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Fatherhood in Complex Families: Ties between Adult Children, Biological Fathers, and Stepfathers

Objective: We examined adult children's concurrent ties to biological fathers and stepfathers. Three mechanisms potentially determining the strength of father-child and stepfather-child ties were tested, namely, investment, interdependence, and substitution.

Background: As most research studied father-child and stepfather-child ties separately, our knowledge about the potential substitution dynamics between the two ties is limited.

Method: We used the Dutch Ouders en Kinderen in Nederland (OKiN) survey, which features an

oversample of individuals, aged 25–45, who did not live with their two biological parents when growing up ($N = 1,183$; $M_{age} = 31.89$ [$SD = 5.13$]; 56% female). OKiN includes information on adults' relationships to all parent figures in their lives. Non-recursive structural equation models were applied to account for the bidirectional influence between children's ties to biological fathers and stepfathers.

Results: Our findings suggested that the quality of the two father-child ties are interrelated, that is, we found a small substitution effect (i.e., adult children were more likely to “choose” one father in the presence of both). We also found that the quality of father-child and stepfather-child ties was associated with the length of the parental investment period (i.e., investment). In addition, bonds with stepfathers were positively associated with the attitudes of the two fathers toward each other, while bonds with both fathers were associated with the quality of the tie between the biological parents (i.e., interdependence).

Conclusion: Overall, the weak substitution dynamic that we found implied that a poor tie with one father can partly be substituted by being close to another father.

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Key Words: divorce, father-child relations, intergenerational relations, SEM modeling, stepfamilies.

Due to the rise in divorce and remarriage, which occurred in most western societies between the 1960s and 1980s, family structures have become more complex (Thomson, 2014). The

implications for the nature of parent–child ties have been profound, as multiple biological parents and stepparents may have to coexist and coordinate their relations with a child (Ganong & Coleman, 2016). Thus far, particular interest has been directed to the disadvantaged position of divorced fathers in the development of close ties with their children (Hetherington, 1993; Kalmijn, 2012; Kalmijn, 2015; Köppen, Kreyenfeld, & Trappe, 2018). The emphasis on divorced fathers is partially driven by the fact that mothers generally assume a primary care-taking role after parental divorce, while fathers often become less involved in childcare (Allen & Hawkins, 1999). Accordingly, stepparent-hood mostly occurs when stepfathers enter the family as caregivers, with many contemporary adults having two father figures.

Few studies considered both father figures as potentially influential actors in a child's adult life and even fewer have addressed how a child's relationship with one father might be influenced by the other father's involvement (two exceptions are King, 2006 and Klaus, Nauck, & Steinbach, 2012). The limited attention to both ties is striking, as the disadvantaged position of divorced fathers may partly be accounted for by the presence of a stepfather (White & Gilbreth, 2001). Biological father-child ties have often been studied while taking the mother's relationship status into account, but the actual bond between the child and the mother's new partner has rarely been included (Manning & Smock, 1999; Stewart, 2003). Similarly, stepfather-child ties have previously been studied while accounting for the presence of a biological father, yet researchers rarely considered the effects of the quality of the biological father-child tie.

Studying adult children's parallel relations with fathers and stepfathers is interesting for two reasons. Although divorce is currently the most prevalent source of instability, stepparent-hood was historically precipitated by the death of a parent, with stepparents "replacing" the deceased parent (Thomson, 2014). Nowadays, stepparents exist parallel to biological parents, which can result in the presence of up to four parents in a child's life. Ahrons (1980) used the term "binocular families" to describe how parental divorce creates two families with one shared nucleus: a child. As the coexistence of two fathers is relatively new, our understanding of its effects on the quality of parent–child ties is still in its infancy (Ganong & Coleman,

2016). Second, we need to recognize that ties between family members may be interdependent (Kelley & Thibaut, 1978). The quality of one relationship is likely to depend on the quality of other family relationships. Children's ties to biological fathers and stepfathers should therefore be understood within the structure of family relations in which they are embedded, and more specifically, should be discussed in relation to one another.

In our article, we focused on children's concurrent relations with biological fathers and stepfathers, explicitly examining the link between the two dyads. Three theoretical mechanisms on the quality of parent–child ties were addressed. To begin, we discussed how parents' investments and shared history may underlie adults' bonds with their fathers (i.e., investment). In addition, we considered how the attitudes of the involved parent figures towards each other could influence adult children's ties to each parent (i.e., interdependence). Finally, we examined whether children are more likely to "choose" one father in the concurrent presence of both, with one father "replacing" the other (i.e., substitution). In sum, the first two mechanisms were expected to underlie the quality of father-child dyads and stepfather-child dyads, thereby implicitly suggesting a link between the dyads, whereas the third mechanism explicitly related the quality of the two ties to each other.

We built upon two prior studies that examined the probability that children are close to both fathers, one father, or neither father (King, 2006; Klaus et al., 2012). Although these studies provided valuable insights, they did not account for the fact that father-child and stepfather-child ties are mutually influential nor considered other factors that might be driving the potential association between the ties. Residence patterns, parental investment, or parental meddling could bias children's tendency to be drawn to one father over the other (Ganong & Coleman, 2016). We studied if a bidirectional association between the two ties exists, after accounting for investments and interdependence, testing whether the association is negative (i.e., substituting ties, empirically translating to one weak and one strong tie) or positive (i.e., complementary ties, empirically translating to two weak or two strong ties).

Another contribution of our work is our focus on adult children (ages 25–45). As most research examines children or adolescents, we

know little about how father-child relations of those with separated parents unfold in the long run. This is primarily due to the fact that most survey data do not have sufficient numbers of adult children who grew up with a stepparent. We used a unique new survey that contains a register-based oversample of adult children who grew up with separated parents and includes information on adult children's relationships with all of their parent figures (Ouders en Kinderen in Nederland, OKiN; Kalmijn et al., 2018). Although we did not examine changes in relationships from childhood to adulthood, due to the cross-sectional nature of the data, the OKiN survey did allow us to study relations when children are adult and independent, long after the divorce took place.

THEORY AND HYPOTHESES

Several mechanisms have been proposed in the literature to explain the quality of ties between adult children and their father figures (Ganong & Coleman, 1994; Ganong & Coleman, 2016). Below, we provided an overview of three main theoretical mechanisms that may influence adult children's parallel relationships to divorced fathers and stepfathers, namely, investment, interdependence, and substitution.

