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Health of Young Children Whose Mothers Have Intellectual Disability

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Abstract

Understanding the needs and experiences of parents with intellectual disability (ID) and their children is critical to ensuring that policies can effectively support these families. This research analyzed data from the *Fragile Families and Child Wellbeing Study* to examine the health outcomes of U.S. children whose mothers have (n = 263) and do not have ID (n = 1,298). Compared to mothers without ID, mothers with ID experienced worse outcomes related to socioeconomic status, limited support networks, and poor self-reported health. However, after controlling for sociodemographic characteristics, mother's intellectual disability was not associated with a child having fair or poor health, asthma, or being overweight or obese.

Résumés en Français

Comprendre les besoins et les expériences des parents ayant une déficience intellectuelle (DI) et ceux de leurs enfants est essentiel afin d'assurer que les politiques soutiennent efficacement ces familles. Cette recherche a analysé les données provenant de la *Fragile Families and Child Wellbeing Study* afin d'examiner les résultats de santé d'enfants américains ayant une mère avec une DI (n=263) et une mère n'ayant pas de DI (n=1298). Comparées aux mères sans DI, les mères qui ont une DI connaissent des résultats moins favorables associés a leur statut socio-économique, leurs réseaux de soutien limités et leur auto-évaluation d'être en mauvaise santé. Toutefois, après avoir contrôlé les caractéristiques sociodémographiques, la DI de la mère n'a pas été associée à un enfant ayant une santé passable ou mauvaise, de l'asthme ou étant en surpoids ou obèse.

Resúmenes al Español

La comprensión de las necesidades y experiencias de los padres con Discapacidad Intelectual (DI) y sus hijos es fundamental para garantizar que las políticas puedan apoyar efectivamente a estas familias. Esta investigación analizó los datos de *Fragile Families and Child Wellbeing Study* para examinar los resultados de salud de los niños estadounidenses cuyas madres (n = 263) presentan y no presentan DI (n = 1.298). En comparación con las madres sin DI, las madres con DI experimentaron peores resultados relacionados con el estatus socioeconómico, las redes de apoyo limitados, y la mala percepción de salud. Sin embargo, después de controlar la discapacidad

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intelectual de la madre por las características sociodemográficas, no se asoció con un niño que tiene regular o mala salud, asma, sobrepeso u obesidad.

Keywords

parents with intellectual disability; health; child outcomes; Fragile Families and Child Wellbeing Study

As people with intellectual disability (ID) become increasingly integrated into their communities, many are choosing to become parents (National Council on Disability [NCD], 2012). At the same time, research has found that child welfare agencies remove children of parents with ID from their homes at disproportionately high rates (International Association for the Scientific Study of Intellectual Disabilities, Special Interest Research Group [IASSID SIRG] on Parents and Parenting with Intellectual Disabilities, 2008; LaLiberte, 2013; NCD, 2012). Longstanding research from Canada, the United States, Australia, New Zealand, and the United Kingdom has found that parents with ID have their children permanently removed at rates ranging from 30%-80% (Booth & Booth, 2004; Booth, Booth, & McConnell, 2005; Feldman, Case, & Sparks, 1992; Feldman, Sparks, & Case, 1993; Hayman, 1990; Llewellyn, McConnell, & Ferronato, 2003; McConnell, Feldman, Aunos, & Prasad, 2011; McConnell & Llewellyn, 2002; Mirfin-Veitch, Bray, Williams, Clarkson, & Belton, 1999).

Research about parents with ID and their children extends back to the 1940s (Mickelson, 1947). Most of this research has been qualitative and conducted with relatively modest samples that are often drawn from clinical settings (IASSID SIRG, 2008). Past studies have found that there is no systematic relationship between parenting ability and intelligence (e.g., Booth & Booth, 1993; Dowdney & Skuse, 1993; Tymchuk & Feldman, 1991). However, without support, parents with ID and their children are at risk of multiple disadvantages related to poor health, lack of social supports, and low socioeconomic status as well as poor developmental outcomes, cognitive delays, and behavior problems (IASSID SIRG, 2008). Parents with ID, particularly mothers (upon whom the majority of studies have focused), may be at increased risk of living in poverty, having histories of trauma, and experiencing high stress and social isolation (Aunos, Feldman, & Goupil, 2008; Emerson & Brigham, 2014; Feldman, McConnell, & Aunos, 2012; Feldman, Varghese, Ramsay, & Rajska, 2002; Llewellyn & McConnell, 2002; McGaw, Shaw, & Beckley, 2007; Meppelder, Hodes, Kef, & Schuengel, 2015). Nevertheless, many children of parents with ID do not exhibit any delays or poor outcomes (Feldman & Aunos, 2010; McConnell, Llewellyn, Mayes, Russo, & Honey, 2003).

