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The Relations Between Parents' Big Five Personality Factors and Parenting: A Meta-Analytic Review

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To investigate the association between Big Five personality factors and three dimensions of parenting—warmth, behavioral control, and autonomy support— the authors conducted meta-analyses using 5,853 parent–child dyads that were included in 30 studies. Effect sizes were significant and robust across mother and father reports and across assessment methods of parenting (self-report versus observations) but were generally small in magnitude. Higher levels of Extraversion, Agreeableness, Conscientiousness, and Openness and lower levels of Neuroticism were related to more warmth and behavioral control, whereas higher levels of Agreeableness and lower levels of Neuroticism were related to more autonomy support. Several factors moderated the relationship between specific personality dimensions and parenting: child and parental age, reliability of observational assessment of parenting behavior, and study design. Taken together, these results indicate that personality can be seen as an inner resource that affects parenting.

Keywords: Big Five, parenting, parent–child interaction, personality, meta-analysis

Personality characteristics pervade people's behavior and lives in important ways (see e.g., Caspi & Shiner, 2006; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). There is robust evidence that early emerging individual differences in personality shape how people experience and respond to a wide variety of developmental tasks, ranging from the cultivation of social relationships to the mastery of educational and work tasks (Caspi, Roberts, & Shiner, 2005). Recently, Roberts and colleagues (2007) showed that personality traits predict mortality, divorce, and occupational attainment as well as, if not better than, socioeconomic status and cognitive ability. It is surprising, however, that with regard to one central aspect of social functioning, that of parenting, in relatively few studies have the personalities of mothers and fathers been considered as a potentially important source of influence.

This is a curious omission for several reasons. First of all, parenting is a challenging, affectively charged task that plays a central role in the lives of many adults. As with other life tasks, variation in parenting may be due, in part, to differences in personality. Second, parenting is a potential source of influence on children's development. Linkages between personality and parenting, especially with regard to how children function, may be of special significance. In fact, the question underlying much modern parenting research is not whether parenting influences children's development but rather to what extent does variation in parent–child relationships explain differences in how children develop. Although some critics of the claim that parenting matters contend that heredity (Harris, 1998; Rowe, 1994) and peers (Harris, 1998) are more influential than parenting, many social scientists assert that parenting affects children's functioning (Collins, Maccoby, Steinberger, Hetherington, & Bornstein, 2000). Of note, too, is that behavior genetic studies provide some clues concerning the influence of parenting on children's psychological functioning (see e.g., Knafo & Plomin, 2006).

Personality research has been given new impetus and direction over the past decade by a near consensus on the structure by which the myriad of more specific personality traits can be arranged (Caspi & Shiner, 2006; John & Srivastava, 1999). The most widespread support has been obtained for a five-trait structure, dubbed the Big Five or the five-factor model (DeYoung, Quilty, & Peterson, 2007; John & Srivastava, 1999; McCrae & Costa, 1999). The Big Five have traditionally been numbered and labeled as follows: I. Extraversion (or surgency, positive affectivity), II. Agreeableness (vs. antagonism), III. Conscientiousness (or constraint), IV. emotional stability (versus Neuroticism or negative affectivity), and V. Openness to Experience (or intellect, culture; Caspi & Shiner, 2006; Goldberg, 1990).

Support for this Big 5 model is derived from a number of factor analyses of questionnaires designed to measure a broad range of individual differences, as well as from research stemming from the lexical tradition. Both approaches lead to the same number of dimensions. The content of the fourth factor is essentially the

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same, although it is oriented in the opposite direction (Neuroticism versus emotional stability). The most important differences are that warmth is a facet of Extraversion in the questionnaire tradition, whereas it is a facet of Agreeableness in the lexical tradition. Further, the fifth factor is conceived as Openness to Experience in the questionnaire tradition and as intellect or imagination in the lexical model (Goldberg, 1993). This five-factor structure has been replicated in diverse samples, in diverse cultures, and across numerous informants, including self-report, peer report, and clinician report (John & Srivastava, 1999).

Like any dominant paradigm, the Big Five model is not without its critics, some of whom have advanced alternative frameworks (see e.g., Saucier, 2003). Nevertheless, the Big Five has proven very useful for conceptualizing and measuring much of the variation in personality. One of the primary advantages of the Big Five framework is the ability to organize previous research findings into a manageable number of conceptually coherent domains. Following this tradition, we organize our review on personality–parenting linkages, using the Big Five taxonomy of traits.

There is somewhat less of a consensus among students of parenting than among students of personality as to what the core dimensions are that merit empirical assessment—if only for purposes of synthesizing results of diverse studies. However, notwithstanding the absence of a singular or cohesive theory of how parental influence can be understood, there exists substantial consistency in how contemporary developmentalists characterize growth-facilitating (versus inadequate) parenting. Parenting researchers have repeatedly suggested that three dimensions of parenting can be used to organize much of the variation in measurements of parenting (Skinner, Johnson, & Snyder, 2005). Exploration of the literature reveals that the dimensions of the parent–child relationship most consistently assessed and associated with individual difference in children's development include (a) warmth versus rejection, (b) behavioral control versus chaos, and (c) autonomy support versus coercion. These dimensions are evident in research with observational, questionnaire, and interview methodologies and have appeared in assessments of parenting for children from preschool age to late adolescence. For purposes of this review, we use these three dimensions of parenting to organize studies and to frame meta-analytic findings linking personality with parenting.

Warmth (often labeled responsiveness) refers to "the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to the child's special needs and demands" (Baumrind, 1991, p. 62). Many studies focus on the continuum between effective and ineffective responsive behaviors, such as acceptance–rejection, support–neglect, affection–hostility, and positive affect–negative affect (Belsky, Domitrovich, & Crnic, 1997; NICHD Early Child Care Research Network, 1999, 2003). According to many developmentalists, warmth is essential for positive developmental outcomes, including mastery, emotion regulation, and interpersonal closeness (Bugental & Grusec, 2006), whereas lack of responsiveness may contribute to behavior problems (Rothbaum & Weisz, 1994).

