

Development and Aging

The six dimensions of parenting and adolescent psychological adjustment: The mediating role of psychological needs

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In accordance with the Self-determination Theory (SDT), six dimensions of parenting (autonomy support vs. psychological control, structure vs. chaos, warmth vs. rejection) could be defined in their relation to adolescents' adjustment. However, the mechanisms of these relations need to be further deepened. In accordance with SDT, the aims of this study were: (1) to examine the relationships between the six dimensions of parenting and the three psychological basic needs; (2) to examine the mediation role of basic psychological needs in the relation between parental practices, and positive and negative outcomes in a sample of Italian adolescents. In a sample of 342 adolescents, results suggest that supportive parenting practice (autonomy support, structure, and warmth) promotes need fulfillment and adjustment, while thwarting parenting practice (psychological control, chaos, and rejection) reduces need fulfillment and adjustment. Furthermore, the three psychological basic needs (autonomy, competence and relatedness) mediate the relations between parenting and adolescents' adjustment. These findings highlight the role of parenting in adolescents' adjustment and in line with SDT provide evidence of the dynamic between parenting, psychological needs and adjustment.

Key words: Adolescents, parenting, psychological needs, SDT.

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INTRODUCTION

Parenting is a relevant social behavior that can have a significant role in the development and functioning of children and adolescents. Recent research has underlined how the various dimensions of parenting can be contextualized and deepened within Self-determination Theory (SDT) (Grolnick, 2003; Joussemet, Landry & Koestner, 2008; Skinner, Johnson & Snyder, 2005; Soenens & Vansteenkiste, 2010). SDT (Ryan & Deci, 2017) is a theory based on human motivation, development, human needs, values, and psychological well-being. SDT hypothesizes that there is a set of universal psychological needs that must be satisfied for effective functioning and psychological health, growth and integrity (Ryan & Deci, 2017). The three needs, which are considered as "nutriments or conditions that are essential to an entity's growth" (Ryan, 1995, p. 410), are the needs for autonomy, competence, and relatedness. Autonomy refers to a sense of volition and a deep self-endorsement over everyday activities; when it is satisfied, people experience a sense of volition and feel that their behavior is personally chosen and coherent with their principles. Instead, when the need for autonomy is frustrated, people experience a sense of pressure, conflict, coercion and alienated experiences. Competence refers to a feeling of effectiveness in dealing with daily challenges, and when it is satisfied, people feel effective, productive and skillful in activities. When frustrated, people perceive a sense of inferiority and inadequacy. Relatedness refers to a feeling of being loved, cared, and trusted, but also to be able to take care of others and to provide affection. When the need for relatedness is satisfied, people experience a sense of closeness with who cares for them. When frustrated, people perceive a sense of social alienation and loneliness (Ryan & Deci, 2017).

In accordance with SDT, social contexts as parents could support or thwart psychological needs, and need satisfaction and need frustration could explain the relations between social contexts, needs satisfaction/frustration and outcomes. SDT also suggests that the processes of need thwarting and need support may predict different outcomes: need thwarting would be particularly predictive of ill-being and psychopathology, while need support would be particularly predictive of well-being and positive developmental outcomes (Bartholomew, Ntoumanis, Ryan, Bosch & Thøgersen-Ntoumani, 2011; Costa, Ntoumanis & Bartholomew, 2015; Vansteenkiste & Ryan, 2013). In the same way, need supportive parental behaviors would facilitate satisfaction of basic psychological needs, while need thwarting parental behaviors would forestall satisfaction of needs (Ryan & Deci, 2017; Vansteenkiste & Ryan, 2013). Several researchers have identified and synthesized six dimensions of parenting style in line with the SDT that are composed of three opposite types of parental behaviors (Grolnick, 2003; Ryan & Deci, 2017; Skinner *et al.*, 2005; Soenens & Vansteenkiste, 2010): autonomy support vs. psychological control, structure vs. chaos, warmth vs. rejection. The first parental dimension is parental provision of autonomy support and its opposite, psychological control (Soenens & Vansteenkiste, 2010). Autonomy support characterizes interactions in which children can express their views and opinions and in which their plans and problem solving skills are supported (Skinner *et al.*, 2005). It is associated with greater ability to cope with stress (Seiffge-Krenke & Pakalniskiene, 2011), increased satisfaction with life (Ferguson, Kasser & Jahng, 2011), promotion of vitality (Costa, Cuzzocrea, Gugliandolo & Larcana, 2016), and enhanced ability to respond to others' emotional difficulties (Roth & Assor,

