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Children’s Early Difficulty and Agreeableness in Adolescence: Testing A Developmental Model of Interplay of Parent and Child Effects

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Abstract

Although the trait of Agreeableness is broadly considered a key facet of adjustment, mental health, and socioemotional competence, surprisingly little is known about its developmental origins. Laursen and Richmond (2014) proposed that children’s early difficulty poses a challenge for their future social relationships, ultimately leading to low Agreeableness. Drawing from that model, we examined a path to Agreeableness in adolescence, originating in children’s early temperamental difficulty and involving bidirectional effects of parenting and children’s self-regulation. In a community sample of 102 mothers, fathers, and children, we assessed children’s difficulty at age 3, and parental power-assertive discipline and children’s self-regulation at ages 4.5 and 5.5, using behavioral observations in lengthy interactive contexts and in standard laboratory paradigms. Agreeableness at age 14 was modeled as a latent construct, derived from mothers’, fathers’, and teachers’ ratings. Model-fitting analyses, testing the unfolding developmental path from child difficulty to Agreeableness while controlling for continuity of parental power assertion and child self-regulation, supported a process linking early difficulty with Agreeableness at age 14 through transactions over time between the child’s self-regulation and power-assertive parenting. The findings highlight the early dynamics of children’s temperament characteristics and parenting in the origins of Agreeableness.

Keywords

Agreeableness; Difficult temperament; Parental control; Self-regulation; Longitudinal studies

Agreeableness, one of the Big Five, has been increasingly recognized as an important facet of adjustment, mental health, and the quality of one’s social relationships, but its developmental origins are much less well understood than those of Neuroticism, Extraversion, or Conscientiousness. Agreeableness encompasses a range of desirable and adaptive interpersonal qualities. Individuals with high scores are described as cooperative, considerate, empathic, close to others, generous, prosocial, trusting, polite, pleasant, well regulated, kind, friendly, compliant, warm, and getting along well with others (parents, teachers, peers, coworkers, and other social partners). Those with low scores, or disagreeable, are described as selfish, hostile, unlikeable, unkind, rude, spiteful, stubborn, suspicious, willful, strident, antagonistic, and unpleasant (Caspi & Shiner, 2006; Graziano,

1994; Graziano & Eisenberg, 1997; Laursen, Pulkkinen, & Adams, 2002; Laursen & Richmond, 2014; Shiner, 1998; Shiner & Caspi, 2012). Agreeableness in children and youths has been associated broadly with positive developmental outcomes; low scores, or Disagreeableness, have been shown to have unique associations with widely-ranging symptoms of psychopathology and externalizing and internalizing behavior problems (Laursen, Hafen, Rubin, Booth-LaForce, & Rose-Krasnor, 2010; Laursen, Pulkkinen, & Adams, 2002).

In contrast to the other Big Five, Agreeableness is generally not included in child temperament questionnaires, perhaps because those questionnaires tend to target characteristics that have robust genetic substrates, and Agreeableness is considered to be most strongly influenced by environmental, rather than genetic, factors (Laursen et al., 2002). Its genetic substrates are relatively less robust and less well understood (Lo et al., 2016; Power & Pluess, 2015). Consequently, we know much less about its childhood antecedents and factors that account for individual differences than we do about many temperament traits (Shiner & Caspi, 2003; Rothbart & Bates, 2006).

And yet, the studies that assessed Agreeableness in childhood and adolescence indicate that it is an influential and salient trait. As examples, Laursen et al. (2010) collected self-, mother- and peer-reports for 224 adolescents, drawn from several cohorts between 2002 and 2007, across two assessments (in 8th and 9th grades). Disagreeable youths were a distinct group, characterized by the highest levels of concurrent and prospective adjustment problems. Van Lieshout and Haselager (1994) examined multi-study data for approximately 1000 children and adolescents (a combination of self, mother, father, and friend data from California Child Q-Set, CCQ, Block & Block, 1980). The Agreeableness factor emerged as the most robust personality dimension across ages, genders, and informants.

The existing sparse literature on developmental roots of Agreeableness has mainly focused on two sets of factors, child- and parent-related. Child factors encompass temperamental difficulty and poor self-regulation. Parental factors encompass various qualities of parent-child relationships.

Difficulty has been often seen as key in (Dis)Agreeableness (Graziano, 1994; Laursen & Richmond, 2014). The concept of difficulty, or difficult temperament (Thomas & Chess, 1977), prominent in developmental research, is notoriously broad and encompasses a variety of hard-to-manage child characteristics, including high negative emotionality, negative mood, anger proneness, resistance to control, and defiance (Bates, 1980; Rothbart & Bates, 2006; Sanson, Hemphill, & Smart, 2004).

