

ASUMAN BUYUKCAN-TETIK *VU University Amsterdam*CATRIN FINKENAUER *VU University Amsterdam**MEREL SIERSEMA *VU University Amsterdam***KARIN VANDER HEYDEN AND LYDIA KRABBENDAM *VU University Amsterdam****

Social Relations Model Analyses of Perceived Self-Control and Trust in Families

How do people know which family member is trustworthy? In this study, the authors tested the hypothesis that people use their perception of a family member's self-control as an indicator of his or her trustworthiness. Eighty-four Dutch families consisting of 2 parents and 2 children completed questionnaires assessing each family member's trust in and perceived self-control of the other 3 family members. This full-family design enabled the authors to examine their hypothesis in horizontal relationships, between family members of equal status (i.e., parent–parent and sibling–sibling relationships), and vertical relationships, in which partners have unequal status (i.e., parent–child

and child–parent relationships). Consistent with the hypothesis, Social Relations Model analyses showed that being perceived as having higher self-control is related to greater trustworthiness among adults and children in the large majority of horizontal and vertical relationships (10 out of 12). These findings highlight that perceived self-control is an important factor by which to gauge trustworthiness in families.

Interpersonal trust is a key factor for harmonious relationships. It is crucial for relationships between intimate relationship partners (Wieselquist, Rusbult, Forster, & Agnew, 1999), between parents and children (Kerr, Stattin, & Trost, 1999), and between siblings (Martin, Anderson, Burant, & Weber, 1997). Trust is associated with greater closeness, higher relationship quality, and more positive communication between the people who trust—*trusters*—and the people who are trusted—*trustees*. Previous research mostly has focused on how trust differs across family relationships (Buist, Dekovic, Meeus, & van Aken, 2004; Delsing, Oud, De Bruyn, & van Aken, 2003) and on dispositional characteristics that can make family members more or less trusting (e.g., Sorrentino, Holmes, Hanna, & Sharp, 1995). These studies demonstrate that trust varies considerably across family members and across family relationships (Buist et al., 2004).

Department of Clinical Child and Family Studies, VU University Amsterdam, Van der Boechorststraat 1, 1081 BT Amsterdam, the Netherlands (a.buyukcantetik@vu.nl).

*Department of Clinical Child and Family Studies, VU University Amsterdam, and the EMGO Institute for Health and Care Research, Van der Boechorststraat 1, 1081 BT Amsterdam, the Netherlands.

**Department of Clinical Child and Family Studies, VU University Amsterdam, Van der Boechorststraat 1, 1081 BT Amsterdam, the Netherlands.

***Department of Educational Neuroscience, VU University Amsterdam, and LEARN! Research Institute for Learning and Education, Van der Boechorststraat 1, 1081 BT Amsterdam, the Netherlands.

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Because trust is an inherently interpersonal phenomenon (Simpson, 2007), the question arises of why family members trust certain family members more than others. How do they know which family member is trustworthy?

In the present study we examined one important factor that family members may use to gauge whether to trust others: their perception of the other person's level of self-control. Individuals higher in self-control are better in overriding unwanted responses, taking the perspective of others, and acting favorably toward others than individuals lower in self-control (Baumeister, Vohs, & Tice, 2007; Tangney, Boone, & Baumeister, 2004). Recently, Righetti and Finkenauer (2011) demonstrated that people infer strangers' and their partner's self-control levels from their behavior in order to judge how much they can rely on them. We propose that this evidence extends to families. Specifically, in the present study we sought to test the hypothesis that the perception of self-control in a family member is diagnostic of that family member's ability to be responsive to the truster's needs and behave constructively for the sake of the relationship or the truster. This knowledge is not only crucial for trust in adult relationships (Righetti & Finkenauer, 2011), but it also should be essential for trust in families (Rotenberg, 1995). Thus, we propose that family members, both adults and children, use the perception of others' self-control as an indicator of trustworthiness. We tested this prediction using a full-family design with two parents and two children, enabling us to examine both *horizontal relationships*, between family members of equal status among both adults and children (i.e., parent–parent, sibling–sibling), and *vertical relationships*, in which the partners have unequal status (i.e., parent–child, child–parent).

TRUST

Although there is no universally accepted definition of *trust*, most researchers agree that trust is a deliberate process, which makes the truster vulnerable to the trustee (Holmes & Rempel, 1989; Simpson, 2007). When people trust another person, their outcome is dependent on the trustee, and they take the risk that something will be lost if the trustee does not act favorably toward them (e.g., breaking a promise). Affectively, despite this risk, trusters feel secure and

confident that the trustee will be responsive to their needs and nothing will be lost. Cognitively, they expect that the trustee will act in a benevolent manner toward them, even in so-called interpersonal dilemmas, that is, in situations where partners' interests diverge (i.e., what is good for the truster is not good for the trustee; Holmes & Rempel, 1989; Rempel, Holmes, & Zanna, 1985; Wieselquist et al., 1999).

