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The Mediating Role of Experiences of Need Satisfaction in Associations Between Parental Psychological Control and Internalizing Problems: A Study Among Italian College Students

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Abstract Abundant research has shown that parental psychological control is related to internalizing problems across different life periods, including middle childhood, adolescence, and young adulthood. Relatively few studies, however, have addressed the mediating mechanisms that account for this relation. On the basis of self-determination theory, the aim of this study was to examine the mediating role of adolescents' need satisfaction in the association between perceived paternal and maternal psychological control and internalizing distress in Italian emerging adults. In a sample of 121 female college students, we found that satisfaction of basic psychological needs was a full mediator of the relationship between perceptions of psychological control and internalizing distress. We also found that psychological control was a better predictor of internalizing distress compared to low autonomy-support. These findings are discussed in light of self-determination theory. We also discuss how future research may further increase our understanding of the dynamics involved in psychologically controlling parenting and adjustment in adolescents and emerging adults.

Keywords Parenting · Adjustment · Psychological needs · Self-determination theory · Adolescence · Emerging adulthood

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Introduction

Developmental research has shown a strong renewed interest in the construct of parental psychological control, a parenting dimension characterized by the excessive use of techniques that intrude upon the child's psychological world (Barber 1996; Barber and Harmon 2002). 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; Rogers et al. 2003). 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; Rogers et al. 2003; Soenens et al. 2005; Soenens and Vansteenkiste 2010). Psychological control has been shown to be particularly strongly related to internalizing problems. Indeed, various studies have shown a positive relation between psychological control and depressive symptoms (Barber 1996; Soenens et al. 2005; 2012) and anxiety (Loukas et al. 2005; Pettit et al. 2001). The systematic association between psychological control and internalizing problems is in line with Barber's (1996) theorizing that this parenting dimension would interfere with the establishment of a secure and positive sense of self. Given its detrimental impact on the child's self and given that it represents an intrusion in the child's personal world of emotions and thoughts, Barber (1996) indeed hypothesized that the negative effects of psychological control would manifest

primarily in the form of internalizing distress (Barber 1996; Barber and Harmon 2002; Barber et al. 2005).

Whereas it is logical that parental psychological control brings an emotional cost in the form of internalizing distress, it is somewhat less clear whether psychological control would also increase vulnerability to externalizing problems. On the one hand one might argue that psychological control would increase feelings of loyalty towards parents (albeit of a controlled nature) and as such would decrease the odds of non-compliance and externalizing problems. On the other hand, the pressuring and intrusive nature of psychological control may elicit reactance and may as such increase the likelihood of externalizing problems. Whereas some studies have failed to find an association between psychological control and externalizing problems (particularly when variance shared between internalizing and externalizing problems was controlled for) (e.g., Barber et al. 1994), other studies did document a significant and positive association (e.g., de Kemp et al. 2006; Stone et al. 2013). Overall, psychological control seems to have a more pronounced and systematic association with internalizing problems than with externalizing problems. Possibly, the association between psychological control and externalizing problems depends on the child's personality, with only children with relatively undercontrolled personality traits (e.g., low conscientiousness, high impulsivity) responding to psychological control with reactance and externalizing problems (Barber et al. 2002; Soenens and Vansteenkiste 2010). Because the association between psychological control and internalizing distress is most pronounced, we focused on this association in the current study. More specifically, we focused on the mediating mechanisms that may account for this relation, an issue that has remained relatively underexplored in the literature (see e.g., Barber et al. 2002; Soenens et al. 2005 for exceptions).

Soenens and Vansteenkiste (2010) suggested that the mechanisms behind psychologically controlling parenting can be parsimoniously described within the framework of Self-Determination Theory. Self-Determination Theory (SDT; Deci and Ryan 2000; Vansteenkiste et al. 2010) represents a broad framework for the study of human motivation, personality, and social development. Central to SDT is the articulation of three basic psychological needs. In SDT, these needs are considered universal nutriments that must be satisfied for effective functioning, psychological health, growth, and integrity (Ryan et al. 1996). When the need for autonomy is satisfied people act with a sense of volition and experience that their behavior is freely chosen and coherent with their values. In contrast to a conceptualization of autonomy as independence, which refers to not relying on others, SDT defines autonomy as possessing a sense of volition. Highly autonomous people fully endorse the actions in which they engage and stand behind their actions and experience a sense of coherence between their behaviors and the values. When the need for autonomy is frustrated, people experience a sense of pressure and coercion. When the need for relatedness is satisfied, people feel connected to others who care for them. When frustrated, people have experiences of social alienation and loneliness. Finally, when the need for competence is satisfied, people feel effective and skillful in the activities they undertake. When frustrated, people feel inferior and inadequate. Deci and Ryan (2000) assert that there are no instances of optimal, healthy development in which a need for autonomy, relatedness, or competence was neglected, and that psychological health requires satisfaction of all three needs. Many studies have shown that the satisfaction of these basic psychological needs is highly correlated with well-being and behavioral adjustment, both among adults and among adolescents (Reis et al. 2000; Sheldon et al. 1996). Veronneau et al. (2005), for instance, found that satisfaction of each of the three needs was related independently to positive affect among adolescents. Need satisfaction, and satisfaction of the need for competence in particular, was related negatively to depressive symptoms.

