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# Family Disruption and Intergenerational Reproduction: Comparing the Influences of Married Parents, Divorced Parents, and Stepparents

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**Abstract** The transmission of individual characteristics and behaviors across generations has frequently been studied in the social sciences. For a growing number of children, however, the biological father was present in the household for only part of the time; and for many children, stepfathers were present. What are the implications of these changes for the process of intergenerational transmission? To answer this question, this article compares intergenerational transmission among married, divorced, and stepparents. Two forms of reproduction are studied: educational attainment and church attendance. For education, divorced fathers were as influential as married fathers, whereas stepfathers were less influential. For church attendance, married fathers were most influential, divorced fathers were least influential, and stepfathers were in between. Divorced mothers, in contrast, appeared to be more influential than married mothers. These findings lend negative support for the social capital hypothesis and positive support for notions of value socialization. The strong role of the divorced father for educational transmission is consistent with genetic processes and hypotheses about early advantages.

**Keywords** Divorce · Education · Religion · Intergenerational reproduction · Social capital

## Introduction

The transmission of individual characteristics and behaviors across generations has frequently been studied in the social sciences. Most common are sociological studies in which the educational and occupational attainment of parents are related to the

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educational and occupational attainment of their children (Bar Haim and Shavit 2013; Ganzeboom et al. 1991; Hout 2003; Plug 2004). Other forms of transmission or reproduction that have been studied are church attendance (Kelley and De Graaf 1997; Vaidyanathan 2011), leisure behavior (Notten et al. 2012), norms and values (Min et al. 2012; Moen et al. 1997), health behavior (Brook et al. 2013), demographic behavior (Liefbroer and Elzinga 2012), and behavior in relationships (Birditt et al. 2012). Most of these studies have related characteristics of adult respondents to the same characteristics of fathers and mothers when the respondent was growing up. Usually, measures of parents are obtained retrospectively via the children, although some studies have used multi-actor data and longitudinal designs. Virtually all studies have found modest to strong correlations between parents and children, and much research has been devoted to explaining these similarities.

One potential problem in this research area lies in the increasing complexity of families (Thomson 2014). For a growing number of children, the biological father was present in the household for only part of the time. Divorced fathers may be present at a distance, but ties are often weak between children and their noncustodial divorced parents (Manning et al. 2003). Similarly, many parents enter a second union, resulting in an increasing number of children now growing up at least part of the time with a stepfather. The role of stepfathers in the process of intergenerational transmission is not well understood, nor is it known how parental divorce affects the transmission process. Although there is much research on parental divorce and stepfamilies, this research is concerned either with the main effects of family disruption on child outcomes (Fomby and Cherlin 2007; McLanahan 2004; Pong et al. 2003; Rumberger et al. 1990) or with comparing the strength of parent-child relationships across different types of parents (Aquilino 2006; Kalmijn 2015; King 2006, 2009). Few studies have addressed interaction effects—that is, how the influence of parental characteristics on children's characteristics is modified by the type of parent.

In this article, I compare the transmission of traits from parents to children across married parents, divorced parents, and stepparents. One reason to make this comparison is that it allows me to test alternative theories about the nature of the transmission process. Characteristics of parents can be transmitted to children through various social processes, but they can also be transmitted genetically. The three types of parent-child ties differ genetically, but they also differ socially. Married fathers are biologically related to their children and do not experience interrupted parenting. Divorced fathers are biologically related as well but experience less exposure to the child. Stepfathers, finally, are not biologically related but do experience less exposure to the child. Because of these differences, a comparison of the strength of reproduction across the three types of parents will shed new light on the importance of the social vis-à-vis genetic dimensions of intergenerational transmission.

The comparison of different types of fathers (and mothers) is important in its own right as well. Many studies have been conducted on the main effects of divorce and remarriage on a range of child outcomes, including well-being, educational attainment, and unemployment. In these studies, parental divorce and single parenthood are considered as factors that contribute to societal inequality (McLanahan 2004). A related but conceptually different question is whether divorce and single parenthood change the degree of intergenerational reproduction. To answer this question, we need to examine the influence of *characteristics* of divorced parents instead of the influence

of *having* divorced parents. This shift in focus from main effects to interaction effects allows us to examine whether demographic trends, such as the decline of marriage and the increase in divorce, have had implications for intergenerational transmission (Mare 2011). In the long run, the growing instability of marriage may weaken the intergenerational transmission of traits if divorced fathers—and perhaps divorced mothers, too—have a weaker influence on their children than married parents.

Two cases of intergenerational transmission are considered in this article: educational attainment and church attendance. Research in social stratification has shown that parents' and children's educational attainment are still positively correlated despite the considerable decline of this association across birth cohorts (Breen et al. 2009; De Graaf and Ganzeboom 1993). Evidence also suggests that church attendance and religious beliefs are transmitted from parents to children (Chamrathirong et al. 2013; Kelley and De Graaf 1997; Myers 1996; Vaidyanathan 2011; Voas and Storm 2012). Examining both applications in one study is partly motivated by the fact that the transmission of education has a genetic component, whereas this is unlikely to be the case for the transmission of church attendance (Plomin 1990). In this sense, the transmission of church attendance should be governed less strongly by the biological relatedness of parents and children than the transmission of education. Moreover, church attendance is largely based on norms, values, and preferences—hence, a cultural orientation—whereas education is linked to resources. As discussed later in the article, this difference may also have implications for the nature of the transmission process.

Only a few previous studies have examined the consequences of family disruption for intergenerational transmission. In a classic study, Biblarz and Raftery (1993) analyzed data from the well-known 1962 and 1973 Occupational Changes in a Generation (OCG) surveys, and showed that the influence of the socioeconomic status (SES) of the family of origin on son's SES was stronger for families that were intact when the child was age 16 than for families that were no longer intact at that age (Biblarz and Raftery 1993). To measure the status of the family of origin, Biblarz and Raftery used information on the head of the family, which could be the natural father (in two-parent families), the mother (in single-parent families), or the stepfather (for remarried mothers). The effect in single-parent families could therefore pertain to either the mother or the stepfather, and this blurred the comparison with natural fathers. More recently, Eriksen et al. (2013) used Norwegian register data to examine effects of stepfather traits on children's traits. Eriksen and colleagues found a positive effect of a stepfather's education on a son's intelligence scores when the effects of the natural father's and mother's education were taken into account (Eriksen et al. 2013). This is positive evidence for the social nature of the transmission process, but the stepfather effect in this study was not tested against the effect of natural fathers. Moreover, the extent to which stepfathers also influence other, more cultural types of traits cannot be studied with register data.