Existing research confirms that trust is crucial for people's personal and social well-being across all ages. The more people trust another person, the more they are inclined to disclose intimate information about themselves (Finkenauer, Kerkhof, Righetti, & Branje, 2009) and the more they are satisfied with and committed to their relationship (Rusbult, Martz, & Agnew, 1998; Wieselquist et al., 1999). Furthermore, people engage in constructive and accommodative behaviors toward the people they trust (Shallcross & Simpson, 2012). These results extend to trust in parent–child relationships. For example, Kerr, Stattin, and Trost (1999) found that parents shared more information with their children and engaged in family activities more frequently when they trusted their children. Furthermore, children's perception of their parents' trust in them was related to a more positive family environment (e.g., fewer arguments and more acceptance). Trust is also crucial for relationships among children (Bernath & Feshbach, 1995). For example, Rotenberg and his colleagues (2004) demonstrated that children and early adolescents preferred trustworthy peers as friends. Thus, trust is a key component in almost all relationships among adults and children.

Trust is an interpersonal phenomenon in that it involves both a truster and a trustee. In attempting to explain when and why people trust others, the existing literature has focused mainly on variables related to trusters and to specific situations (Simpson, 2007). For example, securely attached people trust others more easily and feel more comfortable to be dependent on them than insecurely attached people (Mikulincer, 1998). People tend to trust others when they are grateful and happy (Dunn & Schweitzer, 2005). Given the interpersonal nature of trust, however, the question arises of whom people trust. How do they know who is safe to trust?

Because trusters' outcomes depend on the behaviors of the trustee, feeling safe is crucial for the development of trust in close relationships (Holmes & Rempel, 1989), and the ability

to accurately assess trustworthiness in others is a highly valued social skill (Rule, Krendl, Ivcevic, & Ambady, 2013). To assess safety in a relationship, people search for indicators of trustworthiness, which show that trustees can and will act positively toward the truster and have the ability to regulate their impulses and perform certain behaviors. These aspects suggest that people look for high self-control in trustees.

SELF-CONTROL AS AN INDICATOR OF A SAFE TRUSTEE

Self-control is people's capacity to change or override unwanted responses so as to bring them into agreement with some internal or external standards (e.g., Baumeister, Heatherton, & Tice, 1993). It bridges concepts from diverse research traditions (e.g., self-regulation, impulsivity, executive functioning, effortful control, willpower) that govern behavior and adaptive responses. Research across the behavioral and social sciences suggest that self-control is a hallmark of a successful and healthy life among adults and children (Eisenberg et al., 2003; Tangney et al., 2004).

Self-control plays an important role in the maintenance of interpersonal relationships. Research shows that people who are higher in self-control engage in more perspective-taking and show more empathy toward others (Tangney et al., 2004). Compared to people lower in self-control, people with higher self-control are better able to keep promises made to their romantic partners (Peetz & Kammrath, 2011) and are more forgiving (Pronk, Karremans, Overbeek, Vermulst, & Wigboldus, 2010). Moreover, self-control is related to lower levels of deceptive behaviors (Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009).

Given the benefits of high self-control for relationships, Righetti and Finkenauer (2011) proposed that perceiving high self-control in a partner should signal that the partner is trustworthy. Across four studies, they found that people use perceptions of others' trait and state self-control as a gauge for their trustworthiness. To illustrate, in one study people in couples rated their partner on self-control, trustworthiness, and behaviors indicative of self-control: reliability, forgiveness, and goal achievement. People who perceived their partner as more reliable, forgiving, and successful also perceived them as

having greater self-control. This level of perceived self-control, in turn, predicted people's trust in their partner. Thus, people use their perception that a partner has high self-control to infer whether the other is trustworthy, a reliable partner who keeps promises, acts favorably toward them, and is dependable even in situations when self-interest and partner-interest diverge.

Extending the existing literature, we hypothesized that not only adults but also children use the perception of others' self-control as an indicator of trustworthiness. Self-control is as essential for children as it is for adults. Children with higher self-control are better able to maintain relationships with attachment figures (Sroufe, 1996) and have higher academic achievements before kindergarten (McClelland et al., 2007) and throughout formal schooling (e.g., Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). Underlining the value of perceived self-control in child relationships, children with lower self-control not only show poorer social functioning, they are also less accepted by their peers (Diamantopoulou, Rydell, Thorell, & Bohlin, 2007). Hence, we propose that perceiving self-control in others should be as important for children as it is for adults.

Thus, extending existing research on the importance of perceived self-control, we propose that perceiving a family member to have higher self-control is related to greater trust. Furthermore, we predicted that both parents and children use other family members' levels of self-control as a gauge for trustworthiness. Although we had reasons to suggest that the proposed link holds for horizontal relationships among adults as well as among children, it is unclear whether it holds for vertical relationships.

Child-Parent Relationships

On the one hand, children are dependent on their parents and often perceive them as all knowing or all powerful (Steinberg, 1990). It is only in adolescence that children let go of the safety of childhood and parental protection and develop a firm hold on the responsibilities and demands of adulthood (Allen, Hauser, Bell, & O'Connor, 1994; Steinberg & Silverberg, 1986). This development suggests that children may trust their parents unconditionally. On the other hand, children's emotions toward the

parent evolve across interactions and experiences over time (Sheese & Graziano, 2002). Children, like adults, observe whether they can trust their parents and rely on them to provide emotional security and be responsive to their needs (Davies, Sturge-Apple, & Winter, 2006). For example, Rotenberg (1995) found that children's trust in their parents was associated with their perception of their parents' ability to keep promises. This need for security and for reliable caregivers suggests that children do use their perceptions of parents' self-control as an indicator of trustworthiness.