2012). Psychological control describes a manipulative and intrusive form of control to intrude in the psychological world of adolescents that predicts difficulty in managing anger (Cui, Morris, Criss, Houlberg & Silk, 2014), maladaptive perfectionism (Costa, Hausenblas, Oliva, Cuzzocrea & Larcán, 2016) and internalizing and externalizing behavioral problems (Gugliandolo, Costa, Cuzzocrea & Larcán, 2015). Structure refers to the provision of coherent and clear expectations for mature behaviors linked to consistent and appropriate limit setting that supports positive socialization outcomes for children (Connell & Wellborn, 1991; Grolnick & Ryan, 1989; Skinner, 1991, 1995). Providing adequate structure is associated with increased engagement in academic pursuits (Farkas & Grolnick, 2010; Griffith & Grolnick, 2014) and higher levels of agency and self-regulation among children (Griffith & Grolnick, 2014). The opposite of structure is chaos (Skinner & Wellborn, 1997), which refers to non-contingent, arbitrary, and inconsistent parental behaviors (Abramson, Seligman & Teasdale, 1978). Therefore, chaos goes beyond lack of structure and it is considered a kind of environmental confusion, characterized by disorganization (Matheny, Wachs, Ludwig & Phillips, 1995). Chaos is associated with lower levels of cognitive functioning, increased behavioral problems (Deater-Deckard, Mullineaux, Beekman, Petrill, Schatschneider & Thompson, 2009), and lower levels of social competence among children (Dumas, Nissley, Nordstrom, Smith, Prinz & Levine, 2005). Warmth refers to affection, love, sweetness, and positive regard, and includes emotional availability and support. Parental warmth has been shown to predict increases in empathic responding and social functioning (Zhou *et al.*, 2002), fewer externalizing problems (McCarty, Zimmerman, Di Giuseppe & Christakis, 2005), and less emotional distress among children (Operario, Tschann, Flores & Bridges, 2006). Its opposite is parental rejection. Expressions of rejection include aversion, dislike, hostility, irritable explosive discipline, and overt communication of negative feelings for children, such as disapproval, guilt and derision (Baldwin, 1955; Sears, Maccoby & Levin, 1957; Slater, 1962). Parental rejection has been associated with depression, suicidality, self-criticism (Campos, Shiota, Keltner, Gonzaga & Goetz, 2013), and decreased happiness among offspring (Kazarian, Moghnie & Martin, 2010).

In accordance with SDT, autonomy support, structure, and warmth represent need supportive parental practices and should be most consistently associated with positive child outcomes, while psychological control, chaos and rejection represent need thwarting parental practices and should be associated with diminished functioning and maladjustment (Ryan & Deci, 2017; Skinner *et al.*, 2005). Furthermore, as suggested by Skinner *et al.* (2005), there should be a relation between parenting dimensions and adolescents' basic psychological needs: parental autonomy support should be necessary to support adolescents' need for autonomy, parental provision of structure would be the basis for need of competence, and parental warmth would be critical to children's experiences of relatedness. In contrast, parental psychological control would interfere with developing need for autonomy, chaotic parenting would thwart adolescents' sense of competence, while parental rejection would weaken adolescents' need of relatedness. Even though SDT has identified the need for supportive parental behaviors in autonomy support, warmth and provision of structure and need thwarting ones in psychological control, rejection and chaos, all these relations have never been empirically verified in

relation to psychological needs. Thus, it would be important to verify these relations to gain more knowledge about the dynamics of parenting from the perspective of SDT. Furthermore, previous studies have mainly focused on the developmental outcomes that parental practices may cause in adolescents' functioning, neglecting the mechanisms underlying the relation between parenting and outcomes. Conceptualizing relations in terms of basic psychological needs could be useful because it could synthesize and shed light on the mechanisms underlying the relationship between parental practices and adolescents' outcomes. Indeed, some studies (Ahmad, Vansteenkiste & Soenens, 2013; Costa, Soenens, Gugliandolo, Cuzzocrea & Larcán, 2015) have underlined that parenting practices such as psychological control and autonomy support may be related to child development because they support or thwart psychological needs. Nevertheless, in the scientific psychological literature, there are no studies that have investigated the mediating role of experiences of need satisfaction and frustration of basic psychological needs in the relation between all the parenting practices synthesized by SDT (autonomy support vs. psychological control, structure vs. chaos, and warmth vs. rejection) and children's outcomes.

For this reason, the first aim of this research was to verify the relation between basic psychological needs and the dimensions of parenting styles identified by the SDT (Deci & Ryan, 2017; Skinner *et al.*, 2005). Particularly, it is expected that autonomy support will correlate with satisfaction of need for autonomy, structure will be related to satisfaction of need for competence and parental warmth will correlate with satisfaction of need for relatedness. In addition, it is expected that psychological control will correlate with frustration of need for autonomy, chaos will be related to frustration of need for competence and parental rejection will be correlated with frustration of need for relatedness. This research is also intended to assess the mediating role of experiences of basic psychological needs in the relation between parental practices, positive outcomes, and negative outcomes in a sample of adolescents. Moreover, another innovative contribution that this study would present is to test the mediating role of basic psychological needs in the relation between parental practices and adolescents' outcomes, examining not only internalizing aspects (*i.e.*, affect) but also externalizing behaviors, such as aggression and prosocial behaviors. In particular, it is expected that autonomy support and psychological control would be particularly relevant in the prediction of the need for autonomy, structure and chaos would primarily support or thwart the need for feeling competent, and warmth and rejection would primarily affect the need for relatedness. Furthermore, it is expected that the three psychological needs will mediate the relation between supportive parental practices (autonomy support, structure and warmth) and indicators of adolescents' well-being (positive affect, and prosocial behaviors), as well as the relation between thwarting parental practices (psychological control, chaos and rejection) and indicators of adolescents' ill-being (negative affect and aggressive behaviors).

METHOD

Sample

Participants who took part in this research were 342 students (193 females, 148 males, one prefer to not report this information) attending high school; their age ranged from 14 to 17 years with

a mean of 15.33 (*SD* = 1.31 years). In addition to structural data (age, gender, school attended, etc.), information was also obtained concerning the number of children within participants' family and their own birth order. Most commonly (50.7%), participants' families had two children (i.e., they had one sibling); the least frequent (1.2%) was families with six children. In the case of birth order, 43.8% of the participants claimed to be the second-born child, while only 1.8% reported being the fifth-born. All students were Italian-speaking; they also came from two-parent families, and mothers, fathers and adolescents all lived in the same household.

