The Influence of College Education on Children and Parents in Low-Income Families

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Abstract

Research in developmental psychology often contains samples where education and income are highly related. This study examines characteristics of low-income families who have at least one parent with a college education and how their children's achievement and parenting practices compare to other types of families. Using the Early Childhood Longitudinal Study '98, 768 families were identified as low-income and college-educated. The majority of parents were White, working, and married, with high educational expectations. Children from low-income, college-educated families scored higher on achievement tests compared to children from low-income, less-educated and high-income, less-educated families. Compared to these same two types of families, low-income, college-educated parents were more involved in school and home activities, such as taking their child to libraries. The present findings extend understanding of, and confront common stereotypes about, families living in or near poverty. Even when lacking financial resources, education may provide a protective buffer for low-income families.

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The link between parent education and family income to children's academic outcomes has been well-studied (Davis-Kean, 2005; Duncan et al., 2011; Harding, 2015; Smith et al., 1997), but there has been less focus on families in which education and income are less correlated. Over 40 million people in the United States live in poverty yet low-income families are not homogenous. Although the majority of low-income families lack a college education, there are a significant number of highly-educated families living in or near poverty. In 2016, approximately 3.3 million college-educated adults lived in poverty (Semega et al., 2017). In 2015, 15 million children lived in low-income families where at least one parent had at least some college education (Jiang et al., 2017). For these families, the typically moderate correlation between education and income is low, indicating a disconnect between socioeconomic indicators in which highly-educated parents are not collecting higher incomes.

The purpose of this study is to learn more about this disconnect between commonly-related socioeconomic variables and the implications for children's achievement and parents' behavioral outcomes. Using a large, nationally representative dataset, we descriptively examine family characteristics to further understand this sample of the population, including possible reasons for their low economic resources. We also test whether children's achievement scores and parenting practices in these low-income, college-educated families differ from child and parent outcomes in other types of families (i.e., low-income/non college-educated, high-income/non college-educated, and high-income/college-educated families).

Theoretical Framework

Although this study is informed by theories from developmental sciences and economics, these frameworks are derived from empirical research that typically do not consider multiple

socioeconomic indicators (i.e., education and income) within the same context (i.e., families). Drawing upon capital, bioecological, and developmental niche theories, Harding and colleagues (2015) propose an integrative framework connecting maternal education, parenting practices, and children's academic outcomes. First, the authors argue that as maternal education increases so does mothers' access to various forms of capital, such as human (e.g., skills for collecting information, problem-solving ability), cultural (e.g., preferences for high culture, social norms of educational settings), and social (e.g., knowledgeable network connections, high-achieving role models), that shapes parenting practices. Parenting does not happen in isolation – it operates at various nested levels of a parent and child's bioecological environment to promote children's academic development. Last, developmental niche theory suggests that children's development is reinforced through mothers' systematic and repetitive behavioral patterns across different settings (Harding et al., 2015).

According to the family investment model, parents with greater human capital and economic resources are better able to purchase resources that directly benefit children and youth (Becker & Tomes, 1994). Such investments may include school and neighborhood quality, learning materials, and enriching experiences (Yoshikawa et al., 2012). Low-income parents may not be able to afford cognitively stimulating resources or may be unable to devote as much time to child due to long or odd work hours or a less flexible work schedule (Duncan et al., 2017). They also may have to use their financial resources to purchase goods, materials, and services that address the family's immediate needs (Votruba-Drzal, 2003).

Parent and family stress models suggest that family instability, including lack of financial resources, food or housing insecurity, or marital conflict, can lead to increased stress and adversely affect parents' mental health (Conger et al., 1992; McLoyd, 1990, 1998).

Psychological distress can influence parenting practices such as decreasing parents' ability to be supportive and involved with their children (Yeung et al., 2002). McLoyd (1990) posits that insensitive and unsupportive parenting has serious consequences for children that are ultimately detrimental to a number of developmental outcomes.

These frameworks provide a useful guide towards understanding the nuances and consequences of education and income for parent and child outcomes, but they may not necessarily describe the experiences of low-income, highly-educated parents. For example, the maternal education framework suggests highly-educated mothers have access to multiple sources of resources or capital that can be routed towards enhancing their children's development. At the same time, investment theory suggests that low-income parents do not have the resources to provide rich educational environments for their children. When examined alone, these theories appear to describe the behaviors of large segments of the population. But when applied in tandem to a unique sample – families who live in or poverty with a college education – the utility of the frameworks is less clear and somewhat contradictory, which this study seeks to clarify.

The Influences of Parental Education and Family Income on Children's Achievement

Families' socioeconomic status, particularly parental education and family income, have unique effects on children's academic achievement (Duncan & Magnuson, 2003; Smith et al., 1997). Both socioeconomic resources demonstrate direct and indirect influences on parenting practices, such as school involvement and enrichment activities, and children's outcomes.

Parental education. Parents' education is strongly linked to children's achievement and educational attainment (Davis-Kean, 2005; Magnuson & McGroder, 2002; Magnuson et al., 2009). Isaacs and Magnuson (2011) found that an additional year of mother's schooling increased children's reading and math scores by 0.06 and 0.09 standard deviations in

kindergarten. In a quasi-experimental study of Head Start-eligible children, children with mothers who increased their education scored higher on a number of academic and cognitive skills compared to children with mothers whose education did not change (Harding, 2015). Interestingly, maternal education remains a statistically significant predictor of young children's reading and math achievement scores even when controlling for income (Smith et al., 1997).

Davis-Kean (2005) reported strong indirect parental education effects for young children's achievement but a much weaker relationship between income and achievement. Parental education may indirectly influence children's achievement through parents' expectations for their children's schooling, reading at home, and levels of warmth and play in the parent-child relationship, which are positively related to achievement (Davis-Kean, 2005; Kim & Rohner, 2002; Zheng & Libertus, 2018). Klebanov and colleagues (1994) found that while both mother's education and income were important to the physical and learning environment in the home, education alone predicted parental warmth. Likewise, mothers with higher levels of education are typically more emotionally responsive to children and experience more positive parent-child interactions than mothers with lower education (Bradley et al., 1989; Fox et al., 1995). Highly-educated mothers typically spend more time with their children and tailor that time to their children's developmental needs (Kalil et al., 2012).