Existing data sets that contain valuable information on stepparents typically have too few stepparents to test interaction effects conclusively (Hofferth and Anderson 2003; King 2009). Moreover, these data sets often focus on children who are living at home, whereas my focus is on adult children. To address the research questions, I use data from the National Fertility Surveys of the Netherlands (Onderzoek Gezinsvorming (OG)). When pooling the four most-recent waves of these data, I obtain a large number of respondents ( $n = 34,344$ ), making it possible to obtain a reliable estimate for

stepfathers ( $n = 697$ ) and stepmothers ( $n = 215$ ). Another main advantage of the data is that information was gathered on both the frequency of church attendance and the level of education of parents—a combination that is rare in most surveys.

## Background and Hypotheses

In understanding patterns of intergenerational transmission, a distinction can be made between social and biological perspectives. Sociologists have suggested two hypotheses about how the social transmission process works: the social capital hypothesis and the value socialization hypothesis. The social capital hypothesis is based on the notion of resources. Especially in stratification research, it has been argued that highly educated parents pass on cultural resources to their children that help them to succeed in school. Examples of such resources are knowledge, learning skills, reading habits, language styles, and cultural interests (De Graaf 1986; DiMaggio and Mohr 1985). Research has shown that the effect of parent's education on children's education is mediated by the cultural capital of both parents and children (Aschaffenburg and Maas 1997; Sullivan 2002). The effect of parental cultural capital is especially mediated by parents' transmission of reading practices to children, which are functionally important in school (De Graaf et al. 2000). For the transmission of education, financial resources have also been regarded as an explanation of the effect of parental education on children's education. In the Netherlands, however, such effects have traditionally been weak (De Graaf et al. 2000).

The notion of resources implies not only a mediating effect but also an interaction effect. In his classic piece on human and social capital, Coleman argued that the transmission of parental resources must occur through interaction (Coleman 1988). Specifically, Coleman claimed that the resources of parents would be transmitted more strongly when parents are more involved in the child's life. In Coleman's (1988:S110) words, "It is of course true that children are strongly affected by the human capital possessed by their parents. But this human capital may be irrelevant to outcomes for children if parents are not an important part of their children's lives." Because parental involvement strengthens the transmission of resources, Coleman regarded parental involvement as a form of social capital in the creation of human capital.

Evidence for this interaction effect is mixed, despite the popularity of the hypothesis. Some authors have found that effects of parental status on children's school outcomes are stronger when parental involvement is greater (McNeal 1999; Teachman et al. 1997). Other and later studies have not found evidence for significant interactions between parental status and parental involvement (Amato and Fowler 2002; Crosnoe 2004; Domina 2005; Olsson 2009; Park 2008). A possible reason for these mixed findings lies in the limited variance that exists in parental involvement. Ties between parents and children are often strong, and parents are generally highly involved in the child's schooling. Perhaps when we look at divorce and stepparenting, the amount of variance in involvement is greater, leading to better chances of finding evidence for the hypothesis.

A second hypothesis about social transmission is the value socialization hypothesis: children take over the norms and values from their parents via observation of the parents' behavior, and parents directly teach children the importance of certain norms and values (Axinn and Thornton 1993; Min et al. 2012). Several studies have shown

that value socialization by parents is highly relevant for children's religious beliefs and behavior (Sherkat 2003; Thomas and Cornwall 1990). Like the resource hypothesis, the value socialization hypothesis implies an interaction effect. In research on child development, it has traditionally been argued that the strength of the parent–child tie and, in particular, the warmth of the relationship and the degree of attachment to the parent are important conditions for the successful socialization of children (Grusec et al. 2000). Research on church attendance has partly confirmed this hypothesis. Myers (1996), for example, found that the effect of parental religiosity on adults' religiosity is stronger when children received more support from parents during childhood.

Hypotheses about resources and value socialization are developed in different segments of the literature. The social capital hypothesis is used most often in stratification research and applies directly to educational transmission. The value socialization hypothesis is used most often in child development research and applies most directly to cultural orientations, such as church attendance. The two hypotheses can also be relevant more generally. Parents attend church with their children and teach them about religious symbols and practices. Because church attendance is less meaningful without knowing something about its content, this transfer of knowledge (i.e., resources) can partly explain the effect of parents' church attendance. Similarly, value socialization can be important for educational attainment. For example, by communicating with the child about school and by asking about homework, parents indirectly transmit the value that schooling is important in life (McNeal 1999). Despite these cross-domain effects, it is generally believed that educational transmission has more to do with resources, whereas religious transmission has more to do with socialization.

Hypotheses about social transmission are often contrasted with a genetic hypothesis. Most researchers have found that cognitive skills are partly inherited, although there is debate about the exact magnitude of this effect (Dickens and Flynn 2001; Petrill et al. 2004; Plomin and Petrill 1997). Because cognitive skills are partly inherited, the transmission of educational attainment will have a genetic component as well, depending on how much cognitive skills affect educational attainment in a society. When educational systems are more meritocratic, the genetic component will be stronger. Both classic and recent studies have shown that a substantial part of the transmission of educational advantages across generations depends on genetic effects (Behrman and Rosenzweig 2002; Jencks 1972; Nielsen 2006; Plug 2004).

The social and genetic hypotheses have different implications for the differences that we would expect to find among married fathers, divorced fathers, and stepfathers. Married fathers share more time with a child than both stepfathers and divorced fathers. The amount of time that stepfathers and divorced fathers share with the child does not differ greatly; both experience partial parenting (Kalmijn 2015). Of course, some divorced fathers will still be involved in major decisions regarding the child's life, including decisions about school careers, but there will be much less day-to-day transmission of resources than would be possible had the parents remained married (Cheadle et al. 2010; Cooksey and Craig 1998; Manning and Smock 1999; Manning et al. 2003).

Following the social capital hypothesis, one would expect that *the intergenerational transmission of education is stronger for married (biological) fathers than for both divorced fathers and stepfathers* (Hypothesis 1). Following the genetic hypothesis, one would expect that *the intergenerational transmission of education is stronger for married and divorced fathers than for stepfathers* (Hypothesis 2). It is clear that the

two hypotheses have the same prediction for the comparison of married fathers and stepfathers. Genetic differences and differences in exposure coincide. For that reason, the genetic hypothesis can be tested better by comparing stepfathers and divorced fathers (both experience limited exposure), whereas the social hypothesis can be tested better by comparing married and divorced fathers (both are genetically related).