Parent-Child Relationships

Similarly, it is unclear whether parents use their perceptions of their children's self-control as an indicator of trustworthiness. On the one hand, given that parents hold positive illusions about their children (Wenger & Fowers, 2008), they may believe, without any evidence, that their children are trustworthy. On the other hand, parents need to be sure that their children can control their impulses (e.g., by refraining from drugs and violence), express their emotions adequately, are reliable, and can meet their obligations and responsibilities even when there is no parental supervision (Finkenauer, Engels, & Baumeister, 2005). Indeed, parental trust in adolescent children is associated with parents' knowledge about the children (Kerr et al., 1999). When parents know what their children do in their absence they can judge whether their children have the ability to resist the temptations of delinquent behaviors and regulate their behavior. Thus, parents should be sensitive to detect self-control in their children.

THE SOCIAL RELATIONS MODEL

To examine perceived self-control, trust, and their association in family relationships, we applied the *Social Relations Model* (SRM; Kenny, Kashy, & Cook, 2006) in a full-family design that included 84 two-parent families with two children ($n = 336$). Applying the SRM to a data set collected from families enables researchers to analyze variables at the family, individual, and relationship levels. For example, one can examine the average level of trust in the family (i.e., family level); the average level of mothers' trust and mothers' trustworthiness (i.e., individual level); and mothers' trust in unique relationships, such as mothers' trust in their

oldest child (i.e., relationship level). The SRM simplifies the complexity of the family data by partitioning the variables into all these levels. In the terminology of the SRM, three concepts are particularly relevant to the present study: (a) *effect*, (b) *variance*, and (c) *reciprocity*.

SRM Effects

There are four types of effects in the SRM: (a) *family*, (b) *actor*, (c) *partner*, and (d) *relationship* effects (Kenny et al., 2006). *Family effect* indicates the average level of a certain variable for the average member of the family. *Actor effects* represent each family member's dispositional level of a certain variable toward all other family members in general. For example, fathers' actor effect of trust represents fathers' propensity to trust other family members in general. *Partner effects* refer to the average level of a certain variable that a partner receives or elicits from other family members. For example, fathers' partner effect of trust reflects how much the other family members trust fathers on average. *Relationship effects* indicate the level of a particular variable in a specific relationship above and beyond family, actor, and partner effects. For example, mothers' relationship effect of trust directed toward fathers indicates the extent to which mothers trust fathers, controlling for the average trust level in the family (i.e., family effect), mothers' general tendency to trust others (i.e., actor effect), and fathers' tendency to elicit trust from others (i.e., partner effect).

In an SRM analysis with four-member family participants there are 21 SRM effects: one family effect, four actor effects (i.e., fathers, mothers, younger children, older children), four partner effects, and 12 relationship effects. Because the direction is important in relationship effects, the SRM relationship effects include both directions in a relationship, such as fathers' trust in mothers and mothers' trust in fathers.

SRM Variances

Most SRM studies have focused on estimating *variances* of the SRM effects. These variance components show whether there are deviations in the SRM effects across families. In our study, the *family variance* indicates whether there is variation across families in terms of trust and perceived self-control. *Actor variances* indicate whether there is between-family variation

in how much family members trust other family members and perceive self-control in others. For example, a significant actor variance in fathers' trust level would indicate that there are between-family differences in terms of fathers' trust in the study. *Partner variances* indicate whether the extent to which family members are trusted and perceived as having self-control varies across families. To illustrate, a significant variance in the partner effect of fathers' trust would mean that fathers in some families are trusted more than the fathers in other families. *Relationship variances* indicate the deviations in particular relationship effects across families. For example, a significant variance in mothers' trust in fathers would indicate that mother's trust in father is higher in some families than in other families.

Reciprocities

One can also compute *generalized* and *dyadic reciprocity* correlations using the SRM. *Generalized reciprocity* is assessed by the association between the actor and partner effects of the family members with the same role. For example, generalized reciprocity for fathers' trust indicates whether fathers' general trust in others is associated with fathers' trustworthiness in general. Analyses of *dyadic reciprocity* examine reciprocal effects of a certain variable in a specific relationship. For example, one can investigate whether mothers' trust in fathers is related to fathers' trust in mothers, on average.

Bivariate Analyses

Although most SRM studies have focused on the univariate types of analysis (e.g., variances, reciprocities), the SRM can also be used for bivariate examinations (Back & Kenny, 2010; Branje, van Lieshout, & van Aken, 2005). Given that the main goal of this study was to examine the association between trust and perceived self-control in family relationships rather than examining them separately, we were mostly interested in the bivariate application of the SRM. For example, are there associations between the partner effects of trust and the partner effects of perceived self-control (*partner-partner correlations* [Back & Kenny, 2010]; e.g., is the level of perceived self-control elicited by fathers related to their trustworthiness)? More important, are the relationship

effects of perceived self-control related to the relationship effects of trust (*intra-individual relationship correlations* [Back & Kenny, 2010]; e.g., is fathers' perception of self-control in mothers related to fathers' trust in mothers)? Although our research question focused on the bivariate application of the SRM, in this article we report the SRM effects, variance components, and reciprocities for each variable separately to provide a complete picture of trust and perceived self-control in families.

SRM HYPOTHESES

The extant literature allowed us to advance a number of hypotheses regarding the univariate SRM analyses of trust and perceived self-control among families.