In SDT it is assumed that need supportive parental behaviors would facilitate satisfaction of the basic psychological needs while need thwarting parental behaviors would forestall satisfaction of the needs (Deci and Ryan 2000). The constructs of parental need thwarting and need support refer to parents' actual or perceived behaviors, that is, what they do (or are perceived to do) to either thwart or support children's needs. Whereas psychologically controlling parental behaviors would represent need thwarting behaviors, autonomy-supportive behaviors would represent need supportive behaviors (Soenens and Vansteenkiste 2010; Vansteenkiste and Ryan 2013). The terms need satisfaction and need frustration refer to children's personal experiences during their daily activities, such as volition (as a manifestation of a satisfied need for autonomy), alienation (as a manifestation of a frustrated need for relatedness), and inadequacy (as a manifestation of a frustrated need for competence). Need thwarting and need supportive parental behaviors represent only one source of influence on children's experiences of need satisfaction and frustration. Other potential sources of influence may be features of the child (such as personality, interests, and physical ability) and other socialization figures (e.g., peers and teachers).

Soenens and Vansteenkiste (2010) suggested that parental psychological control, as a feature of a need-thwarting parenting style, could have an influence on all three needs. This influence on the needs could explain why parental psychological control is related to ill-being in

children and adolescents. Specifically, because of the intrusive nature of psychological control and the critical undertone often accompanying psychological control, children who perceive their parents as psychologically controlling would feel pressured to engage in activities that do not reflect their true preferences (i.e., low autonomy satisfaction) and would feel insecure about their ability to deal with challenges effectively (i.e., low competence satisfaction). Because psychologically controlling parents are known to manipulate the parent–child bond, children might also develop insecurity about important others' love and care (i.e., low relatedness satisfaction). Indirect evidence for the autonomy- and competence-undermining effect of psychological control was obtained in studies linking psychological control to adolescent self-critical perfectionism, an orientation characteristic of adolescents who pressure themselves to meet high standards, coupled with a tendency to severely doubt one's competence (e.g., Soenens et al. 2005). More direct evidence was obtained in a study by Ahmad et al. (2013) who have shown, in a large sample of Jordanian adolescents, that parental psychological control was related to low satisfaction of each of the three needs. Low need satisfaction, in turn, was found to mediate the relation between psychological control and teacher ratings of adolescents' adjustment at school. Unfortunately, this study was focused on perceptions of maternal psychological control only and did not include internalizing problems as an outcome.

Another issue that needs to be addressed is the relative contribution of psychological controlling parenting and autonomy-supportive parenting to children's development. Recent research in SDT is starting to explore the idea that need thwarting parenting (as expressed for instance in psychological control) is not simply the opposite of a lack of need support (as expressed for instance in low autonomy-support) (Vansteenkiste and Ryan 2013). Autonomy-supportive parenting is one important dimension of a need-supportive parenting style. It is characteristic of parents who support their children's volitional functioning, for instance, by taking the child's frame of reference, by providing meaningful choices, by encouraging initiative, and by providing a relevant rationale when introducing rules (Grolnick et al. 1997). Research in the context of sports and exercise psychology has shown that autonomy-supportive and controlling coaching styles, although negatively correlated, are not perfectly opposite (Bartholomew et al. 2011b). Similarly, parents low on psychological control may not necessarily actively promote autonomy, as they might for instance also be relatively uninvolved. More importantly, it has been suggested that processes of need thwarting and need 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 and positive developmental outcomes (Bartholomew et al. 2011a; Vansteenkiste and Ryan 2013). In line with this reasoning, parental psychological control, as it involves an active thwarting of children's needs, would be more strongly (and perhaps even uniquely) predictive of internalizing problems than low parental autonomy-support, which reflects low levels of need support. Some evidence for this hypothesis has been obtained in the context of coaches' style in the domain of sports and exercise (e.g., Bartholomew et al. 2010, 2011a, b).