Various aspects of children's self-regulation have also been often linked to future Agreeableness (Ahadi & Rothbart, 1994; Caspi & Shiner, 2006; Cumberland-Li, Eisenberg, & Reiser, 2004; Graziano & Eisenberg, 1997; Laursen et al., 2002; Jensen-Campbell et al., 2002; Rothbart & Bates, 2006; Shiner & DeYoung, 2013). Like difficulty, self-regulation is a broad concept that encompasses multiple emotional, cognitive, and behavioral characteristics ("self-regulation universe", Nigg, 2017).

Note that both themes reflect the qualities that define Agreeableness. Anger proneness, negative emotionality, resistance, stubbornness, aggressiveness, antagonism, unpleasantness, and conflict-prone social behavior of disagreeable individuals reflect many qualities characteristic of temperamental difficulty. Likewise, well self-regulated emotions and conduct, typical for agreeable individuals, reflect self-regulation. Therefore, it is not surprising that researchers have focused on those two themes, seeking to elucidate early antecedents or early manifestations of the trait of Agreeableness. But as valuable as that research is, it illustrates *developmental continuity* in certain child characteristics; it does not explain *developmental processes* that involve a complex interplay of dispositional characteristics and environmental influences unfolding over time and leading to individual differences in Agreeableness (Caspi & Shiner, 2006; Roberts & Pomerantz, 2004).

Both positive and negative features of parenting have also been linked with children's Agreeableness (Hagekull & Bohlin, 1998; Schofield et al., 2012; Young, Simpson, Griskevicius, Huelsnitz, & Fleck, 2019). Note that large amount of parenting research has pertained to its various aspects, such as prosociality, empathy, kindness, cooperation, and positive, well-regulated social relationships (e.g., Eisenberg, Spinrad, & Knafo-Noam, 2015; Killen & Smetana, 2015; Shaver, Mikulincer, Gross, Stern, & Cassidy, 2016; Thompson, 2015). However, the literature focusing specifically on the trait of Agreeableness – presumably, a latent shared substrate underlying and integrating many of those multiple behavioral and emotional manifestations – is quite sparse. Consequently, research that approaches Agreeableness as a key personality outcome of development is a useful enterprise. It could provide a valuable integration of developmental research now conducted in multiple domains of child functioning, and it could help bridge that research with the field of adult personality.

Seeking to integrate the extant literatures in a comprehensive, transactional, and developmentally informed framework that highlights dynamics of processes leading to (Dis)Agreeableness, Laursen and Richmond (2014) proposed a conceptual transactional model of its early origins, unfolding in the context of early social relationships. In that model, the child's early temperamental difficulties, particularly those that are manifested as anger, under-control, resistance to parental influence, and negativity lead to growing relationship troubles, including the increasingly coercive, adversarial, and conflict-ridden social relationships. As negative experiences accumulate, children's emotion regulation and self-regulation strategies also deteriorate, further worsening their social transactions and exacerbating interpersonal difficulties. Then in middle childhood, a behavioral profile of low compliance and self-control, and high aggression forecasts future low Agreeableness (Laursen et al., 2002).

Although Laursen and Richmond (2014) emphasized the child's relationships with peers in the path to (Dis)Agreeableness, they pointed out that “difficultness poses significant challenges to the development of parent-child and peer relationships” (p. 146). In the current article, we draw from that model, examining parent and child effects in the unfolding developmental path that originates with early child difficulty. This approach is consistent with current transactional, reciprocal view of bidirectional parent-child influences, largely accepted in developmental psychology (Bell, 1968; Bell & Chapman, 1986; Kuczynski &

De Mol, 2015; Maccoby, 1992; Sameroff & MacKenzie, 2003; Sanson, Hemphill, & Smart, 2004). Children's difficulty is seen as evoking or eliciting parents' negative control, which in turn, leads to detrimental effects on children's future regulation. This, in turn, may be associated with more parental forceful socialization, and the continuing adversarial cycle, resulting in future personality traits associated with (Dis)Agreeableness.

Consistent with Laursen and Richmond (2014), Baardstu, Karevold, and van Soest (2017) found a significant association between parent-reported childhood difficulty at age 4 and Agreeableness in adolescence that was mediated by child-reported emotion and behavior regulation in preadolescence. Moreover, this effect was primarily found at high levels of mothers' self-reported punitive parenting. These findings highlight the importance of poorly maturing regulatory skills and maladaptive parenting practices in explaining how early child difficulty engenders later Disagreeableness. The current study extends this work by examining behaviorally child difficulty at toddler age and their self-regulation and parental control at preschool and kindergarten age, and by testing whether transactional associations between child characteristics and parental control forecast Agreeableness in adolescence. We propose and test a bidirectional, transactional model that includes both the effects of child characteristics (early difficulty and future self-regulation) and the effects of parental power-assertive control. The model is depicted in Figure 1.

