The role of parents' autonomy support and psychological control in sibling relationship functioning through children's need-based experiences

Jolene van der Kaap-Deeder* iD

Department of Psychology, Norwegian University of Science and Technology (NTNU), Trondheim, Norway

This study aimed to examine whether parents' autonomy support and psychological control during sibling conflict would relate to children's need-based experiences and relationship functioning within the sibling relationship. Two siblings (M_{age} = 8.61 years, SD = 0.91 and M_{age} = 10.50 years, SD = 0.94) of 205 families filled out questionnaires. Results showed that parental autonomy support related positively to siblings' relationship satisfaction via children's need satisfaction. Additionally, fathers' psychological control related negatively to provided autonomy support and positively to provided psychological control from one sibling to the other (as reported by the other sibling) and negatively to satisfaction with this relationship via need frustration. These findings highlight the importance of the quality of parents' involvement during sibling conflict.

Statement of contribution

What is already known on this subject?
- Parents' autonomy support and psychological control impacts children's development;
- However, research on the role of autonomy-supportive and psychologically controlling parenting during sibling conflict is limited;

What does this study add?
- Parents' autonomy support fostered siblings' relationship satisfaction via need satisfaction;
- Fathers' psychological control was associated with a lower quality of sibling interaction.

*Correspondence should be addressed to Jolene van der Kaap-Deeder, Department of Psychology, Norwegian University of Science and Technology (NTNU), Dragvoll, 7491 Trondheim, Norway (email: Jolene.van.der.Kaap-Deeder@ntnu.no).

Background

During middle childhood, sibling interactions are numerous, with children spending most of their free time with their siblings (e.g., McHale & Crouter, 1996). These interactions are generally very intense with children experiencing both more closeness and more conflict with their sibling during middle childhood compared to during adolescence (Buhrmester & Furman, 1990). Although such sibling conflict can engender increased anxiety, depressed mood, and delinquent behaviour (Stocker, Burwell, & Briggs, 2002), constructive resolving of sibling disputes (e.g., by taking the perspective of the other sibling) has been found to relate positively to one's overall ability to understand others (e.g., Foote & Holmes-Lonergan, 2003). Although managing sibling conflict is experienced as one of the most challenging parenting tasks (Kramer & Baron, 1995), research has shown that parents' intervening style in such conflicts is crucial (e.g., Smith & Ross, 2007). This study aimed to examine the parental role in sibling conflict from a Self-Determination Theory (SDT) perspective (Ryan & Deci, 2017), thereby focusing on parents' autonomy-supportive and psychologically controlling intervening style.

Parental autonomy support and psychological control during sibling conflict

Within SDT, a broad theory on human motivation and socialization, it is stated that parental autonomy support is essential for children's development, with such support being characterized by parents' nurturance and promotion of children's volitional functioning (Grolnick, Ryan, & Deci, 1991). An autonomy-supportive approach when confronted with sibling conflict would entail, for instance, giving both children the opportunity to voice their opinions and feelings, taking the perspective of both children, and encouraging children to solve the conflict together. Autonomy support is often contrasted with psychological control, which refers to parents' use of controlling and intrusive techniques to pressure children to think, feel, and behave in certain ways (Soenens & Vansteenkiste, 2010). A psychologically controlling approach within the context of sibling conflict would involve blaming (one of) the children for the conflict, shaming the children (e.g., 'Stop acting as babies!'), and displaying disappointment.

Recent theorizing and empirical evidence (Vansteenkiste & Ryan, 2013) suggest that autonomy support and psychological control do not represent complete opposite constructs. That is, a lack of autonomy support (e.g., offering few choices) does not necessarily imply the presence of psychological control (e.g., pressuring the child to behave a certain way), whereas an absence of psychological control (e.g., not employing love withdrawal) cannot be equated with the presence of autonomy support (e.g., encouraging initiative-taking). Research has indeed shown that this distinction between autonomy support and psychological control is crucial, as these constructs are differently related to outcomes. Specifically, a distinction can be made between a bright and a dark socialization pathway, with autonomy support relating primarily to adaptive outcomes such as task persistence, autonomous motivation, and a higher level of well-being and with psychological control relating primarily to maladaptive outcomes such as increased ill-being and even psychopathology (Costa, Ntoumanis, & Bartholomew, 2015; Vansteenkiste & Ryan, 2013).

