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Personality Traits as Potential Susceptibility Markers: Differential Susceptibility to Support Among Parents

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Abstract

In this study, we examined whether parents are differentially susceptible to support from their spouse and adolescent child depending on their personality traits, and whether differences in susceptibility to support among parents, in turn, are linked to the quality of support parents give to their children. Participants in this three-wave longitudinal study were 288 two-parent Dutch families with an adolescent child. Fathers were on average 43.9 years old (SD = 3.7 years), mothers were 41.7 years old (SD = 3.3 years), and adolescents (50% girls) were 14.5 years old (SD = 0.8 years). We found that the association between support from children toward their parents and subsequent support from parents toward their children was more pronounced for parents high on Openness, for better and for worse. Extraversion, Agreeableness, Conscientiousness, and Emotional Stability did not emerge as markers of differences in susceptibility. Also, parents did not differ in their susceptibility to support from their spouse, nor were differences in susceptibility found a year later when using data from a third wave. We found very modest support for differential susceptibility, only for Openness, and depending on the source of perceived support and on the timing of measurement.

Understanding variation in how people respond to their environment is pivotal for promoting their social and psychological adjustment (Eisenberg, Fabes, Guthrie, & Reiser, 2000; Luthar, 2006). Individual differences in how people tend to respond to their environment, for a substantial part, can be ascribed to differences in their personality (Buss, 1991; Denissen & Penke, 2008a). For instance, people high on Neuroticism have been found to react especially negatively to harsh and stressful experiences (Denissen & Penke, 2008b; Zuckerman, 1999), whereas people high on Extraversion have been found to react especially positively to positive, rewarding experiences (Larsen & Ketelaar, 1989; Magnus, Diener, Fujita, & Pavot, 1993). But are there people who react more strongly to both positive and negative experiences? The very characteristics that make people disproportionately vulnerable to negative experiences might also make them disproportionately likely to benefit from contextual support, and vice versa (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007). If true, this would demand relabeling individuals not as "vulnerable to harsh circumstances" or as "likely to benefit from supportive circumstances," but as susceptible to both harsh and supportive circumstances. The differential susceptibility hypothesis suggests exactly this.

The differential susceptibility hypothesis asserts that people differ in their general susceptibility to environmental influences and their associated developmental consequences (Belsky, 2005). The same individuals who are most vulnerable to harsh, negative environments are thought to benefit most from supportive, positive environments ("for better and for worse"; Belsky et al., 2007). The differential susceptibility hypothesis differs from the traditional diathesis-stress model (Zuckerman, 1999): Whereas the latter emphasizes the disproportionate vulnerability to negative environments of some individuals, the former highlights the disproportionate susceptibility to both the negative effects of harsh environments and the beneficial effects of supportive environments in the same individuals.

The differential susceptibility hypothesis has been examined mainly among children (for a review, see Belsky & Pluess, 2009). The results suggest that children higher on negative emotionality (a temperament trait related to the

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personality trait of low Emotional Stability) are more susceptible to parenting. A study examining the Big Five personality traits as possible susceptibility markers showed less extraverted, agreeable, and conscientious adolescents, and more open adolescents to be more susceptible to parents' overreactivity (de Haan, Prinzie, & Deković, 2010). Although originally developed to explain susceptibility in childhood, the differential susceptibility hypothesis has been suggested to extend to adulthood (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2011). To date, little is known about differential susceptibility during adulthood. We address this knowledge gap by examining differential susceptibility among parents, depending on their personality.

Differential Susceptibility Among Adults

Only two studies to date have looked at personality characteristics as possible markers of susceptibility among adults. These studies suggest that, based on their personality, parents differ in how susceptible they are to the quality of the relationship with their spouse and in how vulnerable they are to their children's anger. First, mothers high on negative affect (a trait similar to low Emotional Stability) and fathers high on constraint (defined by the authors as rigidity, traditionalism, and inhibition) were more susceptible to the quality of their marital relationship (Jessee et al., 2010). A higher marital quality predicted increases in sensitivity toward infants among these parents, and a lower marital quality predicted decreases in sensitivity toward infants. When parents scored low on negative affect and constraint, this association did not appear. Second, mothers low on optimism and fathers low on Openness were more vulnerable to child anger, with higher levels of child anger predicting less positive parenting (Koenig, Barry, & Kochanska, 2010). When parents scored high on optimism and Openness, this association did not appear. Extraversion, Agreeableness, Conscientiousness, and Neuroticism did not moderate the association between child anger and positive parenting.

These two studies have focused on young parents of infants and toddlers (Jessee et al., 2010; Koenig et al., 2010). We extend this line of research by examining whether differences in susceptibility can also be found among middle-aged parents, who are adjusting to new adult roles as their children transition to adolescence (van Aken, Denissen, Branje, Dubas, & Goossens, 2006). In this particularly challenging period of family life, parents' relationship with their child is undergoing strong changes. For example, adolescents exert increasing influence over the relationship with their parents (Denissen, van Aken, & Dubas, 2009), resulting in a more mutual and less hierarchical relationship (Russell, Pettit, & Mize, 1998). Parent-adolescent conflict increases, whereas warmth and involvement, physical punishment, and parental power decrease (Loeber et al., 2000; McGue, Elkins, Walden, & Iacono, 2005).

Despite these changes in the relationship, support from parents continues to be important for adolescents because it facilitates their adaptive development (van Aken, van Lieshout, Scholte, & Branje, 1999) and their emotional well-being (Baumeister & Leary, 1995). Whether parents are able to support their adolescent children depends, among other things, on whether parents themselves feel supported (Erel & Burman, 1995; Gleason, Iida, Bolger, & Shrout, 2003). In this study, we examine whether parents are differentially susceptible to perceived support from their spouse and adolescent child depending on their personality traits, predicting the quality of support they subsequently give to their adolescent children. Quality of support in our study ranges from hostile, restrictive, rejecting others' views, and lacking in communication, to warm, stimulating autonomy, sharing goals, and being open in communication (van Aken et al., 1999).