Family income. The direct effect of family income on children's achievement and schooling is well-documented (Duncan et al., 2011; Reardon, 2011). Beginning in kindergarten, children from lower-income families typically perform more poorly on academic assessments compared to children from higher-income families (Duncan & Magnuson, 2011; Magnuson & Duncan, 2006; Smith et al., 1997). Duncan & Magnuson (2011) demonstrated that children from families in the bottom income quintile scored almost 1.5 standard deviations below children from

families in the top income quintile on math assessments. Some experimental studies found significant positive effects of increased family income on children's achievement (Dahl & Locner, 2012; Duncan et al., 2011) but other experimental and non-experimental studies found small or no effects (Isaacs & Magnuson, 2011; Miller et al., 2016).

The effects of family income also operate indirectly through the home environment and parenting practices (Gershoff et al., 2007). Previous research has demonstrated the importance of a stimulating home environment on children's development (Brooks-Gunn & Duncan, 1997; Fox et al., 1995; Smith et al., 1997) and families with high income may be able to provide the resources necessary for a warm and stimulating home environment (Duncan et al., 2011). Guo and Harris (2000) suggested that having a lower income impacts the resources that parents can provide (i.e., physical home environment) and the types of interactions parents have with their children (i.e., parenting style).

This evidence demonstrates that both education and income have a distinct influence on children's academic achievement and parenting behaviors. The achievement and parenting literature, however, often examines these facets independently or with highly correlated samples (e.g., low-income, less-educated families or high-income, highly-educated families). Therefore, trying to understand whether parental education can attenuate the effects of low economic resources on children and parents is an important step in understanding the complementary or independent role that these two socioeconomic resources have on developmental outcomes.

Parenting Practices related to Children's Achievement

School choice. Parents consider a number of factors when choosing the school their child attends. For example, some parents may prioritize schools close to home or schools with a high academic reputation (Bosetti, 2004). Parents who choose private schools may want access to a

better academic program than the one offered by the available public schools, instruction in religion, smaller school and class size, or a safer environment with better discipline (Murnane & Reardon, 2018). Parents may be influenced by the higher teacher morale and parental involvement of private schools compared to public schools (Lubienski et al., 2008). Reardon and colleagues (2009) found that private school voucher recipients, particularly low-income recipients, were more likely to attend Catholic schools than other types of private schools. Of course, it is also important to recognize that many parents do not have the ability to exercise school choice (Bosetti, 2004).

Parent school involvement. Formal parent involvement includes visible participation in children's schools such as attending parent-teacher conferences or volunteering (LeFevre & Shaw, 2011), which is positively related to children's achievement (Barnard, 2004; Fan & Chen, 2001; Jeynes, 2005). Dearing and colleagues reported that parental school involvement was strongly associated with children's literacy achievement for children who had parents with low levels of education (Dearing et al., 2004, 2006). Other research, however, finds weaker or mixed effects (Boonk et al., 2018; El Nokali et al., 2010; Lee & Bowen, 2006). For example, Gordon and Cui (2014) found weaker associations between parental school involvement and achievement in high-poverty communities compared to more affluent areas. The links between parental school involvement and children's achievement are still unclear and may be influenced by parent education or family income.

Parent-child enrichment activities. Parents may be engaging in behaviors and activities to promote children's academic outcomes as a means of informal school involvement (LeFevre & Shaw, 2011). Hill and Tyson (2009) found that educationally enriching activities, such as library and museum trips, were positively related to children's achievement outcomes. Engaging

in enrichment activities varies by maternal education with college-educated mothers spending more on enrichment activities such as recreation and books compared to less-educated mothers (Kaushal et al., 2011). Access to recreational and cultural resources may mediate the relationship between family income and children's academic achievement (Brooks-Gunn et al., 1995; Guo & Harris, 2000). Unfortunately, many low-income families lack access to these recreational and learning materials (Bradley & Corwyn, 2002) and are less likely to visit a museum or library compared to families with higher incomes (Bradley et al., 2001). In this study, we examine a number of parenting practices that typically differ between low- and high-income families and low- and high-education families.

Present Study

The present study seeks to disentangle the role of parental education and family income on child and parent outcomes using an understudied sample: families living in or near poverty with at least one college-educated parent. The goal of this study is to descriptively analyze this sample of families, not to test mechanisms driving differences amongst families with varying education and income levels.

The first aim is to examine the characteristics of low-income, highly-educated families and why might families with a highly-educated parent be living in or near poverty. We hypothesize that the majority of this sample possesses a bachelor's degree followed by various professional degrees. We hypothesize a racially and ethnically diverse sample, with slightly more families of color. If employed, we predict that parents in this sample will hold occupations that require a bachelor's degree but do not pay high wages such as nursing or teaching but many parents may be unemployed. We also hypothesize that there will be a large number of single parents subsisting on a single income and that parents will be young in age. Lastly, we anticipate

parents will have high educational expectations for their child and report a warm and stimulating home environment.

The second aim is to examine how the reading and math achievement scores of children in low-income, highly-educated families differ from children in other types of families. We hypothesize that children in low-income, highly-educated families will have significantly higher reading and math scores compared to children in low-income, less-educated and high-income, less-educated families but lower scores than those in high-income, highly-educated families.

The third aim is to investigate how the parenting practices of parents in low-income, highly-educated families differ from parents in other types of families. We hypothesize that parents in parents in low-income, highly-educated families will be more likely to send their children to a non-public school and report more school involvement and enrichment activities than parents in low-income, less-educated and high-income, less-educated families but less likely than those in high-income, highly-educated families.

Method

Participants

Participants were from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999 (ECLS-K; U.S. Department of Education, 2014), which contains a nationally-representative random sample of approximately 21,000 children. Sponsored by the National Center for Education Statistics (NCES), the ECLS-K focused on children's school experiences and collected information from students in both public and private schools beginning in kindergarten (1998-99 school year) and continuing through eighth grade (spring 2007). Information was also collected from the parents, teachers, and school administrators of the children. As this data is public use and de-identified, this study was exempt from IRB approval.

Procedures

Consistent with education research ethics protocols, at the time of initial contact with the child, the ECLS-K obtained either implicit or explicit written consent from parents depending on the school district's requirements (see Tourangeau et al., 2001). Approximately half of the schools required implicit parent consent forms that did not need a parent/guardian signature for their child to participate. For those districts requiring explicit consent, study personnel followed approved IRB guidelines that required a parent/guardian's signature for their child to participate.