For the transmission of church attendance—which has no obvious base in biology—we expect to find the biggest difference between married fathers on one hand, and stepfathers and divorced fathers on the other. The latter two should not differ. The hypothesis is as follows: *the intergenerational transmission of church attendance is stronger for married fathers than for divorced fathers and stepfathers, and there is no difference between divorced fathers and stepfathers* (Hypothesis 3).

The theoretical perspectives can also be applied to the influence of mothers, but the power to differentiate the perspectives is more limited. Most divorced mothers will be the resident mothers and thus will spend the same amount of time with the child as married mothers. Stepmothers spend less time with the child and are also not biologically related. Hence, the social and genetic perspectives make the same prediction: *the transmission of education and church attendance is stronger for married and divorced mothers than for stepmothers* (Hypothesis 4).

In comparing the three types of parents, one also needs to consider more specific arguments. One element is the timing of influence. Divorced fathers are present in the early stages of the child's life (often during childhood), whereas stepfathers always come later (often during adolescence). The question thus arises whether the degree of influence, or the effectiveness of influence attempts, is different in adolescence than in childhood. Studies of cultural and political orientations have shown that the effects of parental characteristics become weaker during adolescence, supporting the notion of a formative stage in people's lives (Inglehart 1977; Vollebergh et al. 2001). These studies focus on adolescents, however, and less is known about the transmission of cultural orientations during childhood. The classic idea in socialization theory that cultural and political orientations are formed in adolescence rather than in childhood has, therefore, gone without much empirical evidence (Sherkat 2003; Van Deth et al. 2011).

For the transmission of education, expectations about the timing of influence are clearer. The Netherlands has an educational system with considerable between-school tracking at age 12; thus, the ultimate level of education reached is largely based on early scholastic developments and schooling decisions. Studies have shown quite strong effects of parental education on the type of secondary school chosen (Tieben et al. 2010). Moreover, the role of ascription is relatively large in the Netherlands compared with other countries because of the early tracking system (Van de Werfhorst and Mijs 2010). This suggests that for education, influences during childhood may be more important than influences during adolescence. This early-benefit hypothesis implies a stronger role for divorced fathers than for stepfathers, just as the genetic hypothesis would imply. To separate these effects requires an analysis of parental education and detailed schooling transitions but that is beyond the scope of the present article.

Another additional argument is that a divorce may have an impact on the resident mother as well. Divorced mothers may try to compensate for the loss of the father (Mandemakers and Kalmijn 2014). The mother may become a stronger role model for the child if the father is absent, perhaps resulting in a stronger ability to socialize the child. Moreover, the tie between mother and child may become stronger after divorce,

which should lead to a greater ability to transmit resources compared with married mothers. More highly educated mothers may also be more aware of the risks of single parenthood for children and therefore may be especially motivated to help the child with school work. All these arguments suggest that the effects may be stronger for divorced mothers than for married mothers.

## Data and Method

The data that I use come from the National Fertility Surveys in the Netherlands (OG). The samples for these surveys are based on the population of men and women aged 18–42 in 1993, 18–52 in 1998, and 18–62 in 2003 and 2008. Municipalities were selected first based on region and urbanization; and within municipalities, random samples of households were drawn from the municipal registers. In each household, all adults (a maximum of three) were asked to participate. Computer-assisted structured interviews were held with the respondents in their home. Samples are large:  $N = 8,221$  in 1993,  $N = 10,167$  in 1998,  $N = 8,145$  in 2003, and  $N = 7,811$  in 2008. Because the surveys have a similar design, pooling them is unproblematic. Register data were considered as well because these would yield even larger numbers of stepfathers. However, register data do not have information on church attendance of parents and children.

The empirical strategy of this article is to examine intergenerational transmission by regressing the adult child's education or church attendance on the parents' education or church attendance while controlling for other relevant variables (detailed later). The effects of a parental characteristic on the parallel characteristic of the child are taken as measures of intergenerational transmission. Note that when I speak about effects, I refer to effects in the statistical meaning (i.e., regression effects) rather than in the causal sense. To test the hypotheses, I subsequently use interaction effects to compare the effects of a parental characteristic on the child's characteristic across different types of parents. Analyses are conducted separately for education and church attendance.

## Measurement of the Type of Parents

In the interviews, respondents were asked whether they grew up with both parents or whether a parent(s) divorced or died; and if the latter, they were asked the age at which this happened. Respondents were then asked about the father and mother figures in the household where they spent most of their childhood. Hence, only one household situation is asked about in detail.<sup>1</sup> I selected respondents who reported about a father and a mother figure because this enables me to analyze the influence of both parents simultaneously. Divorced fathers who lived only very shortly with the mother were not

<sup>1</sup> The focus on only one household has limitations. One concern is that there can be several post-divorce families. Using data from the Netherlands Kinship Panel Study, I examined the number of different households children lived in for those children who lived in two or more households. Of these, 64.5 % had two households, 23.7 % had three households, and 11.8 % had four or more. The Netherlands thus does not appear to have as much household instability after dissolution as, for example, the United States (Fomby and Cherlin 2007). For children who had more than one family structure after dissolution, I also calculated how much time they spent in these two nonstandard households. On average, the longest household of the two represents 75 % of the time children spent in these two households.



included because for these respondents, the single-mother family will often have been the most important family, and hence information on fathers is missing. I come back to this problem in the upcoming descriptive section. To compare effects across parents, I make a typology of four types of living arrangements of children and four types of fathers and mothers:

	<i>Type of Family</i>	<i>Male Parent Figure</i>	<i>Female Parent Figure</i>
(a)	Children who grew up with both natural parents	Married biological father	Married biological mother
(b)	Children who grew up with divorced parents (and no stepparent)	Divorced nonresident father	Divorced resident mother
(c)	Children who grew up with a mother and a stepfather	Stepfather	Divorced/widowed resident mother
(d)	Children who grew up with a father and a stepmother	Divorced/widowed resident father	Stepmother

Note that for categories (c) and (d), the cause of the breakup of the parents' marriage could be either separation (or divorce) or widowhood. Category (d) contains information on divorced fathers as well, but these were resident fathers after divorce (and they were living with a new partner). Although I will not focus too much on this relatively small (and probably select) group, one could argue that resident divorced fathers should have a stronger influence than nonresident divorced fathers. Finally, both (b) and (c) contain information on divorced mothers, but a stepfather was involved in (c) and not in (b). There will probably not be an important difference except that the maternal effect is controlled for the effect of different types of fathers.