The second parenting dimension, behavioral control (also labeled structure by some), refers "to the claims parents make on the child to become integrated into the family whole by their maturity demands, supervision, disciplinary efforts, and willingness to confront the child who disobeys" (Baumrind, 1991, pp. 61–62). Behavioral control refers to the provision of clear expectations for mature behavior combined with consistent and appropriate limit setting. It also includes sensitivity, that is, the well-timed, synchronous parent behavior with an appropriate level of response stimulation and actions which follow the child's signals and which facilitate self-regulation and positive development (Barber, 1996). Behavioral examples include providing assistance to allow the child to achieve goals by him- or herself and contingently verbalizing the child's affect and actions. The opposite of behavioral control is labeled chaos, and this refers to parenting behaviors that are lax, noncontingent, inconsistent, unpredictable, or arbitrary. This kind of behavior is considered by many developmentalists to be a negative strategy.

The third dimension is autonomy support. Autonomy support includes encouraging children to actively explore, discover, and formulate their own view and goals. High levels of autonomy support foster interactions in which children are expected to express their views and opinions and are given weight in planning and problem solving. The conceptual opposite of autonomy support is coercion, also referred to also psychological control, and is often characterized by intrusiveness, high power assertion, or overcontrolling behavior (Barber, 1996). This type of control is associated with externalizing behavior problems in children (Rothbaum & Weisz, 1994). Contrary to power assertive methods which involve overtly imposing the will of the parent on the child, autonomy support typically contains a message about alternative appropriate behavior, and it is characterized by reasoning, reminders of rules, and explanations for the impact of the child's behavior on others (Maccoby, 1992). Autonomy support is considered to be effective in promoting internalization of rules and, thereby, children's moral development (Grusec, Goodnow, & Kuczynski, 2000; Kochanska, 2002).

One of the first theorists to address the question of why personality may be related to parenting was Belsky (1984). Although he acknowledged that parenting is multiply determined, he placed parent personality at the center of his process model of the determinants of parenting. Parent personality affects the way in which the parent generally feels (e.g., parent's proneness to positive or negative mood), thinks (e.g., parent's attributions for child behavior), and acts (e.g., the degree of parent's expressivity; Belsky & Jaffee, 2006; Kochanska, Friesenborg, Lange, & Martel, 2004). There are reasons to expect that each of the Big Five dimensions is related to parenting behavior.

People high in Neuroticism tend to be easily distressed, anxious, tense, and nervous and tend to lack emotional stability. This proneness toward negative emotionality might undermine parents' ability to initiate and maintain positive affective interaction with the child and might limit parents' ability and willingness to respond adequately to child's signals. A disposition to experience anxiety might lead to intrusive and overprotective parenting. Parents high on Neuroticism might be more likely to attribute negative intentions to their young children when they misbehave, which might result in harsh parenting. Conversely, these parents may distance themselves from their relationship with the child, thereby failing to provide structure and guidance. The overall result might be highly unpredictable, inconsistent parenting behavior.

Extraversion reflects the quantity and intensity of interpersonal interaction, activity level, and capacity for joy that characterize

individuals. Sociability, energy, and positive affect are probably also reflected in the parental behavior during interaction with the child. The high degree of engagement that is characteristic of Extraversion may contribute to more stimulating parenting and more active, assertive parenting behavior in discipline encounters.

Agreeableness reflects one's interpersonal orientation along a continuum from empathy to antagonism in thoughts, feelings, and actions. Kind, good-natured, and easygoing parents have the capacity to provide warmth and protection. Moreover, parents high in Agreeableness probably tend to have more positive attributions regarding the child's behavior. The parental role requires concern for others, and parents with greater ability to empathize with the child are probably better able to identify and respond to children's needs. It therefore seems reasonable to expect Agreeableness to be related to more responsive, nurturant parenting and more respect for the child's autonomy.

Conscientiousness reflects the extent to which a person is well-organized, thorough, and goal oriented and possesses a strong sense of purpose and high standards. Parents who score high on Conscientiousness probably also impose such standards in parenting, thereby providing a more consistent and more structured child-rearing environment.

Finally, Openness reflects the extent to which a person enjoys new experiences, has broad interests, and is imaginative. Parents scoring high on this dimension are probably more likely to be involved with the child and to provide more stimulation.

At the time of Belsky's (1984) writing, little empirical research had been done to examine links between personality and parenting, though in the time since, more and more work has been reported, linking personality directly to parenting. Two recent narrative reviews (Belsky & Barends, 2002; Belsky & Jaffee, 2006) summarized the available evidence. However, the present meta-analytic review on the nature and strength of empirical relations chronicled between each of the Big Five personality constructs and measures of parenting in the published research literature extends these narrative reviews in important ways. First, the narrative review is subjective and, thus, prone to bias and error. A common way to review a set of assembled studies is to count the number supporting various sides of an issue, ignoring sample size, effect size, and research design. This can lead to inconclusive findings. For example, although research on the parents of children of various ages indicated that higher levels of Neuroticism are related to less active and involved parenting, as well as more negative, intrusive, and overcontrolling parenting (e.g., Kochanska, Aksan, & Nichols, 2003; Smith et al., 2007), some studies fail to document significant relations between Neuroticism and parenting (e.g., Clarke, 2006). Similarly, several studies provide evidence that Extraversion is positively associated with responsive, sensitive, emotionally engaged, and stimulating parenting (e.g., Belsky, Crnic, & Woodworth, 1995; Levy-Shiff & Israelashvilli, 1988). However, other studies detect no relation between Extraversion and parenting (Clark, Kochanska, & Ready, 2000; Kochanska et al., 2004; Spinath & O'Connor, 2003). A meta-analysis that synthesizes effect sizes across a representative collection of studies, weighting effects by sample size, offers a more objective appraisal that can help to resolve uncertainties. Thus, the first goal of the meta-analysis presented herein was to shed light on the relative impact of personality on parenting by generating an estimate of the strength of association between personality and parenting. This estimate of strength makes it possible to compare the potential influence of personality on parenting with other potential determinants of parenting.