SRM Effects

Because previous studies have shown that both self-control and trust increase with age (e.g., Green, Fry, & Myerson, 1994; Sutter & Kocher, 2007), we expected generational differences in our study; that is, we propose that children perceive higher levels of self-control and that they trust less than adults. Also, we hypothesized that, in families, children are perceived as having less self-control and are trusted less than adults.

SRM Variances

It is not surprising that the composition of significant family, actor, partner, and relationship variances in the SRM analyses depends on the study variable (Back & Kenny, 2010). For example, in a study on disclosure and relationship satisfaction in families, SRM analyses revealed that all family, actor, and relationship variances were significant, but most partner variances were not (Finkenauer, Engels, Branje, & Meeus, 2004). In another study, SRM analyses of forgiveness in families (Hoyt, Fincham, McCullough, Maio, & Davila, 2005) revealed that all actor variances and most of the partner variances were significant; however, only half of the relationship variances were significant. Because of these mixed results, Eichelsheim, Deković, Buist, and Cook (2009) reanalyzed 17 data sets to explore whether SRM variances showed general patterns. Their reanalyses showed that, on average, actor variances explained most of the variance in SRM effects. Relationship variances explained

more variance in horizontal relationships than in vertical relationships. Family and partner variance components explained only a small percentage of the variance in SRM effects.

On the basis of these findings, we expected to find significant actor variances and significant relationship variances in horizontal relationships for trust and perceived self-control. We did not expect to find significant family (for both study variables) and partner (for trust) variances. Nevertheless, because people vary in terms of their dispositional self-control levels and perceivers anchor their perceptions of others' self-control in reality and others' ability to control their impulses (Baumeister et al., 2007; Righetti & Finkenauer, 2011), we hypothesized that partner effects of perceived self-control vary across families.

Reciprocities

Because we did not expect significant partner variances in trust, generalized reciprocity correlations could not be computed for trust (Eichelsheim et al., 2009). Although we tested generalized and dyadic reciprocities for perceived self-control, we did not expect to find reciprocities. The existing research shows that people look for behavioral evidence to perceive others as having high self-control (Righetti & Finkenauer, 2011). Hence, it seems unlikely that when people perceive others as having high self-control these others reciprocate this perception without behavioral evidence. Thus, we did not expect to find reciprocity for perceived self-control. We did expect to find dyadic reciprocity for trust in horizontal relationships (cf. Buist et al., 2004; Eichelsheim et al., 2009).

KEY HYPOTHESES: BIVARIATE ANALYSES

Although the above-presented hypotheses will shed new light on trust and perceived self-control in families, we examined bivariate SRM effects to investigate whether people use the perception of others' self-control as an indicator of trustworthiness in family relationships.

Consistent with earlier research (Righetti & Finkenauer, 2011), we hypothesized that, in families, perceived self-control is related to trust. Specifically, we propose that the level of trustworthiness of family members who are perceived as possessing higher self-control is greater than that of family members who are

perceived as possessing lower self-control (i.e., positive partner-partner correlations). Crucially extending existing studies, we predicted that the link between perceived self-control and trust holds in both horizontal and vertical relationships irrespective of whether trusters and trustees are adults or children. Thus, we expected positive intra-individual relationship correlations between the relationship effects of perceived self-control and trust.

METHOD

Participants

A total of 84 two-parent families with two children ($n = 336$) participated in the present study. Fathers' mean age was 45.23 years ($SD = 3.87$), and mothers' was 42.81 years ($SD = 3.90$). In 74% of the families, the younger child had only one older sibling. For reasons of clarity, the two children in each family are labeled *older* and *younger* child throughout this article. The older children's (52% boys) mean age was 12.37 years ($SD = 1.87$), and the younger children's (64% boys) mean age was 10.04 years ($SD = 1.77$). All fathers and 95% of mothers were of Dutch origin. All children lived with both their parents.

Procedure

This research was part of Science Live, the innovative research program of Science Center NEMO in Amsterdam, the Netherlands, that enables scientists to carry out real, publishable, peer-reviewed research using NEMO visitors as volunteers. Participants were recruited at the Science Center NEMO in 2012. After signing consent forms, family members completed different questionnaires on a computer in the presence of two experimenters. The presence of the experimenters served to encourage thorough responding, to help children with questions, and to prevent discussions among family members during completion of the questionnaires.

Measures

We assessed each family member's trust in and perceived self-control of the other three family members (i.e., a round-robin design). Given the full-family design, measures were adapted to be appropriate among younger children (from 8 years on) and adults and in all

types of family relationships (cf. Lagattuta, Sayfan, & Bamford, 2012). Relationship specificity was achieved by formulating items as statements and instructing participants to imagine each specific family member (i.e., father, mother, sibling) before rating each statement for the specific partner. Measures were administered in Dutch and used 5-point scales (1 = *not at all*, 5 = *very much*). We computed the average of the items' scores for each measure. Higher scores indicated higher levels in both study variables.

Perceived self-control. To assess perceptions of self-control of different family members, we adapted the brief version (eight items) of the Self-Control Scale (Tangney et al., 2004; Dutch translation: Finkenauer et al., 2005). To assess perceptions, family members separately rated the degree to which they perceived other family members as having self-control. An example item is "My father (mother, sibling) does things that are bad for him/her" (reverse coded). In the present study, the perceived self-control levels of family members had satisfactory Cronbach's alpha levels, ranging from .58 to .78 ($M = .69$).