Differential Susceptibility to Perceived Support from Spouse and Child

Several mechanisms explain how perceived support might affect the way parents support their children, by changing the way parents think about social relationships and about themselves. First, according to attachment theory, earlier relationship experiences affect later functioning in relationships with the same and other partners by shaping ideas about social relationships (Bowlby, 1982). This may hold true for relationship experiences obtained both early and later in life (Ainsworth, 1989). Perceived support can thus determine the support parents expect to receive from others in the future, and these expectations in turn can affect the support parents provide to others (Reis, Collins, & Berscheid, 2000). Second, through perceived support, parents likely pick up signals about how other people view them, internalize that view, and make it part of their self-view (Markus & Wurf, 1987). Parents who perceive a high quality of support may be more inclined to believe they are competent, which may be reflected in their ability to provide support to others (Bandura, 1997; Coleman & Karraker, 1997). Parents who feel competent likely hold their own supportive behavior to higher standards and tend to be more persistent in pursuing these standards (Bandura, 1997). However, for some parents perceived support may have a stronger impact than for others.

We focus on two sources of perceived support among parents: their spouse and their adolescent child. The marital partner is frequently cited as a provider of support (e.g., Cutrona, 1996). When support perceived within the marital relationship affects how parents support their children, this is known as spillover (Engfer, 1988; Erel & Burman, 1995). Affect and behavior generated in the marital relationship have been found to transfer to how parents parent their children, ultimately affecting child adjustment (Gerard, Krishnakumar, & Buehler, 2006). In addition to spouses, children can also provide support to parents, especially when they become older

and develop a more horizontal relationship with their parents (Branje, van Aken, & van Lieshout, 2002; Russell et al., 1998). When parents reciprocate the support they perceive from their children, this is known as relationship reciprocity (Knoll, Burkert, & Schwarzer, 2006; Wrzus, Wagner, Baumert, Neyer, & Lang, 2011). In fact, one of the best predictors of support provision is past support receipt (Gleason et al., 2003), suggesting that persons strive for an equilibrium of social give and take (Antonucci, Fuhrer, & Jackson, 1990). In this study, we examine whether such spillover and reciprocity effects are more pronounced for some parents than for others, reflecting differential susceptibility.

Personality Traits as Markers of Differences in Susceptibility

We focus on the Big Five personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness) as susceptibility markers (Caspi & Shiner, 2006). Together these five traits comprehensively describe individual differences in how people act, think, and feel toward others, thereby shaping social interactions and eventually relationships (Back et al., 2011). Based on previous research, we expect Conscientiousness, Emotional Stability, and Openness to mark differences in susceptibility.

Conscientiousness involves orderliness and self-control in the pursuit of goals (Caspi & Shiner, 2006). Initial evidence is mixed as to whether this trait functions as a marker of susceptibility among adults (Jessee et al., 2010; cf. Koenig et al., 2010). Among adolescents, low Conscientiousness indicated high levels of susceptibility (de Haan et al., 2010). Whereas conscientious parents have high standards in parenting and may feel obliged to support their children no matter what (cf. Asendorpf & Wilpers, 1998), less conscientious parents may have little regard for such long-term goals and may be more inclined to adjust their level of support toward their children depending on how much support they perceive (Prinzie, Stams, Deković, Reijntjes, & Belsky, 2009). Thus, we expect low Conscientiousness to reflect high levels of susceptibility.

Emotional Stability entails the regulation of emotions and the tendency to experience distressing emotions (Caspi & Shiner, 2006). Previous research has shown that mothers high on negative affect or low on optimism may be relatively susceptible (Jessee et al., 2010; Koenig et al., 2010). Parents low on Emotional Stability could be more susceptible because their personality likely reflects high emotional reactivity, which promotes a deeper processing of environmental stimuli (Aron & Aron, 1997; Aron, Aron, & Jagiellowicz, 2012; Ellis et al., 2011). Alternatively, parents low on Emotional Stability depend strongly on the approval of close others for establishing a positive self-view (Denissen & Penke, 2008a, 2008b) and might therefore be more sensitive to the support they perceive.

Openness involves flexibility of information processing and cognitive exploration of the structure of experiences (DeYoung et al., 2011). Though usually linked to intellectual activity, Openness also shapes social relationships by affecting how people interpret information about the emotions, thoughts, and behaviors of others (McCrae, 1996). On the one hand, studies have found parents low on Openness or high on constraint to be susceptible (Jessee et al., 2010; Koenig et al., 2010). On the other hand, a study among adolescents found those higher on Openness to be more susceptible (de Haan et al., 2010), and a study among college students found those higher on Openness to be more inclined to reciprocate emotional support (Knoll et al., 2006). Parents high on Openness may be more apt and flexible in directing attention to information in their environment and in manipulating information from their environment (DeYoung et al., 2011). This may enable them to take in more information from their environment and be affected by their environment more strongly. In this sense, Openness could signify a strong awareness of and deep processing of information (Aron et al., 2012). In our study, we expect either low or high levels of Openness to reflect susceptibility.

With respect to Extraversion and Agreeableness, only one study examined whether these traits function as susceptibility markers among adults, with negative results (Koenig et al., 2010). However, among adolescents, low Extraversion and low Agreeableness indicated a higher susceptibility to parents' overreactivity (de Haan et al., 2010). Moreover, both Extraversion and Agreeableness play important roles in social relationships and have been linked to higher perceived support (Asendorpf & Wilpers, 1998; Branje, van Lieshout, & van Aken, 2004). Thus, we cannot rule out that these personality traits are markers of differential susceptibility; we therefore include them in our study for exploratory reasons.