The first child and parent assessments occurred primarily over the phone. The respondent, who were mostly mothers, had to be knowledgeable about the child's care and education, be 18 years of age or older, and be living in the household with the child. Analyses used data available in the kindergarten waves (Fall Wave 1 and Spring Wave 2) of the ECLS-K. The timing of when the specific measures were collected (i.e., Wave 1, Wave 2, or composite cross-wave) is indicated next to each specific measure. The primary sample that was the focus of this study included children who were enrolled in kindergarten and living in a low-income family with at least one college educated parent ($n = 768$).

Past research has often focused solely on mother's education and characteristics (Davis-Kean et al., 2019). Davis-Kean (2005), however, has shown that beliefs and behaviors in the home relate to the highest education in the home regardless of whether it is the mother or father's educational attainment. Thus, this study focuses on the home environment as a whole, not the individual behavior of parents, which would result in some lost context for how achievement is socialized in the home. In terms of demographics (e.g., race/ethnicity, occupation), data was collected on both mothers' and fathers' characteristics. For households containing more than one father or mother, a hierarchy was used to designate the current/residential parent of each sex,

prioritizing biological parents (see Tourangeau et al., 2001). Most questions concerning parenting or family practices were asked regarding the behavior of the household at large. The exceptions to this were parent's educational expectations for their child and the home environment variables which only focused on the views of the parent respondent.

Measures

Parent education. Parental education was coded on a 9-point scale based on the highest level of education of the child's parents or guardians who resided in the household (1 = *eighth grade or below* to 9 = *doctorate or professional degree*; composite cross-wave). This parental education variable was dichotomized into two categories: 0 (*below bachelor's degree*) or 1 (*bachelor's degree or higher*). We are interested in a certain categorical threshold of education (i.e., bachelor's degree or higher) related to parenting and children's achievement (Davis-Kean et al., 2019). Holding a bachelor's degree allows parents' access to various forms of capital that parents without a college education may not possess (Horvat et al., 2003; Weininger, 2014).

Family income. Parents were asked the total income of all household members over the past year (composite cross-wave). Income was then compared to the 1998 Census poverty thresholds, which vary by household size (Wave 2). A more liberal income criterion was used (income that equaled or fell below 200% of the Census-defined poverty thresholds) as the traditional poverty threshold misses many children and families who experience poverty-related stressors (Huston & Bentley, 2010). A more liberal criterion is also used for eligibility into social service programs like Head Start (Roosa et al., 2005). Income status was coded as 0 (*low-income*) or 1 (*high-income*).

Family type. Based on the two binary parent education and family income variables, four dichotomous variables were created for the following family types (1 = *yes*): low-income/low-

education ($n = 7,381$), low-income/high-education ($n = 768$; reference group), high-income/low-education ($n = 5,422$), and high-income/high-education ($n = 5,391$).

Highest-educated parent characteristics. Demographic characteristics of the parent are characteristics of the parent with the highest education level in the family. Sex of the parent with the highest degree in the family was coded as male (0) or female (1). If parents were equally educated, mother's characteristics were used on the subsequent variables. Parents reported if they were working 35 hours or more per week (1), less than 35 hours per week (2), looking for work (3), or not in the labor force (4; Wave 1). Parent occupation was coded into 22 established categories (see Tourangeau et al., 2001; Wave 1). Parents indicated if they were Hispanic or non-Hispanic and then reported their race (Wave 2). Race was coded as White (non-Hispanic, 1), Black or African American (non-Hispanic, 2), Hispanic (race specified, 3), Hispanic (race not specified, 4), Asian (5), Native Hawaiian or other Pacific Islander (6), American Indian or Alaska Native (7), or more than one race (non-Hispanic, 8). Parent age was a continuous variable (Wave 2). Parent marital status was coded as married (1), separated (2), divorced (3), widowed (4), or never married (5; Wave 2).

Parent educational expectations. Parents' expectations for their child's schooling achievement were measured with an ordinal variable that asked the parent, "How far in school do you expect (child) to go?" (Wave 1). Answer choices ranged from receiving less than a high school diploma (1) to getting a Ph.D., M.D., or other high degree (6).

Home environment. Variables were created for three aspects of the home environment related to cognitive stimulation and children's academic achievement: reading, parent-child play behavior, and parental warmth (Davis-Kean, 2005; Diamond et al., 2019; Zheng & Libertus, 2018). First, the reading scale consisted of one item reported by parents on how often they read

books to their child (1 = *not at all*, 2 = *once or twice a week*, 3 = *3 to 6 times a week*, or 4 = *everyday*; Wave 1).

Parent-child play behavior consisted of five items involving participation with child in activities such as games or puzzles, arts and crafts, singing songs, building something or playing with construction toys, or playing sports or exercising (Wave 1). Parents indicated how often they engaged in each of these play activities (1 = *not at all*, 2 = *once or twice a week*, 3 = *3 to 6 times a week*, or 4 = *everyday*). These five items were then averaged together ($\alpha = .60$).

The warmth indicator included six items such as “(Child) and I often have warm, close times together” and “Even when I’m in a bad mood, I show (child) a lot of love” (Wave 2). Items were rated on a 4-point scale (1 = *completely true*, 2 = *mostly true*, 3 = *somewhat true*, 4 = *not at all true*). Categories 3 and 4 were collapsed into one category (coded as 3) due to small cell sizes in each. Items were reverse coded for analyses so that higher values indicated greater warmth. These six items were then averaged together ($\alpha = .61$).

Child characteristics. The parent respondent provided the follow information about the child. Children’s sex was coded as male (0) or female (1; composite cross-wave). Parents indicated if children were Hispanic and then reported their race (composite cross-wave). Race was then coded following the same scheme previously reported for parents. Child age was a continuous variable created from date of birth (Wave 2).

Child achievement measure. Achievement was measured by using Item Response Theory (IRT) achievement scores in reading and math (Wave 2). IRT procedures use correct and incorrect responses to tailor testing to a child’s individual academic ability at each grade level and, using this pattern of responses, can estimate the probability of correct responses for all questions. The IRT achievement scores in reading and math available in the ECLS-K have been

shown to be reliable within and across time (Pollack et al., 2005).

Type of school. School administrators indicated whether their school was a public school (composite cross-wave). If administrators indicated that their school was not a public school, they were asked to indicate the type of private school. We created three dichotomous variables for the following school types (1 = *yes*): public, religious (includes Catholic and other religious affiliated schools), and non-religious private.