An important concern is whether the influence of the stepfather in category (c) will be biased by the unmeasured influence of the absent biological father. The stepfather effect can be "polluted" with an effect of the biological father. This bias will go against the genetic hypothesis but probably will not go against the social capital hypothesis and the value socialization hypotheses. To examine this problem, I estimate additional regression models based on various assumptions about the correlation between fathers and stepfathers to evaluate the possible strength of this bias. This results in models with three parents—divorced fathers, stepfathers, and natural mothers—rather than just two parents.

The length of residence with the three types of parents can be assessed using information on the age of the respondent when the parents divorced and the age of the respondent when the mother repartnered (if so).<sup>2</sup> We also need information on the age at leaving home. Because I am interested in how parents interact with their children, I truncated the age at leaving home at 18, realizing that children can leave home after that age. On average, respondents lived with their married fathers for 17.8 years. Respondents with divorced fathers were together with their father for 12.9 years, and respondents with stepfathers were together for 8.5 years. Hence, there is a slight advantage for divorced fathers over stepfathers, but the difference is not large. The

<sup>2</sup> Unfortunately, data on duration are incomplete. The question on repartnering was not asked when the mother repartnered after becoming a widow, so these data apply to a smaller set of cases than used in the regression models.

main contrast is between married fathers on one hand, and divorced and stepfathers on the other hand.

Because respondents were asked about the most important living arrangement, households that existed only a short time are not included. This raises the issue of whether the samples of divorced fathers and stepfathers in the OG-data are representative. To address this, I compare my results with a Dutch study of all the parent figures that children had (Kalmijn 2013). The mean duration with stepfathers in that study is 8, which is similar to the OG-data (8.5). The mean duration for divorced nonresident fathers is 9.8, which is lower than in the OG-data (12.9). Hence, my sample of divorced fathers is somewhat skewed in the direction of higher durations—a factor to keep in mind when drawing conclusions.

### Measures of Dependent and Independent Variables

Church attendance was assessed with five ordered categories. To simplify the interpretation of the effects and the tests of the interactions, I did not treat this variable as a discrete variable but rather as an interval variable. To be able to do so, I recoded categories to the approximate number of visits (e.g., weekly is 52) and logged the resulting score.<sup>3</sup> Questions about denomination were also asked: 41 % of the respondents were Catholic, 29 % were Protestant, and 12 % had some other religion. Effects of parental denomination were examined but not included because they did not affect the interaction effects.

Education was asked somewhat differently over the years and across surveys. To make the measures comparable, I recoded the answers into five categories: primary, lower secondary, higher secondary, lower tertiary (vocational college), and higher tertiary (university). In line with common practice in Dutch research, I recoded the categories to the formal years of schooling that are necessary to complete the level (ranging from 6 for elementary school to 18 for university education). The information for the parents refers to the time when the respondent was growing up. Respondents who were still in school were assigned the level of their current enrollment (assuming that they would finish that level).<sup>4</sup>

The following control variables were used: sex, birth cohort or age, number of siblings, and year of survey. Parental education was not included in the models for church attendance, and parental church attendance was not included in the model for education. Such effects are not implausible, but including these and possible interactions with the type of parent would complicate the models too much. In the models for education, I include interactions of cohort and parental education because other studies have suggested that the influence of parent's education on children's education has declined across cohorts in the Netherlands (Breen et al. 2009; De Graaf and Ganzeboom 1993). Interactions of sex and cohort are also included to allow for the historical convergence in education between men and women. In the models for church attendance, an interaction of parent's

<sup>3</sup> Estimations based on logistic regression models with church attendance dichotomized show the same significant interaction effects.

<sup>4</sup> I also estimated models for respondents aged 25 and older to see whether my results would change (see Table 2). The findings are virtually similar, so school enrollment does not affect the findings.

attendance and age was included because it is possible that the influence of parents is weaker when respondents are older. Church attendance refers to the current situation of the respondent, whereas parental church attendance refers to the situation when the respondent was growing up.

Means and standard deviations of all the variables are presented separately for each of the four family types in Table 1. Some differences are evident across groups. For example, children from divorced families and stepfather families are younger, on average, and have somewhat fewer siblings than children from married families. Divorced families and stepfather families are also less religious than married families, which is in line with studies on the determinants of divorce in the United States and Europe (de Graaf and Kalmijn 2006; Lehrer and Chiswick 1993). These findings show that divorced (and remarried) families are a select group. It is clear that selectivity will affect children's outcomes, but it is less obvious how selectivity would affect the association between parents and children.

Cases with missing values were not included in the analysis. In Table 6 in the appendix, I present estimation results where missing values were included after multiple imputation with chained equations in Stata. To do this, I used additional variables: urbanization of the current residence, the number of children, the number of working hours, and the interaction of working hours and gender (as predictors to help impute missing values). All interactions were included in the imputation procedure. The estimation results are virtually identical. Although the missing cases will not be random, so that multiple imputation is debatable, the estimations suggest that leaving out missing values is not problematic.

**Table 1** Means and standard deviations of variables used in the analysis by family structure

	Married		Divorced Family		Stepfather Family		Stepmother Family	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Woman	0.528	0.499	0.558	0.497	0.537	0.499	0.526	0.501
Age	37.1	11.3	34.2	9.5	35.0	11.0	39.0	11.6
Cohort	1962.9	10.7	1967.7	9.4	1965.6	10.6	1962.2	10.9
Year of Survey	8.235	5.429	9.946	5.090	8.740	5.349	9.279	5.234
Education	12.796	2.878	12.544	3.020	11.925	3.046	12.057	3.021
Father's Education	10.289	3.479	11.068	3.473	10.549	3.657	10.549	3.167
Mother's Education	9.073	2.898	9.961	3.041	9.485	2.852	9.916	3.063
Number of Siblings	3.850	2.156	3.172	1.753	3.341	1.951	4.237	2.231
Church Attendance	0.809	1.368	0.320	0.935	0.356	0.998	0.582	1.276
Father's Church Attendance	2.169	1.858	1.053	1.644	0.826	1.507	1.557	1.883
Mother's Church Attendance	2.295	1.819	1.259	1.718	1.184	1.682	1.577	1.855
<i>N</i>	30,545		1,001		697		215	

Source: Onderzoek Gezinsvorming (National Fertility Survey) 1993, 1998, 2003, and 2008 (author's calculations).