Multiple bodies of research have supported the postulated paths. Child difficulty has been associated with subsequent parental increased power-assertive control and poor self-regulation; power assertion often exacerbates children's difficulty and behavior problems over time (Bates, Schermerhorn, & Petersen, 2012; Dadds & Salmon, 2003; Dishion & Patterson, 2006; Lipscomb et al., 2011; Pardini, 2008; Pettit & Arsiwalla, 2008; Rothbart & Bates, 2006; Scaramella & Leve, 2004; Shaw & Bell, 1993). Parental power-assertive control is detrimental to children's future self-regulation; and poor self-regulation, in turn, has been associated with increased parental power assertion (Colman, Hardy, Albert, Raffaelli & Crockett, 2006; Kiff, Lengua, & Zalewski, 2011; Karreman, van Tuijl, van Aken, & Dekovic, 2006; Kochanska & Knaack, 2003; Tiberio et al., 2016; Valcan, Davis & Pino-Pasternak, 2018). To our knowledge, however, this is the first study to apply this transactional model to the development of (Dis)Agreeableness in adolescence, and to test predictions from measures assessed as early as the toddler age.

We adopted a multi-method approach. Child difficulty, parental control, and child self-regulation were all assessed using rich behavioral observations of parents and children in naturalistic and structured home and laboratory paradigms. We obtained informants' ratings of youths' Agreeableness at age 14. Tackett (2011) argued for using child personality ratings from both parents; consequently, we obtained ratings from mothers and fathers. Because teachers can contribute additional important information about the child's functioning in an ecology outside the home, we also included their ratings. The ratings from all three informants were moderately coherent, and therefore, we derived a latent Agreeableness construct based on those scores.

Method

Participants

One-hundred and two two-parent, intact families of infants, living in a Midwestern college town, a nearby small city and surrounding rural areas, volunteered for our longitudinal study, advertised broadly in the community with flyers and posters. The infants were born mostly in 2001 and entered the study at 7–9 months. The eligibility criteria specified that the two parents live together, both willing to participate and speak English during sessions; that the infant be typically developing and a biological child; and that the family have no plans to move in the next five years. Demographic characteristics varied: 25% of mothers and 30% of fathers had no more than a high school education, 54% of mothers and 51% of fathers had an associate or college degree, and 21% of mothers and 20% of fathers had a postgraduate education. In terms of income, 8% of families made less than \$20,000 per year, 17% made between \$20,000 and \$40,000, 26% made between \$40,000 and \$60,000, and 49% made over \$60,000 (in 2001, median household income in the United States was \$42,228). In terms of ethnic background, 90% of mothers and 84% of fathers were White, 3% of mothers and 8% of fathers Hispanic, 2% of mothers and 3% of fathers African American, 1% of mothers and 3% of fathers Asian, 1% of mothers Pacific Islander, and 2% of mothers and fathers reported Other. In 20% of families, at least one parent was not White.

Overview of Design

In this article, we report data on child difficulty (age 3, $N=100$, 50 girls), on parental power assertion and child self-regulation (both at age 4.5, $N=99$, 49 girls, and at age 5.5, $N=92$, 45 girls), and youth Agreeableness (age 14, $N=73$, 34 girls). Additionally, child gender served as a covariate. Prior to age 14, all data were collected during observational mother–child and father–child sessions, 2–4 hours long, parallel for both parents, conducted by female experimenters (Es), typically within 2–3 weeks. The sessions were video-recorded. The sessions were in a university laboratory (at age 3, sessions were at home and in the laboratory). At age 14, we collected mothers', fathers', and teachers' reports of youths' Agreeableness. The University of Iowa IRB approved the study (Developmental Pathways to Antisocial Behavior: A Translational Research Program, 200107049). We obtained parents' informed consents and, once children reached age 7, their assents.

Behavioral data were coded from videos. Reliability was typically established on 15–20% of cases, followed by frequent realignments to prevent observer drift. We used kappas, weighted kappas, and alphas or intra-class correlations, ICCs (note that the best practices have evolved over the course of the study). Many published articles contain details of our constructs and measures and are referenced where appropriate.

Measures

Children's Difficulty, Age 3.—Children's difficulty encompassed their defiance, observed in discipline contexts, negative affect, observed in naturalistic interactions with the parents, and anger expressed in a standard laboratory paradigm. Defiance was observed in control contexts (total 42 min with each parent) that encompassed typical parental demands (a mundane chore of putting toys away, staying away from attractive, but off-limits toys).

Children's defiance was coded for every 30-sec segment as highly negative opposition toward the parent, combined with dysregulated anger, tantrums, kicking, throwing toys, hitting the parent, whining, or screaming. Reliability, kappas (calculated for a broader set of coded child behaviors), ranged from .65 to .80. We tallied children's defiance codes and divided by the total number of coded segments with each parent. Those scores were standardized and averaged across the contexts into an overall defiance score with each parent, $M = .00$, $SD = .84$, range $-.47 - 5.35$, $N = 99$, with mothers, and $M = .00$, $SD = .83$, range $-.45 - 4.73$, $N = 99$, with fathers. Details of the coding are in earlier publications (e.g., Brock & Kochanska, 2019).