Differences in Susceptibility Over Time

We chose to study parents of adolescents who are approximately between 13 and 15 years old at the beginning of the study (i.e., middle adolescents). Several findings suggest that for parents, the changes in the relationship with their adolescent child are most dramatic at this time (e.g., de Goede, Branje, & Meeus, 2009). Also, most variability in parent-child interactions seems to occur when children are in middle adolescence (Granic, Hollenstein, Dishion, & Patterson, 2003; van der Giessen, Branje, Frijns, & Meeus, 2013). Differences among parents in how perceived support from their spouse and their child will affect the support they give to their child should be optimally detectable during this time. When parents have had more opportunity to adapt to the new relationship they are forming with their child, differences in susceptibility to perceived support will perhaps be less visible. In this study, parents and their children are followed over time, which is treated as a proxy of such relationship changes. During the first year of the study (Time 1 to Time 2), when adolescents were between 13 and 15 years old, these relationship changes are

likely stronger than during the second year (Time 2 to Time 3), when parents and adolescents may have started to get used to their changed relationship (Branje et al., 2004; de Goede et al., 2009; van der Giessen et al, 2013). Using data from three annual waves, we will test whether differential susceptibility effects are more pronounced for associations at the beginning of the study when children are middle adolescents (Time 1 to Time 2) than a year later (Time 2 to Time 3).

In sum, in this three-wave longitudinal study, we examine how the quality of support from parents toward their adolescent children is predicted by the support they perceive from their spouse and by the support they perceive from their children, depending on their personality. We expect these associations to be more pronounced for parents low on Conscientiousness, low on Emotional Stability, and either low or high on Openness, indicating differential susceptibility. We also expect to find stronger moderation by personality traits at the beginning of the study than a year later.

METHOD

Participants

Participants were 288 two-parent Dutch families with adolescent children from the Nijmegen Family and Personality Study (Haselager & van Aken, 1999). A representative selection of 23 municipalities throughout the Netherlands provided lists of eligible families. Interviewers invited the families to participate until the required number of participants was attained. Of families contacted, 50% agreed to participate in the study. For the purpose of this study, we selected mothers, fathers, and one adolescent between the ages of 13 and 15 within each family. The target adolescent was the oldest child in 78% of the families.

Most participants (96%) were born in the Netherlands. The families belonged primarily to Dutch middle to upper-middle class. Parents differed in the highest level of education they had achieved at the time of the study. For 45% of the fathers and 27% of the mothers, this was higher vocational education or university. For 26% of the fathers and 31% of the mothers, this was intermediate vocational education. Finally, for 29% of the fathers and 41% of the mothers, this was high school or lower vocational education. Fathers were 43.9 years old on average ($SD = 3.7$ years), and mothers were 41.7 years old ($SD = 3.3$ years). The adolescents (50% girls) were 14.5 years old on average ($SD = 0.8$ years).

Most families continued to participate throughout the study: Both at Time 2 (T2) and at Time 3 (T3), 285 families (99%) provided data. Complete data on research variables (i.e., support from parent, from spouse, and from child; personality traits) were provided by 97% of the participating families at T1, 98% at T2, and 99% at T3. Missing values were estimated in Mplus 6.0 using full information maximum likelihood (Enders & Bandalos, 2001).

Procedure

Families participated in three annual measurement waves. In each wave, an interviewer visited the families at home and asked the mother, the father, and the participating adolescent to simultaneously complete a questionnaire. The presence of the interviewer was intended to encourage complete responding and prevent discussions about the questions among family members. Parents evaluated each other's personality, and they rated the support they received from their spouse and child. Adolescents rated the support they received from both of their parents. Thus, each variable was reported by a different rater: either the parent (predictor variables), the spouse (moderator variables), or the adolescent (outcome variable). In each wave, the adolescent in the family was given a gift certificate after completing the questionnaire. As an additional incentive, a lottery was organized in which 10 families who had participated in all three waves could win a travel voucher.

Measures

Big Five Personality Dimensions. Previous research shows that regarding the Big Five personality traits, how parents judge themselves is generally strongly correlated with how other family members judge parents (Branje, van Aken, van Lieshout, & Mathijssen, 2003). We therefore used spouse reports of parents' personality to avoid inflated correlations between how parents view their personality and how they view the quality of support they receive. Mothers and fathers judged each other's personality at each wave using a Dutch adaptation of 30 adjective Big Five personality markers selected from Goldberg (1992). Parents rated these adjectives along a 7-point Likert scale ranging from 1 (*very untrue of this person*) to 7 (*very true of this person*). Personality dimensions were each assessed by means of six adjectives. Extraversion assesses the extent to which the person actively engages with the world or avoids intense (social) experience (e.g., "talkative"). Agreeableness taps into the prosocial nature of the person and can range from warm and committed to others versus antagonistic (e.g., "friendly"). Conscientiousness measures the ability to control impulses as well as the degree to which the person is well organized, thorough, and goal oriented (e.g., "meticulous"). Emotional stability assesses the regulation of emotions and the extent to which the person is emotionally stable or plagued by unpleasant experiences and distressing emotions (e.g., "nervous"). Openness to Experience measures the interest and willingness to try or consider new activities and ideas, along with the flexibility of information processing (e.g., "versatile"). Cronbach's alphas ranged from .83 to .91 for father-ratings about mothers' personality and from .76 to .91 for mother-ratings about fathers' personality across waves. The relative stability of personality traits across the three waves ranged from .74 to .84 ($ps < .001$). Therefore, we created a single score for each personality trait by averaging scores across three waves.