Procedures

Since all the participants were underage, parents were asked to sign informed consent forms, and a school authorization was also required for administration of the measures. When parents' informed consent form and permission from the school had been obtained, questionnaires were administered. There were 418 students eligible to participate in the study, but 57 students could not participate because their parents had not signed the informed consent form. Finally, 19 students failed to complete the entire questionnaires and were not included in the final sample. Participants had been informed in advance that participation would be free and voluntary and that the data would be used for research purposes only. No incentives for participation in the study were provided. First, participants provided general demographic information, such as their age, gender, school, number of children and birth order in their own family. Then, they completed the questionnaires. Prior to completing the questionnaires, participants were instructed to respond to the questions as honestly as possible, and were told that there were no right or wrong answers.

Measures

Psychological control. The Italian version of the eight-item Psychological Control Scale – Youth Self-Report (PCS-YSR; Barber, 1996) was used to evaluate the perception of parental psychological control among adolescents. Participants responded on a three-point Likert-type scale from 1 (*not like her or him*) to 3 (*a lot like her or him*) as to how well items described their mothers and fathers. The questionnaire contained eight items for paternal psychological control and eight for maternal psychological control (e.g., "My mother/father is a person who: Is always trying to change how I feel or think about things). The scale is widely used and has previously shown good psychometric properties, in several cultural contexts, including in Italy (Barber & Harmon, 2002; Filippello, Sorrenti, Buzzai & Costa, 2015), and in this study it also showed a good level of reliability (Table 1).

Parental autonomy support. Perceived parental involvement and autonomy support were assessed by the Autonomy support subscale of the Perceptions of Parents Scale (POPS; Grolnick, Ryan & Deci, 1991), which consists of 12 items (six for maternal and six for paternal autonomy support) that assess children's perception of autonomy support. Students were asked to answer on a seven-point Likert-type scale, from 1 (*not at all true*) to 7

Table 1. Descriptive statistics, reliability, and correlations

	M	SD	Ske	Kur	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Warmth M	3.49	0.70	-1.56	1.90	0.89																			
Warmth F	3.39	0.70	-1.07	0.44	0.88	0.61**																		
Rejection M	1.72	0.67	0.92	0.30	0.69	-0.51**																		
Rejection F	1.62	0.61	0.96	0.21	0.67	-0.39**	-0.36**																	
Structure M	3.03	0.71	-0.54	-0.30	0.81	0.40**	0.44**	0.52**																
Structure F	3.13	0.76	-0.82	0.10	0.85	0.40**	0.60**	-0.22**	0.54**															
Caos M	1.64	0.68	1.13	0.90	0.76	-0.49**	-0.36**	0.54**	0.40**	-0.34**														
Caos F	1.60	0.66	1.18	0.75	0.76	-0.40**	-0.54**	0.40**	0.61**	-0.28**	-0.33**													
PsyCon M	1.68	0.41	0.61	0.12	0.69	-0.41**	-0.21**	0.44**	0.27**	-0.20**	-0.20**	0.55**												
PsyCon F	1.54	0.40	1.09	1.46	0.73	-0.17**	-0.23**	0.30**	0.40**	-0.19**	-0.14**	0.30**	0.43**											
AutSup M	5.02	1.32	-0.78	0.05	0.87	0.54**	0.40**	-0.45**	-0.29**	0.44**	0.33**	-0.47**	-0.30**	-0.17**										
AutSup F	4.80	1.33	-0.40	-0.32	0.87	0.34**	0.50**	-0.26**	-0.39**	0.34**	0.49**	-0.26**	-0.40**	-0.26**	-0.32**									
Autonomy	3.77	0.72	-0.57	0.03	0.83	0.43**	0.40**	-0.40**	-0.31**	0.41**	0.35**	-0.40**	-0.34**	-0.27**	0.46**	0.41**								
Relatedness	4.14	0.73	-1.04	0.82	0.84	0.43**	0.41**	-0.39**	0.36**	0.36**	0.31**	-0.34**	-0.19**	-0.19**	0.24**	0.28**	0.45**							
Competence	3.76	0.78	-0.71	0.73	0.85	0.34**	0.30**	-0.43**	0.26**	0.26**	0.25**	-0.34**	-0.29**	-0.29**	0.34**	0.32**	0.58**	0.46**						
Prosocial	2.49	0.32	-0.75	0.10	0.71	0.31**	0.36**	-0.16**	0.26**	0.26**	0.24**	-0.20**	-0.28**	-0.14**	0.22**	0.25**	0.29**	0.39**	0.14**					
Aggressive	1.57	0.34	0.59	0.01	0.81	-0.32**	0.29**	0.21**	-0.24**	-0.16**	-0.16**	0.23**	0.31**	0.31**	-0.16**	-0.19**	-0.30**	-0.29**	-0.28**					
Pos.Affect	3.78	0.60	-0.61	0.54	0.82	0.30**	0.32**	-0.26**	0.27**	0.27**	0.31**	-0.20**	-0.23**	-0.15**	0.24**	0.31**	0.36**	0.34**	0.41**	0.28**				
Neg.Affect	2.29	0.72	0.65	0.20	0.90	-0.23**	-0.19**	0.31**	0.24**	-0.18**	-0.14**	0.25**	0.35**	0.25**	0.30**	-0.15**	-0.14**	-0.39**	-0.48**	-0.17**	0.39**	-0.26**		

Notes: ***p* < 0.01; **p* < 0.05.