To better understand and support families headed by parents with ID, in the past decade, there has been an emergence of quantitative studies analyzing the characteristics of these families and how the children are faring. Childhood trauma histories and psychopathology in parents with ID heightens the risk of child social and behavioral problems such as attention deficits, anxiety disorders, and autism (McGaw et al., 2007; McGaw, Scully, & Pritchard, 2010). Families headed by mothers with ID may also be at increased risk of parenting difficulties if they have additional needs in addition to their ID, have children with disabilities, or have male partners with histories of antisocial behavior or criminality (McGaw et al., 2010). Parents with ID may also experience low rates of parental support and high rates of parental mental illness, which can predict child functioning; however, parental mental health may mediate the relationship between social support and child outcomes, such as emotional or behavioral difficulties, learning disabilities, and physical disabilities or health conditions (Emerson & Brigham, 2013; Feldman et al., 2012). Further, when controlling for ecological hardships often experienced by parents with ID, such as poverty, poor housing, and social isolation, children of parents with ID may be at increased risk of developmental delay and speech and language issues, but not behavioral issues or regular accidents and injuries (Emerson & Brigham, 2014). Finally, there are conflicting findings concerning birth outcomes and infant health. Studies from the United States, Sweden, and Australia, have found that children of mothers with ID are more likely to be born preterm and have low birth weight (Höglund, Lindgren, & Larsson, 2012; McConnell et al., 2003; McConnell, Mayes, & Llewellyn, 2008; Parish et al., 2015). In contrast, a study from the United Kingdom recently found that although mothers with ID reported poorer health and the presence of chronic illness or disability, as well as fewer sources of social support and decreased socioeconomic status, their children did not experience significant differences in birth outcomes or infant health (Hindmarsh, Llewellyn, & Emerson, 2015).

Although the few existing studies, which are primarily from the United Kingdom, Canada, and Australia, shed light on families headed by parents with ID, there are limitations. Generalizability remains a significant challenge for researchers interested in studying these families. Many existing studies used small samples, often drawn from clinical settings (e.g., McGaw et al., 2010; McGaw et al., 2007). Increasingly, researchers are using representative data, which allows for more robust multivariate analysis and generalizability (e.g., Emerson & Brigham, 2014; Feldman et al., 2012; Hindmarsh et al., 2015). Further, even with larger samples, bias may exist for studies whose samples are limited to families that are already involved with child protection agencies (e.g., Feldman et al., 2012).

In light of the scarce existing population-based research about the needs and experiences of U.S. parents with ID and their children, the aims of this study were (1) to examine the health outcomes of children of parents with and without ID in the United States, and (2) to determine whether child health outcomes were predicted by mothers' ID or the contextual factors in which these families live. The overarching intent of this research is to inform programs and policy, specifically related to the development and testing of appropriate interventions to strengthen these families.

Method

Data Source

This study used data from the publicly available *Fragile Families and Child Wellbeing Study* (hereafter, *Fragile Families*), a longitudinal birth-cohort study of children born between 1998 and 2000 ($N = 4{,}898$) in 20 U.S. cities with populations over 200,000 (Brooks-Gunn, Garfinkel, McLanahan, & Paxson, 2011; Reichman, Teitler, Garfinkel, & McLanahan, 2001). *Fragile Families* is a joint effort by Princeton University's Center for Research on Child Wellbeing and Center for Health and Wellbeing, the Columbia Population

Research Center, and the National Center for Children and Families at Columbia University, and is supported by the Eunice Kennedy Shriver National Institute of Child Health and Development and a consortium of private foundations and public agencies. *Fragile Families* follows a cohort of new parents and their children and examines the experiences and needs of unwed parents and their children. *Fragile Families* is a unique and rich data set, which includes information on family socioeconomic and demographic characteristics, parent and child physical and psychological health, child developmental outcomes, and parent-child relationships.

To collect data, 16 cities were selected using stratified random sampling: Indianapolis, IN; Austin, TX; Boston, MA; Santa Ana, CA; Richmond, VA; Corpus Christi, TX; Toledo, OH; New York, NY; Birmingham, AL; Pittsburgh, PA; Nashville, TN; Norfolk, VA; Jacksonville, FL; San Antonio, TX; Philadelphia, PA; and Chicago, IL. An additional four cities were chosen based on specific interest by funders: Newark, NJ; Oakland, CA; Detroit, MI; and San Jose, CA. (Reichman et al., 2001). Deliberately, nearly 75% of the children were born to unmarried parents; thus, the sample overrepresents minority families, poor families, and single-parent households. However, the oversample of nonmarital births is systematic; the data, when weighted is representative of births occurring in large U.S. cities (the 77 U.S. cities with populations over 200,000 in 1994) between 1998 and 2000 (Bendheim-Thoman Center for Research on Child Wellbeing, 2003; Reichman et al., 2001). Notably, national weights only apply to the 16 randomly selected cities.

