

ORIGINAL ARTICLE

# *Do stimulation and support in the early childhood home environment and best friendship quality in adolescence predict adult personality?*

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## BACKGROUND

The aim of this study was to determine whether stimulation and support in early childhood and best friendship quality in adolescence predict adult personality.

## PARTICIPANTS AND PROCEDURE

We used data from 123 individuals from an ongoing longitudinal study, with multiple assessment phases and modalities (observation, parental rating, self-report) to investigate prospective associations between stimulation and support in the home in early childhood (age 1-2), best friendship quality in adolescence (age 15), and the Big Five personality traits in adulthood (age 29) controlling for temperament, socioeconomic status (SES), and gender.

## RESULTS

After controlling for temperament, SES, and gender, we found that early childhood stimulation and support was related to adult openness to experiences, but not the other

four traits, and that best friendship quality in adolescence was related to adult extraversion and agreeableness, but not conscientiousness, neuroticism, or openness to experiences.

## CONCLUSIONS

The study contributes to research indicating that while personalities are relatively stable, they are not fixed at an early age and may be related to experiences and salient relationships throughout development. There is a dearth of research investigating such associations and the available findings are inconsistent. Conclusions about the relations between experiences such as stimulation and support in the home in early childhood or best friendship quality in adolescence and adult personality should thus be viewed skeptically until replicated.

## KEY WORDS

childhood experiences; home environment; friendship in adolescence; adult personality; longitudinal study

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## BACKGROUND

Personality traits refer to relatively enduring tendencies manifest in behavior, thoughts, and feelings (McCrae & Costa, 2008). They are early-established individual differences that show significant stability across the lifespan (e.g., Shiner & DeYoung, 2013). Despite the relative stability of personality traits and their biological and genetic bases (Bouchard & McGue, 2003), there are both normative (group-level) and intra-individual changes across the lifespan (Roberts et al., 2006; Roberts & DelVecchio, 2000). Consistent with holistic and transactional models of human development (Bronfenbrenner, 1979; Magnusson & Stattin, 2006), personality traits both affect and are affected by individuals' experiences in their environments (Wood & Denissen, 2015). There is research showing how childhood personality traits predict later development (Shiner & Caspi, 2003; Wilson et al., 2013) and that adult personality traits are related to individuals' experiences in social contexts (Ozer & Benet-Martinez, 2006; Roberts et al., 2007). With regards to early development, research has shown how parents may affect their children's personality genetically and by reacting and interacting with their children (Pomerantz & Thompson, 2008). In adolescence, the increased importance of friendships makes it reasonable to assume that the quality of these friendships is associated with personality development. Research on the co-development of personality and friendship has shown both how personality affects the selection and nature of friendships as well as how friends affect individuals' personalities (Wrzus & Neyer, 2016). The purpose of this study was to investigate associations between both home-based stimulation and support in early childhood and best friendship quality in adolescence, on the one hand, and adult personality on the other. By taking advantage of data from an ongoing 30-year longitudinal study with observations of stimulation and support provided to young children in their homes, self-reports of best-friendship quality in adolescence, and self-reports of adult personality traits, it was possible to investigate these associations directly.

## ORIGINS OF INDIVIDUAL DIFFERENCES IN ADULT PERSONALITY

The most prominent taxonomy for describing individual differences in patterns of thoughts, feelings, and behaviors in adulthood is the Big Five or five-factor model (John et al., 2008). This model describes five higher-order dimensional traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (e.g., Caspi et al., 2005; John et al., 2008). The high end of extraversion involves being active, talkative, and optimistic, whereas the low end is associated with being reserved, task-oriented,

and quiet. People who are on the high end of agreeableness are described as kind, cooperative, and forgiving, whereas people who are at the low end are described as cynical, non-cooperative, and manipulative. High conscientiousness is associated with being responsible, ambitious, and persevering, whereas low conscientiousness involves features such as laziness, carelessness, and lack of goal orientation. For neuroticism, highly neurotic persons are typically anxious, moody, and insecure, whereas low neuroticism is associated with being calm, stable, and relaxed. Finally, to be open to experiences is associated with being curious, creative, and imaginative, whereas low openness is associated with being down to earth, conventional, and non-analytical.

