Maternal Characteristics and Child Health: A Cross-National Comparison

Today, mothers of young children in Western societies "look" different than they did in the past—in terms of their age, parity, education, and marital status. Amidst all these changes, one thing that remains the same is mothers' primary responsibility for managing their children's early health and development (Morgan & Taylor, 2006). The stakes of this responsibility are growing, given evidence illuminating the critical role of early childhood in lifelong health (Palloni, 2006). The interplay of these trends has clear implications for children's futures. If the former are associated with how women manage their children's early health and development, then the latter means that such opportunities are crucial sources of the diverging destinies among children, especially in societies with welfare regimes that enable family inequalities to be reproduced across generations. Notably, some trends are associated with greater maternal investments in children's development while others represent potential disruptions to such investments (Waldfogel, 2006; McLanahan, 2004).

Importantly, variation around the population-level means on these maternal factors can become more significant. For example, as U.S. women have fewer children, the potential disadvantages that an American mother with several children can face as she navigates health care systems and secures resources to improve her children's health could increase. If so, then how mothers compare to the new norms for mothers in that context is meaningful for their young children's current health in ways that cascade across the life course and aggregate into population-level disparities—disparities within and across societies. Alternatively, the salience of maternal characteristics like parity, education level, and union status may be contingent upon the kinds of social supports in place for children and families. In other words, if a single mother and child live in a context with free universal child care, paid maternity leave, and income supports, the implications of living in a single mother family may be weaker than if that same mother and child lived in a context without such supports.

Here, we use birth cohort samples from four English-speaking countries (Australia, Ireland, United Kingdom, United States) to establish the associations between maternal characteristics and children's health and to better understand the factors that shape these links. Such a comparative approach is valuable because, despite having some demographic similarities and being grouped as liberal welfare regimes, these countries vary across a variety of fertility trends and social supports. Consequently, they are diverse contexts in terms of the relative standing of different types of mothers within their societies as well as differences in the public scaffolding available in these countries to reduce the intergenerational transmission of inequality. Given these differences, our country comparisons are guided by two principles.

The first principle is *relative disadvantage*, where the degree to which some characteristic differentiates life course outcomes in a population depends on the norm in that population. If some characteristic is generally disadvantageous because it interferes with mothers' access to or investment of developmentally significant resources that could help their children get ahead in the same system, then that "competitive" disadvantage will decrease as the characteristic in question becomes more common in a society (more and more mothers are on the same playing level). For example, the association between mothers having many children and children's negative outcomes can fluctuate according to the norms of parity in some context, because the

resource dilution associated with being one child of many in a family is less likely to differentiate a child from others when those others also face the same resource dilution in their families. This pattern is evident across diverse religious groups in the U.S (Gibbs, Workman, & Downey, 2016; Steelman et al., 2002). As another example, children born outside of marriage are less disadvantaged at school in contexts in which nonmarital fertility is more normative because it does less to differentiate the parental investment they receive from what their peers receive. This pattern is evident across racial/ethnic groups in the U.S. (Crosnoe & Wildsmith, 2010). Thus, the degree to which maternal disadvantages are manifested in developmental risks for children likely depends on how mothers differ from normative maternal characteristics in a society. All else being equal, then, this relative disadvantage phenomenon would mean that an early birth would translate into the most risk for children's health in Ireland (where maternal age at first birth is oldest in this set of countries) and the least risk in the U.S. (where maternal age at first birth is youngest).

The second principle is *contingent protection*, which emphasizes the role of the state in supporting children vis a vis their families (Fomby, Cavanagh, and Goode, 2012; Heuveline, Yang, & Timberlake, 2010). The U.S. and other affluent English-speaking countries have welfare regimes that, compared to social democratic regimes of Scandinavia, emphasize smaller state investments in the private sphere (e.g., families) and are generally more tolerant of inequality. Yet, diversity exists among these countries. In the U.S., the care of children is so closely associated with the family, and historical hostility to state intervention into the family has been so strong that parents and children lack many public supports available in other countries, such as subsidized child care, universal health care, and paid leave policies. Other English-speaking countries tend to provide more supports for families and children, but there is also a range of generosity within those countries (Bradbury et al., 2015; Gambaro et al., 2015; Rainwater & Smeeding, 2004; Kamerman & Kahn, 1997). In general, the degree to which disadvantages in the mother generation are manifested in developmental risks in the child generation is likely to be reactive to state support, with the intergenerational transmission of disadvantage increasing as state support decreases (Pong et al., 2003).

The aim of this paper, therefore, involves the contrast of these two principles by testing the links between selected fertility-related characteristics of mothers and their children's physical health across four English-speaking countries. To address the likelihood of other country-level differences being confounded with both maternal characteristics and children's outcomes, we will also take into account general differences across countries in economic inequality, racial/ethnic heterogeneity, and GDP.

Data

The analysis will draw on four national data sets: ECLS-B (U.S.), Millennium Cohort Study (U.K.), Growing up in Australia (AUS), and Growing up in Ireland (see Table 1 below). Each data set follows a representative birth cohort at least through the start of formal schooling and includes data on both mothers and children as they move through the child's early life course. These data sets follow children born in the 21st century but the time frames are not overlapping. Still, the data sets share many similarities and can be harmonized in ways that provide useful findings about the linked lives of mothers and children in a variety of settings.