Trust. To measure trust, participants rated separately for each family member "how often he or she keeps promises he/she has made" and "how often he or she keeps secrets he/she has been told" (Rotenberg, 1986). We also added one item that directly assessed trust in the other family member (e.g., "I trust my father"). In the present study, trustworthiness of family members had adequate Cronbach's alpha levels, ranging from .49 to .71 ($M = .58$).

Strategy of Analyses

We conducted SRM analyses using Mplus Version 7 (Muthén & Muthén, 2012). For a univariate SRM analysis, a sample of 50 families is adequate (Kenny et al., 2006). Although our sample size of 84 families fulfilled this criterion for univariate analysis, the sample size was too small to estimate the bivariate SRM model of perceived self-control and trust.

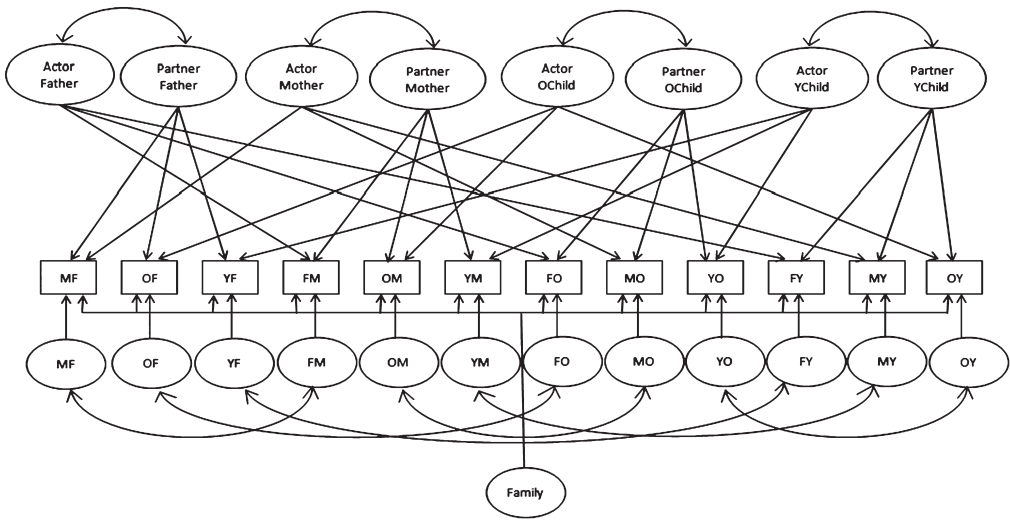
SRM effects. We computed the SRM effects using the formulas provided by Kenny and his colleagues (2006, pp. 253–257). Thus, we estimated each effect (i.e., actor, partner, and relationship) for each family member adjusted by other SRM effects (Rasbash, Jenkins, O'Connor, Tackett, & Reiss, 2011).

SRM variances and reciprocities. For partitioning the variance, we conducted confirmatory factor analyses for perceived self-control and trust separately in which family, actor, partner, and relationship components were latent variables (see Figure 1; Kenny et al., 2006). To differentiate relationship variance from error variance in the SRM analyses, we used parcels as indicators of our latent variables (Little, Cunningham, Shahar, & Widaman, 2002). We used two parcels, composed of the items with equivalent factor loadings in our preliminary factor analyses, in the SRM of perceived self-control (Hoyt et al., 2005). Given that the reliability of our trust scale was not high, we conducted several SRM analyses with different combinations of the trust items in parcels. We observed identical results in all models. Consequently, we used the two-item scale of Rotenberg (1986) in the first parcel and the third item in the second parcel for the SRM model of trust.

In our SRMs, the factor loadings of the parcels were all fixed at 1, whereas the variances were estimated. These analyses provided the variance components of family, actor, partner, and relationship effects of study variables. In our SRMs, we also estimated the associations between family members' actor and partner effects (i.e., generalized reciprocities) and reciprocal associations in the relationship effects (i.e., dyadic reciprocities; Kenny et al., 2006). Following previous studies (Branje et al., 2005; Kenny et al., 2006), the models also included the associations between the measurement errors. Negative variance components in the initial models were set to zero (Cook, 1993). Our final SRM models for perceived self-control and trust had acceptable levels of fit indices: $\chi^2(242, N = 336) = 360.52$ ($p < .05$), comparative fit index = .828, and root-mean-square error of approximation = .076 [90% confidence interval: 0.059, 0.092] for perceived self-control, and $\chi^2(246, N = 336) = 334.24$ ($p < .05$), comparative fit index = .826, and root-mean-square error of approximation = .065 [90% confidence interval: 0.046, 0.082] for trust, respectively.

Bivariate analyses. In the literature, bivariate SRM analyses have been conducted using two methods: (a) running an SRM that includes indicators of both study variables at the same time and checking correlations between the latent variables (e.g., Branje et al., 2005; Finkenauer et al., 2004) and (b) testing correlations between

FIGURE 1. PARAMETERS OF THE SOCIAL RELATIONS MODEL FOR EACH STUDY VARIABLE.