To sum up, the current study aimed to test the SDT-based hypothesis that the association between perceived parental psychological control and internalizing distress would be mediated by satisfaction of the basic psychological needs. Further, we expected that psychological control would be related more strongly to internalizing distress than parental autonomy-support. Associations of autonomy support with internalizing distress, if any, were also expected to be mediated by satisfaction of the basic psychological needs. All hypotheses were examined with regard to both maternal and paternal ratings of psychological control. Because SDT assumes that dynamics of controlling parenting and need satisfaction are relatively universal (Soenens and Vansteenkiste 2010), we expected that the hypothesized structural associations between the study variables would be similar for maternal and paternal ratings.

Our hypotheses were examined in a sample of Italian female emerging adults (i.e., college students; Arnett 2000). This was deemed important because few studies have examined the construct of parental psychological control in Italy and because two competing hypotheses could be forwarded regarding the correlates of psychological control in Italy. Given the Mediterranean family climate in Italy—where interdependence and family loyalty are highly valued (Manzi et al. 2006; Scabini et al. 2006)—one might argue that psychological control is less detrimental in Italy than in Western Europe and the US. This would be the case because psychological control might be used as a means to highlight the importance of family bonds and intergenerational loyalty and, therefore, would be perceived less negatively than in countries where independence is valued more (Rothbaum and Trommsdorff 2007). In contrast, given the pressuring and need thwarting nature of psychological control (Soenens and Vansteenkiste 2010), on the basis of SDT it can be predicted that psychological control would have similar associations with need satisfaction and internalizing problems in Italy compared to associations obtained previously in other countries. Our sample, which was a sample of convenience, included female college students only. This is a relevant sample to examine our research questions because

internalizing problems are prevalent in this population (e.g., Galambos et al. 2009). Moreover, most research to date suggests that gender does not play a systematic moderating role in associations between psychological control and child outcomes (see Barber et al. 2002; Soenens and Vansteenkiste 2010 for reviews). In spite of these arguments, the inclusion of female participants only is a limitation that we will elaborate upon in the "Discussion".

Method

Participants

Participants for this study were 121 psychology students at an Italian university. All participants were women and their age ranged from 18 to 24 years with a mean of 20.30 (SD = 1.34). All participants had the Italian nationality and were Italian-speaking. Furthermore, all the students were in their first year of university, came from two-parent families, and still lived with their parents or returned home every weekend.

Participants signed an informed consent form. It was emphasized to them that participation was voluntary. They did not receive money or course credit for participation. Prior to completing the questionnaire, participants were instructed to respond to the questions as honestly as possible, and were told that there were no right or wrong answers. Participants completed the questionnaire in approximately 15 min at the university before their course.

Measures

Psychological Control

Psychological control was measured with the Italian version of the 8-item Psychological Control Scale–Youth Self-Report (PCS–YSR; Barber 1996; "My mother/father is always trying to change how I feel or think about things"). Barber (1996) provided evidence for the validity and one-dimensional factor structure of this scale. Subjects responded on a 3-point Likert-type scale ranging from 1 "not like her (him)" to 3 "a lot like her (him)". Items were rated separately for mothers and fathers. The reliability and validity of the Psychological Control Scale–Youth Self-Report (PCS–YSR) have been demonstrated in previous cross-cultural research. Barber et al. (2005), for instance, showed that this scale had adequate psychometric properties and was related to developmental outcomes in theoretically predictable ways across 10 different countries.

Parental Autonomy Support

Parental Autonomy support was measured using the autonomy support subscale of the Italian version of the Perceptions of Parent Scale (POPS; Robbins 1994; e.g., "My mother/My father listens to my opinion or perspective when I've got a problem"). Because in this study we aimed to compare the associations of autonomy-supportive and psychologically controlling parenting with internalizing problems, we used only the items tapping directly into autonomy-support and we excluded the three reverse-scored items that measured controlling parenting. Responses to the remaining six items were made on a 7-point Likert-type scale, ranging from 1 (not at all true) to 7 (very true). The reliability and validity of the Perceptions of Parent Scale (POPS) are well-documented and this scale has been used successfully in countries differing strongly in terms of cultural climate (e.g., Alivernini and Lucidi 2011; Vansteenkiste et al. 2005).

Basic Psychological Needs Satisfaction

We administered an Italian version of the Basic Psychological Needs Satisfaction Scale-general version (BPNS-general version), which is an adaptation of the Basic Psychological Needs Satisfaction-work version (Ilardi et al. 1993). The BPNS-general version contains 21 items, which measure satisfaction of three psychological needs: autonomy (7 items; e.g., "I feel like I am free to decide for myself how to live my life."), competence (6 items; e.g., "I have been able to learn interesting new skills recently."), and relatedness (8 items; e.g., "I really like the people I interact with."). Participants responded on a 7-point Likert scale ranging from 1 (not true at all) to 7 (very true). The reliability and validity of this scale have been documented in different countries (e.g., Deci et al. 2001), including Italy (e.g., Laghi et al. 2009).

