Published in final edited form as:
Popul Res Policy Rev. 2015 October ; 34(5): 733–759. doi:10.1007/s11113-015-9363-z.

Family Resources in Two Generations and School Readiness among Children of Teen Parents

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Abstract

Overall, children born to teen parents experience disadvantaged cognitive achievement at school entry compared to children born to older parents. However, within this population there is variation, with a significant fraction of teen parents' children acquiring adequate preparation for school entry during early childhood. We ask whether the family background of teen parents explains this variation. We use data on children born to teen mothers from three waves of the Early Childhood Longitudinal Study-Birth Cohort (N~700) to study the association of family background with children's standardized reading and mathematics achievement scores at kindergarten entry. When neither maternal grandparent has completed high school, children's scores on standardized assessments of math and reading achievement are one-quarter to one-third of a standard deviation lower compared to families where at least one grandparent finished high school. This association is net of teen mothers' own socioeconomic status in the year prior to children's school entry.

Keywords

teen parenthood; cognitive achievement; family background; early childhood

Despite recent declines (Child Trends 2013), the United States maintains the highest teen childbearing rate in the developed world (Furstenberg 2003), with approximately one in six U.S. teenage girls expected to become a parent before age 20 (Perper and Manlove 2009). By their preschool year (age 4), children born to teen parents are compromised on indicators of cognitive achievement and prosocial behavior compared to children born to older parents, largely because teen parents have fewer resources to invest in children's early development (Mollborn and Dennis 2012a; Mollborn and Dennis 2012b; Mollborn et al. 2014). A substantial body of research has demonstrated that this lack of resources is in part attributable to parents' background characteristics, including greater exposure to poverty in

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childhood and adolescence and a higher likelihood of being raised by a single parent or a parent with less than a high school education compared to parents who delayed childbearing until older ages (Furstenberg, Brooks-Gunn and Morgan 1987; Geronimus and Korenman 1992).

At the same time, not all children born to teen parents are equally disadvantaged (Luster et al. 2000; Luster, Lekskul and Oh 2004; Vandenbelt, Luster and Bates 2001). Teen parents who continue their education after birth and who have even a modest set of resources are more likely to have children who demonstrate cognitive and behavioral readiness for school at age 4½ (Mollborn and Dennis 2012a, 2012c). We ask to what extent family background characteristics explain variation in the likelihood that teen parents have greater human capital and resource accumulation while their children are young, and to what extent this three-generation model of status attainment explains variation in children's cognitive achievement at school entry. For expository convenience, we use the terms grandparents, parents, and children to refer to individuals in the first, second, and third generations respectively.

Background

In infancy, children born to teen parents and children of older parents exhibit similar levels of mental acuity. However, by kindergarten entry, children born to parents younger than age 20 score on average about one-half of a standard deviation below older parents' children on standardized assessments of verbal and mathematics achievement. This emerging disparity is largely attributable to teen parents' persistently low economic resources, including longer-term exposure to poverty, lower educational attainment prior to and after the child's birth, and slower accumulation of assets (Mollborn et al. 2014). However, these average group differences conceal significant variation within the population of teen parents' children. Those whose parents achieve significant gains in educational attainment after birth and have higher socioeconomic status are more likely than otherwise similar children of teen parents to enter school with at least average math and verbal readiness, better physical health, and fewer behavior problems (Mollborn and Dennis 2012a, 2012c).

What might explain why some teen parents have a greater store of resources that are conducive to children's cognitive achievement? To address this question, we draw on a three-generation model of status attainment that considers the attributes of teen parents' families of origin to understand how maternal grandparents' own socioeconomic resources and circumstances influence teen parents' available resources and grandchildren's math and verbal achievement at kindergarten entry. We hypothesize that grandparents' attributes influence grandchild well-being in teen parent families through parents' educational attainment, earnings, and asset accumulation. Further, we expect that grandparents deploy their own resources to provide coresidence, child care, and other instrumental support to teen parents and children, and the provision of this support will partially mediate any association of grandparents' financial and human capital resources with children's early cognitive achievement.

Three-Generation Models of Status Attainment

Teenage childbearing is associated with parents' and children's long-term subsequent socioeconomic disadvantage, but a large literature has debated the causal role of teen parenthood in this association. A corpus of studies seeking to eliminate unmeasured selection bias has concluded that teenage childbearing has a measurable disruptive effect on parents' eventual educational attainment and socioeconomic well-being, but that effect is smaller than would be predicted by cross-sectional estimates or by estimates that do not account for the unequal selection of teens into parenthood. Rather, family background and social context in adolescence profoundly shape both the likelihood of teen childbearing and teen parents' eventual status attainment (Furstenberg et al. 1987; Geronimus and Korenman 1992; Hoffman, Foster and Furstenberg 1993; Hotz, McElroy and Sanders 2005; Kane et al. 2013; Levine and Painter 2003). Much of compromised academic achievement of children born to teen parents is also attributable to parents' family background characteristics measured prior to a child's birth (Geronimus, Korenman and Hillemeier 1994; Levine, Pollack and Comfort 2001; Turley 2003).

Based on this literature, much of our understanding of the consequences of teen parenthood emerges from the finding that contemporary teen parents grew up in disadvantaged backgrounds. Implicit in this perspective is the expectation that teen parents from less disadvantaged backgrounds are better positioned to rebound from the potentially disruptive effect of early parenthood and to endow their children with greater resources. One pathway for this rebound may be through the transmission of grandparents' resources to teen parent families, either through what grandparents provide directly to children or through grandparents' contributions to teen parents' human capital and resource accumulation.

An empirical assessment of whether this expectation is valid requires an approach to intergenerational social mobility that takes three, rather than two, generations into account. Recent scholarship has argued for just such an approach. In his 2010 presidential address to the Population Association of America, Robert Mare argued that "[w]e ignore the effects of ancestors and higher-order social contacts at the peril of sound demographic research. It is likely that we have overstated intergenerational mobility in this country and elsewhere or, at the very least, have misunderstood the pathways through which it occurs (Mare 2011)." Mare's assertion was based on studies that have documented the long-term intergenerational persistence of wealth or poverty, particularly at the extreme ends of the socioeconomic hierarchy (Kahlenberg 2010; Keister 2000; Phillips et al. 1998; Sharkey and Elwert 2011; Uhlenberg 2009).