## Results

To test the hypotheses, I start with the models for educational attainment as presented in Table 2. Table 2 contains unstandardized coefficients and standardized coefficients for continuous variables. In Model 1, father's education has a significant and strong effect on children's education. The effect of father's education declines when mother's education is included (Model 3), but it is still somewhat stronger than that of mothers ( $t$  test for the difference = 4.6). I find substantial negative main effects of parental disruption. Children who experienced the dissolution of their parents' marriage when young attain fewer years of education than children whose parents remained married.

To examine how the effects differ across type of parents, I create indicator variables for divorced families, stepfather families, and stepmother families: that is, categories (b), (c), and (d) presented earlier. I include main effects of these variables and interactions of these variables with father's education (Model 2) and with father's and mother's education (Model 4). In these models, the main effects of parental education apply to married parents, and the interactions tell us whether the effects are stronger or weaker for divorced parents and stepparents.

How does the influence of father's education vary across types of fathers? Model 2 shows that the effect of divorced nonresident fathers does not differ from the effect of married fathers. This finding is in contrast to the social capital hypothesis. The influence of stepfathers, however, is significantly weaker than that of married fathers and also weaker than that of divorced nonresident fathers. Especially this last finding is in line with the genetic hypothesis and with notions of early advantage. The effect of father's education on the child's education is 25 % weaker for stepfathers than for married fathers (i.e.,  $-.066 / .264$ ) and 21 % weaker for stepfathers than for divorced fathers (i.e.,  $-.066 / (.264 + .050)$ ). However, the influence of stepfathers is not absent; the implied effect of stepfather's education on children is still positive (i.e.,  $.264 - .066 = .198$ )

In Model 4, I add interactions of mother's education and the type of mother. We would expect to find a smaller effect for stepmothers than for married mothers, but that is not borne out. The effect of mother's education is similar for the two types. This is in contrast to the social capital hypothesis but also in contrast to the genetic hypothesis. In addition, we see that divorced (resident) mothers are *more* influential than married mothers. The effect of mother's education on the child's education is 65 % stronger for divorced mothers than for married mothers—a considerable difference. This finding is in line with the notion that divorced mothers try to compensate for the absence of the divorced father. A comparison of Models 2 and 4 reveals that differences in the paternal effects become somewhat stronger. The effect of father's education is now 46 % weaker for stepfathers than for married fathers and 48 % weaker for stepfathers than for divorced nonresident fathers.

The models include selected control variables. The effects of these variables are as expected. Women have a lower level of schooling than men, but this difference declines across cohorts: the gender-cohort interaction is positive and significant. The cohort interaction confirms that effects of father's education and mother's education on children's education have declined over birth cohorts.

Are the patterns similar or different when we look at a more cultural aspect of intergenerational transmission? The regression models for church attendance are

**Table 2** Regression of education on parents' education and type of parent: Unstandardized regression coefficients

	Model 1	Model 2	Model 3	Model 4	Model 4 (ages 25+)
Birth Cohort (centered)	-.007 (.77)	.346* (.00)	-.105* (.00)	.384* (.00)	.401* (.00)
Woman	-.439* (.00)	-.440* (.00)	-.455* (.00)	-.457* (.00)	-.454* (.00)
Cohort × Woman	.437* (.00)	.436* (.00)	.443* (.00)	.445* (.00)	.455* (.00)
Number of Siblings	-.128* (.00)	-.125* (.00)	-.102* (.00)	-.099* (.00)	-.097* (.00)
	[-.095]	[-.093]	[-.076]	[-.073]	[-.072]
Divorced Family	-.682* (.00)	-1.226* (.00)	-.732* (.00)	-1.736* (.00)	-1.688* (.00)
Stepfather Family	-.992* (.00)	-.277 (.42)	-1.010* (.00)	-.707 <sup>†</sup> (.10)	-.873 <sup>†</sup> (.07)
Stepmother Family	-.737* (.00)	-1.280 <sup>†</sup> (.05)	-.849* (.00)	-1.047 (.18)	-.949 (.27)
Father's Education	.268* (.00)	.264* (.00)	.197* (.00)	.196* (.00)	.198* (.00)
	[.327]	[.323]	[.242]	[.242]	[.235]
× Cohort		-.033* (.00)		-.027* (.00)	-.026* (.00)
× Divorced nonresident father		.050 <sup>†</sup> (.06)		-.007 (.81)	-.016 (.65)
× Stepfather		-.066* (.03)		-.090* (.01)	-.082 <sup>†</sup> (.05)
× Divorced resident father <sup>a</sup>		.050 (.40)		.035 (.61)	.037 (.62)
Mother's Education			.174* (.00)	.168* (.00)	.170* (.00)
			[.179]	[.173]	[.167]
× Cohort				-.021* (.00)	-.020* (.02)
× Divorced resident mother				.109* (.00)	.113* (.00)
× Stepmother				-.019 (.80)	-.041 (.60)
× Divorced resident mother <sup>b</sup>				.070 (.13)	.089 (.10)
Constant	1.902* (.00)	1.957* (.00)	9.984* (.00)	1.080* (.00)	1.081* (.00)
R <sup>2</sup>	.167	.169	.190	.192	

**Table 2** (continued)

	Model 1	Model 2	Model 3	Model 4	Model 4 (ages 25+)
<i>N</i>	27,950	27,950	26,976	26,976	23,512

Notes: *p* values are shown in parentheses; standardized coefficients are shown in brackets.

Source: Onderzoek Gezinsvorming (National Fertility Survey) 1993, 1998, 2003, and 2008 (author's calculations).

<sup>a</sup> Divorced fathers living with a stepmother.

<sup>b</sup> Divorced mothers living with a stepfather.