Internalizing Problems

Internalizing problems signify a core disturbance in intropunitive emotions and moods and refer to symptoms that are turned towards the self (Zahn-Waxler et al. 2000). In this study internalizing problems were measured with the Italian version of the Profile of Mood States (POMS; McNair et al. 1992) scale that is composed of 65 questions. The participants are given a list of moods, such as "blue, tense, angry, worn out," and are asked to circle a number from zero to four on a Likert scale, depending on the extent to which they have experienced this feeling during the last week, with 0 representing 'not at all', and 4 representing 'extremely.' The POMS has subscales for tension-anxiety, depression-dejection, anger-hostility, vigour-activity, fatigue-inertia, and

Table 1 Descriptive statistics, reliability, and correlations

	M	SD	Ske	Kur	α	1	2	3	4	5	6	7
1. Psychological Control-Mother	1.54	.40	1.09	.61	.78							
2. Psychological Control-Father	1.48	.42	1.28	1.21	.81	.31**						
3. Autonomy Support - Mother	5.40	1.29	−.73	−.14	.86	−.58**	−.10					
4. Autonomy Support - Father	5.09	1.45	−.93	.35	.89	−.25**	−.62**	.35**				
5. Autonomy	5.26	1.08	−.95	.71	.77	−.53**	−.40**	.52**	.55**			
6. Competence	4.78	1.04	−.28	−.43	.70	−.36**	−.18*	.28**	.30**	.57**		
7. Relatedness	5.17	.90	−.52	.38	.69	−.22*	−.01	.28**	.31**	.64**	.52**	
8. Internalizing Problems	1.38	.74	.41	−.86	.92	.42**	.30**	−.25**	−.18*	−.51**	−.39**	−.44**

** $p < .01$; * $p < .05$; *Ske* Skewness; *Kur* Kurtosis

confusion-bewilderment. In the current study, we used the tension-anxiety, depression-dejection, fatigue-inertia, and confusion-bewilderment subscales to obtain a total score for internalizing problems. We did not include the scale for anger-hostility because the items of this scale do not fit with the description of internalizing problems as symptoms and behaviors that are turned inward. The subscales of the POMS are commonly used to asses internalising problems and have shown adequate validity and reliability (e.g., Acton et al. 2005; Hobbs et al. 2011; Newcomb and Mustanski 2010).

Results

The descriptive statistics, Cronbach's alpha values, and correlations for the study variables are presented in Table 1. As shown in Table 1, while scores for psychological control and internalizing problems were somewhat positively skewed (meaning that participants tended to score low on these variables), scores for autonomy-support and need satisfaction were somewhat negatively skewed (meaning that participants tended to score high on these variables). In spite of this, there was substantial variance in each of the study variables. We did not find a significant difference between ratings of paternal and maternal psychological control, $t(120) = 1.46$, $p > .05$, $d = .27$. Participants did report higher levels of maternal autonomy support compared to paternal autonomy support, $t(120) = 2.13$, $p < .05$, $d = .40$. The reliability of the measures was adequate. Correlations showed that both maternal and paternal psychological control were related to internalizing problems. Ratings of psychological control were also related to each of the three needs, with one exception (i.e., a non-significant correlation between paternal psychological control and relatedness satisfaction). Ratings of autonomy support were correlated negatively with ratings of psychological control and showed an opposite pattern of associations with the needs and

internalizing problems compared to ratings of psychological control. Satisfaction of each of the three needs was related negatively to internalizing distress.

To examine whether perceived need satisfaction could account for (i.e., mediate) the associations between perceived parenting and internalizing distress, we used Structural Equation Modeling (SEM) with latent variables. The sample size is relatively small to perform SEM (Kline 2005). Still, there is little consensus on the recommended sample size for SEM (Sivo et al. 2006) and Iacobucci et al. (2007) have shown that mediation models behaved statistically regularly even for small samples.

We estimated two sets of models, one for paternal ratings of parenting and one for maternal ratings of parenting. Apart from psychological control and autonomy support, the models also included latent variables for need satisfaction and internalizing distress. Psychological control and autonomy support were represented by three parcels. Each latent construct's parcels consisted of randomly selected items from the scale tapping into that construct. The indicators of the latent variable for need satisfaction were the three need scores. The four subscales of the POMS served as indicators for internalizing distress. Analysis of the covariance matrices was conducted using EQS 6.2 and solutions were generated on the basis of maximum-likelihood estimation.