Although research on autonomy-supportive and psychologically controlling parenting has burgeoned over the past two decades (Joussemet, Landry, & Koestner, 2008), no study thus far examined these parenting dimensions specifically in the context of sibling

conflict. There are, however, several studies that have provided indirect evidence for the importance of these constructs in the resolution of sibling disputes. First, intervention studies where parents were trained to use sibling conflict mediation techniques where children hold the decision-making power (thereby supporting the children's autonomy) and psychologically controlling strategies (e.g., blaming children for past transgressions) are avoided, have been found to increase constructive sibling conflict resolution including for instance compromises and less negativity (Ross & Lazinski, 2014; Smith & Ross, 2007). In another study, it was shown that such adaptive parental intervention during sibling conflict (i.e., giving advice and explaining the sibling's feelings to the child) related positively to warmth experienced between siblings (Milevsky, Schlechter, & Machlev, 2011). Based on these studies, it is expected that autonomy-supportive and psychologically controlling parenting during sibling conflict is crucial for children's constructive resolution of sibling disputes. However, less is known about what mechanisms may account for these effects (although see Bouchard, Plamondon, & Lachance-Grzela, 2019 for a notable exception, focusing on bullying or being bullied in the sibling relationship as mechanisms).

Need satisfaction and frustration as mechanisms

Self-Determination Theory states that the effects of autonomy support and psychological control (with respect to, for instance, sibling conflict) on children's development can be explained by the three basic psychological needs of autonomy, competence, and relatedness (Ryan & Deci, 2017). Autonomy refers to feelings of volition and choice. Competence encompasses a sense of success in daily activities. Finally, relatedness denotes experiencing closeness with other important individuals. Need-frustrating experiences, on the other hand, refer to feelings of pressure (i.e., autonomy frustration), failure (i.e., competence frustration), and social isolation or rejection (i.e., relatedness frustration). Previous studies have indeed shown parental autonomy support to foster need satisfaction (e.g., Grolnick et al., 1991), while parental psychological control engendered more need frustration (e.g., Mabbe et al., 2016). Such need satisfaction is expected to foster adaptive social functioning by enabling individuals for instance to be more open (autonomy satisfaction), confident (competence satisfaction), and warm (relatedness satisfaction), whereas experiences of need frustration are expected to thwart relationship functioning (e.g., by feeling inadequate to deal with relationship challenges). In line with this, previous research has shown that need satisfaction related to more happiness within friendships (Demir & Davidson, 2013) and interpersonal competence (Barberis, Verrastro, Costa, & Gugliandolo, 2021), while need frustration was shown to relate to more negative relationship experiences such as separation anxiety (e.g., Costa et al., 2015) and social anxiety (Barberis et al., 2021). Previous research has also shown need satisfaction and need frustration as experienced by one partner within a relationship to relate to higher levels of, respectively, provided autonomy support and psychological control to the other relational partner (e.g., Stebbings, Taylor, Spray, & Ntoumanis, 2012). With respect to siblings, one previous study showed children's general need satisfaction to relate to a higher level of provided autonomy support to the sibling (Van der Kaap-Deeder et al., 2015). Finding that need satisfaction fosters provided autonomy support between siblings is important, because previous research has shown that autonomy-suppressive sibling interactions (e.g., ignoring the sibling when he or she has done something that the child does not agree with) are related to

maladaptive functioning such as anxiety and depressive symptoms (e.g., Campione-Barr, Lindell, Greer, & Rose, 2014), while autonomy-supportive sibling interactions related to more well-being via children's need satisfaction (Van der Kaap-Deeder, Vansteenkiste, Soenens, & Mabbe, 2017). To illustrate, Audet, Levine, Holding, Koestner, and Powers (2021) showed that sibling autonomy support enhanced young adults' well-being through enhanced goal progress and need satisfaction. In sum, although previous research has shown autonomy support and psychological control to relate to need satisfaction and frustration which, in turn, relate to relationship quality, only one study thus far focused on the sibling relationship and none focused specifically on the context of sibling conflict.