This argument has been supported by subsequent research, although some scholars have found independent effects of grandparent characteristics on child cognitive achievement and status attainment across the socioeconomic spectrum, rather than just at either end of the continuum. Chan and Boliver (2013) used data from three British birth cohort studies and reported independent effects of grandparents' social class position on grandchildren's social class location in adulthood, net of parents' education, income, and home ownership status. Using nationally representative, multigenerational data from the United States, Fomby, Krueger, and Wagner (2014) demonstrated that grandparents' age at a parent's birth had robust independent effects on children's verbal achievement in middle childhood after

controlling for parents' demographic and socioeconomic characteristics, suggesting that the effect of early or delayed fertility in a grandparent's generation carries over to the well-being of grandchildren by shaping the time and resources grandparents have at their disposal during the life course stage into which their grandchildren are born. Consistent with Mare's argument that grandparent characteristics endure across generations most strongly in the tails of the income distribution, Jaeger's (2012) analysis of data from the Wisconsin Longitudinal Study found that grandparents' completed education has a significant compensating effect on children's educational attainment when parents' household income is low. In particular, a child raised in the bottom decile of the income distribution completes about one-fifth more of a year of schooling when his/her grandfather has completed education beyond high school versus not completing high school.

Much of this research runs counter to a body of work that has found no direct effect of grandparent socioeconomic status on children's well-being and status attainment. Warren and Hauser's (1997) analysis of three generations of data from the Wisconsin Longitudinal Study concluded that a grandparent's income, education, and occupational status had no direct effect on young adult grandchildren's status attainment after accounting for parents' characteristics. Erola and Moisio (2007) analyzed Finnish census data and concluded that accounting for grandparents' social class added "very little explanatory power" to the analysis of intergenerational social mobility (p. 169). Cherlin and Furstenberg (1992) drew on interviews with grandparents in the National Children's Study to conclude that grandparents are valued kin, but their direct influence on grandchildren's well-being is minimal.

Each of these studies has been subject to criticisms regarding sample design and research methodology. Beyond that, however, Mare's argument challenges the assumption that the indirect effects of grandparent characteristics that operate through parent attributes to influence child well-being are not meaningful. That is, when parents' characteristics fully mediate the relationship between grandparents' characteristics and children's outcomes, the evidence in favor of a Markovian process is taken as evidence against grandparents' influence. However, grandparents may be able to provide important resources to children, even if those benefits operate through parents. This may be particularly true in the case of teen parents, who begin parenthood with relatively limited education and labor force experience and few resources of their own to invest in housing stock and child care. For example, grandparents' investments of time, money and coresidence with teen parents allow parents to improve their socioeconomic status by returning to school, seeking out higher-paying employment, or working longer hours than they would with other care or housing arrangements (Mollborn 2007). If teen parents' higher education, income, or asset accumulation in turn translates into children's improved early cognitive achievement, then a model of intergenerational transfers that makes grandparents' assets explicit will better inform our understanding of the mechanisms that shape child well-being in teen parent families and identify sites where public policy can intervene to ensure positive child development where family resources are absent.

Grandparent Attributes

We focus on four demographic and socioeconomic attributes of grandparents that have been associated previously with the likelihood of teen parenthood and with intergenerational status attainment. These include grandmother's age at the teen parent's birth; household welfare receipt and *grandparents' union status* while the teen parent was growing up; and *grandparents' educational attainment*. We expect that each of these will be associated with grandchildren's early cognitive achievement, but these effects will largely be mediated by teen parents' socioeconomic attributes.

Grandparent's age at teen parent's birth—To some extent, teen parenthood is transmitted intergenerationally within families, with white women approximately 2.5 times and black women 50 percent more likely to experience a teen birth when their mother had a first birth before age 18 compared to women whose mothers had a first child after age 19 (Kahn and Anderson 1992). All else equal, grandparents' early childbearing will shorten generation length in families, diminishing the time available to acquire education, labor force experience, income, and assets, resulting in fewer resources to transfer to teen parents or to children (Fomby et al. 2014).

Union status in teen parent's childhood—Adolescents who spent more time living with a single parent have an increased likelihood of experiencing nonmarital teen childbearing, although much of this association is attributable to parents' frequent union transitions, rather than to coresidence with a single parent at any single point in childhood (Fomby, Mollborn and Sennott 2010; Wu 1996; Wu and Martinson 1993). While household income also contributes to the risk of teen parenthood, those effects are independent of family structure (Musick and Mare 2006; Wu 1996). Grandparents' union status during a teen parent's childhood potentially carries over to influence children's well-being through the number of kin available and the time available to provide child care, housing, and frequent contact.

Welfare receipt in teen parent's childhood—Household income in childhood and adolescence is associated with the likelihood of teenage childbearing, although the association is weaker than for non-behavioral outcomes, and variation around the federal poverty line is not predictive of variation in the likelihood of becoming a teen parent (Brooks-Gunn and Duncan 1997). However, relatively small increases in household income among lower-income families are associated with meaningful change in children's cognitive achievement (Dearing, McCartney and Taylor 2001; Duncan and Magnuson 2005). Thus, to the extent that grandparents' early poverty status influences teen parents' eventual status attainment, it may also be related indirectly to children's cognitive achievement. Furthermore, grandparents' early poverty status may signal longer-term hardship that directly influences children's well-being through the absence of resources to invest in grandchildren's development (Yeung, Linver and Brooks-Gunn 2002).

Grandparents' educational attainment—Grandmother's educational attainment is associated with the likelihood of teen childbearing. Approximately one-third of daughters of women who left high school without a diploma will have a teen birth, compared to about 11

percent of daughters born to women with some college education (Kearney and Levine 2010, 2012). At the individual level, this is partially attributable to teens' earlier sexual initiation and lower rates of contraceptive use when residing with less-educated parents (Santelli et al. 2000); at the macro-level, this association may be related to social inequality, with teens living in states with higher income inequality more likely to experience a nonmarital birth when they reside in a relatively disadvantaged family in response to a perceived lack of opportunity for education and employment (Edin and Kefalas 2005; Kearney and Levine 2011). Grandparents' diminished educational attainment is strongly associated with teen parents' own educational outcomes and also may influence grandchildren's early cognitive achievement.