Ske = Skewness; Kur = Kurtosis; 9. PsyCon = Psychological Control; AutSup = Autonomy Support; Pos.Affect = Positive Affect; Neg.Affect = Negative Affect; M = Mother; P = Father

(*very true*). A sample item for parental autonomy support is: “a. Some mothers (fathers) always tell their children what to do.” POPS has been frequently used in studies on parenting context and behavior (Costa, Gugliandolo, Barberis, Cuzzocrea & Liga, 2018; Grolnick, Deci & Ryan, 1997) and in this study showed a good level of reliability (Table 1).

Warmth vs. rejection and structure vs. chaos. Warmth, rejection, structure, and chaos were measured using four subscales (Warmth, Rejection, Structure, and Chaos) of the Parents as Social Context Questionnaire (PASCQ; Skinner *et al.*, 2005). PASCQ is a parenting self-report measure where adolescents were asked to describe their parents using a 4-point scale ranging from 1 (*not at all true*) to 4 (*very true*). Each scale is composed of four items. Examples for each scale are: Warmth (“I really know how my child feels about things”); Rejection (“Sometimes my child is hard to like”); Structure (“I make it clear to my child what I expect from him/her”); Chaos (“I change the rules a lot at home”). This questionnaire has been used in a variety of parenting studies (e.g., Farkas & Grolnick, 2010; Hardy, White, Zhang & Ruchty, 2011; McLachlan, Zimmer-Gembeck & McGregor, 2010), and in this study showed a good level of reliability (Table 1).

Basic psychological need satisfaction and frustration. To investigate the satisfaction of basic psychological needs for autonomy, relatedness, and competence the Italian version of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen, Chen & Gau, 2015; Costa, Ingoglia, Inguglia, Liga, Lo Coco & Larcana, 2018) was used. The BPNSFS contains 24 items rated with a five-point Likert scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). To obtain a score of need satisfaction, the frustration scores were reversed and then averaged with the satisfaction scores for each need. Item examples for each dimension are: Autonomy (8 items; e.g., “I feel a sense of choice and freedom in the things I undertake”), Competence (8 items; e.g., “I feel confident that I can do things well”), and Relatedness (8 items; e.g., “I feel that the people I care about also care about me”). Several studies (Chen *et al.*, 2015; Costa *et al.*, 2018; Liga *et al.*, 2018) have shown the validity and reliability of the BPNSFS, and in this study the instrument revealed good reliability level (Table 1).

Positive and negative affect. To examine the positive and negative affect of adolescents, the Positive and Negative Affect Schedule for Children (PANAS-C; Laurent *et al.*, 1999) was used. It is a 27-item, youth self-report measure of positive (12 items) and negative (15 items) affect. Adolescents responded on a five-point Likert scale, from 1 (*very slightly or not at all*) to 5 (*extremely*). Previous studies reported good psychometric characteristics (Laurent *et al.*, 1999), and in the present study the internal consistency was good (Table 1).

Prosocial behavior and aggression. To evaluate prosocial and aggressive behaviors, two scales of the Prosocial Behavior and Physical and Verbal Aggression Scale (PBAS; Caprara & Pastorelli, 1993) were used. The *Prosocial behavior scale* is a 15-item scale which offers a description of a child’s prosocial behavior, for example “I spend time with my friends; I try to

make sad people happier; I trust others” (Caprara & Pastorelli, 1993). The answer format includes three possible responses (“*frequently, sometimes, never*”). The *Physical and Verbal Aggression Scale (A)* is a 20-item scale which evaluates physically or verbally violent behavior towards others. Three options are given (“*frequently, sometimes, never*”) for rating the frequency of behaviors such as “I argue with other children; I tell lies; I use bad words.” Convergent and discriminant validity of the instruments were established in previous studies showing excellent results (Caprara, Pastorelli, Barbaranelli & Vallone, 1991; Pastorelli, Barbaranelli, Cermak, Rozsa & Caprara, 1997), and in this study they also showed a good level of reliability (Table 1).

Data analysis

To examine whether perceived need satisfaction could mediate the associations between perceived parenting dimensions and children’s outcomes, we used structural equation modeling (SEM). We created two sets of models, one for maternal ratings of parenting and one for paternal ratings of parenting. To explore the mediating role of basic needs, the SEM approach with bootstrapping advanced by Preacher and Hayes (2008) was used. Additionally, aligned with previous recommendations (Preacher & Hayes, 2008; Shrout & Bolger, 2002; Wu & Jia, 2013) confidence intervals of the direct and indirect effects with 5000 bootstrap replication samples were used and a 95% bias corrected confidence interval was applied. Bootstrapping estimates the total and specific indirect effects; a significant total indirect effect indicates that predictor variables influenced the criterion variables through the group of mediators as a whole. Therefore, a significant specific indirect effect indicates that the influence of the predictor variables on the criterion variables was mediated by that particular variable. All the coefficients reported are standardized coefficients.

RESULTS

Descriptive statistics and correlations

The descriptive statistics, Cronbach’s alpha values, and correlations for the study variables are presented in Table 1. Correlations showed that both maternal and paternal parenting dimensions were related to basic psychological needs and adolescents’ outcomes. All of them were statistically significant, except for a non-significant correlation between prosocial behavior and paternal psychological control, and between aggressiveness and positive affect.

Maternal mediation model

Estimation of the saturated model showed that need for autonomy was predicted by maternal rejection, maternal structure, and maternal autonomy support; need for relatedness was predicted by maternal warmth, maternal rejection, and maternal structure, while need for competence was predicted by maternal rejection. Similarly, the prosocial behaviors outcome was predicted by need for autonomy, need for relatedness and need for competence; aggressiveness was predicted by maternal psychological control,

maternal autonomy support, and need for relatedness; positive affect was predicted only by need for competence, while negative affect was predicted by maternal psychological control, maternal autonomy support, need for relatedness, and need for competence.