The present study

This study aims to contribute to previous research on the role of autonomy support, psychological control, and need-based experiences (i.e., need satisfaction and need frustration) in elementary school-aged children's functioning by focusing specifically on the sibling relationship. This study had two aims. A first aim was to examine whether perceptions of mothers' and fathers' autonomy support and psychological control with respect to sibling conflict would relate to the quality of the sibling relationship. In line with a bright and dark path of socialization (Vansteenkiste & Ryan, 2013) with autonomy support relating mostly to adaptive outcomes and psychological control mostly to maladaptive outcomes, parents' autonomy support was expected to relate more strongly to sibling relationship satisfaction and provided autonomy support within the sibling relationship, whereas psychological control was expected to relate mostly to provided psychological control within the sibling relationship (Hypothesis 1). Previous research on differences in general parenting between mothers and fathers provided mixed findings, with some indicating mothers' parenting and fathers' parenting to differentially effect child outcomes (Biblarz & Stacey, 2010). Additionally, the results from existing research on differences in autonomy-supportive parenting suggest that mothers are somewhat more autonomy-supportive than fathers, although this difference is rather small (Hughes, Lindberg, & Devine, 2018). Given this extant research, no hypothesis was formulated regarding the role of parents' gender.

A second aim involved examining whether children's need-based experiences within the sibling relationship would mediate the relation between parents' intervening style and sibling relationship functioning. Again, in line with the bright and dark path hypothesis (Vansteenkiste & Ryan, 2013), it was expected that especially need satisfaction as experienced within the sibling relationship would be predicted by parental autonomy support and relate to sibling relationship satisfaction and a higher level of provided sibling autonomy support (Hypotheses 2a). In contrast, need frustration within the sibling relationship was expected to be mostly predicted by parental psychological control and to relate particularly to a higher level of provided psychological control to the other sibling (Hypothesis 2b).

These hypotheses were examined using a multilevel approach, thereby taking into account the dependence of observations (i.e., children) within groups (i.e., families). There exist important differences between families, such as differences in family income and living situation (e.g., living in an urban or rural area). By using multilevel analyses, this variance was automatically taken into account.

Method

Participants and procedure

Participants were two siblings (M_{age} = 8.61 years, SD = 0.91 and M_{age} = 10.50 years, SD = 0.94, range 7–12) from 205 families living in Flanders (Belgium), with 219 (53.4%) children being female. Regarding the gender constellation of the sibling dyad, 29.3% consisted of two girls, 22.4% of two boys, and 48.3% of one boy and one girl. The number of children within families ranged between 2 and 6 (M = 2.70; SD = 0.84), with most families having two (49.6%) or three (34.6%) children. In line with this, 35.9% of the children reported to be the oldest, 19.3% indicated to be the middle, and 36.8% indicated to be the youngest child in the family (and 8.0% selected the response category 'Other'). With regard to the highest completed educational level by the parents, 21.6% of the mothers and 28.2% completed high school or less, 57.4% of the mothers and 46.1% of the fathers completed higher non-university education, and 21.1% of the mothers and 25.7% of the fathers completed university education. Mothers were on average 39.74 (SD = 3.76) years old and fathers 42.31 (SD = 4.91) years. Most parents indicated that they were married (80.8%), whereas 16.7% indicated to be co-habiting (not married) and 2.5% reported to be divorced.

Children were recruited as part of an undergraduate course in developmental psychology. In exchange for course credits, students were asked to invite two families (who were not relatives of the student) who had at least two children in elementary school between the age of 7 and 12. If a family had more than two children within this age range, students were asked to select the two children who were closest in age. In a 1-hr information session with the author, students were trained to approach potentially interested families and to collect the data. Students were also encouraged to ask via e-mail for further assistance during the data-collection, if necessary. During a home visit, students explained to the children how to fill out the questionnaires and parents were asked to fill out a questionnaire concerning demographic characteristics. Children were informed that there were no right or wrong answers, that their answers would be treated in a confidential way, and that they could leave an item unanswered if they were unsure. Participation was voluntary and participants did not obtain any reward. Furthermore, both mothers and fathers gave their written consent on behalf of their child and children also gave their written consent. This research (title: 'Parenting and sibling interactions') was conducted according to the ethical rules of the Faculty of Psychology and Educational Sciences of Ghent University which does not require formal ethical approval when the guidelines of the ethical protocol are followed closely.

Measures

All items were rated on a 5-point Likert scale, ranging from 1 (*Completely untrue*) to 5 (*Completely true*).