<sup>†</sup>  $p < .10$ ; \* $p < .05$

presented in Table 3. In Model 1, we see a positive and significant effect of father's church attendance on the respondent's church attendance. In standardized terms, the effect is similar to that of father's education. The effect of mother's church attendance in Model 3 is also positive and significant but smaller than the effect of the father ( $t = 2.9$ ). The two variables are highly correlated ( $r = .81$ ). Because multicollinearity may be a problem, it is important to look at models with and without mother's church attendance (Models 2 and 4).

Model 2 reveals clear differences in the effects of father's church attendance, depending on the type of father. The effect of father's church attendance is weaker for divorced, nonresident fathers than for married fathers. The difference is significant and substantial: the effect is 67 % weaker. This is in line with the value socialization hypothesis. Interestingly enough, the effect of father's church attendance is not weaker for divorced fathers who were resident after divorce, which further supports the socialization hypothesis. Next, I look at the influence of stepfathers. The effect of father's church attendance is significantly weaker for stepfathers than for married fathers, which is also in line with value socialization. Divorced fathers and stepfathers can finally be compared directly. A test shows that the effect of father's church attendance on the child's attendance is significantly stronger for stepfathers than for divorced fathers ( $p = .02$ ). This difference was not predicted by the value socialization thesis. We come back to this finding in the conclusion.

How do the results change when church attendance of the mother is also included? Keep in mind that father's and mother's attendance rates are highly correlated. Model 4 contains both parental variables and their interactions. The influence of father's church attendance is still weaker for divorced, nonresident fathers than for married fathers. A new finding is that the difference between the effects of stepfathers and married fathers disappears. Does the influence of the mother's attendance depend on the type of mother? The influence of mother's church attendance appears to be the same for divorced and married mothers, in line with expectations. Divorced mothers are resident and hence will maintain their influence on the child's life. Stepmothers have a somewhat weaker influence on the child's adult church attendance compared with married mothers. This interaction is substantial in magnitude but is not statistically significant because of the small number of stepmothers. The direction of this interaction is in line with the socialization hypothesis, however.

**Table 3** Regression of church attendance on parents' church attendance and type of parent: Unstandardized regression coefficients

	Model 1	Model 2	Model 3	Model 4
Age (centered)	-.025* (.001) [-.020]	.044* (.000) [.035]	-.036* (.000) [-.029]	.041* (.000) [.033]
Woman	.142* (.000)	.141* (.000)	.139* (.000)	.138* (.000)
Year of Survey	-.003* (.034)	-.002 (.119)	-.001 (.380)	-.000 (.812)
Number of Siblings	.050* (.000) [.079]	.051* (.000) [.081]	.048* (.000) [.076]	.050* (.000) [.079]
Divorced Family	-.167* (.000)	.045 (.359)	-.154* (.000)	.053 (.301)
Stepfather Family	-.068 (.158)	.028 (.610)	-.069 (.153)	.058 (.329)
Stepmother Family	-.069 (.420)	-.071 (.521)	-.040 (.637)	-.002 (.983)
Father's Church Attendance	.272* (.000) [.375]	.281* (.000) [.387]	.170* (.000) [.234]	.175* (.000) [.241]
× Age		-.034* (.000)		-.023* (.000)
× Divorced nonresident father		-.189* (.000)		-.148* (.000)
× Stepfather		-.100* (.002)		-.033 (.417)
× Divorced resident father <sup>a</sup>		.003 (.947)		.096 (.189)
Mother's Church Attendance			.132* (.000) [.178]	.135* (.000) [.182]
× Age				-.014* (.019)
× Divorced resident mother				-.032 (.308)
× Stepmother				-.115 (.119)
× Divorced resident mother <sup>b</sup>				-.072* (.047)
Constant	-.013 (.572)	-.033 (.139)	-.098* (.000)	-.120* (.000)
R <sup>2</sup>	.168	.172	.179	.183

**Table 3** (continued)

	Model 1	Model 2	Model 3	Model 4
<i>N</i>	30,341	30,341	30,218	30,218

Notes: *p* values are shown in parentheses; standardized coefficients are shown in brackets.

Source: Onderzoek Gezinsvorming (National Fertility Survey) 1993, 1998, 2003, and 2008 (author's calculations).

<sup>a</sup> Divorced fathers living with a stepmother.

<sup>b</sup> Divorced mothers living with a stepfather.

\**p* < .05

Significant age interactions emerge in Models 2 and 4. The influence of father's and mother's church attendance on the child's church attendance declines as the respondent grows (is) older. One interpretation of this effect is that the longer children are away from their parental home, the more independent they are from their parents.

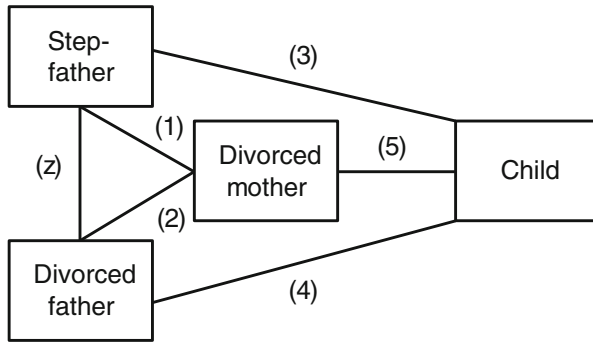
So far, I have looked at stepparents regardless of the reasons for the breakup. It is possible that the influence of stepparents is stronger when the natural father died. The stepparent may be more likely to replace the father role because he has no competing father figure and because there may be less disapproval of his new role (Ganong and Coleman 1994). To examine this, I compared effects of stepfathers when there was a divorce with the effects of stepfathers when the natural father died. For both education and church attendance, the difference in effects was not significant (*p* = .55 and *p* = .50, respectively).

### Exploring Sources of Bias: Three-Parent Models

In the interview, no questions were asked about the divorced father if the stepfather was the main father figure. As a result, the traits of the natural father are omitted variables in the stepfather part of the sample, and this can lead to bias in the effect of the stepfather. To solve this, I estimate regression models for three types of parents simultaneously, using a correlation matrix that is based on the data and certain assumptions about the underlying correlations (see Fig. 1). From the original stepfather sample, I use correlations  $r_1$ ,  $r_3$ , and  $r_5$ . From the sample of divorced fathers (sample category (b), presented earlier), I borrow correlations  $r_2$  and  $r_4$ . Assuming that the mother's repartnering will not have strong effects on the influence that divorced fathers have, it is reasonable to combine the two samples in one correlation matrix.