In accordance with common procedure to test the saturated model, a trimming process was conducted, and all non-significant paths were removed. Several indices indicated that the data fit the final model well (Fig. 1), $\chi^2(41) = 95.75, p < 0.05, CFI = 0.95, RMSEA = 0.06$ (90% CI = 0.05–0.08). Similar to the saturated model, there were significant paths from maternal rejection ($\beta = -0.25; CI = -0.36, -0.14$), maternal structure ($\beta = 0.18; CI = 0.07, 0.30$), and maternal autonomy support ($\beta = 0.22; CI = 0.12, 0.31$) to the need for autonomy; from maternal warmth ($\beta = 0.18; CI = 0.05, 0.29$), maternal rejection ($\beta = -0.26; CI = -0.37, -0.15$), and maternal structure ($\beta = 0.14; CI = 0.03, 0.25$) to the need for relatedness, and only from maternal rejection ($\beta = -0.44; CI = -0.53, -0.34$) to the need for competence. Significant paths were also present in relation to adolescents' outcomes. So, prosocial behaviors were influenced by need for autonomy ($\beta = 0.12; CI = 0.01, 0.22$) and need for relatedness ($\beta = 0.32; CI = 0.20, 0.43$); aggressiveness was influenced by maternal psychological control ($\beta = 0.24; CI = 0.14, 0.35$) and need for relatedness ($\beta = -0.32; CI = -0.42, -0.24$); positive affect was influenced by need for competence ($\beta = 0.44; CI = 0.35, 0.52$); and negative affect by maternal psychological control ($\beta = 0.11; CI = 0.01, 0.21$), need for relatedness ($\beta = -0.24; CI = -0.36, -0.12$), and need for competence ($\beta = -0.33; CI = -0.45, -0.21$).

Examinations of the total, direct and indirect paths from parenting dimensions to adolescents' outcomes whilst controlling for psychological basic needs were examined. Several statistically significant indirect associations through need for relatedness were

reported; specifically, there were associations between maternal warmth and prosocial behavior ($\beta = 0.06; CI = 0.01, 0.11$), accounting for 100% of the total effect; between maternal rejection and prosocial behavior ($\beta = -0.08; CI = -0.13, -0.04$), accounting for 74% of the total effect; between maternal structure and prosocial behavior ($\beta = 0.05; CI = 0.01, 0.09$), accounting for 67% of the total effect; between maternal warmth and aggressiveness ($\beta = -0.06; CI = -0.11, -0.01$), accounting for 100% of the total effect; between maternal rejection and aggressiveness ($\beta = 0.08; CI = 0.04, 0.13$), accounting for 100% of the total effect; between maternal structure and aggressiveness ($\beta = -0.05; CI = -0.09, -0.01$), accounting for 100% of the total effect; between maternal warmth and negative affect ($\beta = -0.04; CI = -0.08, -0.01$), accounting for 100% of the total effect; between maternal rejection and negative affect ($\beta = 0.06; CI = 0.02, 0.10$), accounting for 30% of the total effect; and between maternal structure and negative affect ($\beta = -0.03; CI = -0.07, -0.01$) accounting for 100% of the total effect. Similarly, statistically significant indirect associations through need for autonomy were reported between maternal rejection and prosocial behaviors ($\beta = -0.03; CI = -0.06, -0.01$), accounting for 26% of the total effect. Statistically significant indirect associations through need for competence were also found, particularly between maternal rejection and positive affect ($\beta = -0.19; CI = -0.26, -0.13$), accounting for 100% of the total effect, and between maternal rejection and negative affect ($\beta = 0.14; CI = 0.08, 0.21$) accounting for 70% of the total effect.

Paternal mediation model

Estimation of the saturated paternal model showed a significant path from paternal chaos and paternal autonomy support to the

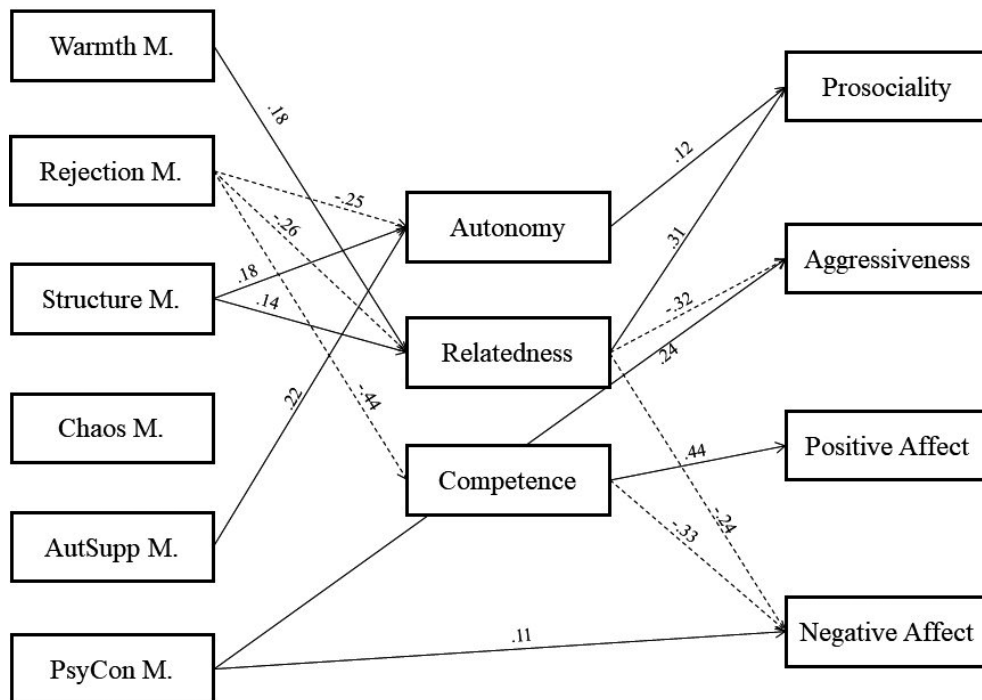


Fig. 1. Structural model for Maternal associations.