Parental school involvement. Parent school involvement included six dichotomous items (Wave 2). Parents indicated if they or another adult in the household engaged in the following six activities at their child's school (1 = *yes*): attended an open house or back-to-school night, attended a parent-teacher association or organization meeting, attended regularly scheduled parent-teacher conferences, attended a school event, acted as a volunteer at school or served on a committee, and participated in fundraising. Items were examined individually.

Parent-child enrichment activities. Parent-child enrichment activities included five items (Wave 2). Parents indicated if they anyone in their family had engaged in the following five activities with their child (1 = *yes*): visited the library, gone to a play, concert, or other live show, visited an art gallery, museum, or historical site, visited a zoo, aquarium, or petting farm, and attended an athletic or sporting event in which the child is not a player. Items were examined individually.

Analytic Strategy

The purpose of this study was to learn more about low-income, highly-educated families and their children's achievement and parenting practices. First, we examined descriptive statistics of family characteristics to gain a better understanding of who makes up this population while considering possible explanations for why college-educated families would be living in or

near poverty. We report parent and child characteristics across all four family types but do not test differences. Second, we conducted linear regressions to examine children's reading and math achievement scores by family type in separate models. The dichotomous family type variables were included with the low-income/high-education family type serving as the reference group. Based on previous research (Davis-Kean, 2005), covariates included: parents' working status (1 = *working full or part-time*), marital status (1 = *married*), education expectations, and home environment variables as well as child's sex (1 = *female*), race (1 = *White*), and age. Next, we used descriptive analyses to examine parenting practices. Lastly, we conducted logistic regression analyses to investigate possible family type differences in the frequencies of parenting practices in separate models. The dichotomous family type variables were included and the low-income/high-education family type again served as the reference group with the same set of covariates previously described with the addition of kindergarten reading and math achievement.

Across all kindergarten variables, the amount of missingness ranged from 0% (type of school) to approximately 38% (father's occupation type). Multiple imputation to handle missing data was used for the inferential statistical models only. The largest amount of missingness for variables used in the imputation process was 17% (parent work status). Missing data were imputed using multiple imputation using chained equations (i.e., MICE) in State 15 SE (StataCorp, College Station, TX) to create 40 data sets. Based on the fraction of missing information and complexity of the dataset, 40 datasets were determined to be appropriate and adequate for good statistical inference for data determined to be Missing at Random (MAR; Graham et al., 2007). Again, the imputation model was complex, and the high number of categorical variables led to small cell sizes in some variables. For all six of the parental warmth variables, two response categories (3 and 4) were combined, thus increasing the cell size and

allowing the model to run successfully. The sample descriptives (see Table 1) are based only on available data (i.e., not imputed) and were weighted with the base year kindergarten parent and child data weight (*BYPW0*). Inferential analyses were weighted by the Wave 2 kindergarten parent and child data weight (*C2PW0*; Tourangeau et al., 2001; see Davis-Kean et al., 2015 for a discussion of weighting in longitudinal samples with missing data strategies). To account for multiple comparisons, the Holm-Bonferonni procedure was used to adjust the *p*-value to control for Type I error (Abdi, 2010). A correlation table of the non-imputed child and parenting variables is presented in Appendix A.

Results

Characteristics of Low-Income, Highly-Educated Families

Table 1 provides descriptive information for the sample of low-income/high-education families as well as descriptives for other income and education family types (i.e., low-income/low-education, high-income/low-education, and high-income/high-education). Most statistics described here are rounded to the nearest whole number. In this sample of the ECLS-K, slightly more mothers constituted the parent who held the highest degree in the family (44%), followed closely by fathers (41%). In some two-parent households, both parents had the same degree level (15%). The highest degree of most parents was a bachelor's degree (67%) followed by a master's degree (18%).

The majority of low-income/high-education parents were employed full-time (60%) while less were employed part-time (16%). If there was another parent in the household, more than half of them worked full- or part-time (57%). The most frequent occupations held by low-income/high-education parents were in teaching (11%), the service industry (11%), and executive, administrative, and managerial positions (10%). To investigate this further, we

examined occupations by the sex of the parent with the highest degree. Mothers who had the highest degree were teachers (16%), worked in the service industry (15%), and provided administrative or clerical support (12%). Fathers who had the highest degree in the family worked in executive, administrative, and managerial positions (15%), marketing and sales (9%), and construction (7%). The average income of the low-income/high-education families was approximately \$25,252 ($SD = \$11,786$).

A large majority of the highest-educated parent identified as White (54%) while smaller percentages identified as Black (16%) and Hispanic (16%). The average age of the highest-educated parent was approximately 36 years old ($SD = 7.28$). Most parents were married (75%). In terms of their educational expectations, half of parents expected their child to finish a 4- or 5-year college degree and 38% expected their child to earn a postgraduate degree. On average, low-income/high-education parents engaged in high reading behavior ($M = 3.34$, $SD = .77$) and warmth ($M = 2.64$, $SD = .54$) and moderate play behavior ($M = 2.79$, $SD = .54$).

Achievement Scores of Children from Different Family Types

Linear regression analyses were used to test if family type significantly predicted children's reading and math achievement scores in two separate models. Compared to children from low-income/high-education (LI/HE) families, children from low-income/low-education (LI/LE) families scored significantly lower in reading achievement ($B = -4.28$, $SE = .57$, $p < .001$) and children from high-income/high-education (HI/HE) families scored significantly higher in reading achievement ($B = 4.29$, $SE = .60$, $p < .001$). Compared to children from LI/HE families, children from LI/LE and HI/LE families scored significantly lower in math achievement ($B = -4.73$, $SE = .47$, $p < .001$ and $B = -1.34$, $SE = .48$, $p = .005$, respectively). And compared to children from LI/HE families, children from HI/HE families scored significantly

higher in math achievement ($B = 3.47$, $SE = .49$, $p < .001$).

Parenting Practices of Different Types of Families

Table 3 provides descriptive information on the parenting practices of low-income/high-education families with additional information on the three other types of parents and families. In the low-income/high-education sample, a large majority of parents enrolled their child in public school (83%) rather than religious (14%) or private school (3%). Over half of parents were involved in the following school activities: attending an open house at school (76%), attending parent-teacher conferences (87%), attending a school event (66%), acting as a school volunteer (53%), and participating in fundraising (58%). Many parents reported that they visit the library with their child (62%) but less than half engaged in other parent-child enrichment activities.