Whereas the expression of personality traits may vary depending on age and culture, personality traits in adulthood describe relatively stable ways of being (McAdams & Pals, 2006). While not fixed from an early age, personality traits increase in stability from childhood to adulthood but are already quite stable in early childhood (e.g., Roberts & DelVecchio, 2000; Wängqvist et al., 2015). Within this stability there are normative patterns with most people following the same developmental trajectory of increasing agreeableness and conscientiousness and decreasing neuroticism into and through adulthood (e.g., Bleidorn et al., 2013; Roberts et al., 2006; Soto et al., 2011); adolescence is viewed as a key period for changes in personality (Soto et al., 2011). Some have argued (see e.g., DeYoung, 2015) that the plasticity of extraversion and openness to experience, like the stability of agreeableness, conscientiousness, and neuroticism, shows how the Big Five traits reflect individual needs to maintain stable functioning while adapting to change. The biological and genetic bases of personality traits (Bouchard & McGue, 2003; Kandler, 2012) explain a substantial part of their stability, but stability in environments also helps to account for enduring tendencies to act in certain ways (Wood & Denissen, 2015). With regard to plasticity, research has shown that, even in adulthood, when personality traits are more stable than in childhood and adolescence (Roberts & DelVecchio, 2000), individuals' personalities are influenced by contextual factors such as work experiences (Roberts et al., 2003), romantic relationship involvement (Scollon & Diener, 2006), and life events (Bleidorn et al., 2016). Hence, personality traits not only affect how people negotiate the challenges they face in life, but personalities are also affected by individuals' experiences in salient environments throughout the life span. In this study we aimed to explore how salient relationship experiences during early childhood and adolescence are related to adult personality. Using data from a thirty-year longitudinal study, we investigated the prospective associations between both early stimulation and support and best friendship quality in adolescence, on the one hand, and adult personality on the other.

## HOME-BASED STIMULATION AND SUPPORT AND PERSONALITY

Parents affect their children's personality by way of shared genes, their reactions to children's temperament, as well as by parents' socialization practices (Pomerantz & Thompson, 2008). The dominant models today are transactional/interactional in the sense that they describe how personality develops through transactions among genetic dispositions, children's temperament, parents' behaviors, and available resources in their environments (Lamb, 2015). In this study we focused on the stimulation and support provided in the home during early childhood as assessed by independent observers. This is a broader construct than for example parenting styles, as it encompasses both parents' direct behavior towards the child and the organization and resources in the environment surrounding the child (i.e., parents' emotional and verbal responsiveness, acceptance of the child's behavior, organization of the environment, the provision of play materials, parental involvement with the child, and opportunities for variety in experiences). We have failed to find studies that investigate this specific construct in early childhood in relation to personality traits in adulthood (or earlier). However, research on related aspects of parenting and personality in both the shorter and longer term offered some background to our analyses.

For example, Van den Akker and colleagues (2014) found bidirectional associations between maternal over-reactivity and maternal warmth and personality development from childhood to adolescence in a study with five waves spanning the ages 6-20 years. These authors suggested that parenting and children's personality were interrelated both because parents shape children's personalities (shaping processes) and because different children's personalities elicit different types of parenting (eliciting processes). Specifically related to our investigation, the shaping effects they found showed that higher levels of maternal over-reactivity predicted decreases in conscientiousness and that higher levels of maternal warmth (which relates in part to parents' emotional responsiveness and involvement, which was observed in the present study) predicted decreases in emotional stability (this may seem counterintuitive, but Van Den Akker et al. (2014) explained the associations in their discussion). In a study that spanned five years and included four cohorts with children initially aged 9-12 years, de Haan and colleagues (2013) examined the same aspects of parenting, maternal over-reactivity and warmth, in relation to three childhood personality types derived from the Big Five: overcontrollers (low extraversion and emotional stability), undercontrollers (low agreeableness and conscientiousness), and resilient (high extraversion, conscientiousness, emotional stability, and openness to experience). They found that higher

levels of maternal warmth were related to a lower likelihood of being classified as undercontrolling or overcontrolling as compared to resilient, but found no difference between the three types in relation to mothers' over-reactivity. Moreover, Van den Akker et al. (2014) concluded that the influence of parenting (i.e., shaping processes) may be stronger for younger children and that eliciting processes may become more influential as children mature, perhaps because of the developmental shift in the relative importance of family and peers. In this study, we built on this idea by investigating adult personality in relation to both early stimulation and support and best friendship quality in adolescence.