To explore the mediating role of need satisfaction, the SEM approach advanced by Holmbeck (1997) and Shrout and Bolger (2002) for testing mediation 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). 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, which were entered
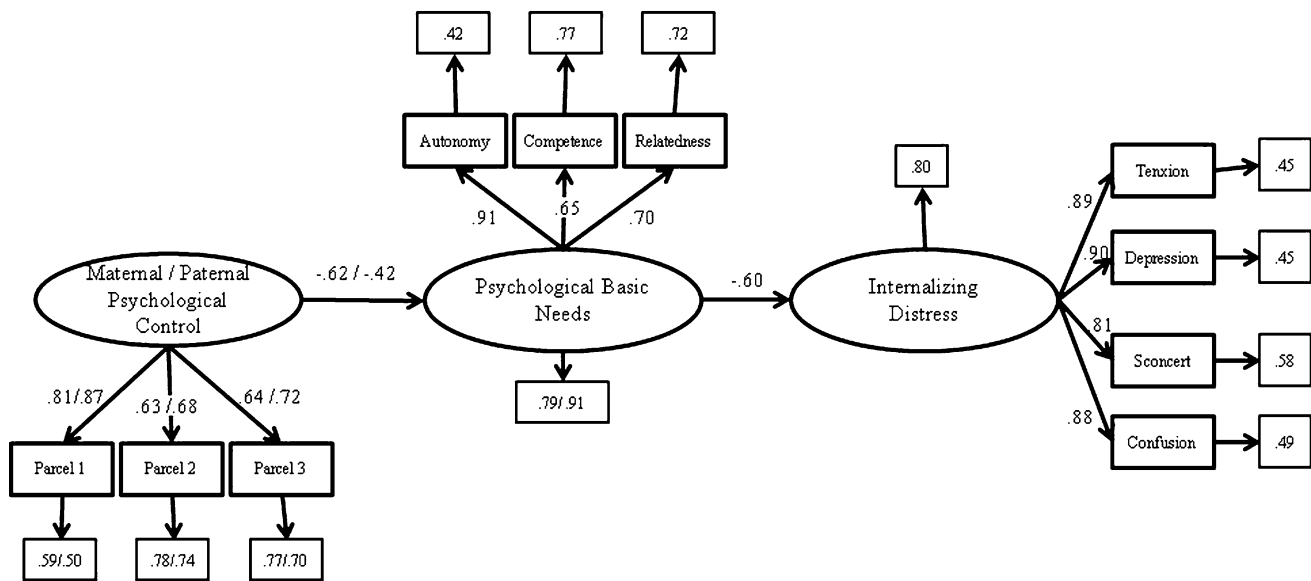
Fig. 1 Structural model of associations between perceived psychological control, need satisfaction, and internalizing distress. *Note:* Coefficients shown are standardized path coefficients. The first coefficient shown is for the maternal psychological control model. The second coefficient shown is for the paternal psychological control model. When there is only one coefficient it is equal for both the models

simultaneously) to the outcome variable (i.e., internalizing distress). This model did not include need satisfaction. Estimation of the maternal model, $\chi^2(32) = 44.55$, $p = .069$, CFI $= .98$, NNFI $= .98$, SRMR $= .06$, RMSEA $= .06$ (90 % CI $= .00–.09$), showed a significant path from psychological control to internalizing distress ($\beta = .44$; $p < .001$), while maternal autonomy support was not significantly related to internalizing distress ($\beta = .13$; $p > .05$). Similarly, estimation of the paternal model, $\chi^2(32) = 51.15$, $p = .017$, CFI $= .98$, NNFI $= .97$, SRMR $= .06$, RMSEA $= .07$ (90 % CI $= .03–.11$), showed a significant path from psychological control to internalizing distress ($\beta = .31$; $p < .001$), while paternal autonomy support did not have a direct association with internalizing distress ($\beta = -04$; $p > .05$). Because autonomy support did not have a unique and direct association with internalizing distress, we did not conduct further mediation analyses with autonomy support. We did enter autonomy support as a control variable in the mediation analyses involving psychological control to examine whether the psychological control is associated with the mediating and outcome variables even when controlling for autonomy support.

Second, we tested a full mediation model with psychological control, that is, a model in which psychological control was related only indirectly to internalizing distress through need satisfaction. We first estimated this model without inclusion of autonomy support as a control variable. Estimation of this model (see Fig. 1) yielded acceptable fit for both the maternal data, $\chi^2(33) = 57.26$, $p < .01$; CFI $= .96$; NNFI $= .95$; SRMR $= .07$, RMSEA $= .08$ (90 % CI $= .04–.11$)., and the paternal data, $\chi^2(33) = 78.31$,

$p < .001$; CFI $= .93$; NNFI $= .91$; SRMR $= .08$, RMSEA $= .11$ (90 % CI $= .07–.14$). Psychological control was related negatively to need satisfaction in both the maternal ($\beta = -.62$, $p < .001$) and paternal model ($\beta = -.42$, $p < .001$). In turn, need satisfaction was related negatively to internalizing distress in both the maternal model ($\beta = -.60$, $p < .001$) and the paternal model ($\beta = -.60$, $p < .001$).