Parents' autonomy support and psychological control in sibling conflict

Children reported on the degree to which their mother and father were autonomy-supportive and psychologically controlling during conflicts with their sibling, by completing relevant scales twice (first for their mother and then for their father). For this purpose, items were generated and discussed by researchers with a high level of expertise concerning these two constructs. A part of these items were inspired by items

from the Autonomy Support Scale of the Perceptions of Parents Scale (POPS; Grolnick et al., 1991) and the Psychological Control Scale – Youth Self-Report (PCS – YSR; Barber, 1996). Other items were generated based on the meaning of autonomy support and psychological control as defined in SDT. All items are displayed in Appendix. Example items are 'When me and my brother or sister quarrel, my mother/father tries to understand why we quarrel' (autonomy support; 8 items) and 'When me and my brother or sister quarrel, my mother/father is disappointed' (psychological control; eigtht items). Confirmatory factor analyses were performed on all items, separate for maternal and paternal parenting. Two factors were extracted, corresponding to the two subscales. Factor loadings of the first factor ranged between .55 and .72 for mothers' autonomy support and between .57 and .79 for fathers' autonomy support. Factor loadings of the second factor ranged between .40 and .71 for mothers' psychological control and between .49 and .73 for fathers' psychological control. Cronbach's alpha's were .82, .66, .87, and .74 for mothers' autonomy support, mothers' psychological control, fathers' autonomy support, and fathers' psychological control, respectively.

Psychological need satisfaction and need frustration in the sibling relationship
To measure the satisfaction and frustration of the psychological needs within the sibling relationship, the child version (Van der Kaap-Deeder et al., 2017; 12 items) of the Basic Psychological Need Satisfaction and Need Frustration scale (Chen et al., 2015) was used. Some items were adapted to make these more suitable for the sibling relationship, thereby finding inspiration in the Basic Need Satisfaction in Relationships Scale (La Guardia, Ryan, Couchman, & Deci, 2000). For instance, the item 'The people I like, like me too' was changed to 'When I am with my brother or sister, I feel loved' to make it more specific to the sibling relationship. All items were preceded by the stem 'When I am with my brother or sister'. Example items are: 'I am good at a lot of things I do' (i.e., competence satisfaction) and 'I often have doubts about whether I am good at things' (i.e., competence frustration). A confirmatory factor analysis was performed on all items. Two factors were extracted, corresponding to the two subscales. Factor loadings of the first factor (i.e., need satisfaction) ranged between .51 and .74. Factor loadings of the second factor (i.e., need frustration) ranged between .48 and .75. Based on these findings, the six items tapping into need satisfaction were averaged and the six items tapping into need frustration were averaged. Cronbach's alpha's were .70 for need satisfaction and .71 for need frustration.

Autonomy support and psychological control within the sibling relationship
The POPS (Grolnick et al., 1991; seven items) and the PCS – YSR (Barber, 1996; eight items) were used to assess received autonomy support and psychological control within the sibling relationship. We employed the sibling version of this scale that has been used in previous research among elementary school children (Van der Kaap-Deeder et al., ,2015, 2017). Example items are 'Whenever possible, my brother or sister allows me to choose what to do' (i.e., autonomy support) and 'My brother or sister is less friendly with me if I do not see things his or her way' (i.e., psychological control). Cronbach's alpha's were .72 for autonomy support and .73 for psychological control. These scores, referring to the degree of perceived autonomy support and psychological control as received from the other sibling, were used to assess the relation between the degrees to which each sibling experienced need satisfaction or need frustration and provided autonomy support or psychological control. For instance, the younger sibling's report of experienced need

satisfaction and the older sibling's report of the degree to which (s)he received autonomy support from the younger sibling were employed to examine the degree to which the younger sibling's level of need satisfaction (as reported by the younger sibling) predict his or her provided autonomy support to the older sibling (as reported by the older sibling). Thus, when looking at the predictors of provided autonomy support and psychological control between siblings, a multi-informant approach was used.

Satisfaction with the sibling relationship
To assess children's satisfaction with the sibling relationship, the Relationship Assessment Scale (RAS; Hendrick, 1988) was used. The RAS can be used to assess satisfaction with a broad array of relationships and the words 'my brother/sister' were added to make it suitable for the sibling relationship. This scale consists of seven items, for example 'I am satisfied with the relationship I have with my brother/sister'. Cronbach's alpha was .86.