Note: Coefficients shown are standardized path coefficients. Dotted lines represent negative relations. Correlations between variables were not presented for presentation simplicity purposes.

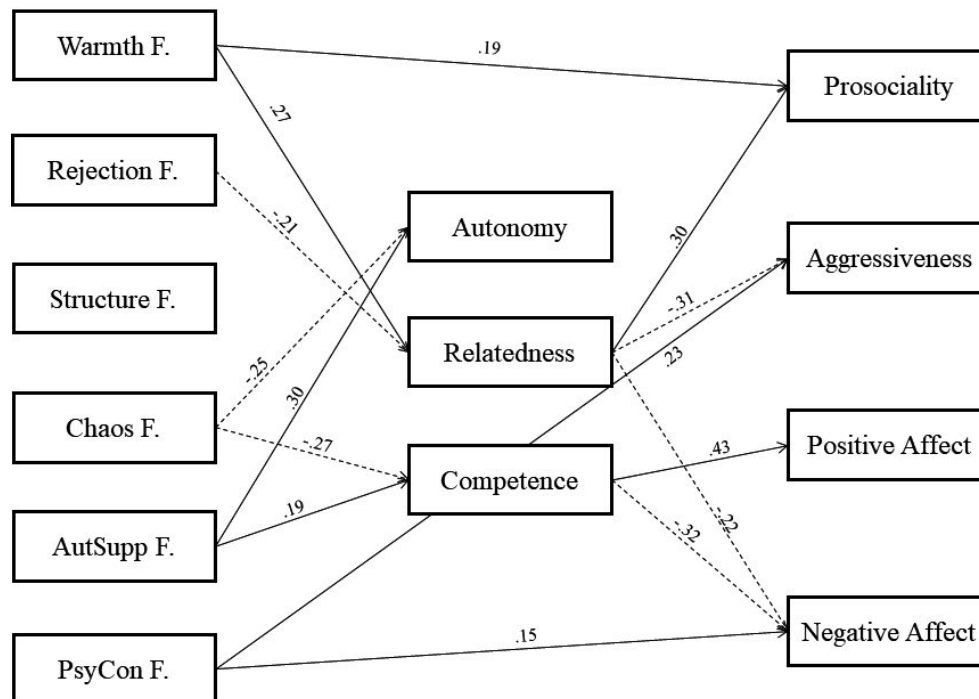


Fig. 2. Structural model for Paternal associations.

Note: Coefficients shown are standardized path coefficients. Dotted lines represent negative relations. Correlations between variables were not presented for presentation simplicity purposes.

need for autonomy; paternal warmth, paternal rejection, paternal chaos, paternal psychological control, and paternal autonomy support were all significantly related to the need for competence. Similarly, prosocial behavior was significantly influenced by paternal warmth, need for autonomy, need for relatedness, and need for competence; aggressiveness was influenced by paternal psychological control and need for relatedness; positive affect was significantly influenced only by need for competence; finally, negative affect was significantly influenced by paternal chaos, paternal psychological control, need for relatedness, and need for competence.

As in the maternal mediation model, in the paternal model a trimming process was conducted, all non-significant paths were removed, and several indices indicated that the data fit the final model well (Fig. 2), $\chi^2(42) = 108.7$, $p < 0.05$, CFI = 0.93, RMSEA = 0.06 (90% CI = 0.05–0.08). Similar to the saturated model, there were significant paths from paternal chaos ($\beta = -0.25$; CI = -0.36, -0.13) and paternal autonomy support ($\beta = 0.30$; CI = 0.20, 0.40) to the need for autonomy; from paternal warmth ($\beta = 0.27$; CI = 0.15, 0.39) and paternal rejection ($\beta = -0.21$; CI = -0.31, -0.11) to the need for relatedness; and from paternal chaos ($\beta = -0.27$; CI = -0.40, -0.15) and paternal autonomy support ($\beta = 0.19$; CI = 0.09, 0.30) to the need for competence. Significant influences were also noted in relation to adolescents' behavioral outcomes. Prosocial behavior was influenced by paternal warmth ($\beta = 0.19$; CI = 0.10, 0.29) and need for relatedness ($\beta = 0.30$; CI = 0.19, 0.41); aggressiveness by paternal psychological control ($\beta = 0.23$; CI = 0.13, 0.33), and need for relatedness ($\beta = -0.31$; CI = -0.41, -0.21); positive affect was influenced only by need for competence ($\beta = 0.43$; CI = 0.34, 0.53), while negative affect

was influenced by paternal psychological control ($\beta = 0.15$; CI = 0.05, 0.26), need for relatedness ($\beta = -0.22$; CI = -0.34, -0.10), and need for competence ($\beta = -0.32$; CI = -0.44, -0.21).