A purposive sampling strategy was used and the following families were excluded: (a) those who planned to place their child for adoption, (b) those for whom the baby's father was not alive at the time of the birth, (c) those who did not speak English or Spanish well enough to complete the interview, (d) mothers who were too ill to complete the interview, (e) mothers of babies who were too ill for the mother to complete the interview, and (f) mothers whose baby died before the interview could take place. In addition, due to some hospitals' Institutional Review Boards' restrictions, most parents were 18 or older at the time of the focal child's birth.

Fragile Families includes six data collection points (Bendheim-Thoman Center for Research on Child Wellbeing, n.d.). Baseline interviews were conducted in the hospital with the mother and the father (when possible) shortly after the child's birth. Both parents (the father when possible) were subsequently interviewed by telephone when the child was 1, 3, 5, and 9- years old. In-home assessments were conducted when the child was 3, 5, 7, and 9 years of age. When the child was 3 years of age, his or her child care provider also completed a survey, if the child was in paid childcare. Likewise, at ages 5, 7, and 9, the child's teacher completed a survey. At age 9, in addition to the in-home assessment, in-person interviews were conducted with the child. In February 2014, researchers began the sixth wave of data collection (age 15), which included telephone interviews with the mother, in-home assessments with the child, and telephone and inperson interviews with the child. The data analyzed for the present study are drawn from the hospital surveys of the mother and the interview and in-home assessment conducted when the child was 3-years old.

Sample

Subjects for the present study included a subsample of individuals (*n* = 1,561) from the *Fragile Families*. The sample was limited to mothers (and their focal child) who completed the Peabody Picture Vocabulary Test-Revised edition (PPVT-R; Dunn & Dunn, 1981), which was conducted during the 3-year assessment. Moreover, this sample was limited to subjects residing in the aforementioned 16 large cities, so that findings could be weighted to be representative of individuals living in large cities. Moreover, this sample excluded mothers who did not speak English well because the PPVT-R was only conducted in English.

The final analytic sample includes mothers with ID (*n* = 263) and a comparison group of mothers without ID (*n* = 1,298), as well as each sampled mother's focal child. For this study, data were drawn from 2 data collection points (baseline and age 3) and merged for analysis. Previous studies (e.g., Dush, Schmeer, & Taylor, 2013; Martinson, McLanahan, & Brooks-Gunn, 2014; Turney, 2013) have used *Fragile Families* to analyze child health outcomes with similarly sized samples and had sufficient statistical power.

Measures

Independent variable of interest.—The study's key independent variable, maternal ID, was measured based on the mother's performance on the PPVT-R. As noted previously, this instrument was administered to the mother during the age 3 in-home assessment (Bendheim-Thoman Center for Research on Child Wellbeing, 2008c). The PPVT-R is a widely used standardized measure of verbal intelligence that is highly correlated with scores on other intelligence tests (Bendheim-Thoman Center for Research on Child Wellbeing, 2008c; Dunn & Dunn, 1981). The PPVT-R has been widely used in assessment of receptive vocabulary among people with ID and its reliability with these populations had been established (Dunn & Dunn, 1981). Tests of its validity suggest that PPVT-R scores are highly correlated with IQ test scores (Naglieri, 1982; Prout & Schwartz, 1984). Research has shown that PPVT test scores are associated with academic achievement and early childhood PPVT test scores predict later academic outcomes. (Altepeter & Handal, 1985; Bing & Bing, 1984; Beitchman, Wilson, Brownlie, Walters, & Lancee, 1996; Naglierei & Pfeiffer, 1983; Smith, Smith, & Dobbs, 1991). Mothers with a PPVT-R score below 80 were determined to have ID; mothers with scores above this cut-off were determined not to have ID. This definition of ID is consistent with how ID has been defined in past research about parents with ID (e.g., Feldman et al., 2012). Indeed, studies concerning parents with ID often include parents with IQ scores above 70. For instance, two recent studies analyzed samples of parents with an IQ scores below 80 (McGaw et al., 2007) or below 74 (McGaw et al. 2010). The use of an IQ score below 80 is vital to understanding these families because most parents with ID labels have mild to borderline cognitive impairments (IASSID SIRG, 2008).