Note: One-headed and two-headed arrows represented the factor loadings and correlations, respectively. All factor loadings were fixed at 1. This figure shows the model for one of the parcels; the other parcel loaded on the same latent variables. OChild = Older child; YChild = Younger child. Relationships: MF = Mother–Father; OF = OChild–Father; YF = YChild–Father; FM = Father–Mother; OM = OChild–Mother; YM = YChild–Mother; FO = Father–OChild; MO = Mother–OChild; YO = YChild–OChild; FY = Father–YChild; MY = Father–YChild; OY = OChild–YChild.

the SRM effects, which can be computed by using the formulas provided by Kenny and his colleagues (2006, pp. 253–257; e.g., Back & Kenny, 2010; Back, Schmukle, & Egloff, 2011; Shea, 2011). Although the second method has a disadvantage in that relationship effects contain measurement errors, it requires a smaller sample size than the first method. Given our limited sample size for the bivariate SRM analyses, we therefore adopted the second method. To test our hypotheses, we ran correlations between the study variables’ partner effects (i.e., partner–partner correlations) and relationship effects (i.e., intra-individual relationship correlations; Back & Kenny, 2010).

RESULTS

Univariate Analyses: SRM Effects, Variance Components, and Reciprocities

Family effects are the only SRM effects that have scores in the original scales. The family effects in our study—3.52 for perceived self-control and 4.04 for trust, respectively—indicate that families in our sample reported high levels on both variables. The estimated SRM effects for

Table 1. Effect Estimates From the Social Relations Model Analyses

Component	Perceived self-control (M)	Trust (M)
Actor		
Father	-.11**	.11**
Mother	-.02	.13**
Older child	.08*	-.10*
Younger child	.05	-.14**
Partner		
Father	.19**	.26**
Mother	.23**	.25**
Older child	-.16**	-.23**
Younger child	-.27**	-.28**

Note: N = 84 families.

*p < .05. **p < .01.

family members are presented in Table 1. For the actor and partner effects, positive and negative estimates show the relative estimate compared to the average family member (i.e., zero represents the level of the average family member). For example, the negative actor effect estimate for fathers’ perceived self-control (–.11, see Table 1) means that, on average, fathers

perceived 0.11 points less self-control in others than the average family member did. Only actor estimates of fathers' and older children's perceived self-control levels reached significance. The average levels of mothers and younger children did not significantly differ from the level of the average family member. Nevertheless, directions of the actor estimates tended to show that parents perceived less and children perceived more self-control in others than the average family member. The actor effects of trust showed that children trusted less than the average family member. In terms of partner effects of perceived self-control and trust, children showed lower and parents showed higher levels for both variables than the average family member. Overall, these SRM effects are consistent with our hypotheses.

The variance estimates of the SRM effects are given in Table 2. We did not find significant family variance for either variable, indicating that the average levels of perceived self-control and trust were similar across families in our study. As expected, we found significant actor variances for both variables, indicating that actors with a specific family role had higher scores in some families than actors with the same role in other families. For example, some fathers perceived higher levels of self-control, on average, than other fathers did. As proposed, all partner variances were significant for perceived self-control, indicating that there were between-family differences in the extent to which people with the same family role were perceived to have self-control. Although we were not expecting any partner variances in trust, both children had significant partner variance components in trust, indicating that children were trusted more in some families than in other families.

As mentioned above, we expected to find significant relationship variance components in all horizontal relationships (i.e., mother-father, father-mother, older child-younger child, younger child-older child). For perceived self-control, all horizontal relationships showed significant variance except the father-mother relationship (see Table 2). For trust, too, all horizontal relationships showed significant variance except the mother-father relationship (see Table 2). Thus, most of the results regarding relationship variance components of study variables were in line with our expectation of having significant variances in horizontal relationships. Significant relationship variances indicated that,

Table 2. Variance Estimates From the Social Relations Model Analyses

Component	Perceived self-control	Trust
Family	.01	.00
Actor		
Father	.05**	.04 [†]
Mother	.04*	.09**
Older child	.12**	.17**
Younger child	.06**	.11**
Partner		
Father	.03*	.00
Mother	.04**	.01
Older child	.11**	.09**
Younger child	.08**	.08**
Relationship		
Mother-father	.06*	.00
Older child-father	.00	.00
Younger child-father	.00	.11**
Father-mother	.04	.10*
Older child-mother	.03	.00
Younger child-mother	.02	.00
Father-older child	.03	.00
Mother-older child	.03	.01
Younger child-older child	.14**	.12 [†]
Father-younger child	.04	.02
Mother-younger child	.10**	.11*
Older child-younger child	.14**	.32**

Note: $N = 84$ families. Because variances cannot be negative, the significance levels of the variance components were assessed with one-tailed z tests. In the relationships (e.g., mother-father), the first family member is the actor, and the second family member is the partner. For example, "mother-father" for perceived self-control and trust variables represents mothers' perception of fathers' self-control and mothers' trust in fathers, respectively.

[†] $p < .10$. * $p < .05$. ** $p < .01$.

for example, some mothers perceived higher self-control in fathers than did other mothers.