The missing correlation is that between divorced fathers and stepfathers:  $r_z$ . This correlation can be written as  $r_z = r_p + r_1 r_2$ . Part of the resemblance between the divorced father and the stepfather will be due to the fact that they were both chosen by a mother with a certain level of education. This is the part  $r_1 r_2$  in the formula. However, there can also be a partial correlation between the traits of divorced fathers and stepfathers *after* the mother is controlled for. This is denoted by  $r_p$  in the formula. For example, a mother with a given level of education may have other, unmeasured traits that make her especially desirable to highly educated men (e.g., cultural capital, wealthy parents). Such traits can create a resemblance between the current partner and the former partner even after the mother's level of education is controlled for. If the





**Fig. 1** Correlations between variables in three-parent model for stepfamilies

partial correlation is absent, controlling for mother’s education will already have removed most of the potential bias. If the partial correlation is positive, there still is a risk that the effect of stepfathers is overestimated.

To make calculations, I make various assumptions about the relative strength of  $r_p$ . These values are considered in proportion to the implied correlation  $r_1r_2$ . More specifically, I choose values of  $r_z = \varphi (r_1r_2)$ , where  $\varphi$  runs from 1.0 to 1.5. If  $\varphi = 1$ , the partial correlation is 0; when  $\varphi = 1.50$ , the partial correlation is about one-half of the implied correlation  $r_1r_2$ . Table 4 presents estimates for education; Table 5 presents estimates for church attendance. Sample sizes are set at the sample for stepfather families. All effects are standardized because they are based on correlations.

**Table 4** Regression of education in stepfamilies using assumptions about assortative mating: Regression coefficients

	Model 1	Model 2 $\varphi = 1.00$	Model 3 $\varphi = 1.25$	Model 4 $\varphi = 1.50$
Woman	-.038 (.28)	-.025 (.47)	-.025 (.48)	-.024 (.48)
Cohort	.013 (.75)	.002 (.95)	.007 (.87)	.010 (.79)
Number of Siblings	-.124 (.00)	-.120 (.00)	-.121 (.00)	-.123 (.00)
Mother’s Education	.201 (.00)	.055 (.25)	.073 (.12)	.088 (.06)
Stepfather’s Education	.143 (.00)	.144 (.00)	.118 (.00)	.093 (.03)
Divorced Father’s Education		.276 (.00)	.264 (.00)	.257 (.00)
$R^2$	.129	.182	.177	.173
$N$	697	697	697	697

Note: *p* values are shown in parentheses.

Source: Onderzoek Gezinsvorming (National Fertility Survey) 1993, 1998, 2003, and 2008 (author’s calculations).

**Table 5** Regression of church attendance in stepfamilies using assumptions about assortative mating: Regression coefficients

	Model 1	Model 2 $\varphi = 1.00$	Model 3 $\varphi = 1.25$	Model 4 $\varphi = 1.50$
Woman	.089 (.01)	.091 (.01)	.090 (.01)	.088 (.01)
Year	.031 (.43)	.029 (.46)	.030 (.44)	.032 (.41)
Age	.081 (.04)	.085 (.03)	.083 (.04)	.080 (.05)
Number of Siblings	.063 (.09)	.056 (.15)	.061 (.11)	.067 (.08)
Mother's Attendance	.099 (.03)	.066 (.23)	.091 (.08)	.110 (.03)
Stepfather's Attendance	.217 (.00)	.218 (.00)	.215 (.00)	.225 (.00)
Divorced Father's Attendance		.053 (.27)	.016 (.75)	-.026 (.61)
$R^2$	.114	.115	.114	.114
$N$	697	697	697	697

Note:  $p$  values are shown in parentheses.

Source: Onderzoek Gezinsvorming (National Fertility Survey) 1993, 1998, 2003, and 2008 (author's calculations).

Table 4 shows significant effects of stepfathers on the educational attainment of children. When divorced fathers are added and the partial correlation is absent, the effect of stepfather's education does not change, as expected. The effect of divorced father's education is stronger than that of stepfathers, in line with my earlier findings. The question now is what happens to this comparison when the partial correlation is increased. In Models 3 and 4, we see that the effect of stepfather's education becomes smaller when there is a partial correlation between stepfathers and divorced fathers. In other words, omitting the natural father indeed leads to a bias in the effect of the stepfather. Two findings nonetheless stand. First, the effect of divorced father's education remains stronger than the effect of stepfather's education. This is logical given that the bias was upward. Second, the effect of stepfather's education remains positive and significant in itself.

Table 5 considers the intergenerational transmission of church attendance and reveals a strong effect of stepfather's attendance on children's attendance. This effect does not change when the divorced father is added and no partial correlation is assumed. Is the stepfather effect overestimated when we let the partial correlation increase? The answer is no: the effect of stepfather's church attendance remains significant and strong, and the effect of the divorced father remains absent. In other words, my earlier conclusion about the importance of stepfathers for socialization stands.

## Conclusion

This article documents the extent to which intergenerational transmission differs among divorced parents, stepparents, and married parents. Given the high levels of marital instability in contemporary society, it is important to examine whether divorce and remarriage have resulted in new forms of transmission across generations. Moreover, by making these comparisons, we learn more about the nature of the transmission process. As a result, it is possible to test alternative theories about why children resemble their parents. In this study, I distinguish between social and genetic mechanisms of transmission, and further distinguished the social mechanisms in socialization and social capital effects.

For education, the genetic hypothesis (Hypothesis 2) received the most support. Stepfathers are not only less influential than married fathers but also less influential than divorced fathers. Especially the direct comparison between divorced fathers and stepfathers—which implicitly controls for the duration of shared residence—provides evidence for the genetic hypothesis. This finding is stronger evidence for a genetic mechanism than the traditional comparison between stepfathers and married fathers, a finding that is biased by differences in the degree of exposure to the child. I found little support for the social capital hypothesis (Hypothesis 1). The intergenerational transmission of education is equally strong for divorced fathers and married fathers despite the fact that divorced fathers are presumably less involved in child rearing than married fathers. For church attendance, the socialization hypothesis (Hypothesis 3) received more supportive evidence: stepfathers and divorced nonresident fathers are both less influential than married fathers, in line with social mechanisms of transmission. These influences are based on estimates of statistical effects. For both religion and education, there can be contextual influences operating that limit a causal interpretation of the effects.