Grandparent Involvement

We anticipate that grandparents' resources will primarily influence grandchildren's cognitive achievement through teen parents' status attainment. However, these resources may also influence grandparents' involvement with parents and children. Literature on intergenerational exchange in families has documented that systems of exchange between parents and grandparents are activated when children are young, but these exchanges are shaped and constrained by the resources available in each generation (Eggebeen and Hogan 1990; Hogan, Eggebeen and Clogg 1993). In the case where teen mothers are raising young children without substantial assets or income, contributions of time and material resources may be particularly salient. Our analyses consider whether teen parents coresided with their own parent or, if not coresident, whether they were able to depend on their own parents for social support when their child was about 4 ½ years old. We also consider whether the teen parent reported relying on relatives (including grandparents) for regular child care. On one hand, if grandparents with greater resources are better able to provide these sources of support to children, teen parents from more advantaged backgrounds may be able to leverage that support into greater human capital and asset accumulation. On the other hand, if all grandparents regardless of social class background are similarly able to provide support to teen parent families, such involvement will not mediate any association between family background and children's cognitive achievement.

Focusing on Early Cognitive Achievement

A substantial body of literature has established strong associations between early cognitive achievement and eventual academic performance, educational attainment, occupational status, and earnings (Boissiere, Knight and Sabot 1985; Duncan et al. 2007; Entwisle, Alexander and Olson 2005; Heckman 2008). Cognitive achievement is strongly associated with parents' age at birth, with children born to young mothers or fathers more likely to exhibit diminished verbal and nonverbal ability at school entry. Much of this relationship is explained by young parents' low accumulation of human capital and socioeconomic resources (Mollborn and Dennis 2012a; Powell, Steelman and Carini 2006). Thus, we expect that early cognitive achievement is a precursor of eventual status attainment, one that may be susceptible to policy intervention.

Data and Methods

We use data from the Early Childhood Longitudinal Study-Birth cohort, a nationally representative sample of approximately 10,700 children born in 2001 (U.S. Department of Education 2007).[1] Births were sampled from the roster of births registered with the National Center for Vital Statistics in that year. Primary parents (usually mothers) were first interviewed in person when the children were about 9 months old and again when children were 2 years and 4.5 years old and at kindergarten entry. The original birth cohort was broken into two kindergarten cohorts depending on timing of kindergarten entry, with the first cohort beginning kindergarten in Fall 2006 and the second in Fall 2007. The household response rate at wave 1 was 74.1 percent, and the follow-up rate at kindergarten entry was 78 percent for children who entered school in 2006 and 74 percent for children who entered in 2007. The longitudinal file includes about 6,850 focal children. The drop in sample size reflects an intentional 15 percent sample reduction at the kindergarten wave to reduce costs. Subgroups that were originally oversampled were retained in their entirety, and others were randomly sampled.

The analytic sample is restricted to include children born to women who were between 15 and 19 years old at the child's birth.[2] In 2001, births to women under age 20 represented about 11 percent of all births (Martin et al. 2002). Hence, the analytic sample size is proportionally reduced by our focus on children born to teen mothers. Although the ECLS-B includes children born to teen mothers *and* teen fathers, we focus on mothers here because mothers were more frequent study participants and therefore more likely to have reported on their own family backgrounds. (About 150 children in the full ECLS-B were born to a teen father and an older mother.) We also restrict the analysis to include only teen parents who grew up with at least one biological parent in order to have information on family background, resulting in the loss of about 50 cases. We use independent variables drawn from the first (i.e., 9-month) and third (i.e., 4-year) waves of the study. After using multiple imputation to restore cases lost to missing data on individual variables, the final analytic sample includes about 700 observations.[3]

Outcome Measures

At the kindergarten wave, interviewers administered early reading and math assessments adapted from several reputable assessment batteries developed for other large studies of preschoolers, such as the Peabody Picture Vocabulary Test, the Preschool Comprehensive Test of Phonological and Print Processing, the PreLAS® 2000, the Test of Early Mathematics Ability-3, and sister study Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K). Early reading was assessed by a 35-item test covering age-appropriate areas such as phonological awareness, letter recognition and sound knowledge, print conventions, and word recognition (ECLS-B-reported reliability=0.84). Early math was assessed in two stages, routed after the first stage depending on the child's score and

[1]The ECLS-B restricted data license requires users to report Ns to the nearest 50.
[2]For confidentiality reasons, the sampling frame for the ECLS-B was constrained to include births occurring to mothers who were at least 15 years old.
[3]The *mi* command in Stata version 11 was used to create 20 imputed datasets Allison, P.D. 2002 *Missing Data*. Thousand Oaks, CA: Sage, StataCorp. 2009 *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP.(Allison, 2002; StataCorp, 2009).

evaluating counting, number sense, operations, geometry, pattern understanding, and measurement (ECLS-B-reported reliability=0.89). We standardized the scale scores for the reading and math evaluations for the full longitudinal sample (N~6,850).

Key Independent Variables

Our key independent variables pertain to teen parents' family background. *Grandmother's age at birth* was calculated as the difference between the teen parent's mother's reported age at interview and the teen parent's age at interview. Because of the questionnaire design, it is not possible to determine grandmother's age at birth when the grandmother was deceased at interview. Hence, our sample excluded teen mothers whose own mothers are no longer living (N~50). Family structure during the teen parent's childhood was based on the respondent's report of whether she resided with her biological mother and biological father continuously until age 16. Teen parents who resided with both parents continuously are compared to teen parents who resided in any other arrangement. *Welfare receipt during the teen parent's childhood* was measured by an indicator of whether the respondent reports household receipt of Aid to Families with Dependent Children (AFDC, since replaced by TANF) when the parent was between the ages of 5 and 16. *Grandparents' educational attainment* was based on the respondent's report of her mother's and father's highest completed year of schooling. When both parents' educational attainment is known, we took the higher value. Otherwise, we relied on the educational attainment of the only known parent. From this information, we created a dichotomous variable indicating whether either parent (or the only parent) had at least finished high school vs. both parents (or the only parent) not having finished high school.

We used comparable indicators of teen parents' demographic and socioeconomic characteristics. *Union status* was described by whether the mother is married to the child's biological father at the preschool (age 4) interview wave. Her *household income* at the preschool interview was measured by a continuous income-to-needs ratio constructed from the household income measure produced by the National Center for Education Statistics. *Assets* in the household were measured by taking an average of five dichotomous indicators reported at the preschool interview: owning a car; having stocks or investments; having checking or savings account; owning a residence; and not residing in subsidized housing (that is, not living somewhere rent-free or in exchange for work or goods; Cronbach's alpha=0.71). Finally, the teen parent's educational attainment was measured by whether she had not completed high school by wave 1 (1=less than high school, 0=high school or more) and whether she increased her educational attainment by the kindergarten wave. Increases in educational attainment were measured by change in the respondent's highest earned credential (e.g., an Associate's or Bachelor's degree). Years of additional educational attainment that did not culminate in a credential between waves were not captured in the survey.