## BEST FRIENDSHIP QUALITY AND PERSONALITY

Individuals generally start to spend more and more time with peers as they grow older, and both how many friends they have and the meaning of these friendships change across the lifespan (Wrzus & Neyner, 2016). Friendships differ from other salient relationships in several ways. For example, emotional closeness and reciprocity of support are among the core aspects of friendship quality. In adolescence, individuals start spending more time with their friends and less time with parents and under adult supervision in general. Both the emotional closeness between friends and the importance of friendships increase during this stage of life. The increased importance of friendships in adolescence makes it reasonable to assume that adolescents' friendships are associated with personality development. Opposing prevailing paradigms at that time, Harris (1995) controversially claimed that peers rather than parents had the largest influence on personality development overall. She based her claim on group socialization theory and focused on how peer groups shape their members' personalities through processes of identification and differentiation. These assumptions have been addressed in longitudinal research showing reciprocal influences between individuals' personalities and their peer groups related to shared genes and environments (Clark et al., 2022). Reitz et al. (2014) underlined the important distinction between peer groups and dyadic peer relationships when investigating socialization effects, as the latter are more related to individual characteristics of a specific relationship rather than group norms. In this study, we focused on the former to investigate how the perceived quality of best friendship in adolescence was related to adult personality. We have not found previous studies exploring these associations but some guidance about what to expect may be found in the literature on friendship and personality in adolescence.

In their review of the literature on the co-development of personality and friendship, Wrzus and

Neyer (2016) showed both how personality affects the selection and nature of friendships (selection processes) and how friends affect individuals' personalities (socialization effects, see e.g., Asendorpf & Wilpers, 1998). Defining friendships as voluntary relationships between peers which are signified by emotional closeness and reciprocity of support, Wrzus and Neyer (2016) did not distinguish between studies of best friendships and friendships in general in their review, concluding that selection effects intensify in adolescence, peak in young adulthood, and diminish throughout the rest of the lifespan while socialization effects were strongest (moderate effects) in adolescence. With regard to socialization effects, they concluded that the research findings were somewhat inconsistent. For example, some studies showed associations between higher quality friendships and decreases in neuroticism and depression (interestingly, the same association held for higher quality parental relationships), while others found no associations between aspects of friendship quality and the Big Five personality traits. In a study investigating reciprocal relations between personality and social relationships (including friends, but without distinguishing friendships from other relationships) in the transition from high school (Deventer et al., 2019), selection effects were more common than socialization effects. Socialization effects mainly occurred after the transition from high school. In this study, too, neuroticism (and facets related to that trait) were most consistently associated with social relationships, particularly relationship insecurity. Yu et al. (2014) studied associations between personality types (resilients, overcontrollers, and undercontrollers), romantic relationships quality and best friendship quality in adolescence. This study showed that resilient individuals had the highest mean levels of best friendship quality, meaning that higher extraversion, conscientiousness and openness to experience, along with lower neuroticism, were related to best friendship quality. To summarize, there appear to be socialization effects of friendship quality on neuroticism and facets of the Big Five but associations between friendship quality and the broader Big Five traits in adolescence have been inconsistent. In this study, we investigated associations between best friendship quality in adolescence and personality in adulthood (age 29) to shed light on these associations.

## CURRENT STUDY

This study examined associations between early stimulation and support in the home and best friendship quality in adolescence, on the one hand, and adult personality on the other, because these two contexts concern salient relationships in distinct developmental periods that appear related to individual person-

alities in adulthood. In our analyses, we controlled for child temperament, socioeconomic status (SES), and gender. Child temperament and gender were included as control variables because children's temperamental dispositions and gender may influence environmental factors and thus associations between these factors and adult personality (Belsky, 2005; Ellis & Boyce, 2008). Similarly, SES is related to several aspects of children's development and environments (e.g., Bradley & Corwyn, 2002) as well as to personality (e.g., Roberts et al., 2007). We addressed the following research questions:

Is stimulation and support in the home in early childhood related to personality traits in early adulthood, when controlling for best friendship quality in adolescence, child temperament, SES, and gender? Due to the limited previous research on this topic, the investigations were largely exploratory, but because aspects of parenting and children's personalities are related, we expected these associations to persist into adulthood (de Haan et al., 2013; Van den Akker et al., 2014). In light of Van den Akker et al.'s (2014) findings, we tentatively hypothesized that lower stimulation and support in the home would predict lower conscientiousness.