Investment

Adult children's ties to biological fathers and stepfathers are expected to be stronger when both co-resided in the same household for a longer period of time during the child's youth. The underlying argument is that the strength of parent-child relationships largely depends on early investments by the parent, with co-residence and its duration functioning as a proxy for parental investments. When a parent and child live together in one household longer, the parent has more opportunities to invest time and energy in the child, and the two have more time to build a shared history (Hofferth, 2006; Lawton, Silverstein, & Bengtson, 1994). The investment argument is applicable to both biological father-child ties and stepfather-child ties. Prior literature showed that the ties between biological fathers and their children are positively affected by the child's age at parental divorce (Seltzer, 1991). The effect is even more pronounced if the divorce occurred when children were still living at home and thus, the

investment process was still ongoing (Kalmijn, 2012). In other words, if the separation occurred when children are older or living independently, better quality of father-child relations are observed. In the same vein, the quality of children's ties to stepfathers is higher when children are younger at the time of the mother's repartnering. That is, when stepfathers are part of their stepchildren's lives longer, they have more opportunities and may be more inclined to invest in their stepchildren (King, Thorsen, & Amato, 2014). In short, we expected that the reciprocal exchanges between parents and adult children would be partly contingent on the investments the parent made during the adult's youth. Our first hypothesis was: the duration of co-residence between the adult child and the (step)father is positively associated with the current quality of the (step)father-adult child tie.

Interdependency of Ties

As argued by social network scholars and family system theorists (Cartwright & Harary, 1956; Hummon & Doreian, 2003; Kelley & Thibaut, 1978), the quality of a dyadic family relationship is likely to depend in part on the functioning of other family relationships. That is, when there is tension between two family members, this tension can provoke either frustration, competition or a power-imbalance, which potentially alters the quality of other involved relationships. For example, a negative parent-parent tie could provoke a coordination problem among parent figures, parental gatekeeping between parent figures, or feelings of conflicting loyalties for the child. Children's ties to one of the parents involved could then eventually weaken. Following this notion of *interdependent ties*, it is important to explore (step)father-child dyads in relation to the parent-parent ties in which the dyads are embedded. Below, we discussed interdependence with respect to (a) the quality of mother-father ties and (b) the quality of father-stepfather ties. Information on mother-stepfather ties was, unfortunately, not available in our data and was therefore omitted from the analyses (see the Measurement section for an elaboration on the missing dyad).

Quality of the Mother-Father Tie. Most adult children from divorced parents grew up either in the custody of their mother or in shared custody arrangements. The quality of (step)father-child

ties may therefore be strongly related to the quality of the co-parental relationship between the divorced biological parents—the mother–father tie (Sobolewski & King, 2005). When biological parents have a good bond after divorce and mutually support each other, the adult child is more likely to be close to both parents. Such an effect is expected to benefit the position of the divorced biological father in particular, whereas the mother’s ties to her adult children are likely to depend less on a positive mother–father tie due to her position as primary caretaker (Allen & Hawkins, 1999).

An instability in the quality of a tie may arise when the biological parents do not get along after separation, as this can spill over to parent–child ties due to, for instance, coordination problems or parental gatekeeping. The biological parents could be reluctant to coordinate joint social activities, such as birthday parties or holiday celebrations (Ganong & Coleman, 2016). In addition, parents can perform parental gatekeeping, where they engage in behaviors that either facilitate or inhibit the involvement of other parent figures in their children’s lives. Gatekeeping could cause children to feel conflicting loyalties toward the parents involved, restricting them in feelings of attachment toward (one of) those parents. Overall, this implies that, when the mother–father relationship is positive, both parents will be more inclined to facilitate the other parent’s involvement, which results in stronger ties between children and biological fathers.

Stepfather-child ties could also be interdependent with the mother–father tie. Mothers might favor the stepfather-child tie more than the father-child tie, particularly when the mother’s relationship with the biological father is distant or characterized by conflict (Marsiglio, 2004; Weaver & Coleman, 2010). If so, mothers are more likely to engage in facilitative gatekeeping toward the stepfather when her relation with the biological father is poor. In contrast, when the tie between the two ex-partners is neutral, the biological father could be more actively involved in the child’s life and the mother may be less inclined to further encourage the stepfather to take part as caregiver. Our second hypothesis was: the quality of the mother–father tie is positively associated with the quality of the father-adult child tie, and negatively associated with the quality of the stepfather-adult child tie.

Quality of the Father-Stepfather Tie. A key source of strain in father-child-stepfather triads lies in the attitudes of the two father figures toward each other (Marsiglio & Hinojosa, 2007). An association with this parent-parent tie may again be driven by coordination restrictions or by parental gatekeeping (Ganong & Coleman, 2016; Marsiglio, 2004). Problems with coordination could arise when biological fathers and stepfathers are reluctant to align their contact with the child. That is, two fathers who do not get along may be unwilling to meet up with the child at the same time. Moreover, both the biological father and the stepfather could take upon a gatekeeping position in restricting or facilitating the other father’s relation to the child. If the two fathers are getting along, however, the fathers are less likely to compete for the child’s attention or engage in gatekeeping, the child is less likely to experience loyalty conflicts, and the family climate will be more positive (Ganong & Coleman, 2016). Another possibility is that it is not the relationship of the two fathers towards each other that evokes gatekeeping, but the extent to which the two fathers aim to take upon a similar parent role in the child’s life. Of course, stepfathers may take up various roles toward a child, including the one of the child’s friend or as an intimate stranger, rather than a father-figure (Ganong & Coleman, 2016). Still, even if the two men perform different roles in the child’s life, we expected that when the relationship between them is more positive, the adult child is more likely to build close relationships to both father figures. Our third hypothesis was: the quality of the father-stepfather tie is positively associated with the quality of the father-adult child tie, and positively associated with the quality of the stepfather-adult child tie.

Substitution

Another aspect that plays a role in stepfather families, in addition to investment periods and the quality of parent–parent ties, is the adult child’s own agency (Hawkins, Amato, & King, 2007). Children do not function as passive bystanders in the process of developing positive or negative relationships with their parent figures, as they have to coordinate the various bonds with different parent figures simultaneously. Below, we therefore discussed the

father-child and stepfather-child tie in relation to each other.

A persisting theoretical debate is whether substitution or complementarity can be observed in the strength of the two dyads (White & Gilbreth, 2001). Adult children are expected to profit from a positive tie with a father figure in terms of well-being due to the higher inflow of parental resources, as well as, emotional support from an engaged father (King, 2006; Schenck et al., 2009). Therefore, in the absence of one father's involvement, children may feel encouraged to become closer to the other father figure. At the same time, a close relationship to one father may in fact preclude the development of a close relationship to another father figure. After all, if a child already has a positive father-child tie to draw financial or emotional support from, a second close father-child tie might be less necessary and only introduce complexity. The substitution hypothesis posited that only one father is generally involved, with an involved father substituting the uninvolved father. Substitution has also been suggested by the literature on "swapping families", which showed that fathers shift their investments to new children after divorce (Furstenberg & Cherlin, 1991; Manning & Smock, 1999). The tendency of divorced fathers to swap families is likely to increase if they face restrictions trying to maintain contact with their children from a prior union, with the presence of stepfathers being particularly restrictive (King, Amato, & Lindstrom, 2015).

