (BC) 95 % CI | Upper bound (BC) 95 % CI |
|--------------------------------------------------------|---------|------|-----------------------------|-----------------------------|
| Maternal Model | | | | |
| Direct effect | | | | |
| Autonomy support \rightarrow Needs satisfaction | 0.55 | 0.09 | 0.43 | 0.67 |
| Autonomy support \rightarrow Needs frustration | -0.17 | 0.10 | -0.32 | -0.04 |
| Psychological control \rightarrow Needs satisfaction | 0.08 | 0.10 | -0.06 | 0.23 |
| Psychological control \rightarrow Needs frustration | 0.43 | 0.10 | 0.29 | 0.56 |
| Autonomy support \rightarrow Vitality | 0.08 | 0.14 | -0.11 | 0.27 |
| Autonomy support \rightarrow Depression | 0.01 | 0.15 | -0.24 | 0.19 |
| Psychological control \rightarrow Vitality | 0.02 | 0.15 | -0.16 | 0.25 |
| Psychological control \rightarrow Depression | -0.12 | 0.18 | -0.11 | 0.08 |
| Needs satisfaction \rightarrow Vitality | 0.65 | 0.18 | 0.39 | 0.89 |
| Needs satisfaction \rightarrow Depression | 0.23 | 0.21 | -0.01 | 0.60 |
| Needs frustration \rightarrow vitality | -0.01 | 0.17 | -0.28 | 0.20 |
| Needs frustration \rightarrow Depression | 0.95 | 0.21 | 0.75 | 1.34 |
| Indirect effect via basic needs | | | | |
| Autonomy support \rightarrow Vitality | 0.36 | 0.09 | 0.24 | 0.50 |
| Autonomy support \rightarrow Depression | -0.05 | 0.14 | -0.22 | 0.20 |
| Psychological control \rightarrow Vitality | 0.05 | 0.11 | -0.09 | 0.22 |
| Psychological control \rightarrow Depression | 0.43 | 0.17 | 0.26 | 0.75 |
| Paternal model | | | | |
| Direct effect | | | | |
| Autonomy support \rightarrow Needs satisfaction | 0.49 | 0.09 | 0.36 | 0.61 |
| Autonomy support \rightarrow Needs frustration | -0.08 | 0.08 | -0.19 | 0.03 |
| Psychological control \rightarrow Needs satisfaction | -0.09 | 0.09 | -0.22 | 0.03 |
| Psychological control \rightarrow Needs frustration | 0.43 | 0.08 | 0.32 | 0.55 |
| Autonomy support \rightarrow Vitality | 0.08 | 0.12 | -0.11 | 0.24 |
| Autonomy support \rightarrow Depression | -0.12 | 0.11 | -0.29 | 0.01 |
| Psychological control \rightarrow Vitality | 0.10 | 0.09 | -0.03 | 0.23 |
| Psychological control \rightarrow Depression | -0.13 | 0.12 | -0.30 | 0.03 |
| Needs satisfaction \rightarrow Vitality | 0.63 | 0.16 | 0.43 | 0.86 |
| Needs satisfaction \rightarrow Depression | 0.27 | 0.17 | 0.07 | 0.86 |
| Needs frustration \rightarrow Vitality | -0.08 | 0.13 | -0.25 | 0.10 |
| Needs frustration \rightarrow Depression | 0.95 | 0.16 | 0.76 | 1.19 |
| Indirect effect via basic needs | | | | |
| Autonomy support \rightarrow Vitality | 0.32 | 0.10 | 0.20 | 0.47 |
| Autonomy support \rightarrow Depression | 0.06 | 0.13 | -0.07 | 0.22 |
| Psychological control \rightarrow Vitality | -0.09 | 0.07 | -0.17 | 0.03 |
| Psychological control \rightarrow Depression | 0.39 | 0.11 | 0.26 | 0.57 |

B-SE Bootstrapped standards errors, *BC 95 % CI* Bias corrected-confidence interval

represent a threat to the parent–child bond, because parent’s love could be experienced as inauthentic and conditional with satisfaction of their expectations. In the long run, this might undermine children’s sense of closeness to parents and to significant others and they could experience feelings of social alienation and loneliness. Need satisfaction, in turn, was related positively to vitality, while need frustration was related positively to depression. This finding was consistent with the claim that psychological basic needs represent essential vitamins for flourishing in life and that their frustration might even make children vulnerable to negative outcomes (Deci and Ryan 2000; Ryan and Deci 2000).