Support. Both parents rated the support they perceived from each other and from their child at T1 and T2, whereas adolescents rated the support they perceived from their parents at each wave, using the Relational Support Inventory (RSI; Scholte, van Lieshout, & van Aken, 2001). This inventory contains 24 items measured along a 5-point Likert scale ranging from 1 (*very untrue of this person*) to 5 (*very true of this person*). The items are distributed over four bipolar dimensions. The first dimension, Quality of Information, assesses the quality of information versus withholding of information (reverse coded; e.g., "This person does not explain why he/she wants me to do or not do something"). Respect for Autonomy measures respect for autonomy versus limit setting (reverse coded; e.g., "This person lets me solve problems as much as possible on my own but also provides help when I ask for it"). Emotional Support assesses warmth as opposed to hostility (reverse coded; e.g., "In this person's view, I can't do anything right: he/she is always criticizing me"). Finally, Convergence of Goals measures the perceived level of convergence as opposed to divergence (reverse coded) of goals (e.g., "This person criticizes my opinions about religion, philosophy of life, or social engagement"). Principal components analyses support combining these subscales into a single scale, with explained variance in factor scores ranging from 55% to 69% and factor loadings between .66 and .88. We therefore combined (through averaging) the four subscales into a single scale for quality of support, ranging from rejection and criticism to warmth and support. This approach leads to bipolar measures of parents' environment and outcome behaviors, instead of the unipolar measures that are typically used in differential susceptibility research. For fathers, Cronbach's alphas for the combined scale ranged from .73 to .78 for support from spouse and from .72 to .76 for support from children across waves; for mothers, they ranged from .74 to .76 and from .75 to .80, respectively. For children, alphas ranged from .80 to .84 for support from fathers and from .78 to .85 for support from mothers.

Analyses

Structural equation modeling in Mplus 6.0 was used to test our hypotheses. To take the nested data structure into account, we used robust maximum likelihood estimation, which computes standard errors that are robust to nonindependence of observations (Asparouhov, 2005). We included χ^2, χ^2/df, TLI, CFI, and RMSEA to assess model fit. All predictors were centered to avoid problems of colinearity (Cohen, Cohen, West, & Aiken, 2003).

We estimated six models to predict support from parents toward their children at T2 and T3: one basic model without interaction paths, and five models in which additional interactions with each of the five personality traits were tested. The basic model included stability paths of support from parent, support from spouse, and support from child. In addition, correlations between the residuals of the three support variables at T2 were included to account for correlated changes in support. Correlations between exogenous predictor variables were not included in the model. Instead, in line with recent recommendations, the model was estimated conditioned on the exogenous predictor variables (i.e., the model was expressed for the outcomes "given the predictors"; Muthén & Muthén, 2010). Finally, support from parent at T2 and T3 regressed on support from spouse at the previous time point, support from child at the previous time point, and the personality traits.

The model containing interactions with Extraversion consisted of the basic model plus four paths describing interactions with Extraversion. Specifically, interactions between Extraversion and support from spouse at T1 and T2 as well as support from child at T1 and T2 were tested. The remaining models containing interaction paths with Agreeableness, Conscientiousness, Emotional Stability, and Openness were estimated in a similar way. To control for inflation of Type I error rates, we applied a false discovery rate (FDR) procedure within each of the six models, which takes into account the proportion of expected false positive results among a set of significant findings (Benjamini & Hochberg, 1995).

Significant interactions were followed by estimating simple slopes at personality values plus, exactly at, or minus one standard deviation from the sample mean (Cohen et al., 2003). We also calculated the region of significance for the moderator (i.e., personality) to obtain the *range* of moderator values for which a predictor (support from spouse or child) and an outcome (support from parent) are significantly associated (Preacher, Curran, & Bauer, 2006).

Furthermore, to demonstrate a differential susceptibility effect, susceptible parents should do worse than their less susceptible counterparts when receiving little support from their spouse or child, and better when receiving much support. To examine this in more detail, we also calculated the region of significance with respect to the predictor (i.e., support from spouse or child) in case of a significant interaction (following suggestions by Roisman et al., 2012). Analogous to the region of significance for the moderator, this region identifies the range of predictor values for which a moderator and an outcome are significantly associated. In other words, it indicates the range of predictor values for which regression lines estimated at different personality values (or more precisely, point estimates on these lines) significantly differ from each other. When the differential susceptibility account is warranted, these lines—reflecting different personality values—should differ both at low values of the predictor ("for worse") and at high values of the predictor ("for better").

RESULTS

Descriptive Results

Descriptive statistics and correlations for measures of support and personality traits are presented in Table 1. Support from parents toward children and support from spouses and children

Table 1 Means and Standard Deviations and Correlations for Measures of Support and Personality Traits

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Support from parent T1	4.01	0.48	—										
2. Support from parent T2	3.94	0.50	.71***	—									
3. Support from parent T3	3.93	0.51	.55***	.69***	—								
4. Support from spouse T1	4.29	0.37	.14**	.21***	.12**	—			.				
5. Support from spouse T2	4.21	0.38	.13**	.24***	.15***	.69***	—						
6. Support from child T1	4.00	0.35	.30***	.31***	.25***	.60***	.43***	—					
7. Support from child T2	3.95	0.37	.23***	.34***	.30***	.41***	.58***	.71***	—				
8. Extraversion	4.93	1.11	.08	.11*	.08*	−.01	−.05	.15**	.09*	—			
9. Agreeableness	5.89	0.61	.11*	.19***	.17***	.01	.03	.17***	.15***	.32***	—		
10. Conscientiousness	4.96	1.16	.02	.05	.05	.21***	.22***	.15**	.14**	.05	.26***	—	
11. Emotional Stability	4.71	0.97	.07	.05	.07	.11**	.13**	.11**	.10*	.24***	.25***	.02	—
12. Openness	4.70	1.03	.07	.13**	.07	.15***	.15***	.19***	.11**	.39***	.43***	.18***	.07