Two prior studies using qualitative reports have suggested that complementarity dynamics exist between the father-child and stepfather-child tie (Marsiglio & Hinojosa, 2007; Pettigrew, 2013). According to Marsiglio and Hinojosa (2007), father-offspring ties may be complementary, either because both fathers could work as each other's allies or because neither father is inclined to be involved as caregiver. Complementarity of the two dyads would empirically translate into a positive association between children's ties to a biological father and stepfather (i.e., two strong ties or two weak ties). Yet, existing quantitative findings have suggested a negative correlation between non-resident father involvement and the quality of the stepfather-child tie (Dunn, Cheng, O'Connor, & Bridges, 2004; MacDonald & DeMaris, 2002), which supports the substitution mechanism. Others have reported no significant correlation

(King, 2009). However, it may be insufficient to simply examine the correlation between the ties, rather than using a method designed to statistically consider the mutual influence between the ties (e.g. nonrecursive structural equation modeling [SEM]). We tested whether the overall bidirectional association between the ties is positive or negative. Following substitution arguments, our fourth hypothesis was: Adults children are more likely to form strong bonds to one father figure, than to both fathers or neither father (i.e., negative link).

As argued earlier, we expected the investment and interdependence mechanisms to underlie the quality of the two separate (step)father-offspring ties and thus how the two dyadic ties are related to one another: they could make the quality of the two ties either more similar or less similar to one another. As investment opportunities and parental gatekeeping could bias adult children to become closer to one father than the other, the substitution mechanism had to be tested while correcting for the investment and interdependence mechanisms. By doing so, we were able to examine the link between the two dyads as being due to children actively "choosing" one father figure—as opposed to being due to children living longer with one father (and thus, necessarily, shorter with the other), parental gatekeeping, or feelings of conflicting loyalties.

DATA AND METHOD

Data Description

We utilized data from the OKiN study (Parents and Children in the Netherlands; Kalmijn et al., 2018), a new large-scale multiactor survey on intergenerational relationships in the context of family complexity. The survey was carried out among adults aged 25–45 in the Netherlands, using a register-based oversample of respondents who were not living with both of their biological parents at the age of 15. The fieldwork was performed by Statistics Netherlands in 2017. The adult children (also referred to as "anchors") reported on their ties to multiple types of parent figures, as well as, the ties between these parent figures. A unique feature of the OKiN survey is that it also includes independently collected data among all parent figures of the adult children (also referred to as "alters"). The alters were identified via the registers and approached directly, that is, independently from the anchors.

The approach was independent because (a) the anchors were not asked permission for contacting the alters and (b) the anchors were adult and therefore living independently from the alters. The advantage of the direct approach was that it greatly reduces the selective nonresponse in alter reports (Kalmijn et al., 2018). By matching the anchor and alter data, we were able to use reports from children about all parent figures, as well as, reports from parents about their relationship with other parent figures. The OKiN survey therefore provided information on the relationship quality for most parent–parent and parent–child dyads involved in our study. The response rates for the anchor and alter survey were 62% and 38%, respectively.

As we focused on the parent–child relationships between independently living adults and the two father figures that were present during their youth, we made several sample selections. From the anchor data ($N = 6,485$), we selected all respondents whose biological parents divorced or separated during the anchor's youth (2,943 cases deleted). As we were interested in how concurrent relationships in adulthood affect each other, we excluded the cases where one of the parents died after parental separation (799 cases deleted). We selected the cases in which the biological mother was reported to have had a new partner after parental separation. If that new father figure had subsequently separated from the biological mother, the cases were excluded from the analyses (1,517 cases deleted). The deletion of separated stepfathers was needed because (a) continuous contact between a child and separated stepfather is not likely to have persisted into adulthood, and (b) there is no information on the current relationship between the divorced biological father and divorced stepfather, which is needed to test the interdependence hypotheses. Finally, cases with missing values on the outcome variables, closeness, and contact with a father figure were excluded (43 cases deleted). The final subsample consisted of $N = 1,183$ adult and independently living children who had two living father figures and a living biological mother ($M_{\text{age}} = 31.89$ ($SD = 5.13$); 56% female), with the biological mother and stepfather being in a stable relationship since the adult's youth. For the selected anchor sample, there were also $n = 506$ reporting mothers, $n = 378$ reporting fathers, and $n = 392$ reporting stepfathers available in the alter data.

Variables and Measurement

Dependent Variables. The strength of father-child and stepfather-child ties was measured using two indicators of relationship quality, namely, the *degree of closeness* and *contact frequency*, as reported by the adult child. Some earlier studies combined the several measures into one scale (King et al., 2014; King et al., 2015). In contrast, our analyses were carried out separately for each measure, as we expected them to be conceptually different from one another and potentially lead to different results. By doing so, we included an emotionally driven indicator of relationship quality, which is disclosed in a personal evaluation, as well as, a behaviorally driven one, which depends more on possible restrictions in time and physical distance and is more couple directed in that both actors in the dyad have to actively participate. Our analyses could derive different results for each measure, as a prior study shows that individuals can feel close to fathers even when contact is minimal due to restrictions in physical distance (Lawton et al., 1994).

The current degree of closeness in father-child ties was measured on a five-point Likert scale and recoded so that higher values indicated closer ties, ranging from *not close at all* (1) to *very close* (5). The measure was treated as an interval variable. Contact frequency was measured as the frequency of face-to-face contact between the adult child and the father figure. The item was measured along six answer categories and recoded so that higher values referred to more contact, with the categories varying from *never* (1) to *multiple times a week* (6).

Explanatory Variables. The duration of co-residence was used as a proxy for paternal investment time. We measured the total years the adult child lived in the same household as the father figure, ranging from *never lived together* (0 years) to *unto adulthood* (18 years). The measure was corrected for possible changes in the child's main residence (i.e., whether the child lived with the father or mother). To measure the quality of the parent–parent dyads, we combine information from multiple sources, the anchor and alter reports. We combined multiple sources to avoid single-reporter bias while also not compromising the size of the analytical sample. In the anchor data, the *mother–father tie* was measured by asking “How well do you

biological parents get along with each other?”. Similarly, all responding mothers and biological fathers in the alter data were asked “How well do you and your previous partner get along with each other?”. Furthermore, in the anchor data, the *father-stepfather tie* was assessed by the item “How well do your biological father and the new partner of your biological mother get along with each other?”. Similarly, all responding stepfathers in the alter data were asked “How well do you and the previous partner of your current partner get along with each other?”. For each parent–parent tie, we use SEM modeling to create a latent variable using all available anchor and alter reports, with full information maximum likelihood (FIML) correcting for the missing alter reports (Kline, 2016). Both variables ranged from *not good at all* (1) to *very good* (5) and referred to the time of the interview. The mother-stepfather tie was, unfortunately, not available in the OKIN survey. However, we used the Divorce in Flanders (DiF) survey to perform an additional check and found no correlation between the mother-stepfather dyad and the predictors related to interdependence or substitution. Thus, we did not expect our findings to be biased by the tie being omitted.