Third, we estimated a partially mediated model by adding a direct path from psychological control to internalizing distress whilst controlling for the psychological needs. This model did not provide a significantly better fit than the full mediation model in both the maternal ratings ($\Delta\chi^2(1) = 1.80$; $p > .05$) and the paternal ratings ($\Delta\chi^2(1) = 2.19$, $p > .05$), suggesting that the full mediation model provided the most parsimonious representation of the data. Moreover, the originally significant path from psychological control to internalizing distress dropped to non-significance after entering need satisfaction as a mediatior, both in the maternal ratings ($\beta = .18$, $p > .05$) and in the paternal ratings ($\beta = .15$, $p > .05$). Therefore, the full mediation model was retained as the most parsimonious and best fitting model. In this model, the indirect relation of psychological control with internalizing distress through the basic needs were statistically significant both for maternal and paternal ratings (Table 2).

In a final step we added autonomy-support as an additional predictor to the full mediation models. To examine whether autonomy support and psychological control have unique associations with need satisfaction, we allowed a path from autonomy-support to need satisfaction in addition to the path from psychological control to need

Table 2 Path estimates, SEs and 95 % CIs for models with psychological control (without inclusion of autonomy support)

	β	B-SE	Lower bound (BC) 95 % CI	Upper bound (BC) 95 % CI
Maternal Model				
Direct Effect				
Psychological Control → Basic Needs	−.612	.091	−.749	−.457
Psychological Control → Internalizing Problems	.181	.160	−.070	.435
Basic Needs → Internalizing Problems	−.485	.158	−.713	−.184
Indirect effect via *Basic Needs*				
Psychological Control → Internalizing Problems	.291	.104	.154	.485
Paternal Model				
Direct Effect				
Psychological Control → Basic Needs	−.400	.142	−.606	−.147
Psychological Control → Internalizing Problems	.151	.109	−.033	.312
Basic Needs → Internalizing Problems	−.531	.136	−.710	−.292
Indirect effect via *Basic Needs*				
Psychological Control → Internalizing Problems	.212	.083	.112	.409

B-SE = bootstrapped standards errors; BC 95 % CI = Bias Corrected-Confidence Interval

satisfaction. We did not include a path from autonomy-support to internalizing distress because this path was already not significant in the initial set of models. Estimation of this model yielded acceptable fit for both the maternal data, $\chi^2(60) = 106.10$, $p < .001$; CFI = .95; NNFI = .94, SRMR = .06, RMSEA = .08 (90 % CI = .05–.10), and the paternal data, $\chi^2(60) = 114.70$, $p < .001$; CFI = .95; NNFI = .93, SRMR = .07, RMSEA = .09 (90 % CI = .06–.11). After controlling for autonomy support, psychological control was related negatively to need satisfaction in the maternal model ($\beta = -.47$, $p < .001$) but not in the paternal model ($\beta = .03$, $p > .05$). Autonomy support was related positively to need satisfaction in both the maternal ($\beta = .44$, $p < .001$) and paternal model ($\beta = .59$, $p < .001$).

The data presented so far suggest that parental autonomy-support and psychological control represent relatively distinct rather than fully opposite dimensions of parenting. To further address the question whether it is better to model autonomy support and psychological control as opposite poles of a continuum or as distinct constructs, we compared the models presented so far (in which the correlates of autonomy support and psychological control were estimated separately) to models in which a composite score of autonomy support versus psychological control was used, with the latter score representing the bipolar continuum of autonomy-support versus control. We then compared the percentage of explained variance of this composite score with the percentage of variance explained in the original model, where autonomy support and psychological control were entered separately. When predicting internalizing problems (without the needs included), the variance

explained by the composite score (maternal $R^2 = .09$; paternal $R^2 = .10$) was lower than in the models with separate scores for autonomy-support and psychological control (maternal $R^2 = .25$; paternal $R^2 = .12$). Similar results were obtained when estimating the full mediation model. Again, the percentage of variance explained when predicting need satisfaction by the composite score was lower (maternal $R^2 = .40$; paternal $R^2 = .32$) than the percentage of variance explained by the separate scores for autonomy-support and psychological control (maternal $R^2 = .55$; paternal $R^2 = .33$). Overall, these findings further support the importance of distinguishing between parental psychological control and autonomy-support (rather than considering both constructs as perfectly opposite ends on a continuum).