Examination of the total, direct and indirect paths from parenting dimensions to adolescents' outcomes through the mediation of basic psychological needs was evaluated. Statistically significant indirect associations through need of relatedness were reported, especially between: paternal warmth and prosocial adolescent behaviors ($\beta = 0.08$; CI = 0.03, 0.13), accounting for 29% of the total effect; paternal rejection and prosocial behaviors ($\beta = -0.06$; CI = -0.10, -0.02), accounting for 100% of the total effect; paternal warmth and aggressiveness ($\beta = -0.08$; CI = -0.14, -0.03), accounting for 100% of the total effect; paternal rejection and aggressiveness ($\beta = 0.07$; CI = 0.03, 0.10), accounting for 100% of the total effect; paternal warmth and negative affect ($\beta = -0.06$; CI = -0.11, -0.02), accounting for 100% of the total effect; and paternal rejection and negative affect ($\beta = 0.05$; CI = 0.01, 0.08), accounting for 100% of the total effect. Similarly, statistically significant indirect associations through need for competence were reported, specifically between paternal chaos and positive affect ($\beta = -0.12$; CI = -0.18, -0.06), accounting for 100% of the total effect; paternal autonomy support and positive affect ($\beta = 0.08$; CI = 0.03, 0.14), accounting for 100% of the total effect; paternal chaos and negative affect ($\beta = 0.09$; CI = 0.03, 0.15), accounting for 100% of the total effect; and paternal autonomy support and negative affect ($\beta = -0.06$; CI = -0.10, -0.02), accounting for 100% of the total effect; There were no statistically significant indirect paths from paternal dimensions to adolescents outcomes through need for autonomy.

DISCUSSION

Several studies (Egeli & Rinaldi, 2016; Egeli, Rogers, Rinaldi & Cui, 2015) have focused on the necessity of verifying the relation between the dimensions of parenting styles (Skinner *et al.*, 2005) and basic psychological needs, synthesized by the SDT (Ryan & Deci, 2017). However, the role of basic psychological needs in mediating the relationship between the parental practices suggested by SDT and adolescents' outcomes was previously unexplored. In line with previous studies (Ryan & Deci, 2017), results clearly showed that supportive practices (warmth, structure and autonomy support) positively predict psychological needs and positive outcomes (prosocial behaviors and positive affects), while thwarting parental practices negatively predict psychological needs and promote negative outcomes (aggressive behaviors and negative affects). Furthermore, psychological needs mediate the relations between supportive parenting and positive outcomes, and between thwarting parenting and negative outcomes.

The first aim of this study was to test the relation between six parenting practices and needs fulfillment. In line with our expectation, both paternal and maternal autonomy support were positive predictors of need for autonomy. This is in line with SDT theory, which posits that support for autonomy has the greatest positive influence on the development of children's need for autonomy (Skinner *et al.*, 2005). Indeed, parental autonomy support encourages children to actively discover, explore and express their own views, goals and preferences (Ryan, Deci & Grolnick, 1995; Wong, 2008) and gives them the opportunity to be active agents and feel a sense of responsibility in relation to their own behaviors (Lekes, Gingras, Philippe, Koestner & Fang, 2010; Soenens & Beyers, 2012). Furthermore, maternal structure also had a positive effect on the fulfillment of need for autonomy; this is in line with the concept of demandingness (Baumrind, 1991), support for the adolescents' ability to make their choices autonomously within clear demands of maturity that will not limit their choices, but lead and support them, avoiding unwanted outcomes (Connell & Wellborn, 1991; Grolnick & Ryan, 1989; Markland & Tobin, 2010; Skinner, 1991, 1995). Maternal rejection and paternal chaos, instead, were two thwarting parenting patterns, in line with expectations were negative in relation to the fulfillment of autonomy. This could be because parental rejection and chaos do not allow adolescents to consider parents as stable points of reference, creating confusion in the role of guide and do not permit adolescents to develop a healthy ability to choose (Braza *et al.*, 2015; Chan & Koo, 2010; Wisenblit, Priluck & Pirog, 2013; Zvara, Mills-Koonce, Garrett-Peters, Wagner, Vernon-Feagans & Cox, 2014).

Need for competence had a statistically significant negative association with maternal rejection and paternal chaos, and a positive association with paternal autonomy support. In line with expectations, chaos frustrated adolescents' need for competence (Skinner *et al.*, 2005). Chaotic parents do not explain motivations for the rules they give, they do not provide information on how to produce desired effects or the most suitable strategies to be used, and negatively affect the possibility of feeling competent. In line with the theory, also, rejection negatively predicts the fulfillment of competence because providing little or no attentive to adolescents' needs may adversely affect the development of their

sense of self-esteem and self-efficacy, making them insecure about their capabilities to have effective interactions with the social environment, to realize projects and achieve goals. Autonomy support, instead, allows adolescents to believe in themselves, in their ability and possibility of success, and urges them to act in a self-determined way and this increases personal, social and interpersonal skills (Vansteenkiste, Simons, Lens, Sheldon & Deci, 2004).