An additional advantage of a meta-analysis is that heterogeneity between study findings can be explored and sometimes explained, often illuminating important and/or promising directions for future research (Egger & Smith, 1997). Thus, the second goal of this meta-analysis is to determine whether the variation in research findings across studies is systematic. That is, we seek to illuminate factors that may moderate relations between parent personality and parenting, that is, variables having an effect on the direction and strength of these relations reported in the published literature. Particularly, we explore the role of measurement characteristics, focusing on differences between instruments used to assess personality (lexical or questionnaire tradition), differences between methods used to assess parenting (observation or self-report), and variation in reliability of measures. Other putative moderators include sample features (sample size, child and parent gender and age, socioeconomic status [SES], and family structure), as well as publication characteristics (year of the publication, impact factor of the journal) and the study's design (cross-sectional versus longitudinal). Although most investigations linking personality with parenting are cross-sectional (e.g., Prinzie et al., 2004), some are longitudinal, with personality assessments temporally preceding parenting ones (e.g., Metsäpelto & Pulkkinen, 2003). Because most works examining personality–parenting associations focus on main effects of personality and do not address the conditions under which particular personality characteristics are more or less important when it comes to explaining parenting behavior (Caspi et al., 2005), the moderator analyses should be considered exploratory.

Method

Sample of Studies

The primary search method involved inspection of the computerized databases PsycINFO and Educational Resources Information Centre (ERIC). No specific year was indicated (end date was August 31, 2008), and the following key words were used for searching in varying combinations: personality*, Big Five, five-factor model, FFM, Extraversion, Agreeableness, Conscientiousness, Neuroticism, emotional stability, and Openness. With regard to parenting, the following keywords were used: parent–child interaction, mother–child interaction, father–child interaction, parenting, maternal, paternal, childrearing, caregiving, parent–infant interaction, parental, mother, father, rearing style, rearing practices, and parenting style. In the second step, additional studies were located with the ancestry method, that is, inspection of the reference sections of obtained articles, book chapters, and dissertations and the narrative reviews of Belsky and Barends (2002) and Belsky and Jaffee (2006). In an attempt to be exhaustive and to avoid publication biases, in addition to peer-reviewed journals, relevant and accessible journal articles, book chapters, and dissertations were eligible for inclusion.

Studies were inspected and included if they met the following criteria: First, to ensure conceptual clarity, the inquiry had to include measurements of one or more of the Big Five personality constructs. However, works that involved the investigation of

clinical characteristics that reflect a blend of multiple personality characteristics, such as depression or antisocial personality disorder (e.g., Chi & Hinshaw, 2002; Conger, Patterson, & Gé, 1995) were excluded. Depression has demonstrated a positive relationship with Neuroticism and a negative relationship with Extraversion, suggesting that it may be the combination of these two traits that is most related to depression (Chioqueta & Stiles, 2005). Similarly, data suggest that low Agreeableness and low Conscientiousness are considered characteristics of antisocial personality disorder (Lynam & Widiger, 2001).

Second, the investigation had to assess one of the three dimensions of parenting behavior. Research that measured parental cognitions instead of parenting behavior was excluded (e.g., Bornstein, Hahn, et al., 2007). Finally, samples included in the meta-analysis had to be statistically independent. Whenever studies were statistically dependent (e.g., Kochanska, Akson, Penney, & Boldt, 2007; Kochanska et al., 2004; Prinzie et al., 2004, 2005), we determined whether the later studies provided more extensive information on the same measurement wave or whether the aims of the later study were more closely related to those of this meta-analysis. Because this never proved be the case, the original, oldest study was included in the analysis.

The majority of the included investigations were cross-sectional in design, with personality and parenting measured at the same point in time. In case of longitudinal studies, the decision was made to include only personality–parenting statistics from the first time of measurement. In some longitudinal studies, it was not possible to derive concurrent personality–parenting associations. In those cases, the smallest possible time range between the assessment of personality and the assessment parenting that was reported was used. In five of the nine longitudinal investigations, this time range was between 4 months and 14 months. The longest time range was 96 months (Michalik, 2005). When studies provided insufficient statistical information for the calculation of effect sizes, authors were contacted. The final sample of the current meta-analysis included 30 studies examining the relation between the Big Five personality attributes and parenting. A detailed list of all included studies is provided in Table 1. These are marked with an asterisk in the References section.