Is best friendship quality in adolescence related to personality in early adulthood, when controlling for early stimulation and support in the home environment, child temperament, SES, and gender? The associations between friendships and personality in adolescence are complex, particularly with respect to socialization effects (see the review by Wrzus & Neyer, 2016), but at least some studies have suggested that higher friendship quality might be related to lower neuroticism as we tentatively hypothesized.

To examine these research questions, we needed data surveying a very long developmental period, ranging from early childhood to adulthood. We thus made use of a unique longitudinal study that followed the same individuals from age 1 to 29 years (the study is still ongoing, see e.g., Syed et al., 2020; Wängqvist et al., 2015). The study comprised multiple assessment phases and modalities (observations, parental ratings, self-reports). Although the same sample was used by Syed et al. (2020) and Wängqvist et al. (2015), these studies examined different research questions.

## PARTICIPANTS AND PROCEDURE

### PARTICIPANTS

The Gothenburg (Sweden) Longitudinal study of Development (GoLD) was started in 1981 by the fourth and fifth author, who have both been involved in all waves since the start. The second author has been the project leader since the eight wave and the first author has been involved in the study since that same

wave, ensuring deep understanding of the study, available materials, and previous investigations. At the onset 144 children (72 girls) aged between 1 and 2 years participated in the study together with their parents (Lamb et al., 1988a; Wängqvist et al., 2015). The participants came from a variety of socioeconomic backgrounds and were firstborn children whose parents lived together. By the time of the first assessment, the children averaged 15.98 months of age ( $SD = 2.9$  months,  $Mdn = 16$  months). In the second wave, the children averaged 2.3 years of age and 138 of the original sample participated in the home observational assessments included in the present investigation. In the latest wave (Wave 9), the average age of the remaining 124 participants was 29.3 years (retention was thus 86% over this almost 30-year period). One participant did not answer the relevant questionnaire at Wave 9, and there were 118 participants (on average 15.2 years old) who answered the questionnaire from Wave 6, so the regression analyses in the present study involved 123 participants or fewer. There were few differences in the study variables between the participants participating in all waves ( $n = 77$ ) and the participants who were missing from one or more waves ( $n = 67$ ), although more women (45/72) than men (32/72) participated in all waves,  $\chi^2(1, N = 144) = 4.77, p = .030$ , and the participants who took part in all waves had somewhat higher extraversion scores ( $M = 3.52, SD = 0.70$ ) than those who did not ( $M = 3.27, SD = 0.68$ ),  $t(121) = 2.02, p = .046, d = 0.36$ .

## MEASURES

*Self-reported personality traits in adulthood.* A Swedish version (Zakrisson, 2010) of the Big Five Inventory (BFI; John et al., 2008) was used at age 29 years to assess personality traits. The self-report questionnaire has 44 items designed to capture core aspects of each of the Big Five traits. Participants rated phrases on a 5-point scale with options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The reliability and concurrent validity of this scale in this sample have been reported elsewhere (Wängqvist et al., 2015), and descriptive statistics are presented in Table 1.

*Observed stimulation and support in the home in early childhood.* The infancy version of the Home Observation for Measurement of the Environment (HOME; Caldwell, 1970) was used in Waves 1 and 2 to measure, within a naturalistic context, the quality and quantity of stimulation and support available to the child in the home. The HOME consists of 45 items concerning the parents' emotional and verbal responsiveness (e.g., "Parent caresses or kisses child at least once"), acceptance of child's behavior (e.g., "Parent does not scold or criticize child during visit"), organization of environment (e.g., "Child has

a special place for toys and treasures"), provision of play materials (e.g., "Simple eye-hand coordination toys"), parental involvement with child (e.g., "Parent talks to child while doing household work"), and opportunities for variety (e.g., "Family visits relatives or receives visits once a month or so") which are presented as statements to be scored as "yes" or "no". We considered a total score in our analyses as this has been the practice in previous studies and limited the number of dependent variables included in the study (see Lamb et al., 1988b for a summary of studies showing the reliability and validity of the total score). The total scores could vary between 0 and 45 with higher scores reflecting higher quality of the home environment. For the analyses, the total HOME scores at Waves 1 and 2 ( $r = .44, p < .001$ ) were combined to yield a mean HOME score.