Note. T1 = Time 1; T2 = Time 2; T3 = Time 3. $N = 576$ at T1 and $N = 568$ at T2 and T3.
*$p < .05$. **$p < .01$. ***$p < .001$.

toward parents all displayed high rank-order stability, both from T1 to T2 and from T2 to T3. Mean levels of support from parents to their children decreased between T1 and T2, $t(568) = -4.58$, $p = .01$, $d = -0.14$, and remained stable between T2 and T3, $t(565) = -0.49$, $p = .62$. Support perceived from spouses and from children also decreased from T1 to T2, $t(564) = -4.69$, $p < .001$, $d = -0.14$, and $t(566) = -4.51$, $p < .001$, $d = -0.21$, respectively.

Support from spouses and from children to parents was weakly to moderately correlated to support from parents to children: The more support parents perceived from their spouses and children, the more support children perceived from their parents. Also, the support parents perceived from their spouse and from their child were mutually related.

Testing the Differential Susceptibility Hypothesis

Main Effects on Support From Parents. The basic model containing only main effects showed a good fit, $\chi^2(17) = 27.49$, $p = .05$, $\chi^2/df = 1.61$, TLI = .98, CFI = .99, RMSEA = .03. As shown in Table 2, support from parents to children showed considerable stability over time, both from T1 to T2 and from T2 to T3. Likewise, support from spouses and from children to parents was highly stable from T1 to T2. Neither support from spouses nor support from children at T1 predicted support from parents to children at T2. A year later these associations were significant, however. The more support parents perceived from their spouse at T2, the less support children subsequently perceived from their parents. In contrast, the more support parents perceived from their children at T2, the more support children subsequently perceived from their parents. Parents' personality traits generally did not predict support from parents to children, with the exception of more agreeable parents being perceived as more supportive by their children.

Moderation by Parents' Personality Traits. The models involving interactions with personality traits each demonstrated good fit (Extraversion: $\chi^2(29) = 51.79$, $p = .01$, $\chi^2/df = 1.79$, TLI = .97, CFI = .98, RMSEA = .04; Agreeableness: $\chi^2(29) = 51.04$, $p = .01$, $\chi^2/df = 1.76$, TLI = .97, CFI = .99, RMSEA = .04; Conscientiousness: $\chi^2(29) = 36.58$, $p = .16$, $\chi^2/df = 1.26$, TLI = .99, CFI = 1.00, RMSEA = .02; Emotional Stability: $\chi^2(29) = 67.47$, $p < .001$, $\chi^2/df = 2.33$, TLI = .95, CFI = .97, RMSEA = .05) or excellent fit (Openness: $\chi^2(29) = 29.57$, $p = .44$, $\chi^2/df = 1.02$, TLI = 1.00, CFI = 1.00, RMSEA = .01). These models did not differ across parent gender or child gender.[1]

Upon closer examination, none of the separate interactions involving Extraversion, Agreeableness, Conscientiousness, or Emotional Stability were significant (see Table 3). These personality traits did not interact with the quality of support parents perceived from spouses or children in predicting support from parents toward their children, neither from T1 to T2 nor from T2 to T3. As to Openness, this trait did not qualify associations of support from spouses with support from parents. Importantly, though, Openness qualified the association between the support parents perceived from children at T1 and support from parents toward their children at T2. The model involving interactions with Openness is presented in Figure 1.

To follow up on this interaction, we examined simple slopes as well as regions of significance. Simple slopes showed that for parents scoring low or average on Openness, support from children at T1 was not associated with support from parents at T2 ($\beta = -.05$, $p = .37$, and $\beta = .04$, $p = .28$, respectively; see Figure 2). However, for parents high on Openness, a higher quality of support from children predicted a higher quality of support from parents toward these children at the next assessment ($\beta = .14$, $p = .02$). According to the region of significance for Openness, support from children did not predict support from parents at low values of Openness (only at extremely low values of Openness—less than $M - 2.76$ *SD*—did a negative association appear). Support from children positively predicted support from parents at high values of Openness (more than $M + 0.49$ *SD*).

Table 2 Standardized and Unstandardized Parameter Estimates of the Basic Model Predicting Support From Parent to Child

Regression path/covariance	*B*	*SE*	95% CI	β
	Basic model			
Support from parent T1 → Support from parent T2	0.71	0.03	[0.63, 0.78]	.68***
Support from parent T2 → Support from parent T3	0.68	0.05	[0.58, 0.77]	.66***
Support from spouse T1 → Support from spouse T2	0.72	0.03	[0.66, 0.78]	.69***
Support from child T1 → Support from child T2	0.74	0.04	[0.67, 0.81]	.70***
Support from spouse T2 ←→ Support from parent T2	0.01	0.01	[0.00, 0.02]	.13*
Support from child T2 ←→ Support from parent T2	0.02	0.00	[0.01, 0.03]	.22***
Support from child T2 ←→ Support from spouse T2	0.04	0.00	[0.03, 0.05]	.55***
Support from spouse T1 → Support from parent T2	0.08	0.05	[–0.01, 0.18]	.06
Support from child T1 → Support from parent T2	0.07	0.06	[–0.05, 0.19]	.05
Extraversion → Support from parent T2	0.01	0.01	[–0.02, 0.03]	.01
Agreeableness → Support from parent T2	0.07	0.03	[0.02, 0.13]	.09**
Conscientiousness → Support from parent T2	–0.01	0.01	[–0.03, 0.01]	–.02
Emotional Stability → Support from parent T2	–0.02	0.02	[–0.05, 0.01]	–.03
Openness → Support from parent T2	0.02	0.02	[–0.01, 0.05]	.04
Support from spouse T2 → Support from parent T3	–0.13	0.05	[–0.24, –0.03]	–.10*
Support from child T2 → Support from parent T3	0.17	0.06	[0.05, 0.30]	.13**
Extraversion → Support from parent T3	0.00	0.01	[–0.02, 0.03]	.01
Agreeableness → Support from parent T3	0.06	0.03	[0.01, 0.11]	.07*[a]
Conscientiousness → Support from parent T3	0.01	0.01	[–0.02, 0.03]	.01
Emotional Stability → Support from parent T3	0.01	0.02	[–0.02, 0.04]	.02
Openness → Support from parent T3	–0.03	0.02	[–0.06, 0.01]	–.06