Regarding need for relatedness, in both the paternal and maternal models, it was positively predicted by warmth and negatively predicted by rejection. This strong association could be explained by the fact that the very first forms of relatedness satisfaction are traceable to family relationships (Pickreign Stronach, Toth, Rogosch, Oshri, Manly & Cicchetti, 2011; Ross, 2015). Parental warmth, in fact, allows adolescents to recognize themselves as able to relate to the outside world, to be recognized in their values and to be accepted without fear of being refused or marginalized. In the opposite way, instead, rejection of parents makes adolescents unable to socialize and grow close to others and thereby create the basis for safe and stable relationships in the future. A further significantly positive correlation also emerged with structure, and it is in line with literature showing that the presence of parental monitoring and supervision are predictive elements of children's social and affective skills and also could reduce the chance of their engaging in anti-social behaviors. For this reason, they will be accepted by their community, create authentic bonds and show assertiveness (Lowe & Dotterer, 2013; Vansteenkiste, Soenens, Van Petegem & Duriez, 2014). Adolescents who grow up in a structured but not oppressive domestic context have the opportunity to be monitored by parents, who will become positive role models for successive relationships. This could help to reduce the risk of implementing anti-social behaviors. Contrary to that expectation, however, no significant path was found between psychological control and the need for autonomy, or between structure and need for competence. Although a reverse path was found with the opposite pole of both dimensions (autonomy support and chaos), this lack could be because by integrating the specific dimension of parenting with other parenting practices, the unique weight could be merged by their interaction.

The second aim of this study was to verify the mediating role of experiences of basic psychological needs in the relation between parental practices and adolescents' positive and negative outcomes. For each model, many indirect statistically significant effects were found. The need of autonomy mediates the relation between parenting and outcomes only for the negative path between maternal rejection and prosocial behaviors. The need for competence instead mediates the relationships only between affects (positive and negative) and paternal and maternal parenting. Supportive parents satisfy adolescents' need for competence and influence their positive moods and self-esteem, while thwarting parental behaviors instead frustrate the need for competence and create a feeling of general inadequacy that increases the likelihood that adolescents experience subjective distress, negative feelings and affection (Ryan & Deci, 2017). Finally, the need for relatedness mediates the paths from maternal and paternal parenting dimensions to prosocial behaviors,

aggressive behaviors and negative affect. Supportive parenting promotes need for relatedness satisfaction; creating a feeling of connection to other people around that in turn facilitates the development of social skills and positive adjustment. From the other side, thwarting parenting behaviors frustrate the need for relatedness, creating a feeling of alienation and refutation that could result in aggressive behaviors and negative affect.

Ultimately, some direct effects were reported. They derive from the fact that, in addition to basic psychological needs mediation, other variables that we have not considered in our study can act, for example learning, identifying, and modeling processes, for which adolescents observe the behaviors and intentions of their parents, who act as a model, and imitate them. This process could explain the direct effect from parental psychological control to adolescents' negative affect. It is known that psychological control is characteristic of parents who are non-responsive to their children's needs and pressure their children through many intrusive and not autonomous socialization techniques (Barber, 1996). Our results, confirmed by a variety of studies (Aunola, Tolvanen, Viljaranta & Nurmi, 2013; Nanda, Kotchick & Grover, 2012; Steeger & Gondoli, 2013), are that the child grows up in a hostile climate, in which he/she feels guilty if he/she does not respect the strict requests of his/her parents and is anxious about losing their approval (Soenens & Vansteenkiste, 2010). During adolescence, he/she will experience negative emotions as a direct consequence of the perception of parental lack of love, autonomy support and trust, such as distress, low self-esteem, insecurity, guilt and fear.

This study has a number of limitations that could be addressed in future studies. First, the study was correlational and therefore did not establish a causal direction between variables. For future research, experimental and longitudinal studies could be carried out to confirm the hypothesized casual directions. A second shortcoming of our study is that it relied solely on adolescents' self-report for measures of both parenting and adolescents' outcomes. In future studies, including parent reports, teacher reports, and observational measures of interpersonal context and psychosocial functioning of adolescents would add to the richness of data collected. Third, an integrative model that includes maternal and paternal practices in one model was not tested. Future studies should try to examine the effect of maternal and paternal practices, controlling for the effects of partners' effects. Another interesting reflection for future research may concern the use of different measures of parenting. For example, the recently developed Revised Parent as a Social Context Questionnaire of Egeli *et al.* (2015) could be useful to better understand the relation between the parenting dimensions proposed in this study and the basic psychological needs defined by SDT. Furthermore, future studies should also try to examine the moderating effect of background variables (e.g., adolescents' gender, birth order, age) that were not tested in this study, and examine some undiscovered factors that could explain individual differences in vulnerability and beneficial effect of thwarting or supportive parenting (e.g., manifestations of internalizing or externalizing problems).

In line with predictions derived from SDT, this study provides evidence that adolescents who perceive their parents as supportive of autonomy and providing structure and warmth, report high need satisfaction, while adolescents with a perception of their parents as rejecting, chaotic and controlling more often experience frustration

of the basic psychological needs for autonomy, relatedness and competence in their lives. At the same time, fulfillment of these needs was found to link to more experiences of positive outcomes, such as prosocial behaviors and positive affect, and a lower level of aggressiveness and negative affect. As one of the first studies to investigate the mediating role of basic psychological needs in the relation between parenting dimensions and adolescents' outcomes, we believe that our results and suggestions can be further investigated in future studies. Generally, although the predominance of relationships hypothesized by Skinner *et al.* (2005) (need for autonomy strongly correlated with psychological control vs. autonomy support; need of competence strongly correlated with structure vs. chaos; need for relatedness strongly correlated with warmth vs. rejections) has not been fully confirmed, the results clearly show how supportive parenting satisfies psychological needs, while thwarting parenting frustrates them. The numerous factors in common between each parenting practice and the impossibility of isolating each type of parenting from reciprocal influence do not make it possible to give definitive answers regarding which type of parental practice has a greater role in each individual need. However, these results are extremely encouraging regarding the role of the three parenting dimensions hypothesized by the SDT and the three basic psychological needs.

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