The observations at Wave 1 and 2 were performed by two trained clinical child psychologists and one trained teacher. Their training involved observations using videotapes and pilot study participants until the reliability criterion of 80% exact agreement was reached. When the data collection started, 15% of the observations were performed by two of the observers simultaneously and independently. Lamb et al. (1988b) reported that reliability coefficients were within 5% of the criterion level in all of these reliability assessments.

*Self-reported best friendship quality in adolescence.* The Friendship Quality Questionnaire (FQQ; Parker & Asher, 1993) was used in Wave 6 (age 15) to measure how the participants perceived the quality of their best friendship in adolescence. (Importantly, it was the participants' view of their best friendship, so we do not know whether the friendship was reciprocal or unilateral.) The FQQ is a 40-item instrument (e.g., "[Named friend] and I make each other feel important and special", "[Named friend] and I are always telling each other about our problems"). Ratings were made on a 5-point scale with options ranging between 0 (*not at all true*) and 4 (*really true*). We used a total FQQ score (following procedures previously used by Campbell et al., 2000). Higher scores on the FQQ reflect higher quality best friendships.

## COVARIATES

Three variables were used as covariates in our analyses. First, we used maternal ratings of temperament in childhood using the Infant Behavior Questionnaire (IBQ; Rothbart, 1981) at Wave 1 to measure the children's temperament. The instrument has 94 items that are rated on a 7-point scale using options ranging from 1 (*never*) to 7 (*always*). Following Frodi et al. (1982) and others (Lamb et al., 1988a), who used this scale in Sweden, we computed a total score for perceived difficulty by adding the IBQ score for anger-

frustration (e.g., “How often did the baby seem angry [crying and fussing] when you left her/him in the crib?”) to the inverse of the scores for positive emotionality (e.g., “How often during the last week did the baby: laugh aloud in play?”), and for soothability (e.g., “Have you ever tried any of the following soothing techniques in the last two weeks? If so, how often did the method soothe the baby? Rocking/holding/walking, etc.”) before dividing by 3. This composite was used to assess maternal ratings of the child’s difficulty, with higher scores (potential range 1-7) indicating that the child’s temperament was perceived to be difficult. Second, assessments of the occupation and education of the mother and the father at Wave 1 were combined to yield a mean SES score ( $r = .52, p < .001$ ). The SES scores could range between 8 and 66 with higher scores indicating higher SES. Third, the children’s gender was also noted (1 – male, 2 – female).

29 years ( $r = .21, p = .022$ ). With the exception of this result, a difficult temperament was virtually unrelated to the other variables and the association with neuroticism became non-significant ( $b = .16, p = .112$ ) in the multivariate analysis,  $F(5, 102) = 2.15, p = .065, R^2 = .10$ . Personality traits in adulthood were related significantly to gender. In particular, women were less open to experience but more extraverted, agreeable, conscientious, and neurotic than men were. Moreover, agreeableness in adulthood was related positively to the parents’ SES at the first measurement occasion in both the simple correlations and the multivariate analysis ( $b = .22, p = .017$ ), suggesting that higher SES in childhood was associated with more agreeableness in adulthood. With this one exception, SES was not significantly related to the other variables. Stimulation and support in the home in early childhood and best friendship quality in adolescence were unrelated to each other.