Furthermore, to deepen our understanding of the construct of parenting in a SDT framework, this study examined the relative contribution of parental autonomy support and psychological control in the association with need satisfaction, need frustration, positive and negative outcomes. In SDT, it has been argued that need thwarting socialisation (which may involve parental psychological control) would be uniquely predictive of need frustration, while need supportive socialisation (which includes parental autonomy support) would be uniquely predictive of need satisfaction (Bartholomew et al. 2011b; Costa et al. 2015d; Vansteenkiste and Ryan 2013). In line with the propositions made by previous studies on SDT (Bartholomew et al. 2011a, b; Costa et al. 2015c, d; Vansteenkiste and Ryan 2013), these findings supported the notion that psychological need frustration is not equivalent to low levels of need satisfaction. At the same time context behaviours that are perceived as thwarting basic needs cannot be equated with behaviours that are perceived as being low on support for basic psychological needs (Costa et al. 2015d; Vansteenkiste and Ryan 2013). Consistent with this reasoning we found that psychological control (need thwarting behaviours) had a more pronounced association with need frustration and depression (ill-being and psychopathology), than an absence (or low score) of need support. Similarly parental autonomy support (need supportive behaviours) had a more pronounced association with need satisfaction and vitality (well-being) than an absence of need thwarting. Thus, we would suggest that need satisfaction and need frustration are best viewed as independent constructs, which not only have separate antecedents but also predict different outcomes (Bartholomew et al. 2011a, b; Costa et al. 2015c). Need satisfaction, in fact, was a full mediator of the relation between autonomy support and vitality (creating an adaptive process). Need frustration, instead, was a full mediator of the relation between psychological control and depression (creating a maladaptive process). Such findings confirm that parental autonomy-support and psychological control represent relatively distinct rather than fully opposite dimensions of parenting. Furthermore, they are consistent with previous studies that autonomy supportive context and controlling context are not always opposite sides of the same coin (Pelletier et al. 2001) and may at times even co-occur (Bartholomew et al. 2011a, b; Costa et al. 2015a, c). These results are in line also with attachment and social learning theory. La Guardia et al. (2000), in fact, showed that attachment security was greater in relationships that supported basic psychological needs, moreover the association between attachment security and well-being was substantially mediated by need satisfaction (La Guardia and Patrick 2008). For these reasons, in line with results of this study, attachment could provide an arena in which parents support or thwart the basic psychological needs of their children (La Guardia and Patrick 2008). Need fulfilment offers also a motivational framework to understand the manifest interpersonal

behaviours of attachment (La Guardia and Patrick 2008). On the basis of the fundamental assumption of social learning theory that children model their behaviour after their parents' behaviours (Bandura 1973, 1986), it can be reasonable that through the process of parenting, parents enact behaviours that can potentially shape children's world views and motivate or curtail children's own behaviours (through the satisfaction or the frustration of the psychological basic needs).

From an applied perspective, our data confirm that an important feature of effective parenting prevention and intervention programmes may be to raise awareness of the phenomenon of psychological control and to discourage parents from engaging in psychologically controlling tactics (Soenens and Vansteenkiste 2010). Interestingly, our data also suggest that it is better to inform parents explicitly about ways to implement an autonomy-supportive style in parent-child interactions, than only as avoiding the use of psychological control.

This study has a number of limitations that can be addressed in future research. A primary limitation is the cross-sectional nature of the data, which made it impossible to disentangle the causal order of the variables considered. Possibly, experiences of need frustration not only followed from parental psychological control, but also contributed to it; similarly feelings of need satisfaction could promote an autonomy supportive behaviour of the parents. Parents may act more intrusively with adolescents who feel incompetent, pressured, and lonely, while more supportively with children that seem more satisfied in their needs. Most likely, there are reciprocal associations between all of the constructs in the model tested here; this issue needs to be addressed in future longitudinal research. This and other potential alternative explanations for the patterns observed here must be interpreted cautiously illustrating the need for additional research to replicate and extend these findings using longitudinal data. Longitudinal research should also address developmental changes over time. In fact, although SDT argues that in all age groups who perceive their parents as promoting volitional functioning will invariably display higher well-being, at different ages, autonomy supportive parenting will look different. For example, Grolnick (2003) suggests that at a younger age the control issue might be decision making with regard to two pieces of clothing; at an older age, it might entail a more consequential decision about what courses to take in school. Future longitudinal studies should investigate how autonomy support needs would change from childhood, adolescence, and adulthood, and how application of this information would vary. Furthermore the use of a sample of Italian adolescents, all with married parents, could limit the external validity of the findings. Future studies should try to generalize these results to adolescents with other types of family settings and ethnicity. In accordance with SDT's assertion that psychological needs are innate and universal in nature (Deci and Ryan 2000), in fact, satisfaction and frustration of needs could account for the effects of environmental context at different types of family settings and across different ethnicities which can be addressed in future research. Another limitation of this study is that there is not a direct measure of socioeconomic status. Moreover, the variables in the current study were based on self-reports only. Future research would do well to include multi-informant assessments to provide a more valid and more conservative test of the hypothesised model. Finally, the Depression scale used in this study (the Center for Epidemiological Studies-Depression Scale) measures only frequency of depressive feelings, not severity. Future research could use more differentiated instruments to assess well- and ill-being.

5 Conclusion

Results of this study support Deci and Ryan's claims made within SDT (Deci and Ryan 1985, 2000; Ryan and Deci 2000). This study examined the mechanisms that underlie the relations between parenting and well-being. Using SDT, results showed that satisfaction and frustration of the basic psychological needs for autonomy, competence, and relatedness largely explained the relations of autonomy support with well-being and of psychological control with ill-being. Specifically, need satisfaction mediated the relation between autonomy support and well-being (creating an adaptive process), while need frustration mediated the relation between psychological control and ill-being (creating a maladaptive process). Furthermore this study confirmed previous results that psychological control and feelings of need frustration were not simply the lack of autonomy support and of need satisfaction. Our findings suggest that both psychological need supports and thwarts simultaneously influence children's functioning, and that explicit assessments of both could more fully address the multiple impacts on well-being and ill-being. These results also highlight the potential contributions of assessing explicitly interpersonal control and need thwarting for targeted screening and intervention in other social contexts, such as education, work, health care, psychotherapy, and personal relationships.

Compliance with Ethical Standards

Contribution SC assisted with generation of the initial draft of the manuscript, data analyses, and manuscript editing, FC assisted with data analysis, interpretation of data, and study design, MG assisted with manuscript preparation, manuscript editing, and study concept, RL assisted with data interpretation, and study supervision

Conflict of Interest All authors report that they have no conflicts of interest.

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