Children's negative affect toward the parent was observed in multiple scripted, naturalistic interactive contexts (e.g., snack, play, free time, baking and decorating cupcakes; 77 min with each parent). Negative affect was coded for every 30-sec segment as neutral negative mood (subtle signs of fatigue, boredom, or discomfort) or discrete negative affect (fussing, crying, distress, anger). The discrete emotions that were intense or pervasive were marked. Reliability, kappas (calculated for a broader range of child affects), ranged from .84 to .88. Tallies of neutral negative mood (multiplied by 1), discrete negative affect (multiplied by 2), and intense negative affect (multiplied by 3) were summed and then divided by the total number of segments coded. One score was produced for the child with each parent; $M = .08$, $SD = .13$, range $.00 - .92$, $N = 99$, with mothers, and $M = .06$, $SD = .09$, range $.00 - .50$, $N = 99$, with fathers. Those scores were then standardized.

Child anger expression was observed in a standard episode from the Laboratory Temperament Assessment Battery, Preschool Version (LAB-TAB, Goldsmith, Reilly, Lemery, Longley, & Prescott, 1993). Once the child became engaged with an attractive toy for about 1 min, E took the toy away, saying "I don't want you to play with it", and held it out of the child's reach for 30 sec (and then handed it back to the child). Child facial, vocal, and bodily anger expression was coded for every 5-sec segment. Latency to first anger expression was also coded. Kappas ranged from .58 to .95. Those codes cohered (Cronbach's alpha was .66), and thus were standardized and averaged into an overall anger composite, $M = .00$, $SD = .70$, range $-.70 - 1.72$, $N = 98$. For details, see Kochanska and Kim (2012).

All five constructs (defiance and negative affect with the mother, defiance and negative affect with the father, and anger in the LAB-TAB episode) cohered, Cronbach's alpha = .72. Thus, they were aggregated into the overall score of *child difficulty*. $M = .01$, $SD = .62$, range $-.58 - 2.65$, $N = 100$.

Parental Power Assertion, Age 4.5 and 5.5.—Each mother- and father-child dyad was observed in lengthy prohibition contexts (65 min at 4.5 years and 60 min at 5.5 years, total 125 min). For each 30-sec segment, coders assigned a global rating of parental power assertion and marked all power-assertive techniques (for details, see Kochanska, Barry, Stellern, & O'Bleness, 2009). The global ratings included: No interaction, social exchange (sociable interaction but no control), gentle guidance (parent hints, suggests), control (parent controls in an assertive, firm manner, with direct commands and prohibitions), and forceful, negative control (parent uses threats, negative, angry control, commands or prohibitions

issued in a raised or irritated voice). The physical techniques included assertive interventions (holding the child's hand firmly, physically preventing child from leaving the chore, blocking access to toys) and forceful interventions (yanking a toy away, handling the child roughly). Reliability, kappas, ranged from .68 to .92.

For each context, we tallied the instances of each global rating and each physical technique and divided by the number of coded segments. We then applied weights to those scores to reflect the increasing amount of applied power, as follows: -2 to no interaction, -1 to social exchange, 1 to gentle guidance, 2 to control, 3 to forceful control, 4 to physical assertive, and 5 to physical forceful. Those weighted figures were summed into one weighted power assertion composite for each parent. Mothers' and fathers' scores correlated: At age 4.5, $r(97) = .57, p < .001$, and at 5.5, $r(87) = .32, p = .003$, and were averaged into a *power-assertive parenting score*, one at age 4.5, $M = .01, SD = .90$, range -1.15 - 4.73, $N = 99$, and one at age 5.5, $M = .00, SD = .80$, range -1.25 - 3.96, $N = 91$.

Children's Self-Regulation, Ages 4.5 and 5.5.—We observed children's self-regulation in our well-established paradigms that called for delaying a desired behavior (opening a gift; Kim & Kochanska, 2019). All took place at the end of the long behavioral sessions in the laboratory (two at each age). At each time, there were two variants. In one (Gift Wrap and Bow), E brought the gift and wrapping paper, and asked the child to turn around and not peek until she finished nosily wrapping the gift for 1 min. Then she placed the gift on the table and asked the child to stay in his or her seat, not touch the gift, and wait until she brought the bow. E then left the room for 3 min and returned with the bow. In the other one (Gift in Bag), E brought a bag with the gift inside, and asked the child to stay in seat and not to touch until she returned with the bow (3 min).