Coding the Studies

Each study was coded with a detailed coding system for recording sample, design, measurement, and publication characteristics. Sample characteristics coded were sample size, parent gender (mothers or fathers or mixed), child gender (percentage of boys), family SES (see below), and mean age of the parents and the children. Design and measurement characteristics coded were study design (cross-sectional or prospective longitudinal), measurement methods for the assessment of parenting (questionnaires or observations), personality assessment (lexical or questionnaire tradition), and reliability coefficients in terms of Cronbach's alpha and Cohen's kappa. We categorized parent personality characteristics as belonging to one of the Big Five: (a) Extraversion (positive affectivity, tendency to be sociable, quantity and intensity of interpersonal interaction), (b) Agreeableness (tendency to be prosocial, empathic), (c) Conscientiousness (constraint, tendency to be planful, organized), (d) Neuroticism (proneness to negative affect) and (e) Openness (tendency to demonstrate intellectual curiosity, active imagination). Three parenting constructs were distinguished: (a) warmth (e.g., nurturance, positive affect, sensitivity, caregiving, positive support, rejection [reverse coded], negative affect [reverse coded]), (b) behavioral control (e.g., structure, guidance, gentle control, sensitivity [i.e., well-timed, synchronous mother behavior with an appropriate level of response stimulation and actions which followed the child's lead and signals and facilitated the child's self-regulation and growth], inconsistent parenting [reverse coded], laxness [reverse coded], lack of structure [reverse coded]), and (c) autonomy support (e.g., cognitive stimulation, respect for autonomy, overprotective parenting [reverse coded], intrusiveness [reverse coded], harsh discipline [reverse coded], and overreactivity [reverse coded]). Publication characteristics coded were year of publication and journal impact factor, as an indicator of study quality (Institute for Scientific Information [ISI] Journal Citation Reports, Science Edition, 2006).

SES was coded as low, middle, or high. As a rule, we followed the SES classification reported in the empirical report. If no SES classification was available, the following criteria were applied. Samples were coded as low SES when a substantial number of participants were reported (a) to be poor or (b) to not have a high school degree (which usually meant an average level of maternal education of 12 years or less). Samples were coded as middle SES when (a) the participants were reported to include a broad range of SES in terms of education, occupation, and income or (b) the average level of maternal education ranged from 12 years to 15 years. Samples were coded as high SES when (a) the sample was described as highly educated (average level of education was 15 years of more) or (b) the occupational ratings or the average family income was skewed toward the upper SES levels.

All coded variables were scored by two coders; the intercoder reliabilities were very high, with mean kappa for categorical variables = .94 (range: .71–1.00) and mean intercoder reliabilities for continuous variables = .99 (range: .95–1.00).

Data Analysis

In the present meta-analyses, Pearson's product-moment correlation coefficients (*r*) served as the effect size estimate. When articles reported only regression coefficients (e.g., Kochanska et al., 2004), the authors were contacted to obtain the correlation coefficients between the personality and the parenting variables. Individual-study effect size estimates were analyzed with SPSS 16 macros from Lipsey and Wilson (2001), with the goal of estimating the population effect sizes for the relation between parent personality and parenting. For each of the Big Five personality characteristics and for each of the parenting dimensions (i.e., warmth, behavior control and autonomy support), effect sizes were calculated separately for mother reports, father reports, and mixed reports (i.e., combined mothers and fathers reports). When multiple effect sizes were calculated for different indicators of the same parenting dimension (e.g., overreactivity and coercion), average effect sizes were computed, resulting in one effect size for the particular parenting dimension.

Next, the data across studies were analyzed, with the goal of estimating the population effect sizes for the association between parent personality and parenting. We also computed the statistical significance of the effect sizes and their confidence intervals. All results presented are from random effects models, in which the

error term is composed of a variation originating from both within-study variability and between-study differences (Cooper & Hedges, 1994). In contrast to the fixed effects model, which assumes a common underlying effect, the random effects model estimates the average effect size, assuming that the studies originate from populations with varying effect sizes (Cooper & Hedges, 1994).

Outlying effect sizes were identified on the basis of the *z* values larger than 3.3 or smaller than −3.3 (Tabachnick & Fidell, 2001). Homogeneity analyses were evaluated with the Q_{within} (Q_w) statistic (Hedges & Olkin, 1985), setting $p < .05$, to determine whether samples of inquiries were homogeneous, that is, to determine to what extent effect sizes were constant across studies. In case of heterogeneity, there are differences among effect sizes that have some source other than subject-level sampling error. These differences may be associated with different study characteristics (Lipsey & Wilson, 2001). When the hypothesis of homogeneity was rejected, moderators were performed to help explain heterogeneity among the effect sizes.

Publication Bias (File-Drawer Analysis)

A common problem in conducting meta-analysis is that many studies may remain unpublished because of nonsignificant findings. To determine whether such publication bias or file-drawer problem exists, one can calculate the minimum number of studies with null results that are needed to reduce significant meta-analytic results to nonsignificance (Durlak & Lipsey, 1991). Meta-analytic findings are considered to be robust if this fail-safe number exceeds the critical value recommended by Rosenthal (1995): 5 times the number of studies, plus 10.

If there is an indication of a file-drawer problem, one should examine what effect publication bias could have on the meta-analytic results. This can be achieved by inspecting the distribution of each individual study's effect size on the horizontal axis against, on the vertical axis, its sample size, standard error, or precision (the reciprocal of the standard error). The distribution of effect sizes should be shaped as a funnel if no publication bias is present because the more numerous studies with small sample sizes are expected to show a larger variation in the magnitude of effect sizes than do the less numerous studies with large effect sizes. A violation of funnel plot symmetry reflects publication bias, that is, selective inclusion of studies showing positive or negative outcomes (Sutton, Duval, Tweedie, Abrams, & Jones, 2000). The effect of funnel plot asymmetry on the magnitude of the effect size can be examined by means of trim and fill procedures, removing the asymmetric right or left hand of the funnel in order to estimate the true center of the funnel, and subsequently replacing the trimmed studies and their counterparts around the center (Duval & Tweedie, 2000a, 2000b).

In the present study, we chose to objectively account for publication bias in the case of encountered file-drawer problems and significant funnel plot asymmetry. Funnel plot asymmetry was tested by regressing the standard normal deviate, defined as the effect size divided by its standard error, against the estimate's precision (the inverse of the standard error), which largely depends on sample size (see Egger, Smith, Schneider, & Minder, 1997). If there is asymmetry, the regression line does not run through the origin and the intercept significantly deviates from zero. Evidence of asymmetry was based on $p < .10$, in order to reduce the chance of making a Type II error, that is, accepting the null-hypothesis of no funnel plot asymmetry when it should have been rejected (Egger et al., 1997).