Grandparent involvement with teen parents and grandchildren at the preschool wave was measured by three indicators: whether the teen parent and child coresided with at least one of the maternal grandparents (in a household headed by the teen parent or the grandparent); whether the respondent included the maternal grandparents among the people she would

contact during an emergency in the middle of the night; and whether the child received regular child care provided by a relative (response categories did not distinguish between grandparents and other relatives). The first two items are mutually exclusive, and the reference category is teen parents who neither coresided with a grandparent nor considered either grandparent as a source of perceived report. We use this coding scheme because respondents were asked about perceived support only from people who resided outside of the household. Thus, if the mother lived with the child's grandparents, the grandparents were not identified as a source of support in an emergency.

All models included the following control variables. The teen parent's age at her child's birth was dichotomized to compare births occurring to 15 to 17-year-olds to those occurring to 18 to 19-year-old parents. The focal child's age at the kindergarten interview was measured in months. Race/ethnicity was described by four mutually exclusive categories: non-Hispanic white, non-Hispanic black, non-Hispanic any other race, and Hispanic (any race). The teen parent's nativity was scored 1 if she was born in the United States, 0 otherwise. Urban (vs. rural) residence and religiosity (any attendance at a religious service in the last year vs. none) at wave 1were included as dichotomous indicators. Child birth order was tested as a control variable but had no statistically significant association with the outcome measure and did not mediate key relationships in the model and so is not included here.

We used ordinary least squares regression to predict children's reading and math achievement scores at school entry as a function of teen parents' family background, teen parents' own socioeconomic characteristics, and grandparents' involvement with teen parents and grandchildren. Because the dependent variables were standardized, coefficients should be interpreted as predicted units of standard deviation change in the outcome measure associated with a one-unit change in the independent variable. All analyses were weighted to account for clustering and wave non-response. The weights were designed to make full sample analyses representative of the population of children born in the United States in 2001, but our sample is restricted to children of teen mothers.

Results

Table 1 shows selected weighted descriptive statistics for the full longitudinal ECLS-B sample and our analytic sample of teen mothers, both overall and by grandparents' educational attainment. Children born to teen mothers had math and reading scores that were more than one-third of a standard deviation lower than the population average at school entry. However, as expected, there is variation in this group. When neither grandparent completed high school, children's average cognitive achievement scores were more than one-half of a standard deviation below the population mean. In contrast, when either grandparent completed at least high school, children's average scores were less than one-fifth of a standard deviation below the population mean.[4] Strikingly, at 0.47 standard deviations for math and0.36 standard deviations for reading, the differences in children's outcomes between the two groups of teen mothers were larger than the differences between

[4]Sample sizes listed represent the original sample (rounded to the nearest 50) prior to multiple imputation. Multiple imputation added about 50 additional cases which are represented in the reported means and models and in our report of the overall sample size.

children of teen mothers overall and the general population. These group differences by grandparents' educational attainment among children born to teen mothers were statistically significant at p<.01 (reading) and p<.001 (math). Where the maternal grandparents had at least finished high school, teen mothers were less likely to have received welfare in their household of origin, were born to slightly older mothers, and were more likely to reside with both parents continuously until age 16 compared to teen mothers whose parents lacked a high school education. However, these group differences were not statistically significant.

As expected, where maternal grandparents had finished high school, teen mothers scored higher on indicators of socioeconomic status after their children were born compared to those where maternal grandparents had not finished high school. When grandparents were more highly educated, teen mothers' own household income was about 160 percent of the federal poverty level (FPL) when their children were preschool-aged (vs. 120 percent of the FPL for children with less well-educated grandparents, p<.05), they had slightly more assets (p<.05), and on average they had completed 12.3 years of school at wave 1, compared to 11.3 years of school for other teen mothers (p<.001). They were also more likely to achieve more education by the time their children started kindergarten (p<.01). Teen mothers were more likely to reside with more-educated grandparents when their children were preschool-aged (68 percent coresided compared to 52 percent of those whose parents have less education) but those who did not coreside were less likely to identify their parents as a source of social support. Teen mothers used relative-provided child care somewhat more frequently when maternal grandparents had higher educational attainment, but the group difference was not statistically significant.

Multivariate Results

Table 2 presents coefficients and indicators of statistical significance from OLS models estimating children's standardized math and reading achievement scores at kindergarten entry as a function of grandparents' demographic and socioeconomic characteristics, controlling for grandchildren's race/ethnicity, age at observation, and gender, and mothers' age at birth and nativity. Grandparent characteristics were first assessed in stepwise models (models 1 to 4) and then simultaneously (model 5). Math and reading scores were both negatively associated with grandparents' low educational attainment in the stepwise models (model 2 in each panel). When neither grandparent completed high school, a child's predicted math achievement score was more than one-third of a standard deviation lower and their reading achievement score was nearly one-quarter of a standard deviation lower compared to children in families in which at least one grandparent completed high school. When all family background characteristics were considered simultaneously (model 5 in each panel), the magnitude of the coefficients associated with grandparent education was essentially unchanged. Other aspects of grandparents' socioeconomic status when a teen mother was growing up were not significantly related to grandchildren's cognitive achievement scores at school entry.

Tables 3 and 4 introduce indicators of teen parents' socioeconomic status and grandparents' involvement in teen parent families for math (table 3) and reading (table 4) achievement to assess whether these factors mediate the associations described in table 2. In each table,

model 0 is the same as model 5 from table 2 for the relevant outcome. It is repeated in these tables for ease of comparison.

Beginning with math achievement (table 3), model 1 shows that the teen parent's own high school completion status slightly reduced the magnitude and significance of the association of grandparents' educational attainment with children's math achievement (B=−0.321, p<.01 vs B=−0.348, p<.001 in model 0), but post-hoc tests indicate the coefficients are not significantly different from each other. The teen parent's own high school completion by wave 1 positively predicts children's math achievement, but subsequent educational attainment has no association with the outcome. Introducing the teen mother's assets (model 2) or household income-to-needs ratio at wave 3 (model 3) also slightly attenuated the influence of grandparents' educational attainment on grandchildren's math scores, but the coefficients associated with grandparents' education are not significantly different from those in model 0.