Logistic regression analyses were used to determine if the frequency of parenting practices varied significantly between low-income/high education (LI/HE) and other family types. In this text, the signs of the estimates have been reversed for ease of interpretation when comparing LI/HE families, who served as the reference group, to the other three types of families. For this reason, odds ratios are not presented in text but are included in Table 3.

Results on parents' choice of school indicated that LI/HE parents were significantly less likely than low-income/low-education (LI/LE) parents to send their child to public school ($B = -1.37$, $SE = .11$, $p < .001$) and more likely to send their children to religious ($B = 1.39$, $SE = .11$, $p < .001$) and private schools ($B = 1.09$, $SE = .27$, $p < .001$). Compared to high-income/high-education (HI/HE) parents, LI/HE parents were significantly more likely to send their child to public school ($B = .61$, $SE = .10$, $p < .001$) and less likely to send their child to religious ($B = -.33$, $SE = .10$, $p = .001$) and private schools ($B = -1.24$, $SE = .25$, $p < .001$). There were no differences on school choice compared to the high-income/low-education (HI/LE) parents.

In terms of parent school involvement, LI/HE parents were significantly more likely to attend almost all school activities (i.e., attending open houses, PTA meeting, parent-teacher conferences, and school events, and volunteering at school) compared to LI/LE parents (see Table 3). But LI/HE parents were significantly less likely to be involved in most of these same school events compared to HI/HE parents. LI/HE parents were significantly more likely to participate in fundraising than LI/LE parents ($B = .30, SE = .09, p = .001$) but less likely than both HI/LE ($B = -.31, SE = .09, p = .001$) and HI/HE parents ($B = -.36, SE = .09, p < .001$).

In regards to parent-child enrichment activities, LI/HE parents were significantly more likely than both LI/LE and HI/LE parents to take their child to the library ($B = .59, SE = .09, p < .001$ and $B = .29, SE = .09, p = .001$, respectively) and museum ($B = .54, SE = .09, p < .001$ and $B = .32, SE = .09, p < .001$, respectively). LI/HE parents were also significantly more likely than LI/LE parents to take their child to a play, concert, or show ($B = .56, SE = .09, p < .001$). Compared to HI/HE parents, LI/HE parents were significantly less likely to take their child to the zoo or aquarium ($B = -.29, SE = .09, p = .001$) and a sporting event ($B = -.40, SE = .09, p < .001$). There were no significant differences between LI/HE and HI/HE parents on taking their child to libraries, museums, and plays.

Sensitivity Analyses

We conducted sensitivity analyses to examine whether an interaction between education and income predicted reading and math achievement, in separate models, with the same set of covariates used in the previous analyses. The main effects of education ($B = 6.23, SE = .41, p < .001$) and income ($B = .04, SE = .01, p < .001$) on reading achievement were significant and there was a significant interaction ($B = -.02, SE = .01, p = .001$). Tests of the simple slopes were significant, indicating that the high parent education slope ($b = .02, p < .001$) and low parent

education slope ($b = .04, p < .001$) were different from zero. Graphical analysis shows that children whose parents had a college education scored higher on reading achievement than children whose parents did not have a college degree at the same income levels until approximately \$250,000 (see Figure 1a) where the high-education/low-education difference decreases. At this intersection point, children whose parents had not received a college degree began to score higher on reading achievement compared to children whose parents had a college degree. This education difference remains significant until the \$250,000 junction; then the difference is non-significant until income reaches \$700,000 at which point the education difference becomes significant again but in the opposite direction (see Figure 1b). Analyses to test the interaction between education and income's prediction to math achievement mirrored the results of reading achievement, suggesting a similar interactive process (see Table 4, Figure 1b).

Discussion

The present study provides unique insight into a population not often found in the literature: families whose education is not positively correlated with their household income. We found that even with low financial resources, parents who have obtained at least a bachelor's degree in education have a positive influence on children's achievement in kindergarten. Although these findings use older data collected in the late 1990's, this study sheds new light on the importance of high parental education, which remains quite relevant today.

Reports of Family Characteristics

Given that this sample is understudied, the descriptive characteristics of low-income, college-educated families provided important insights and possible understanding as to what factors may decrease families' upward social mobility. Unlike common conceptions of low-income families, the majority of this sample's parents possessed a bachelor's degree, with some

obtaining even more advanced education. Many of our hypotheses regarding the sample were only partially supported. We did not anticipate highly-educated parents working in the service industry or in managerial positions. In line with our hypotheses, however, the most frequent occupation for highly-educated parents (particularly mothers) was teaching, highlighting a discordance in certain professions where salary does not commensurate with degree earned. Highly-educated parents may be working in occupations that have a lower salary but provide other benefits such as health insurance, retirement plans, consistent schedules, and paid leave, which can improve their family's quality of life.

Inconsistent with our hypotheses, a strong majority of parents in this particular sample identified as White with less parents identifying as Hispanic or Black. Although families of color are disproportionately living in poverty, at least one-third of White families and children live in poverty in the U.S. (Koball & Jiang, 2018). Families of color, particularly Black families, face lower rates of upward mobility and diminished economic return on educational investment compared to White families (Assari, 2018). The majority of the parents in this sample were married indicating that higher levels of education may relate to stable family environments that can provide more resources for children.

Family Type Differences in Children's Achievement Scores

The hypotheses surrounding children's achievement were only partially supported. Children from low-income, college-educated families had significant higher math achievement scores compared to children from less-educated families (regardless of their income). But there was no difference in reading scores compared to children from high-income, less-educated families. Engaging in home behaviors that can improve children's math ability may be more difficult than reading. For example, parents are often encouraged to read to their children every

day, fostering a number of skills such as reading comprehension and vocabulary development, but the same practice is not promoted for math. College-educated parents may use their human capital to seek out information and resources related to math learning and they may have more experience with math concepts due to their higher education degree. Susperreguy (2013) demonstrated that families with higher education level engaged in more frequent advanced “math talk” (i.e., fractions) with their young children compared to families with a lower educational attainment. Discussing fractions in the home is associated with children’s math ability, even after controlling for children’s cognitive abilities (Susperreguy & Davis-Kean, 2016).