Results

Descriptive statistics and preliminary analyses
Descriptive statistics and bivariate correlations between the study variables can be found in Table 1. Further, to examine the relation between the background variables and the outcome variables, two MANCOVA's were performed with one MANCOVA per child to take into account the dependency of the sibling data. Specifically, age of the child and of both parents, the number of children within the family, and mother's and father's education level were entered as covariates and gender of the child, the gender constellation of the sibling dyad (0 = two girls; 1 = two boys; 2 = one girl and one boy), and parents' marital status were entered as fixed factors. Note that the birth order of the child was not included, given the high correlation with age. With respect to the younger sibling, only the age of the child had a significant effect, $F(5,180) = 2.27$, $p = .049$, $\eta^2 = .06$. That is, older children experienced less need frustration in the sibling relationship, $F(1,184) = 7.43$, $p = .01$, $\eta^2 = .04$ and $r = -.20$, $p = .004$. With respect to the older sibling, only maternal education level had a significant effect, $F(5,179) = 2.48$, $p = .03$, $\eta^2 = .07$. Specifically, children whose mother had a higher educational level experienced less need satisfaction in the sibling relationship, $F(1,183) = 8.85$, $p = .003$, $\eta^2 = .05$ and $r = -.20$, $p = .004$. In both main models, children's age and maternal education level were included as control variables.

Primary analyses
Because the data were hierarchically structured, with two children (i.e., Level 1) being nested within 205 families (i.e., Level 2), large dependencies within families were expected. Therefore, multilevel structural equation modelling was employed for the main models thereby using MPlus 8.3 (Muthén & Muthén, 1998-2017) through a robust maximum-likelihood approach. In total, only 0.29% of the data was missing. Little's Missing Completely at Random (MCAR) test (Little, 1988) revealed that these data were missing completely at random, $\chi^2(82) = 97.39$, $p = .12$. Because missing data were missing at random, the use of the full information maximum likelihood procedure within MPlus was appropriate to estimate missing data (Schafer & Graham, 2002).

Table 1. Descriptives of and correlations between the study variables

|	1	2	3	4	5	6	7	8	9
Parenting									
1. Autonomy support – mother	—								
2. Psychological control – mother	.03	—							
3. Autonomy support – father	.70***	.05	—						
4. Psychological control – father	.03	.65***	.05	—					
Need-based experiences									
5. Need satisfaction	.37***	.01	.33***	.01	—				
6. Need frustration	–.07	.27***	–.03	.34***	–.26***	—			
Outcomes									
7. Provided autonomy support	.24***	–.02	.21***	–.13*	.21***	–.26***	—		
8. Provided psychological control	–.06	.20***	–.01	.22***	–.10	.18**	–.44***	—	
9. Relationship satisfaction	.42***	–.05	.40***	–.08	.60***	–.37***	.27***	–.15**	—
Mean	3.42	2.95	3.27	2.88	3.46	2.43	3.13	3.08	3.63
SD	0.82	0.71	0.93	0.77	0.77	0.82	0.82	0.81	0.88

Note. $*p < .05$; $**p < .01$; $***p < .001$.
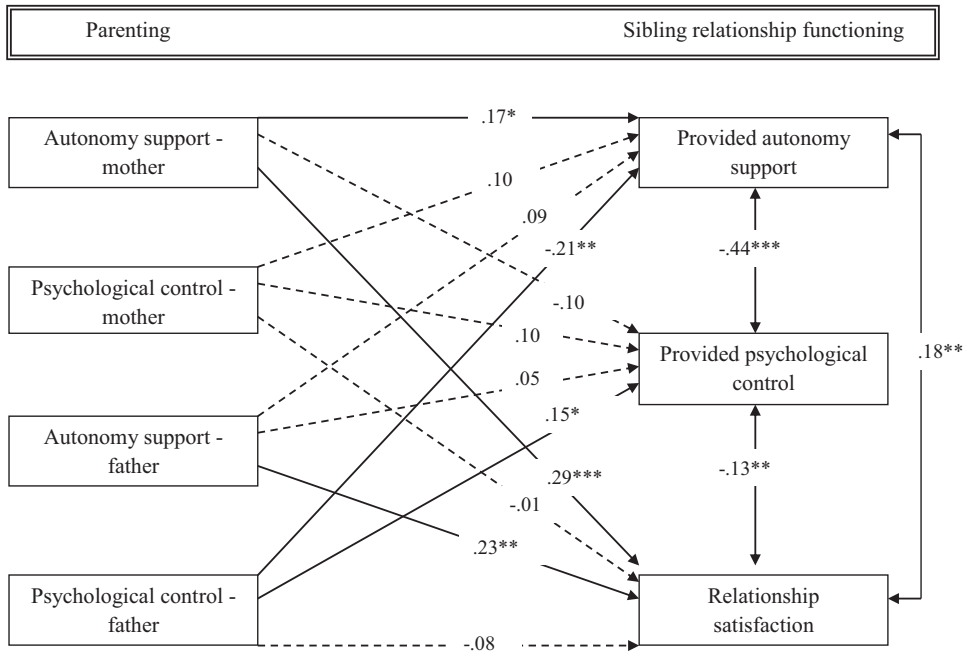
Note. Standardized coefficients are reported. Significant effects are represented by a solid line, whereas non-significant effects are represented by a dashed line. *$p < .05$; **$p < .01$; ***$p < .001$.