When all socioeconomic indicators in the teen parent generation are considered simultaneously (model 5), the model is similar to the baseline model, implying a positive one-third standard deviation difference in the math achievement of children where at least one maternal grandparent had completed high school compared to children where neither grandparent had finished. The magnitude of this association exceeds that for the teen parent's own educational attainment at wave 1 (coefficients are significantly different at p<.01 in post-hoc tests).

Model 6 incorporates the indicators of grandparent involvement that were expected to explain any observed association between grandparent characteristics and children's math achievement. These were not independently associated with the outcome and had no significant attenuating effect on the indicators of grandparent traits. The indicators of grandparent involvement also did not attenuate the association of parent socioeconomic status at wave 3 with the outcomes.

Table 4 follows the same format to describe models predicting children's early reading achievement. After accounting for the teen parent's own educational experience, the influence of grandparents' low educational attainment is reduced by about 20 percent but remains marginally statistically significant (p<.10). The difference in the magnitude of the relevant coefficient between models 0 and 1 is statistically insignificant in a post-hoc test, however. The teen parent's own high school completion at wave 1 predicts children's higher reading achievement scores by .284 standard deviations on average, and further educational attainment is associated with scores about one-fifth of a standard deviation higher compared to children of teen parents who gain no further education. Other aspects of teen mothers' socioeconomic status did not attenuate the association of grandparents' educational attainment with children's reading scores, but teen mothers' union status at wave 3 (model 4) positively predicted children's outcomes (p<.10).

Model 5 considers all of a teen mother's own socioeconomic characteristics simultaneously. When all factors are considered, the magnitude of the association of grandparents' educational attainment with children's predicted reading achievement scores is statistically

unchanged compared to model 0. Moreover, grandparents' educational attainment remains significant at $p<.05$, and its magnitude is about three-quarters the size of the coefficient associated with teen parents' high school completion at wave 1. Model 6 includes socioeconomic status in the grandparent and parent generation as well as indicators of grandparents' involvement. This model assesses whether grandparent involvement explains the association of either grandparents' or parents' socioeconomic status with grandchildren's early reading achievement. As for math achievement, this expectation was not supported. Grandparent involvement did not significantly attenuate the association between teen mothers' human capital and financial resources by school entry and children's reading achievement. Nor did it explain the association of grandparents' educational attainment or other indicators of socioeconomic status with either outcome.

In supplemental models (available upon request) we interacted grandparents' educational attainment with grandparents' involvement to consider whether there were social class differences in how grandparents' participation in children's lives shaped early cognitive achievement. This expectation emerged from prior research showing that the association of grandparent coresidence varies by household income (Mollborn, Fomby and Dennis 2011) and by research suggesting middling benefits of relative-provided day care for children of teen parents compared to no nonparental care that might be explained by variation in family background attributes (Mollborn and Blalock 2012). Interaction terms were statistically unrelated to reading and mathematics achievement. We conclude that grandparent involvement does not influence the cognitive achievement of teen parents' children on average, regardless of social class background.

Discussion

In the main, children born to teen parents experience disadvantaged cognitive achievement at school entry compared to children born to older parents. However, within this population there is variation, with a significant fraction of teen parents' children ready for school when they enter kindergarten. We asked whether some portion of this variation is attributable to the family background of teen mothers. In particular, we hypothesized that teen mothers from more advantaged backgrounds would accumulate more human capital, income, and assets prior to their children's school entry that would translate to higher levels of school readiness. Further, we expected that grandparents' resources would affect grandchildren's achievement through the provision of coresidence, child care, and social support.

One aspect of grandparents' socioeconomic status when teen mothers were growing up was strongly associated with grandchildren's math and reading achievement: educational attainment. Children of teen mothers whose maternal grandparents had not completed high school had predicted achievement scores one-quarter to one-third of a standard deviation below their peers whose teen mothers had at least one parent who had finished high school in the full models. Why might grandparents' educational attainment be the most pertinent component of socioeconomic status for shaping grandchildren's cognitive achievement? First, education is a more stable measure of socioeconomic status than the other attributes measured here. The measures of grandparents' welfare receipt and family structure history used here are rough, and those circumstances might have changed by the time of a

grandchild's birth. Hence, educational attainment might be a more valid indicator of grandparents' earning power and potential financial contributions to teen parents and grandchildren. Second, teen parents with more highly educated parents might be more motivated to acquire more education themselves, either because of grandparents' role modeling or persuasion, or to satisfy personal goals established prior to childbearing. Third, educational attainment in the grandparent and parent generations may reflect a heritable component of cognitive achievement that we are unable to isolate with the available data. Finally, this indicator may capture unmeasured selection into teen parenthood. For example, youth in families where grandparents achieved higher educational attainment might have had a lower propensity to become teen parents, and unmeasured characteristics associated with grandparent educational attainment might also drive those teen parents to "recover" from early parenthood more quickly.

As hypothesized, our descriptive results indicated that teen mothers whose parents had achieved more education had higher socioeconomic status themselves (as measured by educational attainment, assets, and household income-to-needs) by the time their children started school. In multivariate models, mothers' high school completion by wave 1 and household income when children were preschool-aged independently predicted children's higher math scores, and mothers' high school completion and subsequent education predicted children's higher reading scores. However, these factors did *not* strongly attenuate the association of grandparents' educational attainment with both of the outcomes. Hence, our expectation that grandparents' resources would improve child outcomes indirectly through their influence on parents' socioeconomic status was not supported. Instead, both generations' socioeconomic status predicted child achievement scores.

Corollary to that null finding, we did not find that grandparents' involvement with grandchildren varied by social class background. Nor did we find that the measures of grandparent involvement considered here explained the influence of grandparent socioeconomic resources on child cognitive development. That is, to the extent that grandparents' educational attainment is associated with grandchildren's early cognitive achievement, its influence does not operate through the provision of child care or coresidence.