On the other hand, sensitivity analyses revealed that both reading and math achievement vary as a function of parent education and family income. Although reading behavior is encouraged in families, there are differences in the type of “teaching talk” used by parents of different education levels. Korat (2009) found that college-educated mothers used the highest level of teaching (e.g., making predictions) more frequently whereas less-educated mothers often used the two lower levels of teaching talk (e.g., referring only to immediate information). Additionally, the initial classification of families into four dichotomous groups may have masked the heterogeneity found in the “high-income” (i.e., families above 200% of the federal poverty line) which was then revealed when income was measured continuously. In the sensitivity analyses, the contribution of a parent’s college education on achievement scores was larger than the contribution of family income. At the same level of income, children with a college-educated parent perform higher on both reading and math achievement compared to children with a less-educated parent until a very high household income level is reached.

Family Type Differences in Reports of Parenting Practices

Lastly, we investigated the behaviors of low-income, college-educated parents that may

compensate for lack of financial resources and potentially influence their child's achievement. A college education promotes social and cultural capital, which highly educated parents have access to regardless of their income level. Mothers' social networks can provide information about choosing high-quality schools and mothers use their own human capital resources to research, problem solve, and decide on the best schooling option for their child (Harding et al., 2015; Weininger, 2014). These mechanisms may explain why children from low-income, college-educated families had higher enrollment in private and religious schools than children from low-income, less-educated families. Most nonpublic schools require tuition but a college-educated parent may find ways to apply for financial aid and scholarships or budget finances if they cannot afford full tuition. Nevertheless, it is important to consider that many parents have no choice in their children's school based on agency, their residence, or available resources.

Coinciding with our hypotheses, low-income, college-educated parents were involved in school activities more so than the two groups of less-educated parents but not at the same level as high-income, college-educated parents. Parents may not have the ability to be directly involved at the school, as involvement often requires flexible work hours, transportation, or making child care arrangements (Heymann & Earle, 2000; Hill & Taylor, 2004; Lareau, 1987). At the same time, low-income, college-educated parents were more involved in school activities compared to low-income, less-educated parents suggesting that college-educated parents prioritize school involvement and may make additional sacrifices to participate. With their cultural capital, they also may be more comfortable navigating the school system compared to less-educated parents as their social norms and behaviors closely align with schools (Harding et al., 2015; Lee & Bowen, 2006). Higher-educated parents also know that being involved in school can provide greater access to teachers and signals behavioral codes valued by educators (Harding

et al., 2015; Lareau, 1987). Another possibility is that low-income, college-educated parents have additional types of resources, such as a slightly higher income, that help make these choices compared to low-income, less-educated parents. They may work in occupations that pay low wages but allow time for school involvement. Further, parents in the low-income, college-educated families were majority White, while parents of color were more represented in the low-income, less-educated families. White families are not confronted with the racism and discrimination that families of color, particularly Black families, must contend with in every facet of life including the school system while trying to support themselves and their children.

Notably, low-income, college-educated parents visited libraries and museums with their children more frequently than less-educated parent groups and there was no significant difference compared to high-income, college-educated parents. Visiting libraries and museums with children contains an educational component that parents with a college degree may feel more comfortable with compared to less-educated parents that may not be affected by income level. Harding et al. (2015) notes that the environments of young children with highly-educated mothers often include book-related activities (associated with mothers' human capital) and exposure to museums (associated with mothers' social capital). These two forms of culture are synergistically related as highly-educated mothers make more trips to museums and their knowledge can increase children's learning within that environment (Harding et al., 2015).

Implications, Limitations, and Future Directions

Since this study is based on a nationally representative sample, some cautious recommendations for potential research directions and policy changes can be considered. This study demonstrated the importance of obtaining higher levels of education, even when income levels are low. Although dealing with similar financial stressors, low-income parents that are

highly educated reported more positive parenting behaviors than low-income, less-educated parents. Beyond the traditional relationship to higher income, higher education is also advantageous for parenting behaviors and children's achievement. Although some programs currently exist, government programs can be created or improved to help parents return to school to attain a college-level education. Low-income parents face a number of barriers to increasing their education, including high costs, transportation, and childcare needs. Programs like *CareerAdvance* (Tulsa, OK) reduce tuition fees and offer wraparound childcare, financial incentives, and coaching so that parents may fully participate in school (Chase-Lansdale & Brooks-Gunn, 2014). In turn, these parents may be able to attain a higher paying job and increase their family's income once they have completed a higher education training. However, the findings that higher education has positive links to parent and child outcomes in the face of low financial resources should not legitimize poverty by decreasing efforts to financially support low-income families and improve their life opportunities.

There are several limitations to the study. First, the purpose of this study was to gain an understanding of an understudied group of families, thus the study was primarily descriptive in nature relying on cross-sectional data from kindergarten. Future research should take advantage of the rich, longitudinal data available in the ECLS-K. For instance, future studies may examine families who are chronically in or near poverty compared to transiently poor families. Socioeconomic disadvantage is often dynamic and we anticipate differences in achievement for children who have been in low-income families since early childhood compared to children whose families' income may increase or fluctuate after kindergarten (Duncan et al., 1998).

Secondly, we examined family types created from binary categories of income and education. We specifically studied low-income (i.e., 200% at or below the poverty line) families

and considered the other family income category as “high-income” for brevity and purposes of this study. Yet, this high-income group is quite diverse with families hovering slightly above the low-income cutoff to extremely affluent families. We further investigated these nuances in income through interaction analyses but future research should consider the heterogeneity of family experiences and examine income groups at multiple levels.

The sample studied was limited to approximately 750 participants who fit the specific income and education criteria from one dataset. Although this sample is relatively small, it is still a substantial portion of the nation’s population and would have been difficult to identify in a traditional convenience sample. Furthermore, the ECLS-K is a rich, child-centered dataset but does not provide detailed information on parental assets or experiences that may help to more fully understand this population. For example, one cannot assess the quality of the parent’s college degree, education debt incurred, geography or area of residence, or parent physical or mental health, which would help further understand the economic burden for this population. There is also no information on intergenerational transfers amongst family members, which may allow for a better measurement of wealth, an important correlate to income (Yeung & Conley, 2008). Further, the current study examined parenting behaviors that are linked to children’s achievement (Davis-Kean, 2005) but did not directly test these indirect paths. Future research could test the mechanisms that drive differences amongst families.