To address our research questions, we first examined the zero-order correlations between early stimulation and support and best friendship quality in adolescence, on the one hand, and the Big Five personality traits on the other. We followed those analyses with a series of regressions, in which we modeled variation in the five personality traits as a function of the predictor variables (stimulation and support in the home and best friendship quality) while controlling for the

## RESULTS

### DESCRIPTIVE ANALYSES

Table 1 reports descriptive statistics and correlations among all study variables. Adults who were rated by their mothers as having a difficult temperament in childhood reported more neuroticism at the age of

**Table 1**

*Correlations among all study variables*

Variable	1	2	3	4	5	6	7	8	9	10
1. Extraversion in adulthood	–									
2. Agreeableness in adulthood	.08	–								
3. Conscientiousness in adulthood	.12	.25**	–							
4. Neuroticism in adulthood	–.30**	–.14	–.16	–						
5. Openness to experience in adulthood	–.02	–.08	–.12	.15	–					
6. Temperament in childhood	–.01	–.02	–.05	.21*	–.09	–				
7. Childhood stimulation and support in the home	.03	.20*	–.09	–.09	.28**	.02	–			
8. Best friendship quality in adolescence	.31**	.35***	.23*	.09	.01	–.04	–.03	–		
9. Gender	.18*	.23*	.22*	.21*	–.19*	.14	–.01	.53***	–	
10. Socioeconomic status in childhood	.16	.20*	.07	–.15	.07	–.09	.13	–.01	–.03	–
<i>M</i>	3.42	3.92	3.79	2.54	3.51	2.58	37.14	15.34	–	42.47
<i>SD</i>	0.70	0.50	0.53	0.68	0.67	0.47	3.27	4.21	–	12.13

Note. Samples sizes ranged from 108 to 144. Gender: 1 – male, 2 – female. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

covariates (child temperament, SES, gender). All predictor variables and covariates were mean-centered prior to inclusion in the regression analyses.

#### EARLY STIMULATION AND SUPPORT IN THE HOME AND ADULT PERSONALITY

With regard to the first research question (concerning the associations between stimulation and support in the home in early childhood and adult personality), the initial zero-order correlations (Table 1) showed that higher stimulation and support in the home was significantly associated with higher scores for agreeableness ( $r = .20, p = .024$ ) and openness to experience ( $r = .28, p = .002$ ) in early adulthood, but not with the other three traits. These initial correlational analyses were followed by multivariate regression analyses for each of the five traits.

Results from the multivariate regression analyses (Table 2) showed that when best friendship quality, temperament, SES, and gender were held constant, stimulation and support in the home in early childhood did not predict extraversion. Whereas the zero-order correlations revealed a significant positive association between early stimulation and support and agreeableness (see Table 1), the predictive power of stimulation and support in the home attenuated in the multivariate analysis and did not reach statistical significance. As in the zero-order correlations, there was no association between stimulation and support in the home and conscientiousness in the multivariate analyses, and the same held for neuroticism. Holding all other variables constant, the quality of the home environment significantly predicted openness to experience ( $b = .32, p = .001$ ).

#### BEST FRIENDSHIP QUALITY IN ADOLESCENCE AND ADULT PERSONALITY

For the second research question (concerning best friendship quality and adult personality), the initial zero-order correlations (Table 1) showed that higher friendship quality in adolescence was significantly associated with higher scores for extraversion ( $r = .31, p = .001$ ), agreeableness ( $r = .35, p < .001$ ), and conscientiousness ( $r = .23, p = .018$ ) in adulthood, but not for neuroticism or openness to experience. We followed up these initial correlational analyses with multivariate regression analyses for each of the five traits.

The multivariate regression analyses (Table 2) showed that when stimulation and support in the home, temperament, SES, and gender were held constant, best friendship quality in adolescence significantly predicted individual differences in extraversion ( $b = .29, p = .009$ ) and agreeableness ( $b = .32, p = .002$ ) at the age of 29 years. Although the overall

regression model was significant,  $F(5, 102) = 2.42, p = .041, R^2 = .11$ , friendship quality did not predict conscientiousness. Thus, the significant positive zero-order association between friendship quality and conscientiousness (Table 1) did not hold in a multivariate case, and there were no significant associations between best friendship quality and either neuroticism or openness to experience.

### DISCUSSION

The aim of this study was to explore associations between early stimulation and support in the home and best friendship quality in adolescence, on the one hand, and adult personality on the other while controlling for the possible effects of child temperament, SES, and gender.