Figure 1. Structural model depicting the relations of parental autonomy support and psychological control with sibling relationship functioning.

In a first two-level structural model, the relations between parental autonomy support and psychological control with regard to sibling conflict and siblings' relationship functioning as indicated by the degree of provided autonomy support and psychological control within the sibling relationship and the satisfaction with this relationship were examined. As all paths were allowed, the model was saturated (*df* = 0) and model fit could not be interpreted. As displayed in Figure 1, results showed that while only mothers' autonomy support related positively to provided sibling autonomy support, both mothers' and fathers' autonomy support positively related to siblings' relationship satisfaction. Further, fathers' (but not mothers') psychological control related to less autonomy support and more psychological control provided within the sibling relationship. With respect to the relation between the demographic characteristics (i.e., age of the child and maternal education level) and the study variables, there was only a positive significant relation between the child's age and sibling relationship satisfaction ($\beta = .16$, $p < .001$).

In a second two-level structural model, children's need-based experiences within the sibling relationship were entered as intervening variables in the relations of parental autonomy support and psychological control with siblings' relationship functioning. The χ^2 test, the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation were used as indices to evaluate the model fit. An acceptable fit was indicated by χ^2/df ratio of 2 or below, CFI values of .95 or above, SRMR values of .08 or below, and RMSEA values of .06 or below (Kline, 2005). This model showed an excellent fit (χ^2/df = 10.268/8 = 1.28, CFI = 1.00, SRMR = .01,
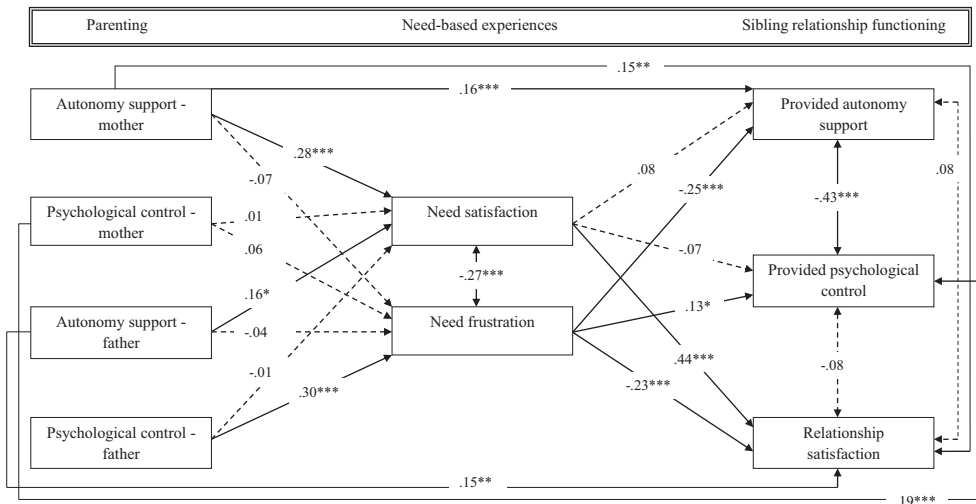
Note. Standardized coefficients are reported. Significant effects are represented by a solid line, whereas non-significant effects are represented by a dashed line. *p < .05; **p < .01; ***p < .001.

Figure 2. Structural model depicting the mediating role of need-based experiences in the relations of parental autonomy support and psychological control with sibling relationship functioning.

RMSEA = .03), after adding four significant direct effects from maternal autonomy support, maternal psychological control, and paternal autonomy support. As displayed in Figure 2, children's need satisfaction was predicted by mothers' and fathers' autonomy support, while their need frustration was predicted only by fathers' psychological control. In turn, need satisfaction and need frustration related, respectively, positively and negatively to satisfaction with the sibling relationship. Additionally, a higher level of need frustration related to a lower level of provided sibling autonomy support and a higher level of provided sibling psychological control. Additionally, four direct effects were significant. That is, mother's autonomy-supportive intervening style related positively to provided autonomy support within the sibling relationship and to sibling relationship satisfaction. Additionally, maternal psychological control related directly and positively to sibling psychological control, whereas paternal autonomy support was positively related to sibling relationship satisfaction. With respect to the relation between the demographic characteristics (i.e., age of the child and maternal education level) and the study variables, child age was significantly related to need satisfaction (β = .11, p = .02), need frustration (β = −24, p < .001), and provided autonomy support to the other sibling (β = −.12, p = .01), whereas mother's education related significantly to need satisfaction (β = −12, p = .02).