Results

The 30 studies included in the meta-analyses provided data on 5,853 parent–child dyads, with sample sizes ranging from 57 (Clarke, 2006) to 1,656 (Kendler, Sham, & MacLean, 1997). The mean was 195. A detailed list of the included studies is provided in Table 1. Mean age of the children in these studies was 4 years 8 months, ranging from 3 months (Goldstein, Diener, & Mangelsdorf, 1996) to 19 years 6 months (Soenens et al., 2005). Parental mean age was 35 years 6 months, ranging from 26 years to 58 years. No outlying effect sizes were identified.

Warmth

In the meta-analyses of the association between the parent personality dimensions and warmth, 22 studies were included, involving 4,279 parent–child dyads. In our primary analyses, we computed the effect sizes for the association between parent personality and warm parenting for mother, father, and mixed reports separately. Results indicated that the estimated effect sizes had the same sign and had comparable magnitudes across informants. Therefore, in a next step, different informants (mother, father, mixed) were aggregated. These meta-analyses (Table 2) yielded small but statistically significant effect sizes ranging from $r = .11$ for Conscientiousness to $r = .19$ for Agreeableness ($ps < .001$). Higher levels of Extraversion, Agreeableness, Conscientiousness and Openness and lower levels of Neuroticism proved related to warm parenting.

However, a file-drawer problem emerged for Conscientiousness and Openness. The random model fail-safe number for Conscientiousness ($k = 16$) was 59 and the number for Openness ($k = 15$) was 67, which in both cases is below Rosenthal's (1995) critical values of 90 (i.e., $16 \times 5 + 10$) and 85 ($15 \times 5 + 10$), respectively. This indicates that publication bias could exist. We found, however, no significant funnel plot asymmetry, which indicates that no studies with smaller or larger effect sizes were systematically missing.

The set of unbiased effect sizes was heterogeneous for all personality dimensions, Extraversion, $Q_w(16) = 27.25$, $p < .05$; Agreeableness, $Q_w(15) = 26.22$, $p < .05$; Conscientiousness, $Q_w(15) = 26.80$, $p < .05$; Neuroticism $Q_w(18) = 32.88$, $p < .05$; and Openness, $Q_w(14) = 43.90$, $p < .001$, indicating that differences in effect sizes among studies may be explained by moderators. No moderator analysis for SES was performed because this variable has no variability (see Table 1). Analyses of continuous moderators (child age, parent age, publication year, journal impact factor, reliability in terms of Cronbach's alpha and Cohen's kappa) and categorical ones (parent and child gender, study design [i.e., cross-sectional vs. longitudinal], measurement methods, theoretical background of personality questionnaire) yielded the following results. Parent and child age moderated relations between Agreeableness and warmth and between Neuroticism and warmth: The older the parent, the less strong the relation between Agreeableness and warmth ($b = -0.58$, $z = -2.45$, $p < .05$) and the less strong

Table 1
The Studies Included in the Meta-Analysis: Sample and Study Characteristics

Study	*N*	Child age (months)	% Male	Parent age (years)	% Caucasian	% Intact families	SES	Design	Personality measure	Personality	Method	Parenting
Belsky et al. (1995)	69	10	100	Mother = 28.4 Father = 30.6	100	100	M	L	NEO-PI	E, A, N	2	W, BC, AS
Bornstein et al. (2007)	254	20	54	Mother = 31.1	100		M	C	JPI	E, O	2	W
Branje et al. (2004)	287	162	48	Mother = 41.7 Father = 43.9	100	96	M	C	Big Five Personality	E, A, C, N, O	1	W, AS
Clark et al. (2000)	108	8.9	50	Mother = 31	97	100	M	L	NEO-FFI	E, A, C, N, O	2	W, AS
Clarke (2006)	57	96	73	Mother = 38.6	53		M	C	NEO-FFI	E, A, C, N, O	3	W, BC, AS
Cumberland-Li et al. (2003)	160	73	58		76			C	Big Five Personality Measure	N	2	W
Degnan et al. (2008)	110	48	44		100		M	C	Eysenck Personality Questionnaire - Revised	E, N	2	W, AS
Ellenbogen & Hodgins (2004)	151	88	41	Mother = 37.6 Father = 39.8			M	C	NEO-FFI	E, A, C, N, O	1	W, BC, AS
Fish & Stifter (1993)	87	5	52	Mother = 29.2	98	87	M	C	JPI/NEO-AC Personality Inventory	N	2	BC
Goldstein et al. (1996)	65	3		Mother = 29.5	98	100	M	L	Multidimensional Personality Quest	N	2	W
Kanoy et al. (2003)	125	25	45	Mother = 26.3 Father = 28.7	97	100	M	L	NEO-PI	N	1	AS
Karreman et al. (2008)	72	36	51	Mother = 34.5 Father = 36.5	98	100	H	C	NEO-FFI	E, A, C, N, O	2	W, BC, AS
Kendler et al. (1997)	1656			Parent = 58.6				C	Eysenck Personality Questionnaire	N, E	1	W, AS
Kochanska et al. (2003)	112	9	50	Mother = 31	97		M	L	NEO-FFI	E, A, C, N, O	2	W, AS
Kochanska et al. (1997)	99	33	50	Mother = 32.9	80		M	L	BDI, PRQ, SDI, STAI, ZKPQ	E, A, C, N	2	W, BC, AS
Kochanska et al. (2004; Study 1)	102	7	50	Mother = 31 Father = 32	91	100	M	L	NEO-FFI	E, A, C, N, O	2	W, BC
Levy-Shiff & Israelasvilli (1988)	68	9		Father = 28		100	M	L	PRF-E		3	W, BC
Losoya et al. (1997)	185	<96	50	Mother = 34.5 Father = 34.5				C	Inventory for Candid Self-Descriptions	E, A, C, N, O	1	W
S. Mangelsdorf et al. (1990)	66	9	47	Mother = 25		100	M	C	Multidimensional Personality Quest		2	W
C. Mangelsdorf et al. (2000)	95	8	54	Mother = 31.5				C	Multidimensional Personality Questionnaire		2	BC, AS
Metsapelto & Pulkkinen (2003)	172	93	51	Mother = 33 Father = 33				L	NEO-PI	E, A, C, N, O	1	W, BC, AS
Michalik (2005)	125	73	53		82	68	M	L	Big Five Personality Measure	A, N	1	W
Neitzel & Stright (2004)	73	66	49		88	79	M	C	NEO-FFI	C, O	2	W, AS
Olsen et al. (1999)	80	61		Mother = 32.2	98		M	C	Adaptation NEO-PI	E, A, C, N, O	1	W, AS
Peterson et al. (1997)	157	216.8	47	Mother = 45.4 Father = 48.8	97	81	M	C	Big Five Inventory	E, A, C, N, O	1	BC, AS
Prinzie et al. (2004)	599	94	51	Mother = 36.9 Father = 39	100	92.5	M	C	Five-Factor Personality Inventory	E, A, C, N, O	1	BC, AS
Smith et al. (2007)	246	17.8	55	Mother = 29.1		80	M		Big Five Personality	E, A, C, N, O	2	BC, AS
Soenens et al. (2005)	155	234	0	Mother = 47.7 Father = 47.7			M	C	Neo Five Factor Inventory	N	1	AS