The first research question concerned the relations between early stimulation and support in the home and personality traits in early adulthood. There were few significant associations after controlling for other important factors (such as child temperament, SES, gender) but openness to experiences in adulthood was associated with higher levels of stimulation and support in early childhood. Perhaps stimulation and support in the home reinforced curiosity and creativity in ways that made these traits persist, in the form of openness to experience, over longer periods. In a similar long-term longitudinal study, Galler et al. (2013) found associations between children's experiences of maternal depression in childhood and their openness to experiences in adulthood, particularly intellectual curiosity. However, we did not predict this association based on previous research on parental styles (maternal over-reactivity and maternal warmth, specifically), which instead indicated that lower stimulation and support in the home would predict lower conscientiousness (de Haan, 2013; Van den Akker et al., 2014). One explanation for this difference might be related to differences between the studies with respect to ages and age spans. Moreover, stimulation and support in the home as we measured it observationally involves more than just maternal behavior, and our findings suggest that future studies might profitably explore more aspects of early experiences than parenting styles. It is also noteworthy that there were no significant associations with adult agreeableness, extraversion, conscientiousness, and neuroticism. This could be due to the earlier stabilization of personality traits (e.g., Roberts & DelVecchio, 2000; Wängqvist et al., 2015). Actually, openness to experience (along with extraversion) is part of the metatrait that DeYoung (2015) labeled plasticity and may thus adjust more flexibly to the context as suggested by the associations we found.

The second research question concerned the relation between adolescents' self-reported best friend-

**Table 2***Regression results: predictors of the Big Five personality traits in adulthood*

	Control variables			Focal predictors	
	Gender	Socioeconomic status in childhood	Temperament in childhood	Stimulation and support in the home in childhood	Best friendship quality in adolescence
<b>Extraversion</b>					
<i>b</i>	0.08	0.01	< 0.01	< 0.01	0.05
<i>SE</i>	0.16	< 0.01	< 0.01	0.02	0.02
95% CI	-0.23; 0.39	< -0.01; 0.02	< -0.01; < 0.01	-0.04; 0.04	0.01; 0.09
$\beta$	.05	.17	< .01	.01	.29
<i>p</i>	.627	.072	.980	.959	.009
<b>Agreeableness</b>					
<i>b</i>	0.08	0.01	< 0.01	0.02	0.04
<i>SE</i>	0.11	< 0.01	< 0.01	0.02	0.01
95% CI	-0.13; 0.29	< 0.01; 0.02	< -0.01; < 0.01	< -0.01; 0.05	0.01; 0.07
$\beta$	.08	.22	< .01	.15	.32
<i>p</i>	.434	.017	.984	.105	.002
<b>Conscientiousness</b>					
<i>b</i>	0.22	0.01	< -0.01	-0.01	0.02
<i>SE</i>	0.11	< 0.01	< 0.01	0.02	0.01
95% CI	-0.01; 0.45	< -0.01; 0.01	< -0.01; < 0.01	-0.04; 0.02	-0.01; 0.04
$\beta$	.21	.12	-.07	-.08	.12
<i>p</i>	.015	.022	.456	.427	.283
<b>Neuroticism</b>					
<i>b</i>	0.21	-0.01	< 0.01	-0.01	< 0.01
<i>SE</i>	0.15	0.01	< 0.01	0.02	0.02
95% CI	-0.08; 0.50	-0.02; < 0.01	< 0.01; < 0.01	-0.05; 0.03	-0.04; 0.04
$\beta$	.16	-.16	-.04	-.04	< .01
<i>p</i>	.159	.090	.112	.645	.996
<b>Openness</b>					
<i>b</i>	-0.35	< 0.01	< -0.01	0.07	0.03
<i>SE</i>	0.15	0.01	< 0.01	0.02	0.02
95% CI	-0.65; -0.06	-0.01; 0.01	< -0.01; < 0.01	0.03; 0.11	-0.01; 0.06
$\beta$	-.26	.02	-.09	.31	.15
<i>p</i>	.020	.858	.349	.001	.174