Why does the social perspective receive support for religious transmission but not for educational transmission? I argued that value socialization would be most applicable to cultural traits such as church attendance but the social capital hypothesis would apply mostly to education. If this is correct, the conclusion is that only value socialization depends on the amount of interaction between parent and child, whereas resource transmission—as suggested in the social capital hypothesis—is less dependent on the amount of interaction. This does not mean that there is no social transmission of resources, but it does call for other social theories about how such resources are transmitted. Earlier studies have looked at indicators of the strength of the tie between parents and children and have found little evidence for the social capital hypothesis, either (Crosnoe 2004; Olsson 2009). My analysis using an indicator of interaction that is quite strong—differences in the length of residence with the child as implied by the difference between divorced and married fathers—leads to the same negative conclusion about the social capital hypothesis.

The finding that divorced fathers are quite influential for children's education can be seen as evidence for a genetic pathway, but alternative social explanations must also be considered. First, the timing of influence may play a role. If early influences are more important than late influences, as has been suggested in research on educational stratification (Mare 1980; Shavit and Blossfeld 1993), the effect of the stepfather will also be weaker than the effect of the divorced father. Second, stepfathers are usually not involved in the child's life before they enter the household, but divorced fathers can still

be involved after they leave the household. Most studies have found that, on average, divorced, nonresident fathers have little contact with their children (Cheadle et al. 2010; Manning and Smock 1999; Manning et al. 2003). Hence, day-to-day exposure to the father's resources is not possible. However, the father may still participate in important decisions regarding the schooling career of the child. In this way, his influence can still operate, despite limited interaction.

I also found that the stepfather has greater influence on children's religion than the divorced, nonresident father. The value socialization hypothesis suggests equal influences. To understand this, I consider methodological and substantive explanations. A methodological explanation lies in the omission of the traits of the biological father when stepfathers are considered. Correlational analyses in this article, however, suggest that this bias does not play an important role for church attendance. A substantive explanation is that for church attendance, late socialization could be more influential than early socialization. Previous evidence on age differences in religious socialization is lacking, but earlier studies on intergroup attitudes have confirmed that late socialization is more influential than early socialization (Degner and Dalege 2013).

For mothers, the analyses were less informative because the social and genetic perspectives have similar implications. Stepmothers were expected to be less influential than both married and divorced mothers. Indeed, for church attendance, this is what I found, but because of the small sample, the result was not significant ( $p = .11$ ). For education, I found no difference, but this may be partly due to the fact that the stepmother effect picks up the omitted effect of the biological mother. More interesting was the finding that divorced mothers are *more* influential than married mothers, at least when we look at education. One possible explanation is that divorced mothers compensate for the loss of resources of the divorced father. This is in line with some previous studies showing that the negative effects of divorce on child well-being are reduced when the mother is more highly educated (Mandemakers and Kalmijn 2014). Because other studies have found stronger negative effects of divorce on children with more highly educated mothers (Bernardi and Radl 2014), the conclusion about the influence of divorced mothers on children's schooling needs further research.

In sum, my comparisons of divorced, married, and stepparents can be understood in terms of both genetic and social theories about the intergenerational transmission of traits. However, the findings do not support the classic social capital hypothesis, which argues for an interaction between resources and relationships. The traditional interaction hypothesis about value socialization receives more support. Differences in the amount of exposure of the child to the parent do not have implications for resource transmission, but they do modify value socialization. If we maintain that there are social ways in which *resources* are transmitted, we must look for other ways in which this occurs. Future research could focus on testing interactions of parental traits with the duration of shared residence between parent and child. Although my assumption that the duration of exposure is similar for divorced and stepfathers, and different for divorced and stepfathers than for married fathers, is plausible, the next step in this line of research would be to test the underlying role of duration directly. This would require large-scale survey data on duration that would ideally be combined with complete information on all parent figures in a child's life. The present study had only one set of parents per child, so my results still need replication with complete data on a child's family history.

## Appendix

**Table 6** Estimation results of selected models with multiple imputation of missing values

	Education			Church Attendance	
	Model 2	Model 4		Model 2	Model 4
Cohort	.249 (.00)	.259 (.00)	Age Centered	.033 (.00)	.029 (.01)
Father's Education	.268 (.00)	.199 (.00)	Father's Attendance	.280 (.00)	.174 (.00)
× Cohort	−.034 (.00)	−.024 (.00)	× Age	−.033 (.00)	−.022 (.00)
× Divorced father	.059 (.02)	−.003 (.92)	× Divorced father	−.188 (.00)	−.153 (.00)
× Stepfather	−.062 (.04)	−.088 (.02)	× Stepfather	−.102 (.00)	−.040 (.32)
× Divorced father <sup>a</sup>	.058 (.35)	.068 (.34)	× Divorced father <sup>a</sup>	.004 (.92)	.095 (.19)
Mother's Education		.168 (.00)	Mother's Attendance		.134 (.00)
× Cohort		−.023 (.00)	× Age		−.014 (.02)
× Divorced mother		.116 (.00)	× Divorced father		−.028 (.37)
× Stepmother		−.028 (.72)	× Stepfather		−.112 (.12)
× Divorced mother <sup>b</sup>		.069 (.13)	× Divorced father <sup>a</sup>		−.067 (.06)
Woman	−.427 (.00)	−.425 (.00)	Woman	.132 (.00)	.129 (.00)
× Cohort	.462 (.00)	.472 (.00)	Sibsize	.050 (.00)	.049 (.00)
Sibsize	−.139 (.00)	−.119 (.00)	Year Survey	.000 (.81)	.002 (.23)
Parents Divorced	−1.216 (.00)	−1.710 (.00)	Parents Divorced	.029 (.54)	.038 (.45)
Stepfather Family	−.361 (.29)	−.754 (.06)	Stepfather Family	.012 (.83)	.041 (.48)
Stepmother Family	−1.321 (.05)	−1.275 (.09)	Stepmother Family	−.087 (.43)	−.021 (.86)
Constant	1.806 (.00)	9.914 (.00)	Constant	−.033 (.14)	−.119 (.00)
<i>N</i>	32,456	32,456	<i>N</i>	32,456	32,456

Source: Onderzoek Gezinsvorming (National Fertility Survey) 1993, 1998, 2003, and 2008 (author's calculations).

<sup>a</sup> Divorced fathers living with a stepmother.

<sup>b</sup> Divorced mothers living with a stepfather.

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