We also computed the generalized reciprocities for the variables, which showed significant actor and partner variance components for the same family role, and dyadic reciprocities for the variables, which showed significant relationship variance components for both reciprocal relationships (see Table 2). Our generalized reciprocity analyses therefore tested the associations between the actor and partner effects for all family members in the SRM of perceived self-control and for younger and older children in the SRM of trust. Dyadic reciprocity analyses were limited to testing the dyadic reciprocity

Table 3. *Intra-Individual Relationship Correlations Between Perceived Self-Control and Trust*

Relationship	<i>r</i>
Mother–father	.35**
Older child–father	.28*
Younger child–father	.19 [†]
Father–mother	.31**
Older child–mother	.25*
Younger child–mother	.02
Father–older child	.25*
Mother–older child	.28*
Younger child–older child	.25*
Father–younger child	.06
Mother–younger child	.35**
Older child–younger child	.32**

Note: *N* = 84 families. In the relationships (e.g., mother–father), the first family member is the actor, and the second family member is the partner. For example, the correlation for “mother–father” is the association between mothers’ perception of fathers’ self-control and mothers’ trust in fathers.

[†]*p* < .10. **p* < .05. ***p* < .01.

between younger and older children in terms of both perceived self-control and trust. The results revealed no significant generalized or dyadic reciprocity except for the dyadic reciprocity for trust between the older and younger children ($r = .13, p < .05$).

Bivariate Analyses

Correlations between the family effects of perceived self-control and trust indicated that families with higher levels of perceived self-control had higher levels of trust too ($r = .62, p < .001$). Crucially, the correlations between partner effect of perceived self-control and partner effect of trust for family members with the same role were significant ($r_s = .40-.48, p_s < .001$). In addition, consistent with our prediction, correlations between the relationship effects of our study variables revealed that perceived self-control was significantly related to trust in almost all relationships (10 out of 12 possible correlations; see Table 3). The two non-significant correlations (younger child–mother, father–younger child) occurred in the vertical relationships. The significant correlations indicate that those family members trusted a specific partner more the more they perceived this partner to have higher self-control.

DISCUSSION

People are cautious and selective about whom they can trust (Holmes & Rempel, 1989; Simpson, 2007). How do family members know who is safe to trust? Existing research suggests that one variable people expect trustees to have is self-control: the ability to take others’ perspectives, resist impulses, exert influence on their behavior, and engage in prosocial behaviors (Righetti & Finkenauer, 2011). However, do children also use self-control to gauge others’ trustworthiness? And does self-control play the same role in vertical relationships as it does in horizontal relationships? To begin answering these questions, we examined the association between perceived control and trust among families with two parents and two children. To our knowledge, the present work is the first to examine self-control as one key characteristic of trustees that influences the perception of trustworthiness in families.

Although the main goal of our study was to investigate the relation of perceived self-control and trust, we also examined the SRM effects, variances, and reciprocity correlations of each study variable. The effects in our SRMs yielded patterns that are consistent with the existing literature. Specifically, SRM effects yielded generational differences rather than effects for a specific family role. Compared to the average family member, parents (children) perceived less (more) self-control in other family members (albeit mothers’ and older children’s levels did not reach significance), were perceived as having more (less) self-control, trusted more (less), and were trusted more (less). These findings suggest that children’s and adults’ perceptions are anchored in reality, given that self-control and trust increase with age (e.g., Green et al., 1994; Sutter & Kocher, 2007). Indeed, among the associations between perceived self-control and trust in relationships, the two that were nonsignificant included the younger child. It is possible that the association between perceived self-control and trust emerges as children become older (Allen et al., 1994; Steinberg & Silverberg, 1986), and longitudinal studies should test this hypothesis.

Variance components in our SRM analyses revealed that families were similar to each other in terms of their perceived self-control and trust levels. Other than the partner variances for parents in the SRM of trust, all actor and partner variance components were significant. These

effects suggest that there were between-family differences in the extent to which, on average, family members perceived self-control in others, were perceived as having self-control, and trusted other family members. Parents were similar in the extent to which they were trusted across families. Considering the fact that parents also had partner effects higher than the average family member for trustworthiness, these results suggest that family members trusted parents more than they trusted children across all families. Different from our expectations, we also found significant partner variances in children's trust levels. Between-family differences in children's trustworthiness would be related to the gender of children, age gap between the siblings, or gender constellation (e.g., two girls, one boy–one girl) of siblings across families.

Although we observed some exceptions, in line with previous SRM studies (e.g., Eichelsheim et al., 2009), most of the relationship variances in horizontal relationships were significant. Our results also showed a reciprocity of trust between older and younger children, consistent with other SRM studies (e.g., Buist et al., 2004). We were not able to test reciprocal association between mothers' and fathers' trust levels because of the nonsignificant variance in mothers' trust in fathers.

Consistent with our key hypothesis, the SRM analyses revealed a positive association between perceived self-control and trust in almost all family relationships. Furthermore, we found that not only adults but also children used perceived self-control as an indicator of trustworthiness in general. Also, our results showed that this association held in almost all (10 out of 12) family relationships, including both horizontal and vertical relationships. These results highlight the generalizability of the association between perceived self-control and trust observed among adults.

Theoretical and Practical Implications

The current findings provide new insights into the relationship between perceived self-control and trust. Our predictions for horizontal relationships (i.e., mother–father, younger child–older child) were derived from the existing literature (e.g., Betts & Rotenberg, 2007; Righetti & Finkenauer, 2011), yet the evidence for the link between self-control and trust in vertical family relationships (i.e., child–parent, parent–child)

was mixed. Children may take their parents' trustworthiness for granted (Steinberg, 1990), and parents may overestimate their children's trustworthiness (Wenger & Fowers, 2008). However, children closely observe their parents' behaviors to assess whether they can rely on them (Rotenberg, 1995). Parallel to this, parents observe their children's behaviors to assess their ability to regulate their behaviors and resist temptations without the guidance and protection of the parent (Finkenauer et al., 2005; Kerr et al., 1999). We therefore had hypothesized that perceived self-control should be related to trust across all family relationships, including vertical ones.