*Note.* All predictor variables were mean-centered prior to inclusion in the regressions. For extraversion, the intercept in the model was 3.45 (*SE* = .07) and the *R*<sup>2</sup> was .13, *F*(5, 102) = 2.94, *p* = .016. For agreeableness the intercept in the model was 3.89 (*SE* = .05) and the *R*<sup>2</sup> was .20, *F*(5, 102) = 5.16, *p* < .001. For conscientiousness the intercept in the model was 3.82 (*SE* = .05) and the *R*<sup>2</sup> was .11, *F*(5, 102) = 2.42, *p* = .041. For neuroticism the intercept in the model was 2.51 (*SE* = .06) and the *R*<sup>2</sup> was .10, *F*(5, 102) = 2.15, *p* = .065. For openness to experience the intercept in the model was 3.47 (*SE* = .06) and the *R*<sup>2</sup> was .12, *F*(5, 102) = 4.04, *p* = .002.



ship quality and their self-reported personality traits in early adulthood. We found significant positive associations between best friendship quality in adolescence and both extraversion and agreeableness, but not with conscientiousness, neuroticism, or openness to experiences. The associations between best friendship quality and extraversion and agreeableness may reflect the fact that these traits involve individual differences in (pro-) social experiences and behaviors, suggesting that best friendships may serve as adaptive “platforms” for normative personality development. Previous studies have reported inconsistent socialization effects (Wrzus & Neyer, 2016) mainly involving associations between friendship quality and reduced neuroticism which were not replicated across the longer time span (and using a somewhat different friendship quality measure) in the present study. The associations found in the present study may have reflected selection effects, with individuals who were already highly agreeable and extroverted in adolescence reporting higher quality best friendships. Indeed, Wrzus and Neyer (2016) noted that friends often showed similar levels of extraversion and agreeableness, and that more extraverted individuals have both more friends and higher quality friendships. Interestingly, our findings in relation to the second research question may not be related to the metatraits of stability (agreeableness, conscientiousness, and neuroticism) and plasticity (extraversion and openness to experience) because best friendship quality was related to one of the more stable traits, agreeableness, and one of the changeable traits, extraversion. Along with prior findings, ours indicate that friendships relate to personality in different ways depending on the span of years involved and the aspect of friendships studied.

Though the sample size was relatively small, it is noteworthy that this study followed the same individuals from age 1 to 29. This long-term longitudinal design allowed us to follow the same individuals from early childhood into adulthood and to investigate how early stimulation and support in the home and best friendship quality in adolescence predict adult personality. In addition, the study involved multiple informants and measurement modalities, meaning that we derived measures of stimulation and support in the home and adult personality from different sources, thereby reducing problems associated with shared method variance. During the timeframe that this study covers (almost 30 years from ages 1 to 29), individuals are exposed to many environments and engage in a variety of relationships; the correlational and descriptive nature of the study makes it difficult to reach conclusions about the directions of effects. However, the large age span covered in the study also added to the value of the findings, as the associations persisted over long time spans in spite of the many factors that inevitably affected these individuals dur-

ing the period studied. Secondary analyses, such as those reported here, are inevitably constrained by distant methodological decisions, including those about when constructs were measured and the sample size. We thus chose to use robust variables from waves that were considered relevant from a developmental perspective.

It is important to note that many of the analyses did not reveal significant associations, that there is dearth of research investigating these long-term associations, and that previous findings have not been consistent. Our findings suggest that stimulation and support in the home may have consequences for openness to experience, and that best friendship quality may be related to agreeableness and extraversion, but, until replicated, also call for caution when making assumptions about the influence of earlier experiences on adult personality. We hope that our study will encourage researchers to investigate these issues further, both by planning similar long-term longitudinal studies (in spite of the many challenges associated with such endeavors) and by making the best use possible of available longitudinal datasets.

Building on holistic and transactional models of human development (Bronfenbrenner, 1979; Magnusson & Stattin, 2006) highlighting how personality traits both affect and are affected by individuals’ experiences in their environments (Wood & Denissen, 2015) we set out to shed some light on associations between experiences in two developmentally salient contexts, the home in early childhood and best friendships in adolescence. To summarize our findings, higher levels of stimulation and support in the home were related to higher levels of openness to experience in adulthood and higher best friendship quality in adolescence was related to higher levels of agreeableness and extraversion in adulthood. For many of the Big Five traits there were no associations, adding to extant suggestions that personality traits are quite stable from an early age.

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