Controls. Several parental traits were included as control variables. We measured five potentially problematic traits of biological mothers, biological fathers, and stepfathers: one item on unemployment and four items on health behaviors. We included parents’ current general health as reported by the adult child, measured using a five-point Likert scale ranging from *very poor* (1) to *very good* (5). Furthermore, the respondents were asked to report whether the parent was ever treated for any mental health problems (1 = *yes* 0 = *no*) or addiction problems (1 = *yes* 0 = *no*). Parents’ frequency of alcohol use was measured on a five-point Likert scale from *never* (1) to *yes, excessively* (5). Alcohol use, mental health problems, and addiction were reported on by the anchors and referred to the period of their youth. We measured parents’ frequency of unemployment by asking the adult child “whether the parent had paid work during their youth”, which was answered on a five-point Likert scale from *worked entire period* (1) to *did not work* (5). The educational levels of the biological mother, biological father, and stepfather were measured

by the years of formal schooling completed. Individual control variables included the adult child’s gender and age. The descriptive statistics of all variables are presented in Table 1.

Design and Method

Our conceptual model included a proposed effect that is not unidirectional in nature, rather showing a bidirectional relationship between the quality of the father-child tie and the quality of the stepfather-child tie (see Figure 1). This entails that (a) association among the main variables was not strictly unidirectional, and (b) the factors constituting the error terms in the model were not fundamentally different for each variable. Therefore, there were good reasons to believe that the assumptions for recursive modeling were violated (Berry, 1984). We addressed the issue of bidirectionality by implementing a nonrecursive SEM approach. Nonrecursive models belong to a larger class of path models that require the use of instrumental variables to achieve identification and thus, allow for estimation (Kline, 2016). This means that, to identify the equations of our two outcome variables, we used a measure that embodied an exogenous source of variation affecting only one relationship and not the other relationship. Such an instrument is deemed valid if it produces change in the explanatory variable (y_1) but has no *independent* effect on the dependent variable (y_2), allowing us to uncover the effect of the explanatory variable on the dependent variable.

The instruments utilized were the biological father’s and stepfather’s personal (problematic) traits, namely, the frequency of unemployment and the four health variables. The instruments were appropriate because a (step)father-offspring tie was expected to be less close when the (step)father showed more problematic traits. In addition, the problem behavior of the biological father was only associated with the stepfather-child tie via its association with the father-child tie. Similarly, problem behavior of the stepfather was only associated with the biological father-child tie via its association with the stepfather-child tie.

A few sources of bias were considered in our model. The parental traits—also used as our instruments—were included because such factors are central in the debate on selection bias in the divorce literature. Parents with problematic traits are less likely to develop

Table 1. *Descriptive Statistics*

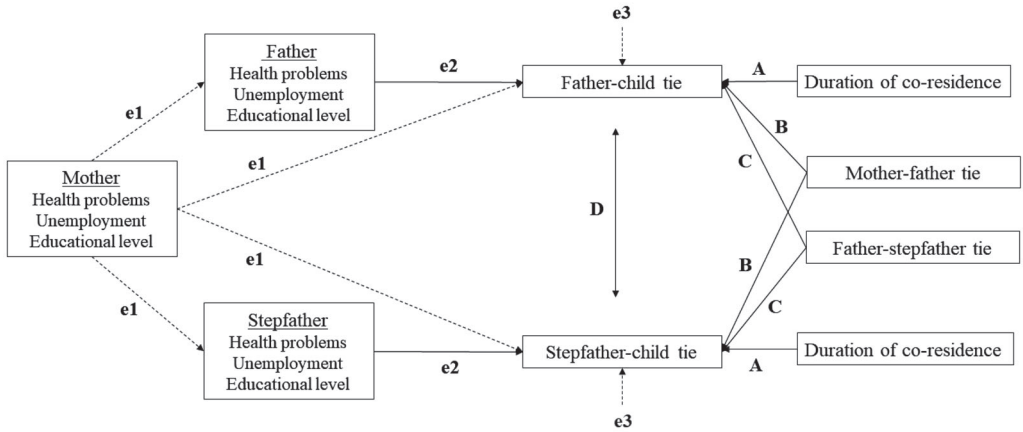
	<i>N</i>	Mean	<i>SD</i>	Min	Max
Biological father-child tie					
Emotional closeness	1,183	3.01	1.35	1	5
Contact frequency	1,183	3.28	1.56	1	6
Stepfather-child tie					
Emotional closeness	1,183	3.29	1.17	1	5
Contact frequency	1,183	4.24	1.41	1	6
Explanatory variables					
Years of co-residence w. father	1,183	9.02	5.10	1	18
Years of co-residence w. stepfather	1,183	6.55	4.59	0	17
Mother–father tie (anchor report)	1,098	2.84	1.26	1	5
Mother–father tie (mother report)	506	2.62	1.40	1	5
Mother–father tie (father report)	387	2.78	1.38	1	5
Father–stepfather tie (anchor report)	1,061	2.99	1.24	1	5
Father–stepfather tie (stepfather report)	392	2.89	1.46	1	5
Control variables					
Fathers' personal traits ^a					
Current general health	1,038	3.47	0.88	1	5
Alcohol use (freq.)	1,183	2.61	1.08	1	5
Mental problems	1,050	0.16	0.36		
Addiction problems	1,050	0.07	0.26		
Unemployment (freq.)	1,038	1.49	1.11	1	5
Education	882	11.51	3.09	6	17
Stepfathers' personal traits ^a					
Current general health	1,117	3.62	0.82	1	5
Alcohol use (freq.)	1,183	2.46	0.93	1	5
Mental problems	1,057	0.06	0.25		
Addiction problems	1,057	0.03	0.17		
Unemployment (freq.)	1,038	1.32	0.88	1	5
Education	846	11.86	3.15	6	17
Mothers' personal traits					
Current general health	1,135	3.62	0.81	1	5
Alcohol use (freq.)	1,183	2.16	0.91	1	5
Mental problems	1,107	0.23	0.42		
Addiction problems	1,107	0.02	0.15		
Unemployment (freq.)	1,038	2.41	1.51	1	5
Education	1,039	10.82	2.56	6	17
Individual controls					
Age	1,183	31.89	5.13	25	46
Female	1,183	0.56	0.50		

^aNote that fathers' and stepfathers' personal traits also function as our instruments.

secure or durable interpersonal relations and therefore are overrepresented in separated or remarried households (Ganong & Coleman, 2016). By including information on the mother's problematic traits and the parents' educational levels, we also controlled for double assortative mating. Double assortative mating entails that, because people tend to choose intimate partners who are similar to one another,

the problematic traits of two fathers could be similar because the mother selected both men (Shafer, 2013). Such similarities could also emerge as a result of selection. Controlling for potential sources of bias was needed because (a) double assortative mating could bias our instruments to be associated to one another and (b) the association between the father-child and stepfather-child tie could be

FIGURE 1. CONCEPTUAL MODEL ON THE LINK BETWEEN THE FATHER-CHILD (Y1) AND STEPFATHER-CHILD TIE (Y2).