Lastly, this study sought to descriptively examine a particular group of families and their experiences but generalizability of the findings to more current samples may be limited due to significant changes in the economic and education landscape of the country over time. Recent evidence suggests that the college-educated population has seen an increase in the proportion working in low-wage occupations over the past fifteen years (Jones & Schmitt, 2014). The racial

and ethnic composition of this group may have shifted as Black college graduates experienced even higher unemployment and underemployment rates after the Great Recession (Jones & Schmitt, 2014). Kindergarteners' achievement may be affected by changes in educational policy, access to early childhood education, and parental behaviors over time. Kindergarten academic-focused curriculum, as well as kindergarten teachers' expectations, have increased since 1998 perhaps as a result of accountability testing and pressures from the federal No Child Left Behind Act and the Race to the Top initiative (Bassock, Latham, et al., 2016; West, 2017). Preschool enrollment has increased dramatically with the percentage of young children enrolled in full-day preschool programs increasing from 21 percent in 1994 to 30 percent in 2017 (Child Trends Databank, 2019). Thus, kindergarteners today may have more experience with and preparation for a formal classroom setting (Bassock, Latham, et al., 2016). Parental investment in children's learning and development has also risen over time, particularly for low-income families. Bassok and colleagues (2016) found that kindergarteners in 2010 had more books, enrichment activities with families, and computer access than kindergarteners in the late 1990's. Young children in 2010 also engaged with their parents, in and out of the home, more than their peers in 1998 (Bassok, Finch, et al., 2016). Future research should replicate these findings using a more contemporary dataset.

The purpose of this study was to examine the significant role of parental education in an understudied context – college-educated families living in or near poverty. Using a national representative population sample, it demonstrated how high parental education can lead to positive parenting and child outcomes even when families are experiencing economic hardship. This study and its results should be not used to highlight “deficiencies” amongst families but instead focus on how and what families are doing with the resources available to them.

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Table 1

Descriptives of Parent and Child Characteristics by Family Type

	Low-income/ high-education <i>n</i> = 768	Low-income/ low-education <i>n</i> = 7,381	High-income/ low-education <i>n</i> = 5,422	High-income/ high-education <i>n</i> = 5,391
Parent characteristics				
Age <i>M(SD)</i>	36.32(7.28)	31.60(7.50)	33.03(6.14)	37.50(5.44)
% White	54.22	38.96	72.00	80.53
% Black	15.50	25.37	10.39	6.12
% Hispanic ^a	15.83	26.43	12.01	4.82
% Married	75.29	47.80	76.65	91.26
% Working full-time	59.81	47.23	65.33	68.89
% Working part-time	16.23	15.60	17.25	16.56
% Other parent working full/part-time	57.42	45.13	77.03	74.72
Family income in dollars <i>M(SD)</i>	25,252.32(11,786.09)	19,011.55(10,340.35)	59,514.77(35,833.21)	95,564.52(75,041.90)
Parental expectations				

% High school diploma	4.38	16.89	7.89	1.33
% 4- or 5-year college degree	50.02	36.12	50.12	59.95
% Postgraduate degree	37.88	26.70	21.63	34.39
Home behaviors				
Read $M(SD)$	3.34(.77)	3.04(.87)	3.23(.74)	3.51(.64)
Play $M(SD)$	2.79(.54)	2.67(.62)	2.70(.53)	2.77(.50)
Warmth $M(SD)$	2.64(.35)	2.65(.35)	2.69(.31)	2.66(.31)
Child characteristics				
Age in years $M(SD)$	6.24(.36)	6.24(.38)	6.22(.36)	6.22(.36)
% White	52.98	37.03	68.91	78.84
% Black	16.22	25.90	10.72	5.83
% Hispanic _a	18.52	29.05	14.82	7.05
% Female	47.53	48.86	48.68	48.30
Child kindergarten achievement				
Reading scores $M(SD)$	47.34(14.36)	41.42(10.42)	46.27(12.05)	52.72(16.41)
Math scores $M(SD)$	37.74(12.00)	31.30(9.96)	36.60(10.18)	42.87(12.98)

^a Hispanic includes “Hispanic, race specified” and “Hispanic, race not specified”

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Table 2

*Linear Regression Predicting Children's Kindergarten Reading and Math Achievement Scores**Differences between Family Types*

Predictor variable	Reading Scores			Math Scores		
	B	SE		B	SE	
Low-income/low-education families	-4.28	.57	***	-4.73	.47	***
High-income/low-education families	-.79	.58		-1.34	.48	**
High-income/high-education families	4.29	.60	***	3.47	.49	***
Parent covariates						
Working	.69	.24	**	.76	.21	*
Married	1.58	.23	***	1.22	.19	***
Educational expectations	1.19	.10	***	1.04	.08	***
Home environment						
Parent-child reading behavior	1.65	.14	**	.89	.12	***
Parent-child play behavior	-.45	.20	*	.09	.16	
Parental warmth	-.66	.32	*	-.72	.26	**
Child covariates						
Female	2.10	.20	***	-.14	.17	
White	1.66	.23	***	3.89	.19	***
Age	4.91	.28	***	6.85	.25	***
Intercept	5.28	2.15	*	-14.31	1.82	***

Note: Low-income/high-education parents served as the reference group. All *p*-values

presented remain after correcting for multiple comparisons using the Holm-Bonferonni

procedure. *** $p < .001$, ** $p < .01$, * $p < .05$

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Table 3

Logistic Regression Predicting Parent Behavior and Resource Differences between Family Types

	Low-income/ high-education ^a		Low-income/ low-education		High-income/ low-education			High-income/ high-education		
Outcome variable	Proportion	Prop.	B(SE)	Exp(B) ^b	Prop.	B(SE)	Exp(B)	Prop.	B(SE)	Exp(B)
Type of school										
Public	83.47	96.22	1.37(.11)***	3.92	83.35	-.04(.10)	.96	69.72	-.61(.10)***	.54
Religious	13.94	3.00	-1.39(.11)***	.25	13.41	-.05(.10)	.95	21.42	.33(.10)**	1.39
Private	2.59	.77	-1.09(.27)***	.34	3.24	.35(.25)	1.43	8.86	1.24(.25)***	3.45
Parent school involvement										
Open house	76.01	59.23	-.39(.10)***	.67	77.67	.12(.10)	1.13	87.12	.49(.11)***	1.63
PTA meeting	39.59	27.34	-.35(.09)***	.70	32.76	-.20(.09)	.82	42.14	.03(.09)	1.03
Parent-teacher conferences	86.71	78.03	-.40 (.13)**	.67	85.70	-.10(.13)	.90	90.47	.22(.13)	1.24
School event	65.55	52.15	-.24(.09)	.79	69.38	.16(.09)	1.17	80.76	.52(.10)***	1.69