Why, then, might the association of grandparents' educational attainment with the early cognitive achievement of teen parents' children be so strong and robust after controlling for parent socioeconomic status? In supplementary analyses (available upon request), we tested our full analytic model on the complete longitudinal ECLS-B sample including children born to older parents in order to determine whether the association of grandparents' characteristics with children's outcomes was unique to the population of children born to teen mothers. In those models, children of teen mothers did experience a deficit when their grandparents had not finished high school that was not present for children born to older parents. Although the differences were not consistently statistically significant, the pattern was consistent with the expectation that grandparents are making substantial contributions to the well-being of children born to teen mothers. Although we have documented variation in socioeconomic status among teen mothers, our descriptive results indicate that as a group, this population begins parenthood with few resources compared to the general population

(Mollborn and Dennis 2012a). Teen mothers, regardless of socioeconomic background, are also more likely to coreside with their own parents compared to the general population. Hence, grandparents' resources, rather than teen parents' resources, may be more salient in shaping the socioeconomic context that contributes to grandchildren's school readiness (Mollborn and Jacobs 2012).

Arguably, the significance of grandparents' resources for children's well-being may recede as teen parents increase their educational attainment and begin to amass resources (Furstenberg 2003; Furstenberg et al. 1987). Our analytic models did not assess directly whether grandparents' resources were associated with trajectories of teen parents' resource accumulation while children were young; nor do ECLS-B data allow a consideration of children's cognitive achievement beyond school entry. However, prior research suggests that grandparent contributions of time, money, and housing facilitate teen parents' increased educational and occupational attainment over time (Dunifon and Kowaleski-Jones 2007; Gordon, Chase-Lansdale and Brooks-Gunn 2004; Hao and Brinton 1997). Thus, access to resources provided by grandparents may benefit children directly when they are young and indirectly as they age through the influence of grandparents' resources on teen parents' own resource accumulation.

Our work adds to a body of existing research that suggests that multigenerational models of social mobility may be particularly pertinent for teen parent families. This is consistent with recent research and theory-building that has suggested grandparents' socioeconomic characteristics might be most salient for children's well-being at the lower end of the socioeconomic spectrum (Jaeger 2012; Mare 2011). This research has also demonstrated that the multigenerational transmission of at least some components of resources may be non-Markovian in a specialized population like children of teen parents. That is, the influence of factors like educational attainment may operate directly between the first and third generations in a three-generation model, rather than only through what is transmitted from the first to the second generation.

That said, we do not argue that tapping grandparents' resources would be an effective policy strategy to offset the socioeconomic challenges that teen parents and their children face. Grandparent contributions to child well-being are not necessarily positive in all cases and are a potential source of conflict between grandparents and teen parents. The association of coresidence with grandparents on children's early cognitive development is more positive for black than for white children, largely because parents of white children are more likely to reside in an extended household only when economic resources are tightly constrained (Mollborn et al. 2011). As children age, however, continued coresidence with grandparents in black families may be less beneficial compared to residing with a single mother (Dunifon and Kowaleski-Jones 2007; Unger and Cooley 1992). This may be due to negative selection into long-term coresidence or to conflict around parenting styles as teen parents strive to live independently (SmithBattle 1996). Further, recent social structural conditions like declining real wages, lost retirement savings, long-term unemployment, and housing instability constrain the resources that extended kin are able to provide to young parents (Brewster and Padavic 2002; Mollborn and Jacobs 2012).

Our study has several limitations. First, as with any child-based study, the measures of parents' background are incomplete and retrospective and rely on parents' recall, which is subject to error. Our analysis is further constrained by excluding very young teen mothers, those whose mothers are no longer living, and those who never resided with their biological parents, all of which are likely to be more highly disadvantaged groups. Because we rely on respondent-reported data for family background information and nearly all parent respondents are female, we are reporting on the role of maternal grandparent involvement only; a more comprehensive picture would include information on both sets of a child's grandparents. Lastly, we have not accounted for parent characteristics like mental health and parenting practices that are also associated with the success of teen parents' children and which may be related both to family background and parents' own socioeconomic status. Despite these limitations, this study provides new information to explain variation in outcomes among children of teen parents and has documented the utility of using a three-generation model to understand child well-being in a vulnerable population.

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Table 1

Selected weighted descriptive statistics, full sample and children born to teen mothers, Early Childhood Longitudinal Study-Birth Cohort

	ECLS-B Sample	All teen mothers	Teen mother, grandparents <high school	Teen mother, grandparents>=high school	
Outcomes					
Math Achievement	0.02	−0.35	−0.60	−0.13	***
Reading Achievement	−0.02	−0.37	−0.54	−0.18	**
Family Background					
Teen parent's family received welfare in childhood	11.4%	21.1%	22.4%	20.9%	
Grandparents' highest year of schooling	12.3	11.2	8.7	13.1	***
Granmother's age at teen parent's birth	25.2	24.2	23.5	24.7	
Teen parent lived with 2 parents to age 16	58.8%	37.1%	33.5%	39.8%	
Teen Parent SES characteristics					
Income-to-needs ratio, child age 4	2.9	1.4	1.2	1.6	*
Asset scale, child age 4	70.8%	48.6%	45.3%	52.3%	*
Mother married, child age 4	69.1%	32.8%	39.0%	27.9%	*
Parent's years of schooling by kindergarten wave	13.5	11.8	11.3	12.3	***
Teen mother finished high school wave 1	81.2%	50.0%	41.4%	59.4%	**
Teen mother increased education by kindergarten wave	20.5%	38.7%	35.4%	43.4%	
Grandparent Involvement					
Grandparent in home, child age 4	22.6%	60.9%	51.6%	67.6%	**
Don't live with grandparent, but support given, age 4	44.1%	19.7%	32.2%	9.9%	***
Don't live with grandparent, no support given, age 4	33.1%	19.4%	16.2%	22.6%	
Relative-provided care	20.3%	28.8%	26.2%	32.2%	
Control Variables					
Teen mother aged 18-19	4.1%	66.6%	64.1%	69.9%	
Child age in months, kindergarten wave	68.2	68.2	68.5	68.1	
Child White (non-Hispanic)	53.7%	38.6%	31.6%	46.4%	**

	ECLS-B Sample	All teen mothers	Teen mother, grandparents <high school	Teen mother, grandparents>=high school	
Child Black (non-Hispanic)	13.9%	22.7%	18.2%	25.8%	*
Child Hispanic	25.1%	34.3%	48.1%	22.0%	***
Child other race (non-Hispanic)	7.3%	4.4%	2.2%	5.8%	**
Teen mother born in United States	79.8%	83.6%	75.8%	92.3%	***
Resides in metropolitan area, wave 1	85.3%	82.7%	79.7%	85.4%	
Teen mother attends religious services>= once a year, wave 1	79.2%	72.6%	69.8%	73.9%	
N (rounded to nearest 50)	6800	700	300	400	