Dependent variables.—This study examined three child health outcomes. Overall health was based on the mother's rating of the child's overall health status at age 3. Five possible responses were *poor, fair, good, very good*, and *excellent*. These response categories were collapsed into a single binary variable (*poor* or *fair* versus *good, very good*, or *excellent*). Asthma diagnosis was based on maternal report. Overweight or obesity was calculated by in-home interviewers, who directly measured the child's height and weight. A child with Body Mass Index (BMI) at or above the 85th percentile for their age and sex were considered overweight/obese, which is in accordance with the 2000 National Center for Health Statistics guidelines. For this study, we focused solely on child health outcomes at age 3 because of the importance of early childhood developmental health on future functioning (Shonkoff & Garner, 2012). Indeed, the incidence of asthma is most prevalent among very young children and early prevention greatly impacts child wellbeing (Akinbami & Schoendorf 2002; Marielena et al., 2001). Likewise, research indicates that patterns of BMI growth in early childhood are more predictive of later life obesity and related health problems than other growth patterns (Barker, Eriksson, Forsen, & Osmond, 2002; Parsons, Power, & Manor, 2001).

Covariates.—A number of family and maternal control variables were employed. A binary indicator of income relative to 200% of the federal poverty level was based on mother's reported household income during the baseline (in-hospital) interview (Bendheim-Thoman Center for Research on Child Wellbeing, 2008a). Demographic covariates included parents' marital status at the time of the focal child's birth, the mother's age at the time of the focal child's birth, maternal race, maternal educational attainment, and mother's employment status, as well as receipt of Transitional Assistance to Needy Families (welfare), Food Stamps, or Supplemental Security Income (SSI) in the past year.

Maternal support networks, parenting stress and health were also used as control variables. This study utilized two measures of maternal support networks: (1) participation in any group or organization and (2) regular religious service attendance. Both measures have been used in previous studies (e.g., Corman, Noonan, & Reichman, 2014). During the age 3 wave, mothers were asked if within the past year they had participated in (1) *a group affiliated with their church;* (2) *a service club, such as the Police Athletic League or the Scouts;* (3) *a political, civic, or human rights organization;* (4) *a community organization, such as neighborhood watch;* or (5) *an organization working with children or youth*. Women who provided affirmative responses to one or more of these questions was considered to have a support network. In addition, during the age three wave, mothers were asked whether they attended religious services (*every day, a few times a week, once a week, a few times a month, a few times a year, less often, never*). An affirmative response of religious service attendance at least *a few times a month* was considered regular.

Maternal parenting stress was measured using a scale developed by the *Fragile Families* and items borrowed from an Early Head Start study on parenting stress (Bendheim-Thoman Center for Research on Child Wellbeing, 2008b). The scale has 12 items (e.g., '*You find yourself giving up more of your life to meet child's needs than expected*'), which were all measured on a 5-point scale ranging from *strongly agree* to *strongly disagree*. For purposes of this study, we constructed a continuous variable that summed responses for all 12 items and was reverse coded (i.e., a lower score indicates less stress). This measure and approach has been used by other studies (e.g., Harmon & Perry, 2011). In the present study, the scale was found to be reliable for mothers with ID (α = .87) as well as mothers without ID (α = .86).

Maternal health was measured during the baseline interview, when mothers were asked to rate their overall health status (*poor, fair, good, very good*, or *excellent*). Similar to our approach for children, these five responses were collapsed to a binary measure (*poor* or *fair* versus *good*, *very good*, or *excellent*). Self-reported health status is a reliably robust predictor of actual health status (Benyamini & Idler, 1999; Idler & Benyamini, 1997).

Analytic Strategy

Descriptive statistics characterize the sample of mothers with and without ID, and children whose mothers did and did not have ID. For continuous variables, independent sample t tests compared each sample on the means of sociodemographic characteristics. For continuous variables, the Pearson Chi-squared statistic was corrected for the survey design with the second-order correction of Rao and Scott (1984) and converted into an F statistic in order to obtain a proper p value from the designed-based F statistic. Because all three outcomes measures were binary (overall health, asthma, and overweight/obesity), logistic regression models were estimated and odds ratios and 95% confidence intervals are reported for ease of interpretation. In addition, magnitude of effects for analyses were assessed using Cohen's effect size guidelines, such that odds ratios in bivariate and logistic regression analyses of 1.44, 2.47, and 4.25 and Cohen's d of .2, .5, and .8, indicate small, medium, and large effects, respectively (Cohen, 1988, 1992). For the statistical analysis, Stata/SE 13.1 for Mac was used (Stata Corporation, College Station, TX).

Weighting and Missing Data

For descriptive statistics, all variables were weighted to represent births occurring in large U.S. cities with population of 200,000 or more between 1998 and 2000. The *Fragile Families* national weights are cross-sectional in nature and each weight makes its particular wave representative of the original sampling frame. As recommended, we applied the baseline wave weights since that is the wave in which the most people were interviewed (Carlson, 2008). The logistic regression models were not weighted. All variables had 1% or less missing data, except overweight/obese, which had 7.8% missing. Because missing data were minimal, imputation was not conducted.