School volunteer	53.03	29.00	-.67(.09)***	.51	50.69	-.09(.09)	.91	68.75	.37(.09)***	1.45
Fundraising	58.10	43.10	-.30(.09)**	.74	66.03	.31(.09)**	1.36	71.79	.36(.09)***	1.43
Parent-child activities										
Library	62.07	42.58	-.59(.09)***	.56	52.89	-.29(.09)**	.75	65.58	.03(.09)	1.03
Play, concert, show	44.99	29.62	-.56(.09)***	.57	38.58	-.22(.09)	.81	46.59	.01(.09)	1.01
Museum	37.68	23.07	-.54(.09)***	.58	28.61	-.32(.09)***	.72	42.34	.13(.09)	1.14
Zoo, aquarium	39.44	37.63	-.05(.09)	.95	40.11	.12(.09)	1.13	44.86	.29(.09)**	1.34
Sporting event	41.47	33.67	-.18(.09)	.84	46.44	.23(.09)	1.26	52.56	.39(.09)***	1.49

Notes. Signs of the estimates were reversed in text for ease of interpretation. ^aLow-income/high-education parents served as the reference group.

^bExp(B) indicates odds ratio. Covariates were included in the models but are not presented. All *p*-values presented remain after correcting for multiple comparisons using the Holm-Bonferonni procedure. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 4

Linear Regression Predicting Children's Kindergarten Reading and Math Achievement Scores by Parent Education and Family Income

Predictor variable	Reading Scores			Math Scores		
	B	SE		B	SE	
Parent education	6.23	.41	***	6.02	.36	***
Family income	.04	.01	***	.04	.01	***
Parent education X family income	-.02	.01	**	-.02	.01	***
Parent covariates						
Working	1.01	.24	***	1.05	.21	***
Married	1.79	.23	***	1.37	.20	***
Educational expectations	1.19	.10	***	1.04	.08	***
Home environment						
Parent-child reading behavior	1.69	.14	***	.91	.12	***
Parent-child play behavior	-.52	.20	**	.02	.16	
Parental warmth	-.58	.32		-.66	.26	*
Child covariates						
Female	2.10	.20	***	-.13	.17	
White	2.05	.23	***	4.22	.19	***
Age	4.88	.28	***	6.83	.25	***
Intercept	.67	2.06		-19.38	1.75	***

Note. Family income is in \$1,000 increments. All *p*-values presented remain after correcting for multiple comparisons using the Holm-Bonferonni procedure.

*** $p < .001$, ** $p < .01$, * $p < .05$

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Figure 1a. Reading Achievement Scores and Family Income by Parent Education Level

Figure 1b. High-Low Parent Education Difference on Reading Achievement Scores across Income Levels

Figure 1b. Math Achievement Scores and Family Income by Parent Education Level

Figure 2b. High-Low Parent Education Difference on Math Achievement Scores across Income Levels

Appendix A

Correlations amongst Child Achievement and Parenting Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Reading scores	--																			
(2) Math scores	.68** *	--																		
(3) Parent reading	.17** *	.16** *	--																	
(4) Parent play	.02* *	.05** *	.32** *	--																
(5) Parent warmth	-.00	.00	.15** *	.22** *	--															
(6) Parent expectations	.15** *	.12** *	.12** *	.09** *	.08** *	--														
(7) Religious school	.13** *	.15** *	.04** *	.01	-.00	.06** *	--													
(8) Private school	.13** *	.10** *	.05** *	.01	.01	.08** *	- *	--												
(9) Public school	- .18** *	- .19** *	- .07** *	-.01	-.00	- .09** *	- .85** *	- .47** *	--											
(10) Open house	.14** *	.19** *	.15** *	.10** *	.06** *	.11** *	.07** *	.00 .07** *	- *	--										
(11) PTA meeting	.10** *	.10** *	.10** *	.08** *	.06** *	.10** *	.08** *	- .05** *	- .04** *	.20** *	--									
(12) Parent-teacher conference	.04** *	.07** *	.11** *	.05** *	.01	.03** *	.04** *	- .04** *	- .01** *	.19** *	.06** *	--								
(13) School event	.14** *	.19** *	.16** *	.10** *	.05** *	.06** *	.14** *	.02** *	- .14** *	.26** *	.14** *	.15** *	--							

(14) Volunteer	.19** *	.23** *	.21** *	.12** *	.07** *	.09** *	.16** *	.02* *	- .15** *	.26** *	.20** *	.16** *	.30** *	--					
(15) Fundraising	.13** *	.17** *	.15** *	.11** *	.08** *	.05** *	.15** *	-.01 *	- .13** *	.22** *	.19** *	.10** *	.20** *	.25** *	--				
(16) Library	.12** *	.12** *	.22** *	.17** *	.09** *	.11** *	.05** *	.02** *	- .06** *	.15** *	.12** *	.08** *	.13** *	.18** *	.11** *	--			
(17) Concert	.07** *	.09** *	.12** *	.13** *	.07** *	.07** *	.05** *	.03** *	- .07** *	.13** *	.10** *	.07** *	.18** *	.15** *	.12** *	.13** *	--		
(18) Museum	.09** *	.10** *	.16** *	.14** *	.06** *	.11** *	.06** *	.07** *	- .09** *	.11** *	.10** *	.05** *	.13** *	.15** *	.10** *	.20** *	.18** *	--	
(19) Zoo	.02* *	.00 *	.08** *	.13** *	.06** *	.08** *	.02* *	.02** *	- .03** *	.07** *	.07** *	.03** *	.08** *	.10** *	.07** *	.14** *	.15** *	.22** *	--
(20) Sports game	.04** *	.11** *	.09** *	.13** *	.08** *	.04** *	.07** *	.00 *	- .07** *	.15** *	.10** *	.06** *	.15** *	.16** *	.15** *	.12** *	.16** *	.08** *	.08** * --

Note. *** $p < .001$, ** $p < .01$, * $p < .05$