To test the significance of indirect effects from parental autonomy support and psychological control to sibling relationship functioning via children's need-based experiences, bootstrapping (using 1,000 draws) was used, which constitutes a nonparametric resampling procedure that is highly recommended (Preacher & Hayes, 2008). Five indirect effects were significant. Specifically, autonomy support from both mothers (b = .13, SE = .04, p < .01) and fathers (b = .07, SE = .03, p = .02) related to siblings' relationship satisfaction via children's need satisfaction within the sibling relationship. Additionally, fathers' psychological control related to provided autonomy support

($b = -.08$, $SE = .02$, $p = .001$) and psychological control ($b = .04$, $SE = .02$, $p = .04$) within the sibling relationship and satisfaction with this relationship ($b = -.08$, $SE = .02$, $p < .001$) via sibling need frustration. All other indirect paths were non-significant (bs ranging between -02 and $.02$, SEs ranging between $.00$ and $.03$, ps ranging between $.16$ and $.92$).

Discussion

The goal of this study was to examine whether parents' autonomy support and psychological control during sibling conflict would relate to children's sibling relationship functioning through experienced need satisfaction and frustration within this sibling relationship. Results showed that mothers' and fathers' autonomy support during such conflicts related to a higher level of satisfaction with the sibling relationship via the experience of need satisfaction within this relationship. Thus, when parents for instance allow both siblings to tell their side of the story and try to understand the underlying reason for the sibling conflict, this satisfies the children's needs for autonomy (e.g., increased ownership), competence (e.g., feeling more capable in the self-regulation of conflict), and relatedness (e.g., feeling more connected to the other sibling). Due to this experience of need satisfaction, children will in turn feel more satisfied with the sibling relationship. In contrast, fathers' (but not mothers') psychological control (e.g., showing disappointment and being annoyed when children do not stop quarrelling) related to siblings being less autonomy-supportive and more psychologically controlling towards one another and experiencing less relationship satisfaction via an increased level of need frustration experienced in the sibling relationship. Thus, while parental autonomy support seems to foster positive sibling interactions, paternal psychological control relates to both diminished positive interactions and increased negative interactions among siblings. Results with respect to autonomy support and need satisfaction are therefore in line with the bright and dark path hypothesis (Vansteenkiste & Ryan, 2013), with both of these positive constructs relating only to adaptive outcomes, while results with respect to psychological control and need frustration are not. Additionally, it is interesting to see that especially fathers' psychological control is related to the quality of the sibling relationship. Perhaps this is due to fathers' being more involved in leisure and play activities than mothers (Parke & Buriel, 1998) and as sibling interactions also often involve such activities, the role of fathers might be more important for sibling interactions. Research also indicates that mothers are more frequently in charge of childcare and disciplinary practices (Hallers-Haalboom et al., 2016). It is therefore possible that when fathers do engage in disciplinary practices (i.e., intervening in sibling conflict), their actions and use of psychological control have a more profound influence on their children. Such use of dysfunctional discipline behaviours might be rooted in fathers having less knowledge about child development and parenting (Vally & El Hichami, 2020).

Parents' autonomy support related not only indirectly to siblings' relationship satisfaction (via need satisfaction) but also directly. Perhaps parents' autonomy support during sibling conflict does not only foster need satisfaction in the sibling relationship but also need satisfaction in the parent–child relationship or even general need satisfaction. Indeed, when parents focus on children's needs,

emotions, and perspective in the middle of sibling conflict, this is expected to foster feelings of autonomy, competence, and relatedness in the sibling relationship, in the parent–child relationship and in general. Future studies could, therefore, assess need-based experiences in these different contexts to further unravel the mediating role of these experiences in the relation between parents' autonomy support during sibling conflict and siblings' relationship functioning. Besides these remaining direct effects of parents' autonomy support, there was also a direct effect from mothers' psychological control to the provided psychological control within the sibling relationship. Perhaps this is an observational or modelling effect by which children learn to apply the interactions observed within their family (in this case, between the parent and the child) in interactions with their sibling (Jenkins, Dunn, O'Connor, Rasbash, & Behnke, 2005).