Discussion

Several scholars have highlighted the necessity to explore the mechanisms that establish the relationship between psychological control and adolescents' functioning (Barber et al. 2002; Soenens et al. 2005). Soenens and Vansteenkiste (2010) provided an integrated model of the mediating mechanisms behind this relation by relying on the framework of Self-Determination Theory. Soenens and Vansteenkiste (2010) argued that the effects of psychological control could be understood and summarized parsimoniously through the concept of basic need satisfaction. To date, however, few studies directly addressed this argument.

Results clearly confirmed the role of satisfaction of the basic psychological needs in the relationship between psychological control and internalizing distress. For both maternal and paternal ratings of psychological control, need satisfaction was a full mediator of the association with internalizing distress. The results of the present study are strikingly consistent with findings recently observed in a Jordanian sample (Ahmad et al. 2013), yet extend those findings by examining the mediating role of need satisfaction for the first time in relation to internalizing distress, which is considered the most important developmental outcome of parental psychological control (Barber 1996). The current findings also extend the Ahmad et al. (2013) study by examining the role of need satisfaction within a different cultural climate. Contrary to the argument that psychological control might be less detrimental or even beneficial in a country such as Italy, where family life is characterized by a strong emphasis on loyalty and interdependence, the current findings showed that the association of psychological control with need satisfaction and internalizing distress was quite similar to associations obtained in previous research in Western Europe and the US (Barber et al. 2005; Barber and Harmon 2002; Soenens and Vansteenkiste 2010). As such, these findings attest to SDT's viewpoint that the process of need satisfaction represents a rather universal mechanism accounting for how environmental features (including parental psychological control) translate into personal (mal)adjustment (Deci and Ryan 2000; Ryan and Deci 2000; Soenens and Vansteenkiste 2010).

The strongest correlation between psychological control and the needs was obtained with the need for autonomy, which is logical given that psychological control can indeed be considered parental behavior that most directly frustrates the need for autonomy (Soenens and Vansteenkiste 2010). When children feel pressured by their parents, they tend to feel pressured in life in general (i.e., experience low autonomy), possibly because they experience important events as more evaluative and/or because they elicit more pressuring events in their own life. Strikingly, however, psychological control was also related negatively to satisfaction of the needs for competence and relatedness (although the latter association was significant only in the maternal ratings). Possibly, the critical undertone typically accompanying parental psychological control may render adolescents insecure about their capabilities, thus giving rise to lowered feelings of competence in life in general. Further, psychological control represents a threat to the parent–child bond, a threat that may be carried forward to other relationships in adolescents' lives and that may result in decreased satisfaction of the need for relatedness. Each of the three needs, in turn, was related negatively to internalizing distress. This finding

is consistent with the claim that people low on need satisfaction lack essential vitamins to flourish in life and might even become vulnerable to internalizing distress (Deci and Ryan 2000; Ryan and Deci 2000).

Furthermore, to deepen our understanding of the construct of parental psychological control in a self-determination theory framework, this study examined its relative contribution in the association with need satisfaction and internalizing distress compared to parental autonomy-support. In SDT, it is recognized increasingly that parenting behavior that is perceived as thwarting the basic needs cannot be equated with parenting behavior that is perceived as being low on support for the basic psychological needs (Vansteenkiste and Ryan 2013). Need thwarting parental behavior would have a more pronounced association with ill-being and psychopathology than an absence of need support. Consistent with this reasoning we found that psychological control was a better (and even unique) predictor of internalizing distress compared to autonomy-support.

Somewhat less convincing evidence was obtained for a unique association between psychological control and need satisfaction. When controlling for autonomy support, psychological control had a unique (and negative) association with need satisfaction in the maternal ratings but not in the paternal ratings. In our view, this finding is mainly due to the fact that the measure for need satisfaction used in this study does not allow one to differentiate between experiences of need satisfaction and need frustration. Although some of the items from this measure need to be reverse scored, most of these reverse scored items do not really tap into real frustration of the needs. Rather, they tap into a lack of satisfaction of the needs. It has been argued that need thwarting socialization (which may involve psychological control) would be uniquely predictive of need frustration while need supportive socialization (which includes parental autonomy support) would be uniquely predictive of need satisfaction (Bartholomew et al. 2011a; Vansteenkiste and Ryan 2013). A balanced measure of need satisfaction and need frustration (e.g., Sheldon and Hilpert 2012) should be used in future research to test this hypothesis.