Group differences between teen mothers:

*** p<.001

** p<.01

* p<.05

Table 2

Coefficients and statistical significance from models estimating children's standardized reading and math achievement as a function of grandparents' demographic and socioeconomic characteristics, ECLS-B

	MATH										READING									
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 1		Model 2		Model 3		Model 4		Model 5	
	B/SE		B/SE		B/SE		B/SE		B/SE		B/SE		B/SE		B/SE		B/SE		B/SE	
Teen parent's HH on welfare b/n age 5-16	−0.173								−0.177		−0.192								−0.201	
	0.121								0.117		0.128								0.125	
Both grandparents <HS ed			−0.354	***					−0.348	***			−0.246	*					−0.239	*
			0.098						0.097				0.102						0.103	
Grandmother's age at teen parent's birth					0.007				0.006						0.005				0.005	
					0.010				0.009						0.010				0.010	
Teen parent lived w both parents until age 16							−0.076		−0.148	†							−0.061		−0.125	
							0.092		0.090								0.093		0.090	
Controls																				
Teen mom 18-19 (vs. 15-17)	0.182	*	0.167	†	0.179	*	0.191	*	0.158	†	0.111		0.104		0.112		0.121		0.095	
	0.089		0.086		0.089		0.089		0.086		0.094		0.092		0.093		0.093		0.092	
Child age in months at KG wave	0.070	***	0.073	***	0.072	***	0.071	***	0.072	***	0.069	***	0.071	***	0.070	***	0.069	***	0.069	***
	0.011		0.010		0.011		0.011		0.010		0.012		0.012		0.012		0.012		0.012	
Child is male	−0.064		−0.061		−0.067		−0.065		−0.063		−0.154	†	−0.152	†	−0.156	†	−0.154	†	−0.154	†
	0.087		0.085		0.087		0.087		0.084		0.088		0.087		0.088		0.088		0.087	
Child is African-American	−0.333	**	−0.327	**	−0.333	**	−0.354	**	−0.326	**	−0.156		−0.156		−0.160		−0.176		−0.153	
	0.108		0.106		0.110		0.111		0.108		0.114		0.115		0.117		0.118		0.117	
Child is Hispanic	−0.518	***	−0.430	**	−0.521	***	−0.520	***	−0.414	**	−0.403	**	−0.345	*	−0.407	**	−0.407	**	−0.330	*
	0.130		0.125		0.131		0.131		0.124		0.143		0.145		0.145		0.144		0.145	
Child is other race	0.006		−0.042		−0.005		−0.001		−0.052		0.248		0.213		0.239		0.242		0.207	
	0.138		0.133		0.143		0.139		0.129		0.167		0.163		0.170		0.167		0.161	

	MATH					READING				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
	B/SE	B/SE	B/SE	B/SE	B/SE	B/SE	B/SE	B/SE	B/SE	B/SE
Teen mother born in US	0.320 *	0.211 †	0.293 *	0.279 *	0.244 *	0.297 **	0.205	0.263 †	0.252 †	0.244 †
	0.126	0.125	0.128	0.125	0.121	0.134	0.135	0.138	0.134	0.134
Urban residence (vs. rural)	0.074	0.003	0.069	0.064	−0.009	0.078	0.027	0.074	0.069	0.019
	0.125	0.127	0.126	0.126	0.126	0.124	0.124	0.124	0.124	0.124
Attended relig service in last year (vs. not)	0.016	−0.012	0.011	0.018	−0.010	0.061	0.042	0.057	0.062	0.044
	0.095	0.094	0.096	0.096	0.093	0.102	0.101	0.103	0.102	0.100
Constant	−5.302 ***	−5.200 ***	−5.577 ***	−5.306 ***	−5.199 ***	−5.205 ***	−5.161 ***	−5.423 ***	−5.228 ***	−5.126 ***
	0.759	0.733	0.791	0.754	0.758	0.810	0.808	0.832	0.810	0.826

N~700 (rounded to nearest 50)

*** p<.001

** p<.01

* p<.05

† p<.10

Table 3

Coefficients and statistical significance from models estimating children's standardized math achievement as a function of grandparents' and parents' demographic and socioeconomic characteristics, ECLS-B

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B/SE		B/SE		B/SE		B/SE		B/SE	se	B/SE		B/SE	
Teen parent's family received welfare in childhood	−0.177		−0.131		−0.158		−0.141		−0.178		−0.115		−0.120	
	0.117		0.117		0.121		0.117		0.116		0.120		0.119	
No grandparent completed at least high school	−0.348	***	−0.321	**	−0.336	**	−0.330	**	−0.363	***	−0.328	**	−0.321	**
	0.097		0.098		0.097		0.096		0.098		0.099		0.104	
Grandmother's age at teen parent's birth	0.006		0.006		0.006		0.004		0.006		0.004		0.004	
	0.009		0.009		0.009		0.009		0.009		0.009		0.009	
Teen parent lived with both parents until age 16	−0.148	†	−0.160	†	−0.144		−0.135		−0.145		−0.145	†	−0.151	†
	0.090		0.089		0.088		0.088		0.089		0.086		0.086	
Teen parent finished high school by wave 1			0.213	*							0.182	*	0.190	*
			0.091								0.092		0.091	
Teen parent gained education by kindergarten wave			0.030								0.017		0.014	
			0.096								0.096		0.097	
Teen parent's assets, wave 3					0.176						−0.101		−0.116	
					0.198						0.209		0.206	
Teen parent's income-to-needs ratio, wave 3							0.086	*			0.083	*	0.083	*
							0.040				0.038		0.037	
Teen parent married at wave 3									0.142		0.133		0.145	
									0.101		0.103		0.106	
Child in relative-based care, wave 3													−0.066	
													0.090	
Teen parent coresided with grandparent, wave 3														
													−0.050	
Teen parent perceived social support from grandparents, wave 3													0.113	
													−0.114	
Controls													0.134	