Limitations and directions for future research
This study had important strengths, such as the investigation of the role of parents' autonomy support and psychological control in sibling interactions, the specific focus on sibling conflict, the assessment of children's perceptions of both mothers' and fathers' parenting, and the inclusion of two siblings per family enabling a multi-informant approach with respect to sibling autonomy support and psychological control. However, the results of this study should be interpreted with caution, given several important limitations. First, this study made use of a cross-sectional design, precluding causal inferences. Additionally, the included sample was rather homogeneous (i.e., most parents were highly educated), limiting the generalizability of the current findings. Further, this study was mostly (except for sibling autonomy support and psychological control) based on self-reports, thereby not including data from other important sources (e.g., parents' own report of their intervening style in sibling conflict). To avoid common method biases (which increases the risk for socially desirable responding), an interesting avenue for future research is to use multiple measurement methods such as self-report, other-report, and observation (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Observations of parent−child and sibling interactions would also provide a more refined insight into these family dynamics. Additionally, as previous research has shown that sibling relations can also influence the parent−child relationship (e.g., Dunn, Deater-Deckard, Pickering, Golding, & ALSPAC Study Team, 1999), it is important for future studies to examine reciprocal relations between sibling relationship functioning and parental autonomy support and psychological control in sibling conflict.

Implications
Despite the previously mentioned limitations, the current findings suggest several theoretical and practical implications. On a theoretical level, this study adds to the research on the effects of parental autonomy support and psychological control by providing evidence for the importance of these constructs within a specific domain (i.e., sibling conflict). By doing so, the conceptual overlap between SDT's perspective on parenting and the parental mediation techniques studied within the research on sibling conflict (e.g., Ross & Lazinski, 2014; Smith & Ross, 2007) was also apparent. Specifically, the three key components of successful parenting within SDT referring to autonomy support, involvement, and structure also play a crucial role in mediation. To illustrate, within mediation parents encourage siblings to propose solutions and choose one from

among these (i.e., autonomy support), stimulate and show empathy and understanding (i.e., involvement), and set ground rules and behavioural guidelines (i.e., structure) (Ross & Lazinski, 2014). SDT could, therefore, provide a theoretical framework for understanding the effects of such parental mediation. Moreover, future interventions could rely even more on a cross-fertilization between these two domains of research, by also including other elements of the parenting dimensions identified within SDT such as offering a rationale for when the child's choice is limited (i.e., autonomy support) or providing positive feedback when siblings manage to solve their dispute.

Conclusion

This study showed that the way parents respond to and intervene in sibling conflict significantly relates to how need-fulfilling or need-thwarting sibling interactions are experienced. Such need-based experiences within the sibling relationship are important not only for how satisfying this relationship is perceived to be, but also for how autonomy-supportive and psychologically controlling the child is towards the sibling.

Conflicts of interest

The author declare no conflict of interest.

Author Contribution

Jolene Van der Kaap-Deeder: Conceptualization (equal); Data curation (equal); Formal analysis (equal); Investigation (equal); Methodology (equal); Project administration (equal); Resources (equal); Writing – original draft (equal); Writing – review & editing (equal).

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix :

Provided parental autonomy support and psychological control during sibling conflict

Autonomy support

When me and my brother or sister quarrel,. . .

1. . . . my mother/father allows us both to tell what's going on.
2. . . . my mother/father tries to understand why we quarrel.
3. . . . my mother/father tries together with us to find a way to make sure we don't have another fight like this again.
4. . . . my mother/father gives us the chance to say to each other what we feel.
5. . . . my mother/father allows us to come up with solutions to the quarrel ourselves.
6. . . . my mother/father encourages us to think about how the other person is feeling.
7. . . . my mother/father tries to understand what my brother or sister and I find important.
8. . . . my mother/father encourages us to find a solution to the quarrel together.

Psychological control

When me and my brother or sister quarrel,. . .

1. . . . my mother/father tells us to stop or else we will be punished.
2. . . . my mother/father says we have to learn to behave, because we are no longer toddlers.
3. . . . my mother/father sometimes blames (one of) us for the quarrel.
4. . . . my mother/father sometimes starts talking about past mistakes of (one of) us.
5. . . . my mother/father insists we behave; if not, he/she will get angry.
6. . . . my mother/father is disappointed.
7. . . . my mother/father won't talk to us again until we stop arguing.
8. . . . my mother/father gets annoyed towards us if we don't stop right away.