Coding was strongly behaviorally based and required little inference. During Gift Wrap, child behavior was coded from 1 = "*fully*" looking while E was wrapping, to 5 = *never peeking*. During Bow, behavior was coded from 1 = *opens gift*, to 4 = *never touches*, and 1 = *in seat for less than 30 sec*, to 4 = *in seat for more than 2 min*. During Gift Bag, behavior was coded from 1 = *pulls gift from bag*, to 5 = *does not touch bag*, and 1 = *in seat for less than 30 sec*, to 4 = *in seat for more than 2 min*. The latencies to peek, to open, to leave seat, etc., were also coded. Reliabilities, kappas, ranged from .82 to .93, and alphas (for latencies) from .94 to 1.00. The final score for each paradigm represented a composite of standardized codes. The scores for two paradigms were correlated; at age 4.5, $r(99) = .66$, and at age 5.5, $r(91) = .67$, both $ps < .001$, and at each age, and were further aggregated into one self-regulation score at each age; at 4.5, $M = .00, SD = .83$, range - 4.35 - .95, $N = 99$, at 5.5, $M = .00, SD = .93$, range - 4.14 - .83, $N = 91$.

Youths' Agreeableness, Age 14.—Both parents and the youth's teacher rated their adolescent's Agreeableness using the 12-item Agreeableness scale (from 0 = *strongly disagree* to 4 = *strongly agree*) from NEO-FFI-3 (Costa & McCrae, 2010, Form R - Adolescent, Observer Rating). For mothers, $M = 35.84, SD = 5.94$, range 13 - 45, $N = 70$, Cronbach's alpha .80; for fathers, $M = 35.22, SD = 5.74$, range 18 - 45, $N = 65$, Cronbach's alpha .82; for teachers, $M = 34.81, SD = 6.82$, range 10 - 46, $N = 57$, Cronbach's alpha .90. Examples of items include: "He/she tries to be courteous to everyone he/she meets", "He/she

generally tries to be thoughtful and considerate”, “Some people think he/she is selfish and egotistical” (reversed).

Covariates.—Children’s gender was a covariate.

Results

Preliminary Analyses

The families for whom the Agreeableness ratings at age 14 were available did not differ significantly from those for whom the ratings were not available on any studied constructs, with one exception: Mothers (but not fathers) who provided Agreeableness ratings at age 14 had had lower power-assertive scores at age 5.5 (but not at age 4.5) than mothers whose ratings were missing, $M = -.12$, $SD = .84$, and $M = .42$, $SD = 1.38$, $t(88) = 2.15$, $p = .034$. Families that did and did not return at age 5.5 did not differ on any construct. Little’s MCAR test indicated that data were missing completely at random; $\chi^2 = 39.35$, $df = 51$, $p = .883$ (Little, 1988).

We first examined the Pearson correlations among the studied constructs (presented in Table 1). Children’s difficulty at age 3 was positively associated with power-assertive parenting and negatively associated with their self-regulation at both 4.5 and 5.5 years and with all three informants’ agreeableness ratings at age 14. Power-assertive parenting and child self-regulation were negatively associated, both concurrently and longitudinally. All associations between the three informants’ Agreeableness ratings and power-assertive parenting were negative, and with children’s self-regulation – positive (with one exception). All three informants’ Agreeableness ratings were positively related. Both power-assertive parenting and children’s self-regulation were longitudinally stable from age 4.5 to 5.5.

Main Analyses: Testing the Proposed Model of the Pathway from Child Difficulty at Age 3 to Agreeableness at Age 14

We tested the structural equation model in Mplus (Muthén & Muthén, 2012), using maximum likelihood estimation. Children’s difficulty at age 3 was modeled as an exogenous variable to two endogenous variables, parental power assertion and children’s self-regulation at age 4.5. Each of those two endogenous variables was estimated at 4.5 and at 5.5. The variables at 5.5, in turn, were modeled as influencing the final endogenous latent variable, children’s Agreeableness. The concurrent variables (power assertion and self-regulation, each at 4.5 and at 5.5) were modeled as correlated. We further estimated the paths from parental power assertion at age 4.5 to children’s self-regulation at age 5.5 and from children’s self-regulation at age 4.5 to parental power assertion at age 5.5.

The latent variable was constructed from three observed variables, mother-, father-, and teacher-reported youths’ Agreeableness at age 14. The standardized factor loadings for all three indicators ranged from .61 to .72, and all were significant, $p < .001$. Children’s gender was covaried. Given that data were missing completely at random, we adopted the full information maximum likelihood (FIML) method as missing data treatment.

Model fit was assessed by multiple fit indices, including Chi-square statistic, comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). The results of Chi square test did not reject the hypothesis of similarity between the observed covariance matrix and the predicted covariance matrix at the .05 alpha level, Chi-square = 19.046, $df=21$, $p=.58$. The other fit indices satisfied conventional criteria of a good fit; CFI = 1, TLI = 1.012, RMSEA = .000, and SRMR = .068 (Hu & Bentler, 1999; Steiger, 2007).