Results

Table 1 describes the sample and presents the weighted descriptive statistics comparing mothers with and without ID and their children. In comparison to other mothers, those with ID were significantly younger ($M = 24.7$, $SD = 5.9$ vs. ($M = 27.1$, $SD = 5.8$), $t = -3.02$, $p < 0.01$, $d = .12$). Statistically significant differences in race and ethnicity with medium to large effect sizes also existed between mothers with and without ID ($F = 4.36$, $p < 0.001$). Mothers with ID were more likely to be Non-Hispanic Black (46.2% vs. 24.1%, $OR = 10.15$), Hispanic (40.2% vs. 24.5%, $OR = 9.87$) or "Other" (2.5% vs. 8.1%, $OR = 6.08$). Mothers with ID were also significantly less likely to be married to the focal child's birth father (31.7% vs. 59.7%, $F = 7.15$, $p < 0.01$, $OR = .43$) and 2.9 times more likely to be living with income below 200% of the federal poverty threshold (73.5% vs. 42.8%, $F = 8.12$, $p < 0.01$, $OR = 2.89$). Statistically significant differences in educational attainment also existed between mothers with and without ID ($F = 14.49$, $p < 0.001$). Mothers with

ID were significantly more likely not to graduate from high school (39.7% vs. 15.8%) and less likely to attend some college or earn a college degree (6.4% vs. 24.7% and 1.4% vs. 23.7, respectively). Moreover, mothers with ID were significantly less likely to participate in organizations or groups (32.8% vs. 57.2%, $F = 5.84$, $p < 0.05$, $OR = .56$). Although not statistically significant, there was a medium effect for receipt of SSI, indicating that mothers with ID were more likely to receive this benefit (4.9% vs. 3.6%, $OR = 2.72$). There was also a small effect size showing that mothers with ID were more likely to receive welfare (18.3% vs. 11.6%, $OR = 2.28$) and food stamps (39.2% vs. 24.4.6%, $OR = 2.02$) as well as more likely to be unemployed (33.2% vs. 40.7%, $OR = 1.89$).

Table 2 presents the weighted, unadjusted health outcomes of children, stratified by whether or not their mother had ID. The bivariate comparisons using F statistic and odds ratios show that there were no effect or statistically significant differences between the two groups of children for having asthma or being overweight or obese. The odds ratios for being in fair or poor health indicated a small effect (2.6% vs. 2.3%, $OR = 2.24$), suggesting that children of mothers with ID were more likely to have their health reported as fair or poor than children of other mothers.

Table 2 also presents the prevalence for each health outcome in the U.S. population of similarly aged children. As these bivariate comparisons show, in comparison to all U.S. children of similar age, the presence of fair or poor health was similar for children of mothers with ID (2.7% vs. 2.6%). In terms of children with asthma, more children of mothers with ID had asthma (12.3%) than all U.S. children of similar age (8.9%). Similarly, more children of mothers with ID were obese or overweight (28.3%) than all U.S. children of similar age (24.4%).

Logistic regression models (Table 3) indicated that the unadjusted comparisons in Table 2 were robust to the inclusion of all model covariates. After controlling for a host of mothers' and family characteristics, whether or not the mother had ID was not significantly associated with any of the three child health outcomes (fair/poor health, asthma, or overweight/obese). Control variables in the models included maternal age, parenting stress, race, marital status, income, education, employment, receipt of public benefits (welfare/TANF, food stamps, or SSI), maternal health status, and support network.

Notably, several maternal and familial characteristics were associated with an increased likelihood that a child had negative health outcomes. Children had 6% higher odds of being in fair or poor health if their mother had elevated parenting stress ($OR = 1.06$, $p < 0.05$); however, the effect size was trivial. Moreover, children had 8.51 times higher odds of being in fair or poor health if the mother's own health was reported to be fair or poor ($OR = 8.51$, $p < 0.001$, effect size = large). Although not statistically significant, there were small effect size associations between children in fair or poor health and their mother's marital status ($OR = 1.75$); attainment by mother of a high school diploma ($OR = 1.49$), some college education ($OR = 1.76$), or college degree ($OR = 2.42$); and receipt of food stamps ($OR = 1.72$). Further, there were nonstatistically significant yet medium effect sizes suggesting an association between children in fair or poor health and receipt of SSI ($OR = 3.29$) as well as income below 200% of the federal poverty level ($OR = 2.97$). Moreover, the odds of a child having asthma were 85% higher for mothers who were Non-Hispanic Black ($OR = 1.85$, $p < 0.01$, effect size = small), 93% higher for mothers who were Hispanic ($OR = 1.93$, $p <$ .0.01, effect size = small), and 47% higher for mothers who had low income ($OR = 1.47$, $p < 0.05$, effect size = small). Children were much less likely to have asthma if their mothers were married ($OR = 0.68$, $p < 0.05$). Further, although not statistically significant, there was a small effect indicating that children had 50% greater odds of having asthma if their mother received SSI ($OR = 1.50$). Finally, the odds of having a child who was overweight or obese were 52% higher for mothers who were Hispanic ($OR = 1.52$, $p < 0.05$, effect size = small).