From an applied perspective, our data, together with data from the broader literature demonstrating the undermining effects of psychologically controlling parenting (Soenens and Vansteenkiste 2010), suggest that an important feature of effective parenting prevention and intervention programs may be to raise awareness of the phenomenon of psychological control and to discourage parents from engaging in psychologically controlling tactics. Interestingly, our data also suggest that, for parents to be experienced as truly need-supportive, more may be needed than an advice against the use of psychological

control. Because an absence of psychological control cannot be equated perfectly with the presence of autonomy-support, it may also be of importance to inform parents explicitly about ways to implement an autonomy-supportive style in parent–child interactions. To the extent that future research shows that parental autonomy support plays an important and specific role in the development of positive developmental outcomes, increasing autonomy support through intervention and prevention programs may help to not only reduce problem behaviors (including internalizing distress) but also to promote growth and resilience.

This study has a number of limitations that can be addressed in future research. First, the sample of this study was relatively small (limiting the power of the SEM analyses) and consisted of female psychology students only. Although the choice for this sample was deemed justified, as internalizing problems are quite prevalent in this population (e.g., Galambos et al. 2009) and as previous research has shown that psychological control is a risk factor for internalizing distress in this population (e.g., Soenens et al. 2005), future research needs to rely on larger and more heterogeneous samples to explore the generalizability of the hypothesized model. Previous studies (Barber et al. 2005; Rogers et al. 2003; Soenens et al. 2005; Soenens and Vansteenkiste 2010) have shown that the consequences of psychological control are relatively similar during early, middle, and late adolescence and across gender. Still, it is important to establish the mediational role of need satisfaction in the relationship between psychological control and adolescents' adjustment in a broad age range and across gender. In accordance with SDT's assertion that the psychological needs are innate and universal in nature (Deci and Ryan 2000), satisfaction of the needs can be expected to account for the effects of psychological control at different ages and across gender. Our finding in the current study that results were fairly similar for paternal and maternal ratings is already consistent with the notion that the parenting dynamics involved in the psychological needs are universal.

A second important limitation of this study is its reliance on a cross-sectional design. As a consequence, no conclusions could be drawn about direction of effects. Possibly, experiences of low need satisfaction do not only follow from parental psychological control, but also contribute to it. Parents may act more intrusively to adolescents who feel incompetent, pressured, and lonely. Most likely, there are reciprocal associations between all of the constructs in the model tested here, an issue that can be addressed in future longitudinal research. Finally, the current study was based on self-reports of the study variables. Future research would do well to include multi-informant assessments to

provide a more valid and more conservative test of the hypothesized model.

Future research could also use more differentiated instruments to assess psychological control. To examine in greater detail the relationship between psychological control and the needs, future research could, for instance, rely on an instrument developed recently by Soenens et al. (2010) distinguishing between dependency-oriented psychological control (i.e., psychological control used to keep the child within physical and emotional closeness) and achievement-oriented psychological control (i.e., psychological control used to pressure the child into achievement and perfection). It might be the case, for instance, that achievement-oriented psychological control is more detrimental to the need for competence than dependency-oriented psychological control. It might also be the case that dependency-oriented psychological control, although not being strongly detrimental to the need for relatedness, does forestall satisfaction of the need for autonomy, such that adolescents experience an inner conflict between different needs.

Future research may also broaden the scope of outcome measures being included. Whereas this study focused only on internalizing distress, future research could examine other outcomes, such as externalizing problems. Indeed, it has been argued that externalizing problems may also represent an outcome of controlling parenting and subsequent need frustration. Oppositional defiance against parental authority (which might manifest in externalizing problems such as rule breaking behavior and aggression) can be considered a defensive coping mechanism against parental thwarting of the psychological needs and the need for autonomy in particular (e.g., Vansteenkiste et al. 2014). Another interesting avenue for future research may be to address the question why parental need thwarting gives rise to internalizing problems for some adolescents whereas it gives rise to externalizing problems for other adolescents. Need-thwarting parenting can be expected to yield deleterious consequences, although such consequences may manifest as either internalizing problems or externalizing problems depending on as-yet-undiscovered factors. Possibly, adolescent personality plays an important role, such that internalizing problems may be a more salient outcome in adolescents with a relatively more overcontrolled personality profile while externalizing problems may be a more salient outcome in adolescents with a relatively more under controlled personality profile.

Conclusion

Relatively few studies have examined the mechanisms through which psychological control represents a threat to adolescents' functioning. Consistent with predictions

derived from Self-Determination Theory, this study found that Italian emerging adult females who perceived their parents as psychologically controlling more often experienced low satisfaction of the basic needs for autonomy, competence, and relatedness in their lives. In turn, low satisfaction of these needs was found to relate to more experiences of internalizing distress and to account for the initial association of psychological control with internalizing distress. As one of the first studies to test the intervening role of processes of need satisfaction in the relation between psychological control and emerging adults adjustment, this study yielded promising results that call for further investigation.

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