Figure 2 represents the results. Most of the direct paths and correlations were significant, except for the path from parental power assertion at age 4.5 to children's self-regulation at age 5.5 (marginal, $p = .07$) and the path from children's self-regulation at age 5.5 to children's Agreeableness at age 14 (marginal, $p = .06$). Children who had been more difficult at age 3 received more parental power assertion and had poorer self-regulation at age 4.5. Parental power assertion and child self-regulation at age 4.5 were significantly stable (each predicted its respective measure at age 5.5). The child's self-regulation at 4.5 was significantly associated with parental later power assertion at 5.5, but parental power assertion at 4.5 was not associated with the child's later self-regulation at 5.5. Parental power assertion at 5.5, but not the child's self-regulation at 5.5, significantly predicted Agreeableness at age 14.

There were two significant indirect sequential paths from child difficulty at age 3 to Agreeableness at age 14. One path was via first, parental power assertion at 4.5, and second, parental power assertion at 5.5, $b = -.10$, $SE = .04$, $p = .020$. The other path was first, via child self-regulation at 4.5, and second, parental power assertion at 5.5, $b = -.06$, $SE = .03$, $p = .0496$.

The indirect paths from child difficulty to Agreeableness via parental power assertion at 4.5 and child self-regulation at 5.5, $b = -.03$, $SE = .02$, and via child self-regulation 4.5 and then self-regulation at 5.5, $b = -.07$, $SE = .04$, were not significant.

Discussion

Given the key importance of the trait of Agreeableness for a broad range of children's, adolescents', and adults' social functioning, particularly in the context of interpersonal relationships, the dearth of developmental research that elucidates origins of individual differences is striking and surprising. The current state of the relevant literature is a bit paradoxical: Whereas large amount of research, much exceeding the scope of this article, has examined the development of separate components of Agreeableness, such as prosociality, cooperation, or social skills, very few studies have focused on developmental origins of Agreeableness, measured as a specific personality trait.

This study tested a developmental model of early origins of Agreeableness in a community sample of typically developing children, followed over 11 years, from toddler age to adolescence. We drew from Laursen and Richmond's (2014) theoretical proposal of the unfolding developmental path that begins with the child's early difficulty, which then leads to poor self-regulation and troubled relationships with parents and peers. Focusing on the

relationships with parents and child self-regulation, we tested a developmental model that incorporated continuity paths for the studied constructs and transactional dynamics of parent and child effects, consistent with the cascade perspective (Masten & Cicchetti, 2010), increasingly accepted in developmental psychology and psychopathology.

By and large, that model corresponded to our empirical data well. The child's toddler-age difficulty at age 3 was associated with two measures at preschool age (4.5 years): Parental power-assertive control – illustrating the transactional, evocative role of child early difficult traits, and the child's poor self-regulation – illustrating heterotypic continuity of regulatory characteristics. Both effects were consistent with extant bodies of literature on early difficult temperament. Multiple studies of child effects in socialization research have linked children's early negative emotionality, anger, and defiance with parents' increased harsh, power-assertive control (e.g., Scaramella & Leve, 2004; Taraban & Shaw, 2018), although those effects have sometimes been qualified by additional factors. As well, poor self-regulatory trajectory of difficult infants and toddlers has been well documented (e.g., Rothbart & Bates, 2006).

Child self-regulation at preschool age was further associated with parental power assertion at kindergarten age (5.5 years) – again illustrating a transactional, evocative link, or child effect. Additionally, parental power assertion continued from preschool into kindergarten age, and in turn, was associated with youths' Agreeableness, assessed as a latent construct in adolescence (at 14 years). Thus, high power assertion at kindergarten age was due both to its continued history in the parent-child dyad and to the history of the child's regulatory difficulties that likely evoked more forceful parenting.

Why was the path from parental power assertion at age 5.5 to Agreeableness significant, whereas the path from child self-regulation at the same age fell short of significance (at the trend level, $p = .06$)? The nature of the Agreeableness measure may be one possible reason. The measure came in large part from the parents' ratings of the child. Consequently, for parents who had engaged in more power assertion, child Agreeableness ratings may have reflected, at least to some extent, their view of the child as hard to manage and requiring relatively assertive discipline, and a view of their relationship as adversarial. It is possible that peers' ratings (which we did not collect) would have reflected also, or primarily, the child's regulatory capacities.

Our findings are consistent with Laursen and Richmond's (2014) description of the developmental process as triggered by a defiant, difficult, affectively negative, anger-prone toddler. Early child difficulty gave rise to two indirect paths to Agreeableness in adolescence. One was a sequential indirect path that depicted difficult toddlers as receiving more power-assertive parenting at preschool age, with power-assertive parenting continuing into kindergarten age and having long-term detrimental effects on Agreeableness. The other path depicted difficult toddlers as becoming poorly regulated preschoolers, who then again evoked more power-assertive parenting at kindergarten age (which in turn, as indicated, had long-term detrimental effects on Agreeableness).