Hypotheses

- A: Investment hypothesis (H1)
- B: Interdependence hypothesis (H2 mother-father)
- C: Interdependence hypothesis (H3 father-stepfather)
- D: Substitution hypothesis (H4)

Controls

- E1: Double assortative mating
- E2: Instruments / Selection effects
- E3: Individual controls

overestimated when similarities in negative traits are not considered (i.e., overestimating complementarity).

The conceptual model shown in Figure 1 was estimated using generalized SEM in Stata. The two models for the separate dependent variables were estimated using restricted maximum likelihood, which adjusted the standard errors to be robust in the case of non-normality (Muthén & Muthén, 2005). Also, cases with missing values were accounted for by using FIML.

We added the instruments and the investment and interdependence indicators to our model in a stepwise fashion, though the full model was used to test our hypotheses. In Model 1, the reciprocal relationship between father-child and stepfather-child ties was accounted for by using the fathers' problematic traits as instruments, correctly estimating its bidirectionality. Mother's problem behaviors and parental education were added as controls to account for the possible bias due to selection or double assortative mating. In Model 2, the bidirectional relationship between the quality of the father-child and the quality of the stepfather-child tie was corrected for the duration of co-residence with each father figure. The investment hypothesis implies a negative relationship between the two ties. A possibly negative association between

the two father-offspring ties should thus become less negative as duration emphasizes differences between the two fathers (i.e., investment reinforces substitution). Finally, Model 3 included the relationship quality between the biological parents and the relationship between the two fathers. A possibly negative association between the two father-offspring ties should at that point become more negative, as controlling for interdependence should make the quality of the two ties more similar (i.e., interdependence suppresses substitution).

In all models, the statistical association from the father-child tie to the stepfather-child tie, and the association vice versa, were constrained to be equal. By doing so, we estimated if the bidirectional association between the two father-child dyads was negative or positive, testing the substitution mechanism. That is, a remaining negative association between the two ties would indicate substitution, while a remaining positive association would indicate complementarity. The errors of the two dependent variables were not specified as correlated, as we did not have a clear theoretical base to expect correlated errors on top of reciprocal effects and adding an error term would have increased the complexity of the model. Also, an additional check showed

that the disturbance covariance was positive yet insignificant.

RESULTS

Descriptive Results

To explore the strength of ties between adult children and their parent figures, we compared the descriptive results of respondents' perceived closeness and contact frequency for various parent-child relationships (Table 2). The values of closeness were higher for the biological mother than for either the biological father ($t = 12.99, p < .01$) or the stepfather ($t = 23.026, p < .01$). Adult children also reported to have a stronger relationship with the stepfather compared to the biological father ($t = 5.18, p < .01$). To illustrate, descriptive TFI of the full models having a value 11.4% reported that they were not close to their mothers, whereas 36.1% and 22.3% reported the same about biological fathers and stepfathers. Similar descriptive results were found for contact frequency with mothers, fathers, and stepfathers.

Hypotheses Testing

In the following section, we discussed the unstandardized results of our nonrecursive SEM models. The results on emotional closeness and contact frequency in (step)father-offspring ties are discussed separately. Before interpreting the parameters, the model fit statistics were evaluated for the three models of the main analyses. Based on modification indices, minor adjustments were made to improve the models' fit. For the analyses on the degree of closeness and the analyses on contact frequency in father-offspring relationships, the models had an adequate overall fit, with the CFI/TFI of the full models having a value of 0.7, and the RMSEA having a value below 0.05 (Kline, 2016; specifically a CFI/TFI of 0.851/0.698 and RMSEA of 0.048 for the full model on closeness and a CFI/TFI of 0.841/0.678 and RMSEA of 0.048 for the full model on contact).

Before we interpreted the parameters, we evaluated our instrumental variables and control variables. Fathers' and stepfathers' problem traits were negatively associated with the current intergenerational relationships. Both father-offspring ties were weaker when the (step)father was more frequently unemployed

during the adult child's youth. The ties to a biological father and to a stepfather were weaker when the (step)father's current general health was poorer. In addition, the biological father-child tie was weaker when the father had addiction problems during the child's youth, but the tie was not associated to his alcohol use or mental health problems. The stepfather-child tie was weaker when the stepfather consumed more alcohol during the child's youth, but the tie was not associated with his addiction or mental health problems. These results held for the analyses on emotional closeness as well as for the analyses on contact frequency.

Below, we discussed our findings with respect to father-offspring closeness and father-offspring contact separately and elaborated on the hypotheses about investment, interdependency, and substitution. Note that, when drawing conclusions about our findings, we interpreted them in light of the theoretical arguments put forward in the literature. In other words, we aimed to make theoretically informed arguments about what our results imply.

Closeness in (Step)Father-Adult Child Relationships. Our results on adult children's perceived closeness to (step)fathers are shown in Table 3. We studied Model 3 to examine which mechanisms explain father-child and stepfather-child closeness. Below, the results were first discussed in relation to the investment hypothesis and the interdependence hypotheses, after which we elaborate on the link between the two ties, discussing the substitution hypothesis.

The investment hypothesis was tested by including linear duration effects to the analyses. The total years of co-residence were positively associated with children's closeness with both the biological father and stepfather. The associations for duration were quite steep and were slightly stronger for the stepfather-child relationship ($B = 0.05, p < .001$) than for the biological father-child relationship ($B = 0.04, p < .001$). Adult children's ties to the biological father and stepfather were closer when the father figure lived in the same household as the adult for a longer period of time, in line with the investment hypothesis. The results to some extent implied a trade-off between the two father figures in terms of investment time.

Our analyses on the two interdependence hypotheses firstly confirmed that the quality

of the relationship between the two divorced biological parents was positively associated with the father-child tie ($B = 0.42, p < .001$) and negatively associated with the stepfather-child tie ($B = -0.10, p < .05$). That is, the better the biological father and mother got along currently, the closer the relationship between the adult child and the biological father and the less close the relationship between the adult child and the stepfather. The associations in relation to the mother-father tie were somewhat asymmetric, in that the negative association for the stepfather-child tie was much weaker than the positive association for the father-child tie. In addition, the strength of the tie between the two father figures themselves was also important, affecting both the stepfather-child tie ($B = 0.26, p < .001$) and—although to a lesser extent—the biological father-child tie ($B = 0.09, p < .05$). In other words, when the father and stepfather got along, the child was more likely to form close bonds with both father figures.