Discussion

Using data from *Fragile Families*, a nationally representative longitudinal birth cohort, this study compared the health outcomes of young children whose mothers did and did not have ID. Unadjusted contrasts showed no differences in child health for the two groups. These models were robust, and no differences persisted even after an extensive set of covariates were included in the regression models. This study found that children with and without mothers with ID had similar rates of having fair/poor health, asthma, or being overweight/ obese.

Limitations

This study has several limitations that should be considered in order to fairly interpret its contributions. First, the measure of the presence or absence of maternal ID poses some challenges. Indeed, the dichotomous measure of the presence or absence of maternal ID is not ideal, and it does not allow for the in-depth examination of the nature and severity of the mother's disability. However, past studies have used the PPVT-R to identify ID and tests of its validity suggest that PPVT-R correlates with other measures of ID (Dunn & Dunn, 1981; Naglieri, 1982; Prout & Schwartz, 1984). The measure of maternal ID also does not consider adaptive behavior or onset of intellectual impairments. Thus, future research should utilize a more comprehensive measure of ID, such as that of the American Association on Intellectual and Developmental Disabilities (Schalock et al., 2010).

Moreover, generalizability of this study is limited because the findings are only representative of births to English-speaking mothers in large U.S. cities with populations over 200,000; thus, the findings cannot be extrapolated to other families. However, 81% of the U.S. population lives in urban areas (U.S. Census Bureau, 2010). Second, fathers' disability status was not examined because *Fragile Families* did not collect the PPVT-R on fathers. Furthermore, this sample likely excludes some parents with ID because of sampling limitations imposed by the *Fragile Families* (e.g., parents planning to place their children for adoption were excluded). Fourth, attrition is a problem inherent to all longitudinal studies. The response rate in the age 3 wave was 86% (Bendheim-Thoman Center for Research on Child Wellbeing, 2008b). Fifth, the use of self-report for many variables may increase recall bias and social desirability bias. Response bias can be a significant limitation for studies that include self-reporting measures for people with ID (Sigelman, Budd, Spanhel, & Schoenrock, 1981) and Likert-type scales have better reliability and validity among people with ID with borderline to mild levels of impairment rather than people with ID with moderate to severe levels of impairment (Hartley & MacLean, 2006). Moreover, there is no evidence that *Fragile Families* provided any disability accommodations to mothers with ID. Assuming accessibility was a barrier, there may be related instrumentation bias or some women may have simply been excluded from participation. Future studies should attempt to control for these limitations by (a) cross-referencing administrative data to limit recall bias, (b) implementing reasonable accommodation procedures for respondents with disabilities, and (c) utilizing instruments that have been validated for people with ID. Finally, causality cannot be inferred from these observational data. Child outcomes may be attributable to other factors that were not analyzed here.

Despite these limitations, this study has many important strengths. To the best of our knowledge, this is the first nationally representative study of parenting by U.S. mothers with ID. Second, this analysis includes a wide-ranging set of control variables, which are possible because of *Fragile Families*' rich, in-depth data on family socioeconomic and demographic characteristics, parent and child physical and psychological health, child developmental outcomes, and parent-child relationships. The breadth and size of the *Fragile Families* allows for robust analysis and a comparison group, which many prior studies lack. Indeed, birth-cohort studies are an excellent approach to examining familial outcomes. Accordingly, this study addresses many of the gaps in the existing research, namely through the use of a large, representative data set to compare mothers with and without ID and their children. We are unaware of any prior studies that have used *Fragile Families* to examine mothers with ID and their children.

Implications

Although people with ID are increasingly choosing to become parents, their experiences are not well understood. Few services exist to support these families beyond Supplemental Security Income, the income transfer program. Traditional family support programs in the ID field are designed to serve nondisabled parents who are caring for children and adult children with ID (McConnell, Llewellyn, & Bye, 1997; NCD, 2012). Families headed by a parent with ID continue to be underserved.