Consistent with our predictions, we found that family members used their perceptions of other family members' self-control levels in their vertical relationships in general (albeit two of the eight possible associations in vertical relationships did not reach significance). These findings suggest that people do not trust others only because they are kin; instead, even in families people need to demonstrate their trustworthiness by exhibiting self-discipline, curbing impulses, and behaving favorably toward trusters. Interesting questions remain to be addressed: Which kind of behavioral cues do children use to infer self-control? Do these cues differ for children and parents? Do parents rely on similar behavioral cues to infer self-control from each other's behavior and from their children's behavior? Trusters infer ability and motivation from previous behaviors of and past experience with the trustee (cf. Heider, 1958; Weiner, 1985). Both pro-relationship and individual behaviors may signal that the trustee has self-control. To illustrate, when people make sacrifices for their partner, their behavior signals that they are able and motivated to engage in efforts to inhibit selfish impulses and give up self-interest for the interest of the partner (Righetti, Finkenauer, & Finkel, 2013). These types of prosocial behaviors are costly and effortful and require self-control (Peez & Kammrath, 2011; Righetti & Finkenauer, 2011). Similarly, individual behavior, such as adhering to one's diet, accomplishing long-term goals, or resisting temptations, requires self-control (De Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012). More research is needed to examine on which behaviors adults and children rely to infer that another person has higher

self-control. Furthermore, self-control facilitates both the promotion of desirable behaviors and the inhibition of undesirable behaviors (De Ridder et al., 2012). An interesting question for future studies would be whether trusters weigh either one of these self-control effects more heavily when judging others' trustworthiness. To illustrate, it may be more diagnostic for trustworthiness when another person declines a piece of cake when she is on a diet than when she accepts an apple (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001).

Our findings also have important clinical implications. Because self-control can be strengthened by practice (Baumeister, Gailiot, DeWall, & Oaten, 2006; Diamond & Lee, 2011), family therapies, prevention, and intervention programs should aim to enhance people's self-control levels to reinforce their capacity to build and maintain healthy and well-functioning family relationships (Sanders & Mazzucchelli, 2013). Of importance is that our findings provide empirical evidence that strengthening self-control may be crucial for trust repair targeting both parents and children.

Strengths, Limitations, and Future Directions

Although previous research shows that trust differs across families and trusters (e.g., Buist et al., 2004), few studies have focused on trustees' characteristics. Our study adds to the literature by showing that the family members' perception of others' self-control is related to their trust in them. Moreover, we tested this relation with a full-family design, which enabled us to test our predictions for both horizontal and vertical family relationships.

We should also acknowledge some limitations of our research and discuss future directions. First, although our findings indicate that people use indicators of self-control as a gauge of trustworthiness, our findings are based on family members' perception of self-control and are correlational. Hence, these findings can be interpreted both ways: Perceived self-control may increase trust, or trust may increase perceived self-control. The literature showed that secure and reliable relationships with close others are vital for strengthening self-control (Finkenauer et al., 2005; Tangney et al., 2004). Thus, although perceiving high self-control in a person makes it easier for others to trust that person, being trusted may provide

a safe environment for the trustee to develop self-control. Future longitudinal studies and diary studies should test this suggestion.

Second, our study demonstrated the association between *perceived* self-control and trust. Given that people hold positive illusions toward close others (e.g., Murray & Holmes, 1997), future studies should examine whether family members' perceptions of self-control are anchored in reality. Although Righetti and Finkenauer (2011) showed that the association between perceived self-control and trust was significant above and beyond the effect of the trustee's self-reported self-control level, future studies should also test this suggestion using other measures (e.g., third parties' reports on a trustee's self-control level, observation of behavior requiring self-control, or behavioral tests for executive functioning).

Third, we do not claim that perceptions of self-control are always linked to greater trust. Our goal in this study was to demonstrate, for the first time among both adults and children, that they are. It is unclear at this point whether there are boundary conditions to this association. For example, is the association moderated by the gender constellation in the relationship? Does it differ across adopted versus biological children, single-parent versus two-parent families, or divorced versus married parents? Do inferences of self-control remain relevant for trust over the course of relationships? Are there situations in which perceptions of high self-control may backfire? Is the association between perceived self-control and trust moderated by the relationship quality in the family? Is this effect generalizable to unhappy families, too? Given our study design and sample size, we were unable to answer these questions, which await future research.

Finally, because our study sample comprised the volunteer families who visited the Science Center NEMO, our participants may not be representative of the overall Dutch population. Future studies should examine the robustness of our findings in samples with greater variability in socioeconomic status, cultural background, and risk factors (e.g., financial hardship, mental health disorders; Raver, 2004).

Conclusion

How do people know which family member is trustworthy? Righetti and Finkenauer (2011)

showed that one variable adults look for in strangers and partners as an indicator of trustworthiness is self-control. Our study showed that this finding extends to family relationships. Remarkably, we found that not only adults but also children trust family members who have higher self-control. Furthermore, the positive association between perceived self-control and trust occurs in almost all horizontal and vertical relationships.

NOTE

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