Note. $N = 569$. T1 = Time 1; T2 = Time 2; T3 = Time 3.

[a]The critical *p*-value for this path is .024 according to the false discovery rate procedure; therefore, this path is not significant.

*$p < .05$. **$p < .01$. ***$p < .001$.

Next, we examined whether parents high on Openness were relatively susceptible to both the detrimental effects of low levels of support from their child and the beneficial effects of high levels of support (i.e., for better and for worse). To this end, we calculated the region of significance for support from child. When they perceived a low quality of support from their child (less than $M - 2.22$ *SD*), parents high on Openness were *less* supportive to their child than parents lower on Openness. When they perceived a high quality of support from their child (more than $M + 0.33$ *SD*), the reverse was true: Parents high on Openness were *more* supportive to their child than parents lower on Openness (see Figure 2).

DISCUSSION

In this longitudinal study, we examined whether parents are differentially susceptible to support within relationships, depending on their personality traits. We found that the association between perceived support from children toward parents at T1 and perceived support from parents toward children at T2 was more pronounced for parents high on Openness. Specifically, parents high on Openness were more susceptible to support they perceived from their adolescent child, for better and for worse: Compared to other parents, they were most vulnerable to a low quality of support from their child and benefited most from a high quality of support. Extraversion, Agreeableness, Conscientiousness, and Emotional Stability did not emerge as markers of differences in susceptibility. Further, parents did not differ in their susceptibility to perceived support from their spouse. Finally, differences in susceptibility were not found a year later when using data from a third wave. Thus, we found limited support for differential susceptibility, for one personality trait only, and depending on the source of perceived support (i.e., spouse or child) and on the timing of measurement.

Our findings suggest Openness might function as a susceptibility marker among parents. Parents high on Openness appeared susceptible to support they perceived from their children, adjusting the level of support they gave to their children to the level of support they experienced themselves. Importantly, when they experienced hostility and criticism from their children, parents high on Openness provided *less* support to their children than parents lower on Openness; when they experienced warmth and support from their children, parents high on Openness provided *more* support than parents lower on Openness. This is consistent with a study on differential susceptibility among adolescents (de Haan et al., 2010), and with a study among college students showing that those higher on Openness were more susceptible to emotional support, as indicated by their stronger tendency to reciprocate emotional support (Knoll et al., 2006). It also converges with recent ideas about sensory processing sensitivity (a trait that partially overlaps with Openness) as a trait indicating differences in sensitivity to the environment (Aron et al., 2012). According to this view, individuals high on sensory processing sensitivity are particularly sensitive to subtle stimuli. They tend to be more

Table 3 Standardized and Unstandardized Parameter Estimates of the Models With Interactions With Personality Traits Predicting Support From Parent to Child

Regression path	*B*	*SE*	95% CI	β
Basic model + interactions with Extraversion				
Extraversion × PS from spouse T1 → PS from parent T2	−0.01	0.04	[−0.07, 0.06]	−.01
Extraversion × PS from child T1 → PS from parent T2	0.07	0.05	[−0.02, 0.13]	.06
Extraversion × PS from spouse T2 → PS from parent T3	−0.03	0.04	[−0.10, 0.05]	−.03
Extraversion × PS from child T2 → PS from parent T3	−0.01	0.05	[−0.09, 0.07]	−.01
Basic model + interactions with Agreeableness				
Agreeableness × PS from spouse T1 → PS from parent T2	0.12	0.07	[−0.02, 0.25]	.05
Agreeableness × PS from child T1 → PS from parent T2	0.03	0.08	[−0.12, 0.18]	.01
Agreeableness × PS from spouse T2 → PS from parent T3	−0.05	0.08	[−0.20, 0.11]	−.02
Agreeableness × PS from child T2 → PS from parent T3	0.02	0.07	[−0.12, 0.16]	.01
Basic model + interactions with Conscientiousness				
Conscientiousness × PS from spouse T1 → PS from parent T2	0.02	0.04	[−0.07, 0.10]	.01
Conscientiousness × PS from child T1 → PS from parent T2	−0.05	0.05	[−0.14, 0.04]	−.04
Conscientiousness × PS from spouse T2 → PS from parent T3	0.01	0.04	[−0.07, 0.09]	.01
Conscientiousness × PS from child T2 → PS from parent T3	0.02	0.05	[−0.09, 0.12]	.01
Basic model + interactions with Emotional Stability				
Emotional Stability × PS from spouse T1 → PS from parent T2	0.06	0.05	[−0.02, 0.11]	.04
Emotional Stability × PS from child T1 → PS from parent T2	−0.01	0.05	[−0.07, 0.06]	−.00
Emotional Stability × PS from spouse T2 → PS from parent T3	0.00	0.05	[−0.07, 0.07]	.00
Emotional Stability × PS from child T2 → PS from parent T3	0.04	0.05	[−0.04, 0.10]	.03
Basic model + interactions with Openness				
Openness × PS from spouse T1 → PS from parent T2	−0.06	0.05	[−0.16, 0.04]	−.05
Openness × PS from child T1 → PS from parent T2	0.13	0.05	[0.03, 0.23]	.09*
Openness × PS from spouse T2 → PS from parent T3	−0.02	0.05	[−0.11, 0.07]	−.02
Openness × PS from child T2 → PS from parent T3	−0.04	0.06	[−0.14, 0.07]	−.03