Before testing our substitution hypothesis, we checked whether the link between the two dyadic (step)father-offspring ties changed after the instruments, investment variables, and interdependence variables were added to the model. The first model in Table 3, which calculated the bidirectional association between the dyads using the fathers' traits as instruments, suggested that there was a negative association between the relationship quality of the father-child tie and the relationship quality of the stepfather-child tie ($B = -0.06, p < .001$;

evidence for substitution). The association between the two dyads remained significant and negative after adding the years of co-residence with each father figure (Model 2), yet the magnitude of the association became weaker ($B = -0.04, p < .01$). The reduction in magnitude was not surprising, as we expected that co-residence implied a trade-off between the two father figures. When we added the strength of the mother-father and father-stepfather tie to the analyses, the association between the father-child tie and the stepfather-child tie remained significant and became more negative. This was not surprising, as the interdependence mechanism implies a positive relationship between the father-child and stepfather-child tie. From the full model, we were able to interpret the overall bidirectional association between the two ties, which tested our substitution hypothesis ($B = -0.07, p < .001$). Although the bidirectional association was small in magnitude, the results showed a significant and negative link between the two ties. The association confirmed that, after accounting for investment and interdependence, there was weak substitution in father-offspring ties, with adult children being more likely to have developed a close relationship to one father figure, than to have close relationships to both fathers or neither father.

Contact in (Step)Father-Adult Child Relationships. We continued with our analyses on contact frequency within (step)father-child dyads, as displayed in Table 4. Again, we first discuss

Table 2. Child's Perceived Closeness and Contact Frequency, Across Types of Parents

	Mother	Father	Stepfather
<i>Closeness M(SD)^a</i>	3.93 (1.14)	3.01 (1.35)	3.29 (1.17)
Close (%)	72.54	42.27	48.27
Reasonably close (%)	16.10	21.64	29.42
Not close (%)	11.36	36.09	22.32
<i>Contact frequency M(SD)^b</i>	4.49 (1.37)	3.27 (1.56)	4.29 (1.41)
Weekly (%)	57.14	23.58	47.93
Monthly (%)	31.53	40.57	38.29
Less often (%)	6.00	18.60	7.10
Not at all (%)	5.33	17.24	6.68
Sample size (N)	1,180	1,183	1,183

^aCloseness ranges from 1 to 5. Close = scores of 4 (*close*) or 5 (*very close*), Reasonably close = scores of 3 (*reasonably close*), and Not close = scores of 1 (*not close at all*) or 2 (*not close*). ^bContact frequency ranges from 1 to 6. Weekly = scores of 5 (*about weekly*) or 6 (*multiple times per week*), Monthly = scores of 3 (*about every 2 months*) or 4 (*about monthly*), Less often = scores of 2 (*less often*), and Not at all = scores of 1 (*not at all*).

the investment hypothesis and interdependence hypotheses, after which we elaborate on the link between the two ties (i.e., the substitution hypothesis).

In terms of investment, the duration of co-residence was also significantly related to the contact frequency with biological fathers ($B = 0.07, p < .001$) and stepfathers ($B = 0.04, p < .001$). Fathers who spent a longer time living with (and potentially investing in) their (step)children, were more likely to see their children often later in life. In contrast to the results on closeness, the role of duration was stronger for biological fathers compared to stepfathers.

The principle of interdependent ties was visible in the positive association between the

quality of the mother–father tie and contact in the father–child tie ($B = 0.57, p < .001$). In contrast to the results on closeness, contact frequency in stepfather–child ties seemed to be unaffected by the extent to which the biological parents got along. A positive mother–father relationship thus seemed to be weakly associated to an emotional gap between the adult child and stepfather, while their face-to-face contact is unaffected. The strength of the relationship between the biological father and stepfather was only associated with stepfather–child contact ($B = 0.18, p < .001$). This indicated that the biological father may play a role in limiting stepfather–child contact, while a similar association was not present from stepfathers to biological fathers.

Table 3. Nonrecursive Structural Equation Model on Perceived Closeness in (Step)Father-Offspring Ties

	Model 1: closeness		Model 2: closeness		Model 3: closeness	
	Father-child	Stepfather-child	Father-child	Stepfather-child	Father-child	Stepfather-child
Mechanisms						
<i>Substitution^a</i>						
Father-child closeness	-0.06***		-0.04***		-0.07***	
Stepfather-child closeness		-0.06***		-0.04***		-0.07***
<i>Investment</i>						
Years of co-residence			0.04***	0.06***	0.04***	0.05***
<i>Interdependence</i>						
Mother–father tie					0.42***	-0.10*
Father–stepfather tie					0.09*	0.26***
Controls						
<i>Selection factors (instruments)</i>						
(Step)fathers' alcohol use (freq)	-0.01	-0.05	-0.00	-0.07	-0.02	-0.07*
(Step)fathers' general health	0.32***	0.25***	0.31***	0.23***	0.25***	0.21***
(Step)fathers' unemployment (freq)	-0.15***	-0.18***	-0.13***	-0.15***	-0.10**	-0.14***
(Step)fathers' mental problems (ref. no)	-0.22*	-0.31*	-0.22*	-0.30*	-0.14	-0.23
(Step)fathers' addiction (ref. no)	-0.44**	-0.42	-0.42**	-0.37	-0.35*	-0.36
(Step)fathers' education	0.04*	0.00	0.03*	0.00	0.03*	0.00
<i>Other controls</i>						
Mothers' traits ^b	Yes	Yes	yes	Yes	Yes	Yes
Double assortative mating	Yes	Yes	yes	Yes	Yes	Yes
Age	-0.03***	0.00	-0.02***	0.00	-0.02**	0.00
Female	-0.04	0.14*	-0.03	0.12	-0.04	0.13*
Sample size (N)	1,183	1,183	1,183	1,183	1,183	1,183

Notes: Unstandardized results of generalized SEM models, with * $p < .05$. ** $p < .01$. *** $p < .001$.

^aNote that the association from the father–child and stepfather–child tie, and the association vice versa, have been constrained to be equal. ^bNote that we account for double assortative mating and selection by including mothers' traits (alcohol use, general health, mental problems, addiction problems, educational level) and by controlling for the association between mothers' traits and fathers' traits and mothers' traits and stepfathers' traits. In the table, Yes is displayed to emphasize that these controls are included.