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B/SE		B/SE		B/SE		B/SE		B/SE	se	B/SE		B/SE	
Mother age 18-19 at child's birth (vs. 15-17)	0.158	†	0.116		0.160	†	0.131		0.140		0.076		0.071	
	0.086		0.087		0.087		0.085		0.088		0.089		0.093	
Child age (months) at kindergarten interview	0.072	***	0.071	***	0.072	***	0.073	***	0.074	***	0.074	***	0.074	***
	0.010		0.010		0.010		0.010		0.010		0.010		0.010	
Child is male	−0.063		−0.080		−0.063		−0.053		−0.067		−0.072		−0.070	
	0.084		0.083		0.084		0.083		0.084		0.082		0.081	
Child is non-Hispanic black	−0.326	**	−0.317	**	−0.289	*	−0.266	*	−0.279	*	−0.236	*	−0.234	*
	0.108		0.107		0.114		0.107		0.116		0.114		0.114	
Child is Hispanic	−0.414	**	−0.394	**	−0.406	**	−0.404	**	−0.399	**	−0.379	**	−0.366	**
	0.124		0.123		0.125		0.122		0.124		0.121		0.122	
Child is non-Hispanic other race	−0.052		−0.081		−0.037		−0.044		−0.041		−0.066		−0.058	
	0.129		0.129		0.133		0.128		0.133		0.130		0.132	
Teen Mother Born in the U.S.	0.244	*	0.210	†	0.235	†	0.215	†	0.257	*	0.206	†	0.198	†
	0.121		0.118		0.121		0.120		0.120		0.117		0.116	
Urban residence (vs. rural)	−0.009		−0.003		−0.005		−0.008		−0.002		0.001		−0.004	
	0.126		0.127		0.128		0.128		0.126		0.128		0.129	
Attended any religious service in last year	−0.010		−0.007		−0.010		0.010		−0.027		−0.002		−0.001	
	0.093		0.093		0.093		0.093		0.094		0.094		0.094	
Intercept	−5.199	***	−5.263	***	−5.293	***	−5.367	***	−5.359	***	−5.501	***	−5.401	***
	0.758		0.772		0.783		0.764		0.754		0.784		0.790	

N~700 (rounded to nearest 50)

*** p<.001

** p<.01

* p<.05

† p<.10

Popul Res Policy Rev. Author manuscript; available in PMC 2016 October 01.

Popul Res Policy Rev. Author manuscript; available in PMC 2016 October 01.

Table 4

Coefficients and statistical significance from models estimating children's standardized reading achievement as a function of grandparents' and parents' demographic and socioeconomic characteristics, ECLS-B

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B/SE		B/SE		B/SE		B/SE		B/SE	se	B/SE		B/SE	
Teen parent's family received welfare in childhood	−0.201		−0.155		−0.187		−0.181		−0.202		−0.163		−0.171	
	0.125		0.124		0.129		0.127		0.124		0.125		0.123	
No grandparent completed at least high school	−0.239	*	−0.191	†	−0.231	*	−0.229	*	−0.259	*	−0.217	*	−0.230	*
	0.103		0.105		0.104		0.103		0.104		0.107		0.109	
Grandmother's age at teen parent's birth	0.005		0.005		0.005		0.004		0.004		0.004		0.004	
	0.010		0.010		0.010		0.010		0.010		0.010		0.010	
Teen parent lived with both parents until age 16	−0.125		−0.139		−0.122		−0.117		−0.121		−0.132		−0.135	
	0.090		0.089		0.089		0.089		0.090		0.089		0.087	
Teen parent finished high school by wave 1			0.284	**							0.275	**	0.281	**
			0.104								0.105		0.103	
Teen parent gained education by kindergarten wave			0.217	*							0.230	*	0.236	*
			0.102								0.102		0.101	
Teen parent's assets, wave 3					0.120						−0.164		−0.173	
					0.186						0.205		0.201	
Teen parent's income-to-needs ratio, wave 3							0.047				0.037		0.039	
							0.034				0.030		0.030	
Teen parent married at wave 3									0.202	†	0.216	†	0.207	†
									0.108		0.110		0.111	
Child in relative-based care, wave 3													−0.052	
													0.100	
Teen parent coresided with grandparent, wave 3													0.000	
													0.119	
Teen parent perceived social support from grandparents, wave 3													0.055	
													0.142	
Controls														

	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B/SE		B/SE		B/SE		B/SE		B/SE	se	B/SE		B/SE	
Mother age 18-19 at child's birth (vs. 15-17)	0.095		0.073		0.097		0.080		0.070		0.036		0.033	
	0.092		0.093		0.092		0.092		0.092		0.092		0.094	
Child age (months) at kindergarten interview	0.069	***	0.071	***	0.069	***	0.070	***	0.072	***	0.075	***	0.074	***
	0.012		0.011		0.012		0.012		0.012		0.011		0.011	
Child is male	−0.154	†	−0.178	*	−0.154	†	−0.148	†	−0.159	†	−0.179	*	−0.179	*
	0.087		0.085		0.087		0.087		0.086		0.085		0.084	
Child is non-Hispanic black	−0.153		−0.145		−0.128		−0.120		−0.085		−0.082		−0.081	
	0.117		0.116		0.121		0.118		0.125		0.124		0.124	
Child is Hispanic	−0.330	*	−0.299	*	−0.325	*	−0.325	*	−0.309	*	−0.280	†	−0.270	†
	0.145		0.145		0.145		0.144		0.144		0.142		0.145	
Child is non-Hispanic other race	0.207		0.153		0.217		0.211		0.222		0.160		0.170	
	0.161		0.164		0.162		0.161		0.166		0.164		0.166	
Teen Mother Born in the U.S.	0.244	†	0.188		0.238	†	0.228	†	0.263	†	0.205		0.218	†
	0.134		0.129		0.134		0.133		0.134		0.127		0.131	
Urban residence (vs. rural)	0.019		0.032		0.022		0.019		0.029		0.040		0.034	
	0.124		0.125		0.125		0.126		0.124		0.126		0.124	
Attended any religious service in last year	0.044		0.022		0.044		0.055		0.020		0.003		0.003	
	0.100		0.098		0.100		0.100		0.100		0.098		0.098	
Intercept	−5.126	***	−5.452	***	−5.190	***	−5.218	***	−5.353	***	−5.696	***	−5.648	***
	0.826		0.824		0.841		0.830		0.829		0.836		0.819	

N~700 (rounded to nearest 50)

*** p<.001

** p<.01

* p<.05

† p<.10