Note. $N = 564$. T1 = Time 1; T2 = Time 2; T3 = Time 3; PS = perceived support. For brevity, only parameter estimates pertaining to interactions are shown for each model; the remaining parameter estimates were essentially the same as in the basic model.
*$p < .05$. **$p < .01$. ***$p < .001$.

aware of information in their environment and tend to process this information on a deeper and more complex level than other people, which affects the way they plan, think, and learn. Individuals high on sensory processing information, because they process experiences more thoroughly, are believed to be more strongly affected by, or susceptible to, their environment. However, empirical evidence for this idea is still in its infancy. Our study provides tentative support for this idea by showing that high Openness, as a trait related to sensory processing sensitivity, might indeed indicate an increased susceptibility to environmental influences. However, replication of this finding is needed before strong conclusions can be drawn.

While high Openness emerged as a possible susceptibility factor in our study, low Openness emerged as a vulnerability factor in the study by Koenig and colleagues (2010). In this study, young fathers low on Openness might have found it difficult to deal with their toddler's anger, possibly due to their lack of using new strategies and creative solutions, resulting in their parenting quality being jeopardized by their toddler's display of anger. Middle-aged parents low on Openness may attach less value to support from their adolescent child and thus continue to show appropriate levels of support to their child, regardless of how much support the child shows toward them (Branje et al., 2004).

Parents differing in Conscientiousness were not differentially susceptible to support. Conscientiousness reflects people's tendency to persist in goal pursuit under distracting circumstances. Perhaps, then, Conscientiousness plays a more salient role in task-related domains than in relational domains (Caspi & Shiner, 2006), and therefore it did not emerge as a susceptibility marker in our study. Unexpectedly, low Emotional Stability did not emerge as a marker of susceptibility to perceived support. While in line with studies among adolescents (de Haan et al., 2010) and adults (Koenig et al., 2010), this contradicts another study among young parents (Jessee et al., 2010) as well as literature on differential susceptibility among children (Belsky & Pluess, 2009). Perhaps this finding can be explained by the way support was measured in this study. Parents low on Emotional Stability may be relatively sensitive not to support per se, but to discrepancies between expected and actual support from others (Poorthuis, Thomaes, van Aken, Denissen, & Orobio de Castro, 2013). Future

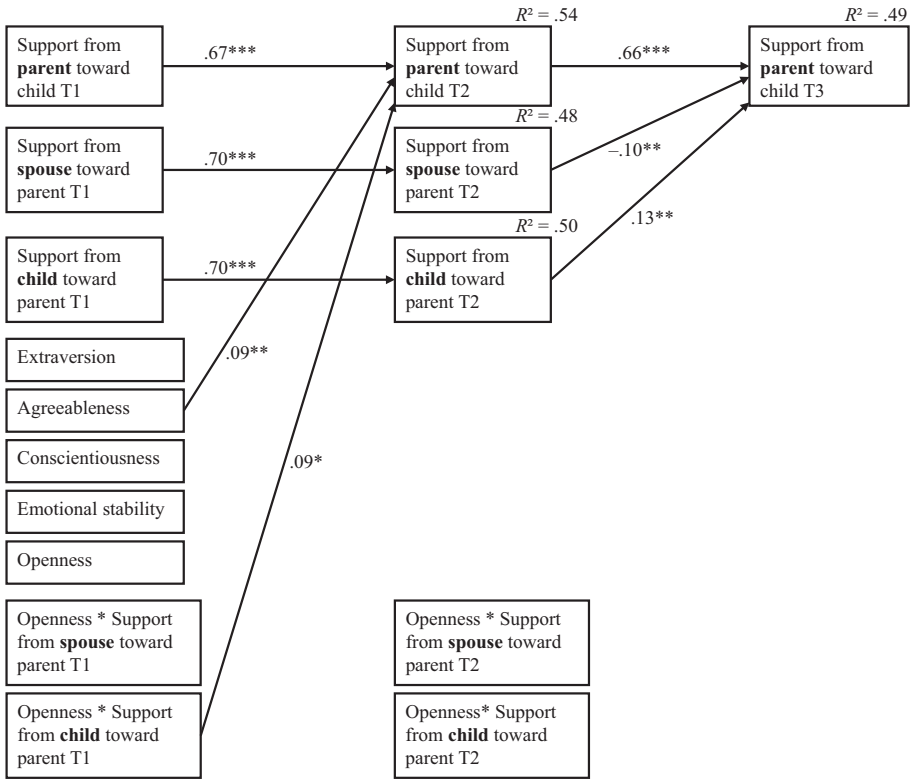

Figure 1 Model containing interactions with Openness. For clarity, only significant longitudinal paths are shown. $N = 564$. T1 = Time 1; T2 = Time 2; T3 = Time 3.
*$p < .05$. **$p < .01$. ***$p < .001$.