(table continues)

Table 1 *(continued)*

Study	N	Child age (months)	% Male	Parent age (years)	% Caucasian	% Intact families	SES	Design	Personality measure	Personality	Method	Parenting
Spinath & O'Connor (2003)	196	Early childhood–young adulthood		Parent = 47	100		M	C	NEO-FFI	E, A, C, N, O	1	W, AC
Verhoeven et al. (2007)	111	16.9	100	Mother = 32.8 Father = 34.7		100	M	C	Big Five Personality	E, A, C, N, O	1	W, BC, AS

Note. Method = method of parenting; 1 = parent reports; 2 = observation (home or lab), and 3 = mixed. C = cross-sectional; L = Longitudinal; SES = socioeconomic status; M = middle; H = high; NEO-PI = NEO Personality Inventory; JPI = Jackson Personality Inventory; NEO-FFI = NEO Five-Factor Inventory; PRF-E = Personality Research Form; BDI = Beck Depression Inventory; PRQ = Physiological Reactions Questionnaire; SDI = Self-Description Inventory; STAI = State-Trait Anxiety Inventory; ZKPQ = Zuckerman-Kuhlman Personality Questionnaire; E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness; W = Warmth; BC = Behavioral Control; AS = Autonomy Support.

the negative association between Neuroticism and warmth ($b = 0.73$, $z = 3.75$, $p < .01$). Similarly, the older the child, the smaller the relation between Agreeableness and warmth ($b = -0.62$, $z = -2.53$, $p < .05$) and the smaller the negative association between Neuroticism and warmth ($b = 0.58$, $z = 2.65$, $p < .01$). At this point, it should be noted that parent age and child age were highly correlated: $r = .94$, $p < .001$. Further, the more recent studies showed relatively smaller effect sizes for the relation between Agreeableness and warmth ($b = -0.53$, $z = -2.16$, $p < .05$). Additional analyses revealed that this was an artifactual effect of child age ($r = .40$, $p = .08$, one-sided) and parent age ($r = .55$, $p = .02$, one-sided). Higher kappa reliabilities for parenting were associated with larger effect sizes for the negative relation between Neuroticism and warmth ($b = -0.61$, $z = -2.05$, $p < .05$). Finally, study design proved to be a significant moderator of the Neuroticism–warmth association: $Q(1, 17) = 4.64$, $p < .05$. Longitudinal studies yielded larger effect sizes ($r = -.24$, $z = -5.63$, $p < .01$) than did cross-sectional studies ($r = -.13$, $z = -4.73$, $p < .01$).

Behavioral Control

In the meta-analyses of the association between parent personality and behavioral control, 14 studies were included, involving 2,085 parent–child dyads. Separate meta-analyses were performed for mother, father, and mixed reports. The estimated effect sizes had the same sign and largely similar magnitudes across informants. Therefore, different informants were aggregated. As can be seen in Table 2, these meta-analyses yielded effect sizes ranging from $r = .10$ for Extraversion, Agreeableness, and Openness to $r = -.14$ for Neuroticism ($ps < .01$). Higher levels of Extraversion, Agreeableness, Conscientiousness, and Openness and lower levels of Neuroticism proved significantly related to greater behavioral control.

A file-drawer problem was encountered for Conscientiousness. The random model fail-safe number was -36 ($k = 11$), which is below Rosenthal's (1995) critical value. This indicates that publication bias could exist. However, we found no significant funnel plot asymmetry. Moreover, the set of unbiased effect sizes were not heterogeneous.

Autonomy Support

In the meta-analyses of the association between parent personality and autonomy support, 22 studies were included, involving 4,916 parent–child dyads. Again, separate meta-analyses for mother, father, and mixed reports yielded the estimated effect sizes that had the same sign and that were highly similar in magnitude across informants. Therefore, different informants were aggregated. As can be seen in Table 2, these meta-analyses yielded effect sizes ranging from $r = .03$ for Extraversion and Conscientiousness to $r = .14$ for Openness. Higher levels of Agreeableness and Openness and lower levels of Neuroticism were significantly related to more autonomy support.