Table 4. Nonrecursive Structural Equation Model on Perceived Contact Frequency in (Step)Father-Offspring Ties

	Model 1: contact		Model 2: contact		Model 3: contact	
	Father-child	Stepfather-child	Father-child	Stepfather-child	Father-child	Stepfather-child
Mechanisms						
<i>Substitution^a</i>						
Father-child contact	-0.03*		-0.02		-0.05**	
Stepfather-child contact		-0.03*		-0.02		-0.05**
<i>Investment</i>						
Years of co-residence			0.07***	0.05***	0.07***	0.04***
<i>Interdependence</i>						
Mother-father tie					0.57***	0.08
Father-stepfather tie					0.02	0.18***
Controls						
<i>Selection factors (instruments)</i>						
(Step)fathers' alcohol use (freq)	0.02	-0.11*	0.03	-0.12**	0.01	-0.13**
(Step)fathers' general health	0.30***	0.15**	0.28***	0.14**	0.21***	0.11**
(Step)fathers' unemployment (freq)	-0.17***	-0.28***	-0.14***	-0.25***	-0.10**	-0.23***
(Step)fathers' mental problems (ref. no)	-0.12	-0.29	-0.12	-0.28	-0.05	-0.23
(Step)fathers' addiction (ref. no)	-0.59**	-0.38	-0.55**	-0.34	-0.47**	-0.31
(Step)fathers' education	-0.00	-0.03	-0.00	-0.02	-0.01	-0.03*
<i>Other controls</i>						
Mothers' traits ^b	Yes	Yes	Yes	Yes	Yes	Yes
Double assortative mating	Yes	Yes	Yes	Yes	Yes	Yes
Age	-0.04***	-0.02***	-0.04***	-0.03***	-0.03***	-0.02***
Female	-0.22*	0.13	-0.21**	0.11	-0.22**	0.10
Sample size (N)	1,183	1,183	1,183	1,183	1,183	1,183

Notes: Unstandardized results of generalized SEM models, with * $p < .05$. ** $p < .01$. *** $p < .001$.

^aNote that the association from the father-child and stepfather-child tie, and the association vice versa, have been constrained to be equal. ^bNote that we account for double assortative mating and selection by including mothers' traits (alcohol use, general health, mental problems, addiction problems, educational level) and by controlling for the association between mothers' traits and fathers' traits and mothers' traits and stepfathers' traits. In the table, Yes is displayed to emphasize that these controls are included.

Similar to our analyses on substitution in emotional closeness, the results in Table 4 showed a weak negative association between the frequency of contact in father-child ties and the frequency of contact in stepfather-child ties, with contact frequency in the dyads being calculated by using fathers' problematic traits as instruments ($B = -0.03, p < .01$). The association between the two dyads remained negative yet became insignificant after we corrected for the total years one had lived with the biological father and stepfather. After adding the quality of relationship between the divorced biological parents and the quality of relationship between the two fathers, a significant negative association emerged between contact in father-child and contact in stepfather-child relationships ($B = -0.05, p < .01$). The full model showed

the overall bidirectional association which was expected to be the result of the child's agency. The findings indicated that adult children were more likely to have frequent contact with one father figure than to frequently have face-to-face contact with both fathers or neither father thus showing weak substitution. Additional standardized analyses showed that the found substitution dynamics were similar for face-to-face contact and emotional closeness.

CONCLUSION AND DISCUSSION

By examining adult children's relationships to divorced biological fathers and stepfathers, our research shed more light on the long-term complexity of concurrent parent-child ties in

post-divorce family structures. Our goal was to provide a comprehensive view of how adult children deal with the simultaneous presence of two father figures, testing various theoretical mechanisms driving the quality of father-child ties. The existing literature includes individual mechanisms, which are expected to explain the quality of single parent-child ties, as well as, network mechanisms, which elaborate on the ways in which dyadic ties may be interdependent with one another. A frequent expectation in the literature has been that biological fathers and stepfathers may substitute each other in their parental involvement—a notion that has not previously been properly disentangled in the stepparenting literature. We aimed to address this gap by using a more sophisticated method that was designed to consider confounding problems and issues of bidirectionality, namely, nonrecursive SEM modeling (Kline, 2016). By doing so, we were able to explore three theoretical mechanisms simultaneously, examine the bidirectional influence between father-child and stepfather-child ties, and to test if adults' ties to biological fathers and stepfathers are indeed substitutional.

Our descriptive results on intergenerational ties are similar to findings in the existing literature about younger children in the U.S. A prior study reported that children have on average closer bonds to mothers and stepfathers than to divorced fathers (King, 2006), which was also reflected in our descriptive results. The higher closeness to mothers is not surprising given that most respondents grew up with their mother after their parents separated. It should be noted that our sample of adult children reported similar or higher values on closeness in comparison to earlier findings on father-child ties (King, 2006) and stepfather-child ties (Klaus et al., 2012). As prior studies typically focused on young children, adolescents, or young adults, the higher levels of relationship quality for our sample may indicate that strained ties during youth can evolve over time and improve once children are adults. In addition, some of the weaker and more unstable stepfather-child bonds in childhood may not be present in our sample of adults because the stepfathers separated from the mother. Our descriptive results could imply that solely studying father-child relationships during youth may result in a too negative depiction of divorced fathers' or stepfathers' ties with their (step)children.

Three theoretical mechanisms on the quality of father-child ties were tested, namely, investment, interdependence, and substitution. First, we examined the importance of early parental investments for adult ties between parents and children. Our findings on the duration of co-residence strongly support the investment hypothesis (H1): the longer the (step)father co-resided with (and potentially invested in) the child in youth, the closer the adult tie was and the more contact there was later in the child's life. What this association with co-residence could mean, is that the more time a father figure has to invest in the relationship during the child's youth, the more his current relationship with the adult child benefits. In other words, variations in the length of the parental investment period and shared history seem to play a central role in the quality of (step)father-child relations in the long run.

Second, we followed arguments on interdependent ties and proposed that it may be important to study the structure of parent-parent ties in which a parent-child tie is embedded, an argument that has not often received empirical attention in prior research on complex families (Ganong & Coleman, 2016). Our results support interdependence, showing that the mother-father tie was positively associated with the quality of the father-child tie and—although to a lesser extent—negatively associated with the closeness of the stepfather-child tie (H2). If gatekeeping indeed underlies the associations, our findings may imply that the biological father benefits from keeping a close relationship to the biological mother, whereas the stepfather's access to his stepchildren or interest in his stepchildren becomes more restricted when the mother-father tie is more positive. The negative association between the mother-father and stepfather-child tie could be due to a lack of facilitative gatekeeping toward the stepfather when the mother and father get along. The central position of biological mothers in facilitating or restricting (step)father-child ties—as suggested by our findings—has previously been proposed in research on young children (Weaver & Coleman, 2010) but is surprising nonetheless, as we studied a sample of independently living adults.