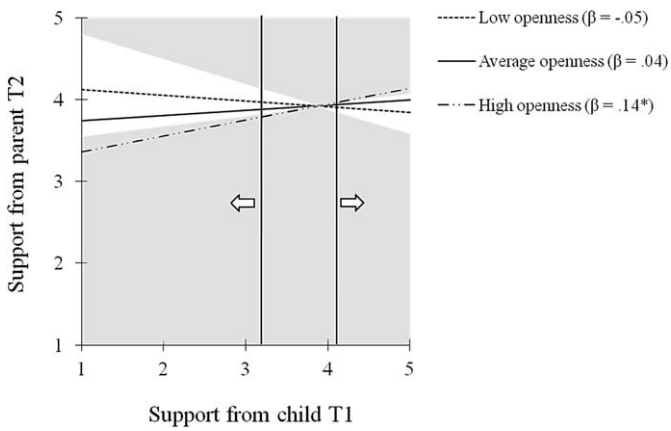

Figure 2 Linear relation between support from child toward parent and support from parent toward child, computed at one standard deviation below the mean (low), the mean (average), and one standard deviation above the mean (high) of Openness. Associations between support from child and support from parent, estimated at different values of Openness, are significant within the shaded areas. Vertical lines indicate the predictor values at which *differences among* (point estimates on) slopes for different Openness values become significant; the arrow denotes the side of the line to which differences among slopes are significant. When the differential susceptibility account is warranted, these lines—reflecting different personality values—should differ both at low values of support from child ("for worse") and at high values of support from child ("for better"). *$p < .05$.

research could explore this possibility. As to the lack of moderation by Extraversion and Agreeableness, these results converge with a previous study on parents' personality traits as susceptibility markers (Koenig et al., 2010) and with a study that failed to find interactions with Extraversion and Agreeableness when predicting parenting (Clark, Kochanska, & Ready, 2000). Possibly, Extraversion and Agreeableness are not the best markers of susceptibility among adults.

The association between perceived support from their spouse and support from parents to their children did not depend on parents' personality. The more susceptible parents in our sample let their support toward their children be affected especially strongly by support from their child, and less so by support from their spouse. This suggests that reciprocity, more so than spillover, is a potent process among individuals high on Openness (see also Knoll et al., 2006). These findings also touch upon the question of how domain specific versus domain general susceptibility to the environment is (Ellis et al., 2011).

As expected, moderation by personality traits was stronger for predicting Time 2 from Time 1 than for predicting Time 3 from Time 2. It is possible that personality differences (and by approximation, differences in susceptibility) are most pronounced during periods of change in relationships. Such differences among parents in susceptibility to support from their children become less visible when parents get accustomed to

the changed relationship with their children. This would imply that individual differences in susceptibility are more visible during some periods in life than during others. Future studies examining this possibility should rely on direct measurement of relationship changes, instead of on proxies such as measurement wave or age.

Apart from moderation effects, two other findings in our study are noteworthy. First, support from their spouse initially did not predict support from parents to children, whereas a year later it predicted slightly lower levels of support from parents to children. Perceived support can lead to increased relationship closeness, but also to increased negative mood when support is taken as a sign that the person is not capable of handling things him- or herself (Gleason, Iida, Shrout, & Bolger, 2008). Negative mood, in turn, hampers people's ability to provide support to others (see Iida, Stephens, Rook, Franks, & Salem, 2010). Alternatively, it might be that when parents spend more time supporting each other, they simply have less time to support their children. However, more research is needed to find out what the exact mechanisms are through which higher levels of perceived support can predict lower levels of support provided to others. Second, support from children at Time 1 did not predict support from parents at Time 2, but a year later, support from children to their parents did predict support from parents to their children. Perhaps the increasingly horizontal relationship between parents and adolescents (de Goede et al., 2009; Koepke & Denissen, 2012) accounts for the reciprocity of perceived support between parents and children between Time 2 and Time 3.

Among the strengths of this study are its longitudinal design and the availability of data from both mothers and fathers. The multi-informant character of this study strongly reduces informant bias and its associated shared method variance. That we did not find support for all of our hypotheses may partly be due to using different informants for each construct in our study, which provides a relatively stringent test of our hypotheses. Furthermore, our measures cover both positive and negative aspects of the environment and range from positive to negative outcomes, allowing us to examine "for better and for worse" effects (Belsky et al., 2007). Moreover, analyzing regions of significance (Roisman et al., 2012) provided a formal way of testing the shape of Personality × Support interactions, strengthening our conclusions with respect to "for better and for worse" effects.

Notwithstanding these strengths, some limitations have to be acknowledged as well. First, the interaction between Openness and support from children explained only a small amount of variance in support from parents. Interaction effects are notoriously difficult to detect in field studies (McClelland & Judd, 1993), and more precise measurement of the environment (i.e., perceived support) as well as oversampling extreme scores on the moderator (i.e., personality) might counter this issue. Second, parents reported a somewhat restricted range of perceived support from children and spouses. With a more diverse sample in terms of perceived support (especially scores at the low end), more conclusive statements about susceptibility to both low and high levels of support could be made.

In conclusion, we found that parents high on Openness were more susceptible to the quality of support they perceived from their adolescent child, for better and for worse. Thus, we extended previous results to show that differential susceptibility can be detected among parents of adolescents, but only for certain personality traits, and depending on the timing of measurement and on the source of perceived support. Differences in susceptibility among adults might exist under some circumstances, particularly when a transition occurs in the family. Future research needs to replicate these initial findings as well as concentrate on further demonstrating and explaining these boundary conditions.

Note

1. To explore whether parent gender differences existed, we reanalyzed the basic model and the five models containing interactions with personality traits using a multigroup procedure. This procedure compared models in which regression parameters were constrained to be equal across parent gender to models in which regression parameters were allowed to differ across gender. By default, means, intercepts, and variances were allowed to differ across parent gender. Models were compared using the Satorra-Bentler scaled χ^2-difference test (Satorra & Bentler, 2001). Child gender differences were examined in a similar way. Releasing equality constraints across parent or child gender did not improve the model fit of any of the models. These analyses indicate that variation in susceptibility to support from children or spouses due to parents' personality is similar for parent-son dyads and parent-daughter dyads and similar for mothers and fathers.

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