Further, based in part on presumed developmental risk to children (McConnell, Llewellyn, & Ferronato, 2006), parents with ID are overly, and often inappropriately, referred to child protection agencies, and, once involved, are permanently separated at disproportionately high rates (IASSID SIRG, 2008; LaLiberte, 2013; McConnell & Llewellyn, 2002; NCD, 2012). Yet, despite the societal resistance toward people with ID raising families, there is no clear indication that children of parents with ID necessarily fare worse than children of parents without ID (Collings & Llewellyn, 2012).

Notably, the present study found that there was no association between whether or not mothers had ID and a child having fair or poor health, asthma, or being overweight or obese. These findings are consistent with existing studies, which generally has found that compared with other children, children of parents with ID are not more likely to have poor health outcomes (Aunos, Feldman, & Goupil, 2008; Hindmarsh, et al., 2015). However, Bowling and Keltner (1996) found that parents with ID may need more assistance from health care providers regarding their children's health needs than parents without ID (Bowling, &

Keltner, 1996). Future research should examine child health outcomes of older children and utilize administrative records to corroborate maternal report where possible.

Moreover, findings from this study, consistent with prior studies (Aunos et al., 2008; Emerson & Brigham, 2014; Feldman et al., 2012; McGaw et al., 2007; Meppelder et al., 2015), demonstrate that mothers with ID experience multiple disadvantages related to socioeconomic factors, limited support networks, and poor self-reported health. Despite these disadvantages, however, a mother's ID was not associated with a child having worse health outcomes.

Policies concerning parents with ID and their children must be based on a commitment to supporting these families' individual needs rather than presumptions concerning their parenting fitness. This study suggests that a child's health is not impacted by the mother's ID status. Although the relative disadvantage of these families argues that they would benefit from resources, their situation is not different from other vulnerable or low-income families. Thus, policy makers concerned about the overall wellbeing of disadvantaged families should enact measures that support these families and provide resources to improve their circumstances.

Conclusion

This study offers new evidence that children of mothers with ID do not have adverse health outcomes in comparison to same-age children of other mothers. Mothers with ID experience multiple disadvantages related to socioeconomic factors, limited support networks, and poor self-reported health. Notably, however, findings from the present study indicate that mother's ID was not associated with a child having fair or poor health, asthma, or being overweight or obese.

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Table 1

Description of the Sample of Mothers With and Without Intellectual Disability

	Mothers with intellectual disability (N = 263)		Mothers without intellectual disability (N = 1,298)			
Mother's characteristic	***M***	***SD***	***M***	***SD***	**Test Statistic** ***t***	**Effect Size** ***d* [95% CI]**
Mean age at child's birth	24.7	5.9	27.1	5.8	-3.02^{**}	.12 [−.01, .26]
Mean PPVT-R score at child's age 3	74.6	7.5	95.7	10.6	-19.84^{***}	2.14 [1.98, 2.29]
Parenting stress at child's age 3	25.9	8.0	24.6	7.9	0.85	−.34 [0.47, −.20]
	N	**%**	***N***	**%**	***F***	***OR* [95% CI]**
Race or ethnicity					4.36^{***}	
Non-Hispanic White[a]	10	11.1	365	43.2		
Non-Hispanic Black	169	46.2	608	24.1		10.1 [5.3, 19.5]
Hispanic	76	40.2	281	24.5		9.9 [5.0, 19.4]
Other	7	2.5	42	8.1		6.1 [2.2, 16.8]
Married to birth father at child's age 3	218	31.7	885	59.7	7.15^{**}	.4 [.3, .6]
Income < 200 % of FPL at child's birth	210	73.5	751	42.8	8.12^{**}	2.9 [2.1, 3.9]
Educational attainment at child's birth					14.49^{***}	
Less than high school[a]	151	39.7	330	15.8		
High school diploma	76	52.5	422	35.8		0.4 [.3,.5]
Some college	26	6.4	385	24.7		.2 [.1, .2]
College degree	8	1.4	160	23.7		.1 [.1, .2]
Unemployed at child's age 3	147	33.2	512	40.7	0.86	1.9 [1.5, 2.6]
Welfare receipt at child's age 3	103	18.3	287	11.6	2.48	2.3 [1.7, 3.0]
Food Stamp receipt at child's age 3	155	39.2	542	24.4	3.50	2.0 [1.5, 2.6]
SSI receipt at child's age 3	23	4.9	44	3.6	0.48	2.7 [1.6, 4.6]
Fair/poor health at child's age 3	43	14.1	142	9.2	1.26	1.5 [1.1, 2.3]
Support Network at child's age 3						
Participation in any group	91	32.8	629	57.2	5.84^{*}	.5 [.4, .7]
Regular religious attendance	142	60.8	728	61.3	0.00	.9 [.7, 1.2]

Note. All variables are weighted to represent births occurring in large U.S. cities with populations of 200,000 or more between 1998 and 2000. Number of observations (N) is unweighted. PPVT-R = Peabody Picture Test-Revised; FPL = federal poverty level; SSI = Supplemental Security Income.