Country	Study/Dataset	Initial data collection	Outcomes measured	Analytical Sample
U.S.	ECLS-B	2001	Age 5 (2006)	6350
U.K.	Millennium Cohort Study	2000-01	Age 5 (2006)	15,246
Australia	Growing up in Australia	2004	Age 4-5 (2008)	4386
Ireland	Growing up in Ireland	2007-8	Age 5 (2013)	9420

Measures

Children's health. Based on past research with ECLS-B (Crosnoe, Bonazzo, & Wu, 2015), three physical health measures will be the foci: 1) parental report of children's *general health* (1 = *excellent* or *very health* to 5 = *poor* or *almost always well*); 2) children's weight and height through interviewer measurement, and 3) a count of *acute illness* (whether the child had respiratory problems/asthma attacks, repeated ear infections, gastrointestinal problems, and allergic attacks in the past year). With some limited differences (e.g., weight and height were reported by parents in Ireland), these measures can be replicated in the other data sets. This general use of parental reports is supported by past validity studies for adults, with similar results extending to parent reports of child health. Validity is especially strong (relative to physician reports or medical records) for studying population health disparities (Currie & Stabile, 2003; Case, Lubotsky, & Paxson, 2002; Ferraro & Farmer, 1999). These items were measured at least three times in each dataset.

Maternal fertility-related characteristics. Maternal reports about whether the focal child's birth was nonmarital will come from the initial interview. A coresident partner at birth is assumed to be the child's biological parent. We will also use maternal reports of the total number of children born to mothers (measured at age 5) and age at first birth and at birth of her focal child, when available.

Measures of relative disadvantage and family policy supports: Based on statistics from the Organization of Economic Cooperation and Development (OECD), three prevalence rankings will be created, one for each maternal characteristic. A count measure of family and child policies targeting young children in each country will also be created. These policies include national support for maternity leave, paternity leave, flexible or part-time work arrangements, child care, and family allowances. The country-level differences in associations between each maternal characteristic and the outcomes can then be compared to the prevalence ranking and the policy scale to assess support for the relative disadvantage and contingent protection hypotheses.

Family socioeconomic circumstances and other covariates: To account for human capital in the child's household, household income at the child's birth will be measured, with income converted to income quintile calculated from total family income, adjusted for family size via the OECD scale (Martinson & Reichman, 2016). Mother's family structure background will be measured by mothers' family structure history at age 16. Binary indicators noting partner change across the observation window will also be added (Crosnoe et al., 2014). We will use OECD data to measure each country's gross domestic product (GDP), GINI coefficient, and racial/ethnic composition in the year of the focal children's births.

Analytic Plan

We will pool data from all countries into a single sample with country as a variable and estimate the association between fertility-related maternal characteristics and health growth curves *by country* in a multigroup framework. This framework compares model fit when focal parameters (e.g., maternal age at birth→child health) are freely estimated in each country vs. constrained to be equal across countries. Statistical benchmarks (Chi-Square statistic, RMSEA, SRMR, CFI) can be used to determine whether changes in model fit are significant, thereby identifying significant differences in the focal parameter across countries.

We will also take steps to maximize the comparability of measures across data sets. To some extent, we are able to harmonize many of the focal measures across the six country-specific data sets, and many measures are already highly similar (e.g., age at first birth). Yet, other measures are missing in some data sets (e.g., children's chronic health conditions). Thus, this project will experiment with a relatively new technique for simultaneously examining multiple data sets: fixed effects integrative data analysis (IDA). After pooling all data into a single sample with country ID as a primary categorical variable, the first step in IDA modeling—another variant of SEM—is to construct measurement models for the pooled items (Curran et al., 2008). Here, item response theory (IRT) analyses will determine how much a given item contributes to the scale based on the pattern of item endorsement for the entire scale. The IRT-derived scores for each measure can then be used in models. IDA helps to account for the inherent heterogeneity across data sets in sample characteristics and measurement, and it also increases statistical power to detect small but meaningful effects (Curran & Hussong, 2009).

Preliminary findings

Bivariate analyses exploring the associations between marital status at the focal child's birth and maternal reports of children's health at age 5 and BMI point to expected associations. Across countries, children born to married mothers reported better health and lower BMIs than others.

We have not yet constructed the multicounty data set but preliminary OLS regression analyses where country-level differences were estimated using post-hoc Wald statistics point to compelling results. First, associations between maternal characteristics remained statistically significant is multivariate models and post-hoc tests suggest support for the contingent protection principle. More specifically, being born to married parents was more predictive of children's lower BMI in settings with weaker state supports for children (e.g., the US) than in other settings (e.g., U.K).

Such findings help point to the ways that marriage, for example, is meaningful in the US. The privatized nature of childrearing here appears to work best for stable, married, two-parent households who have more time and money to pool and invest in children compared to alternative family forms. Thus, the penalty of not living in such a household can translate into health disadvantages for some children.