The fact that the more poorly regulated preschoolers received more power assertion concurrently (at 4.5) and a year later was consistent with the transactional nature of the unfolding path. The evidence of transactions from parental power assertion at age 4.5 to child future self-regulation at age 5.5 was less clear (although at the level of a trend, $p = .07$). It is possible that our delay tasks were not as challenging to 5.5-year-olds as they were one year earlier, limiting our ability to detect effects of parenting.

The findings also suggest distinct roles of child characteristics and parenting that followed toddler-age difficulty at different points in the developmental trajectory to Agreeableness. Poor self-regulation at preschool age was a step on the path toward low Agreeableness, but this was not due to its continuity at kindergarten age (and presumably beyond), but rather to its evocative effect on parents' increased forceful, power-assertive control at kindergarten age, as posited by transactional models of development.

Future research should probe in more depth the processes involved, including constructs not measured in this study. For example, what emotional phenomena may be responsible for the observed relations? Children's anger is a likely candidate, and one that may emerge as a source of various effects at different points of the developmental trajectory. Anger proneness is a key characteristic of early temperamental difficulty; poor self-control is typically associated with deficient regulation of angry emotions; angry emotions often elicit parental power-assertive control, which then almost certainly elicits children's further anger and resentment. Finally, poorly regulated anger is associated with hostile attributional biases (Wong, Chen, & McElwain, 2019) and with resentful, hostile traits – some of the central characteristics of low Agreeableness.

This work has limitations. Most importantly, the sample was relatively small. This is often typical, and inevitable, in case of long-term longitudinal studies that rely on rich, labor-intensive, behaviorally coded data. Such methodology imposes constraints on what can be accomplished within typical funding limits. In our view, however, behavioral data have clear advantages in research in developmental psychology and psychopathology. Future research should replicate our findings in larger samples. The marginal effects we reported would likely become significant, supporting all the postulated paths.

The characteristics of our sample limit generalizability of our findings. The participants came from low-risk, two-parent community families, mostly White (although in 20%, at least one parent was non-White). The parents used very low levels of power assertion and children were generally well regulated. Nevertheless, the studied constructs were relatively well distributed, and the findings supported expected developmental dynamics. Future research with higher-risk families and children with elevated levels of behavior problems would be desirable and important.

Unfortunately, at age 14, we were only able to collect reports about the youths from parents and teachers, but unable to gather behavioral measures. Because adolescence is often a time of increased frequency of negative emotions and conflicts, studying associations of reported Agreeableness with measures of observed behavior would have been highly informative.

We chose to focus on one subset of self-regulation measures from our larger observational batteries – so-called “hot” measures, which involve hedonically appealing stimulus (gift) and require the child to delay a desired response (reaching, peeking, unwrapping). We did not include “cool” measures, which require set-shifting in Stroop-like tasks. Consequently, we tapped mostly the emotional, rather than cognitive component of self-regulation. Our previous work (Kim, Koenig Nordling, Yoon, Boldt, & Kochanska, 2013) indicated that “hot” measures are most predictive of personality characteristics or behavior problems. In the future, exploring a full range of self-regulatory capacities in the context of personality development would be useful.

Our study focused mostly on the low end of the Agreeableness trait, and it highlighted the developmental pathway of risk: Early child difficulty giving rise to a child poor self-regulation and negative parenting, ultimately reflected in Disagreeableness. This focus is relatively common, and it is also reflected in Laursen and Richmond’s (2014) model. In other words, we seem to know more about factors that forecast becoming an unpleasant, hostile, unkind, rude, spiteful, and antagonistic person than about factors that forge a path to becoming a kind, forgiving, socially gracious, and cooperative one. Future research, using assessment instruments that allow for separate measures of the high and low end of Agreeableness trait and for finer distinctions at the upper end (e.g., HEXACO, Ashton & Lee, 2019) may be very revealing, and may promote our understanding of adaptive, rather than maladaptive developmental paths.

We examined the amount of power-assertive parenting received by the child using measures that combined mothers’ and fathers’ scores. Those scores significantly cohered at both preschool and kindergarten ages, and therefore, those measures are reasonable indices of the overall disciplinary environment in the family. This approach, however, obscures potential differences between mother- and father-child relationships in the development of Agreeableness; to examine those differences is a worthy future goal.

Despite those limitations, this work provides useful initial insights into a significant gap in developmental and personality research. Very few studies have traced the early roots of adolescent Agreeableness to the early interplay between child temperament and parenting in the family, and, to our knowledge, no study has done using labor-intensive behavioral measures of children’s self-regulation and mothers’ and fathers’ power assertion, both assessed over time. Given the broad implications of (Dis)Agreeableness for children’s and adolescents’ social competence, adjustment, and mental health, we hope developmental and personality scholars will continue to study this exciting topic.