File-drawer problems were encountered for Extraversion, Conscientiousness, and Openness. The random model fail-safe numbers were -5 ($k = 19$) for Extraversion, -9 ($k = 17$) for Conscientiousness, and 95 ($k = 21$) for Openness, which are all below Rosenthal's (1995) critical value. This indicates that publication

Table 2
The Relation Between Parent Personality and Parenting Across Informants

	Warmth					Behavioral control					Autonomy support				
Factor	*k*	*N*	*r*	95% CI	*Q*	*k*	*N*	*r*	95% CI	*Q*	*k*	*N*	*r*	95% CI	*Q*
Extraversion	17	3778	.14***	.09–.19	27.25*	12	1930	.10***	.06–.15	7.57	19	4563	.03	−.01–06	22.32
Agreeableness	16	1995	.19***	.13–.25	26.22*	12	1903	.10***	.06–.15	7.63	16	2702	.11***	.07–.14	14.50
Conscientiousness	16	2042	.11***	.05–.17	26.80*	11	1861	.11**	.05–.17	15.04	17	2801	.03	−.02–.08	25.67
Neuroticism	19	3884	−.17***	−.22–−.12	32.88*	13	2017	−.14***	−.20–−.08	19.20	21	4843	−.10***	−.15–−.05	48.12***
Openness	15	2029	.16***	.08–.24	43.90***	10	1735	.10***	.06–.15	7.20	15	2607	.14**	.06–.22	56.06***

Note. CI = confidence interval.
* $p < .05$. ** $p < .01$. *** $p < .001$.

bias could exist. However, subsequent analyses showed that only the distribution of effect sizes for the relation between Openness and autonomy support showed significant asymmetry: $t(13) = 1.87$, $p < .10$. After trim and fill procedures, the effect size for Openness decreased to become nonsignificant, ($k = 22$, $r = .03$, $p = .29$). The set of unbiased effect sizes was heterogeneous for Neuroticism, $Q_w(20) = 48.12$, $p < .001$, and Openness, $Q_w(14) = 56.06$, $p < .001$. Accordingly, moderator analyses were performed. Study design proved to be a significant moderator of the Openness–autonomy support association: $Q(1, 13) = 5.05$, $p < .05$. Longitudinal studies yielded higher effect sizes ($r = 21$, $z = 4.28$, $p < .01$) than did cross-sectional studies ($r = .03$, $z = 0.55$, $p = .58$).

Discussion

This meta-analytic review showed that parent's personality, in terms of the Big Five, is meaningfully, even if modestly, related to parenting practices. The associations were robust across mother and father reports and across assessment methods of parenting. Nevertheless, associations between the Big Five personality dimensions and the parenting dimensions were generally small in magnitude. Whereas each of the Big Five traits proved to be related to parental warmth and behavioral control, in the case of autonomy support, this was only true for Agreeableness and Neuroticism. Parents who manifest higher levels of Extraversion, Agreeableness, Conscientiousness, and Openness and lower levels of Neuroticism engage in more warm and structured parenting. Parents scoring high on these traits may be more able to initiate and maintain positive interactions, to respond adequately their child's signals, and to provide a more consistent and structured child-rearing environment. Earlier studies have revealed that positive emotional expressions either displayed or reported by mothers are related to these personality characteristics (Smith et al. 2007). These positive emotional expressions, in turn, were related to more maternal sensitivity observed during interactions with toddlers.

In addition, parents who score higher on Agreeableness and lower on Neuroticism are more supportive of their children's autonomy than are other parents. These parents are probably more inclined to tolerate or even support children's striving toward autonomy, viewing it in a positive light rather than as an attack on parental authority. This is consistent with findings indicating that more neurotic and less agreeable parents are more likely to attribute negative intentions to their young children when they misbehave (Bugental & Shennum, 1984). Moreover, agreeable and less neurotic parents are less prone to frustration, distress, irritation, and anger, which often results in harsh discipline, and probably approach their children in a way that is less likely to initiate or escalate conflictual interactions. Taken together, these results indicate that personality can be considered an inner resource that contributes to parenting, even only to an apparently modest degree.

The findings that parents' personality characteristics were more strongly related to their warmth and behavioral control, compared with autonomy support versus coercion, is interesting in light of Kendler and Baker's (2007) analysis of the heritability of parenting. On confirming that supportive parenting, whether reported by the parent or the child, is more heritable than parental control (defined as harsh, coercive parenting), these scholars theorized that this pattern might arise because positive emotionality in parent–child relationships is strongly affected by the genetically influenced personality of both parent and child. In contrast, parental coercive control may be more like a social attitude—an approach toward parenting learned by the parents during their own life experiences, which they attempt to apply equally to all their children. Irrespective of whether heritability is considered more influential in the case of warmth and behavioral control than coercive control, findings in behavior-genetic research pertaining to both personality and parenting raise the very real prospect that the linkages detected in this meta-analysis between personality and parenting could be genetically mediated.

It is important to neither exaggerate nor minimize the practical significance of the findings emerging from this meta-analysis. Although one should not disregard the prospect that bivariate effects may overestimate the possible causal link between constructs (Tabachnick & Fidell, 2001), the small effect between parent personality and parenting should be balanced by several considerations. First, virtually all investigations of linkages between personality and parenting are limited by the fact that the potential effects of only one personality trait at a time have been investigated. Hence, it remains to be determined how much the Big Five traits affect parenting when considered as a set together. Of course, answering this question would require investigating all five personality dimensions in the same study. To the extent that effects of personality traits on parenting, like personality traits themselves, are independent, the accumulation of small effects attributable to each of five traits could suggest greater influence of personality on parenting than the trait-by-trait approach adopted in

this meta-analysis, necessitated as it is by the state of the empirical literature, does.