[a] Reference category.

$^{*}p < 0.05$.

$^{**}p < 0.01$.

$^{***}p < 0.001$.

Table 2

Unadjusted, Weighted Health at Age Three for Children Whose Mothers Did and Did Not Have Intellectual Disability

	Mothers had intellectual disability		Mothers did not have intellectual disability		Test statistic	Effect Size	National Prevalence	
Child health outcome	***N***	**%**	***N***	**%**	***F***	***OR* [95% CI]**	***N***	**%**
Fair/poor health	8	2.6	18	2.3	0.01	2.24 [.96, 5.21]	698^{a}	2.7^{a}
Asthma	60	12.3	231	9.5	0.72	1.36 [.99, 1.88]	2,519^{b}	8.9^{b}
Overweight/obese (≥ 85th Percentile)	91	28.3	427	33.4	0.31	1.07 [.80, 1.42]	1,770^{c}	24.4^{c}

Note. All variables are weighted to represent births occurring in large U.S. cities with populations of 200,000 or more between 1998 and 2000. Number of observations (*N*) is unweighted.

[a] Based on data of children ages 0-5 years from the 2003 National Survey of Children’s Health.

[b] Based on data of children ages 0-5 years. from the 2003 National Survey of Children’s Health.

[c] Based on data of children ages 2-5 years from the 2003-2004 and 2005-2006 National Health and Nutrition Examination Survey (Ogden, Carroll, & Flegal, 2008).

[*] $p < 0.05$.

[**] $p < 0.01$.

[***] $p < 0.001$.

Table 3

Odds Ratios [95% CI] for Logistic Regression Models of Child Health Outcomes

Variable	Fair/Poor Health	Asthma	Overweight/Obese
Maternal intellectual disability	0.88 [0.28, 2.76]	0.93 [0.65, 1.33]	1.14 [0.83, 1.57]
Mother's age (at birth of focal child)	0.98 [0.89, 1.07]	1.00 [0.97, 1.02]	1.00 [0.98, 1.02]
Mother's stress	1.06 [1.01, 1.12]*	1.00 [0.98, 1.02]	1.00 [0.98, 1.01]
Mother's race[a]			
Black	0.89 [0.27, 2.95]	1.85 [1.21, 2.81]**	0.90 [0.66, 1.24]
Hispanic	0.51 [0.12, 2.15]	1.93 [1.22, 3.04]**	1.52 [1.08, 2.14]*
Other	0.78 [0.08, 7.87]	0.39 [0.09, 1.70]	0.94 [0.48, 1.87]
Married	1.75 [0.57, 5.36]	0.68 [0.46, 0.99]*	0.90 [0.67, 1.22]
Income < 200% FPL	2.97 [0.68, 13.08]	1.47 [1.05, 2.07]*	1.18 [0.90, 1.56]
Mother's education[b]			
High school diploma	1.49 [0.53, 4.23]	0.96 [0.69, 1.34]	0.92 [0.69, 1.24]
Some college	1.76 [0.47, 6.64]	0.84 [0.56, 1.26]	1.04 [0.74, 1.47]
College degree	2.42 [0.16, 36.28]	0.65 [0.30, 1.39]	1.23 [0.73, 2.08]
Employment	0.69 [0.26, 1.84]	0.88 [0.65, 1.18]	1.25 [0.97, 1.60]
Welfare/TANF	0.79 [0.27, 2.28]	1.30 [0.90, 1.88]	0.85 [0.61, 1.18]
Food stamps	1.72 [0.53, 5.61]	0.89 [0.62, 1.26]	1.17 [0.87, 1.57]
SSI	3.29 [0.94, 11.48]	1.50 [0.86, 2.63]	1.31 [0.75, 2.29]
Maternal Fair/Poor health	8.51 [3.46, 20.92]***	1.02 [0.68, 1.53]	1.23 [0.87, 1.75]
Group participation	0.68 [0.26, 1.78]	1.25 [0.94, 1.67]	1.25 [0.98, 1.59]
Religious attendance	0.78 [0.31, 1.99]	1.07 [0.81, 1.43]	0.92 [0.72, 1.17]
Constant	0.00 [0.00, 0.02]***	0.13 [0.04, 0.39]***	0.34 [0.14, 0.87]*
χ^2	48.15***	70.72***	27.80
Pseudo R^2	0.202	0.0487	0.0153

Note. FPL = federal poverty level; SSI = Supplemental Security Income.

[a] Reference category is White.

[b] Reference category is less than high school diploma.

[*] $p < 0.05$.

[**] $p < 0.01$.

[***] $p < 0.001$.