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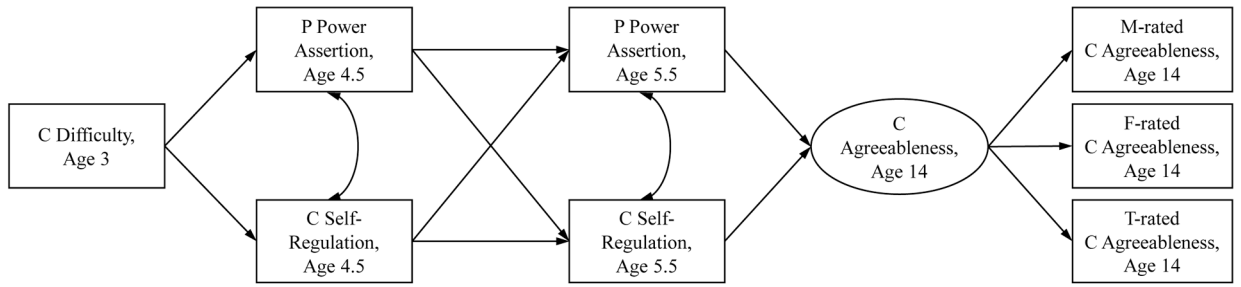


Figure 1. A Conceptual Model of the Paths from Child Difficulty at Age 3 to Agreeableness at Age 14

M= Mother, F= Father, T = Teacher, C = Child. P = Parent.

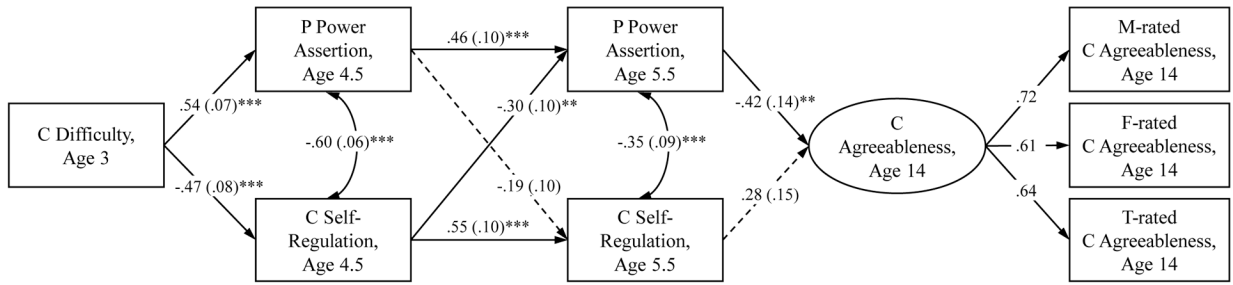


Figure 2. A Structural Equation Model Estimating the Effects of Child Difficulty At 3, Parental Power-Assertion at 4.5 And 5.5, and Child Self-Regulation at 4.5 and 5.5 on Agreeableness at 14 Factor loadings and structural coefficients are standardized scores (standard errors in parentheses). Solid lines represent significant effects (** $p < .01$, *** $p < .001$). Dashed lines represent nonsignificant effects. Although not depicted, child gender was covaried (child gender was significantly associated with Agreeableness, $b = -.39$, $SE = .11$, $p < .01$, with girls having higher scores).

Indirect effect: C Difficulty → P Power Assertion (Age 4.5) → P Power Assertion (Age 5.5) → C Agreeableness, $b = -.10$, $SE = .04$, $p < .05$.

Indirect effect: C Difficulty → C Self-Regulation (Age 4.5) → P Power Assertion (Age 5.5) → C Agreeableness, $b = -.06$, $SE = .03$, $p < .05$.

M= Mother; F= Father, T = Teacher, C = Child, P = Parent.

Table 1.

Correlations Among All Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Child Difficulty, Age 3	---	.54 ^{*****}	.41 ^{*****}	-.47 ^{*****}	-.31 ^{****}	-.35 ^{****}	-.25 [*]	-.42 ^{****}
(2) Parental Power Assertion, Age 4.5		---	.67 ^{*****}	-.70 ^{*****}	-.58 ^{*****}	-.40 ^{****}	-.33 ^{****}	-.38 ^{****}
(3) Parental Power Assertion, Age 5.5			---	-.62 ^{*****}	-.65 ^{*****}	-.42 ^{*****}	-.32 ^{****}	-.41 ^{****}
(4) Child Self-Regulation, Age 4.5				---	.69 ^{*****}	.28 ^{**}	.15	.40 ^{****}
(5) Child Self-Regulation, Age 5.5					---	.36 ^{****}	.25 [*]	.36 ^{****}
(6) Mother-reported Child Agreeableness, Age 14						---	.45 ^{*****}	.39 ^{****}
(7) Father-reported Child Agreeableness, Age 14							---	.46 ^{****}
(8) Teacher-reported Child Agreeableness, Age 14								---

Note:

* $p < .05$.

**

$p < .025$.

$p < .01$.

$p < .001$.