Our findings also support interdependence in relation to the father-stepfather tie (H3). The quality of the father-stepfather tie was positively associated with closeness and contact

in the stepfather-child tie and with closeness in the father-child tie, whereas the association with father-child contact was insignificant. Thus, when the father and stepfather get along well with each other, both father figures were more likely to be closer with the child, while contact between the biological father and adult child was unaffected. There could be several reasons why the association does not exist for biological father-child contact. For instance, the biological father may have a gatekeeper position in restricting or facilitating the adult child's ties with a stepfather, whereas stepfathers may not have similar powers with respect to the adult child's contact with a biological father. In addition, when the father-stepfather tie is weaker, adult children may avoid the involvement of a stepfather because they do not want to hurt the biological father's feelings. If so, the stepfather may improve his contact with the child by investing in his bond with the biological father, whereas the biological father cannot improve his contact with the child by creating a positive bond with the stepfather.

Third, the substitution hypothesis suggests that the quality of the father-child tie and stepfather-child tie may be linked: adults are more likely to be close to one father, than to both fathers or neither father (H4). Our results indeed showed a weak negative association between the father-child and stepfather-child tie, both for emotional closeness and contact frequency. The weak negative association implies that not complementarity but substitution is at play, although the two father-offspring ties obviously do not "replace" one another. Even though we found weak substitution—which may also be due to the fact that we control for concomitant mechanisms—our results do suggest that children are indeed more likely to be drawn to one father figure in the concurrent existence of both. An important implication of substitution is that it may translate to compensation effects in terms of well-being. That is, if a weaker relationship with one father after divorce can partly be substituted by a closer relationship with another father figure (substitution), closeness to a substituting (step)father may also hamper the potential negative effects of the weak biological father-child tie on child well-being (compensation). This implication relates to earlier research on mental health, which suggested that the joint influence of the two fathers should be considered, as *matter*

ing to either father is related to less internalizing and externalizing problems, while mattering to both does not necessarily lead to a reduction of mental health problems (Schenck et al., 2009). A venue for future research would be to further examine compensation effects on well-being in terms of closeness, questioning whether the consequences of having a weak father-child tie in terms of well-being can be compensated by a closer tie to another father.

Although the current study is first in accounting for the bidirectional association between (step)father-child ties via nonrecursive SEM modeling, it should be acknowledged that it has some limitations, possibly providing valuable directions for future research or analyses. First, information on the quality of the mother-stepfather tie was not included in our model because it was not available in the OKiN survey. The mother-stepfather tie has previously been shown to be important for the quality of stepfather-child ties (King, 2006; King, Thorsen, & Amato, 2014), especially when children are young and still adjusting to the presence of a stepparent (Buchanan, Maccoby, & Dornbusch, 1996). The importance of the mother-stepfather tie may hold when studying adult children from stable stepfamilies, although likely to a lesser extent. We have therefore not measured the interdependence notion in relation to all parent-parent ties in which father-child ties and stepfather-child ties are embedded. Still, by using the OKiN data, we were able to test the importance of two other parent-parent ties, which had not often received empirical attention. As an additional check, we used the DiF survey (Mortelmans et al., 2012), which includes information on all three parent-parent ties but otherwise does not fit the present paper due to its focus on recently divorced families. We found no evidence for a correlation between the mother-stepfather tie and mother-father tie ($r = -0.007, p = .832$) or for a correlation between the mother-stepfather tie and the biological father-child tie ($r = 0.045, p = .409$). In sum, although we are missing the mother-stepfather dyad from our analyses, it is unlikely that our findings on interdependence and substitution are biased by the missing tie.

A second limitation lies in the use of retrospective information to measure fathers' and stepfathers' problematic behaviors during the child's youth. In our paper, information was used on (step)fathers' previous alcohol use, addiction

problems, mental health problems, and unemployment as reported by the child. Such measures are generally assumed to be prone to bias due to children overestimating or underestimating past behaviors. Using retrospective measures was helpful nonetheless, as we wanted to elaborate on the ties of adult children, yet also include information on the family situation when they were growing up. Moreover, the retrospective measures were based on concrete questions rather than questions that are more open to interpretation (e.g., whether a parent was ever *treated* for depression). Using data from panels could function as a good alternative, but panels often do not include a large sample of adults from complex families, nor information on ties with stepparents.

Third, our data were cross-sectional of nature. The use of cross-sectional data was driven by our aim to examine adult children. We wanted to examine how father-child relationships within complex families have unfolded once the child has reached adulthood. The focus on adults is important, as divorce effects on relationship quality may be temporary, with previous research not sufficiently accounting for the adjustment period that follows parental divorce (King et al., 2015). The OKiN survey included a comparatively large sample of independently living adults who grew up with two fathers. It therefore allowed us to examine parent-child relations long after the divorce took place. Given the cross-sectional nature of the data, however, we were not able to study changes in parent-child relationships from childhood to adulthood. Using information on several time points would be an ideal alternative for future research. As mentioned earlier, however, current panel surveys generally have limited information on complex families, and additionally, panels rarely include enough waves to provide information on adult children.

Fourth, co-parenting or shared custody arrangements after parental separation may affect the ways in which parents build relationships with their children. Such arrangements may problematize our assumption that investment can be examined by looking at the duration of parent-child co-residence only. However, the residence histories of the adults analyzed in our paper are not often characterized by co-parenting. The adults—born between 1971 and 1991—grew up in a period when shared residence was not common in the Netherlands

(Poortman & van Gaalen, 2017). Also, we did account for the possibility that adult children moved between their parents' households in our "years of co-residence" measure.

In future research, more attention should be directed to the other possible interdependencies in family ties after parental separation or remarriage. That is, when investigating how increasing divorce rates have affected intergenerational exchanges or transmission, we need to consider the other ways in which multiple parents may coordinate, and how parents possibly adjust their involvement due to the presence of other types of parents. Future analyses could determine whether similar substitution effects are visible with respect to children's ties to biological mothers and stepparents. Information on the personal life histories of adult children before, during, and after the divorce could also be studied, as those may affect the adult's perceptions of biological- and stepparents. Our research can also be extended to study which interrelations exist between all the different dyads in complex family networks. As the involvement of various parent figures affects the exchanges in emotional or practical support between parents and children, the presence of various parents may also have implications for the child well-being later in life. Research should focus on the interplay between (step)parents and its effects on adult children's long-term well-being.

To conclude, our study provides new insights on the concurrent presence of two fathers figures in an adult child's life. As our findings support substitution in adult's parallel relationships to two father figures, as well as, interdependence in relation to parent-parent ties, our analyses demonstrate the need to consider the reciprocal influences among all members of a family unit. Research on stepparenting should therefore not limit its focus to the quality and development of parent-child ties across different family structures (i.e., between-family approach), but also elaborate specifically on the complex structure of co-parental relationships in which parent-child ties are embedded (i.e., within-family approach). Only then, it will be possible to rigorously study notions underlying the interdependence of ties, such as gatekeeping, kinkeeping, and conflicting loyalties.

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