Second, as McCartney and Rosenthal (2000) remind, even small effect sizes can be of theoretical and practical significance. Because the effects of personality (as well as of parenting) accumulate over a child's lifetime, a focus on a single parenting behavior measured at a single point in time may underestimate the contribution of personality to parenting and to children's development. As Abelson (1985) noted, differences between baseball players are trivial if considered on the basis of a single at-bat, but they become meaningful over the course of a game, a season, and a career. So it is on the playing field of family life.

Third, the small effect sizes discerned are similar in magnitude to the effects of personality in other domains, such as relationship quality, work outcome (Ozer & Benet-Martinez, 2006), and academic performance (Noftle & Robins, 2007). Fourth, small effects are to be expected when predicting a multiply determined behavior (Ahadi & Diener, 1989). And as Belsky (1984) outlined in his process model of parenting, contextual factors such as work, marriage relationship, social networks, and child characteristics, such as temperament, all play a role in shaping parenting, not just parental psychological characteristics.

That effect sizes are small might also be explained by moderator effects, such as children's temperament. Clark and colleagues (2000) found negative temperament to predict increased use of power assertion by mothers who scored high (but not low) in Extraversion. In addition to these factors, there is empirical evidence that other parental factors such as psychopathology or attachment history influence parenting. In their meta-analysis, Lovejoy, Graczyk, O'Hare, and Neuman (2000) reported a significant association between depression and negative maternal parenting. Several studies have reported that depressed mothers use more hostility, show higher rates of negative interactions, and show impatient use of directives in guiding child behavior. With regard to attachment history, Aviezer, Sadi, Joels, and Ziv (1999) found that parents with secure attachments are more sensitive to their children than are parents with dismissing or preoccupied attachment. Having highlighted the core findings of this meta-analysis, considered possible mechanisms of influence, and addressed the issue of effect size, our attention is now turned to the moderational findings, future research directions, and limitations of the available evidence.

Moderators of the Relation Between Personality and Parenting

Most of the studies included in these meta-analyses focused on the main effects of personality characteristics on parenting. Such a focus neglects the possibility that the way adult personality shapes parenting may be dependent on other factors. Our moderator analyses revealed that the associations between the Big Five personality dimensions and the dimensions of parenting were not moderated by personality assessment or by methods used to assess parenting or child gender and were robust across mother and father reports. However, moderator analyses revealed that personality–warmth relations varied by parent and child age in the case of Agreeableness and Neuroticism. The older the parent and the child, the less strong the relations between Agreeableness and warmth and between Neuroticism and warmth. In addition, reliability of parenting assessment moderated the relation between Neuroticism and warmth, such that a stronger association was emerging when assessments were more reliable. Finally, the Neuroticism–warmth association and the Openness–autonomy support association were stronger in prospective longitudinal studies than in cross-sectional studies.

The moderational findings discussed above may help explain some of the inconsistency in the primary literature highlighted in the introduction. For example, research with young parents and infants indicated that more agreeable parents are more sensitive (e.g., Belsky et al., 1995; Losoya et al., 1997), whereas Spinath and O'Connor (2003) failed to chronicle any significant relation in a sample of generally older parents. That the nature of parenting changes with age might be advanced as an explanation for the finding that Agreeableness and Neuroticism become less important in accounting for parental warmth as children and parents age. Warmth has been almost universally recognized as a central influence in early socialization in classic and contemporary formulations. Especially with young children, warm parenting affords children the sense that they are loved and respected and enhances their motivation to comply and cooperate with their parents, in part through identification with them (Grusec et al., 2000). Several studies chronicle declines in parental warmth when children (and parents) age, especially from early through midadolescence (Forehand & Jones, 2002; Shanahan, McHale, Crouter, & Osgood, 2007). This period is marked by an increase in parent–child conflict, while parent–child closeness wanes.

These age changes are also in line with parental investment theory. Parental investment as a whole consists of the amount of time and effort that is expended in the care of progeny. As the most basic feature, it involves the provision of shelter and sustenance and includes body contact and carrying, stimulus provision, and face-to-face contact (Keller, 2000). At older ages, parental investment extends to other kinds of involvement, such as monitoring the child's activities and providing guidance in social values. In light of the fact that warmth appears to become a less dominant aspect of parenting as children (and parents) grow older, it is not surprising that the link between the two best predictors of warmth (Agreeableness and Neuroticism) also becomes weaker. That some effect sizes are stronger in longitudinal studies than in cross-sectional studies is in accordance with the finding of Kochanska and colleagues (2004) that the relations between personality and parenting appear to grow stronger with the passage of time, as the dyadic relationship pattern coalesced.

Limitations and Future Directions

Several limitations of the present meta-analytic study should be mentioned. First, this meta-analysis is based on a limited set of studies examining the relation between personality and parenting. Second, because the included studies were largely correlational in nature, causal relations cannot be established. However, given evidence mentioned above that longitudinal research reveals somewhat stronger parenting–personality links than do cross-sectional studies, future long-term, prospective longitudinal research is needed to deepen understanding of the role that parent personality plays in parenting behavior. Finally, all of the work included examined only one child in a family. Given behavior-genetic evidence that nonshared environmental effects are often larger

than shared ones, future work examining whether personality effects on parenting are similar across children within the same family appears warranted.

Notwithstanding these limitations, results of this meta-analytic review are to some degree supportive of Belsky's (1984) suggestion that parental personality influences children's developmental context. The magnitude of the estimated effect sizes is comparable with the effects of personality in other life domains. However, meta-analyses of other factors and domains included in Belsky's model (1984) should be carried out, so that more comprehensive comparisons can be made vis-à-vis the relative power of different sources of influence or, at least, potential influence.

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