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Family structure and childhood respiratory health: a longitudinal approach

Introduction

The environment in which British children are born and raised has changed significantly in the last 5 decades. In the 1960s, about 6% of children were born to unmarried parents; by 2004 the proportion of children born to unmarried parents stood at 46% (Office for National Statistics, 2006). Unmarried parenthood is largely driven by three phenomena: increases in lone parent households, in cohabiting households, and in divorce rates. Unmarried parenthood, and particularly lone parenthood, is often seen in a negative manner in current UK public policy debates. Government policy mostly engages with the financial problems associated with lone parenthood, although recent political and policy debate has moved into a more general arena, questioning whether certain family types lead to social problems for the child and the community.

A number of studies, particularly in the US, have shown that children growing up with two continuously married parents do better on a range of cognitive, emotional and developmental outcomes, both in childhood and adulthood (reviews of the literature include Amato, 2005, Amato, 2001, Cherlin et al., 1998, Aquilino, 1996). While these effects appear to be modest, they have persisted over time, even as unconventional family structures have become more common and accepted (Amato, 2005, Sigle-Rushton et al., 2005).

While most of the literature focuses on lone parenthood, showing that children from two-parent households consistently outperform those living with lone parents in cognitive, educational and emotional outcomes, a smaller but growing body of research also shows that children living with two cohabiting parents appear to report worse outcomes than children living with married parents. For example, they are more likely to experience behavioural and emotional problems and have lower school engagement (Brown, 2004a).

Potential and demonstrated pathways through which family structures influence child well-being include poorer social and economic backgrounds (Amato, 2005, McMunn et al., 2001). The family stress model hypothesises that financial stresses affect child health through exposure to poor parental mental health and parenting skills (Conger et al, 1992). Differing

parenting styles may affect the emotional support and the disciplining received by the child, as well as exposure to stressful environments and events, such as divorce (Amato, 2005, Aquilino, 1996). Area characteristics, such as crime, schooling and services, may also have an effect (Amato, 2005), as different family types may live in different neighbourhoods.

Most of the literature on family structure and child wellbeing concentrates on cognitive and emotional outcomes, and is often generated by studies based in the US. Research on a link between family structure and physical health is sparser. A community-level study of families in Avon, England (the Avon Longitudinal Study of Parents and Children, ALSPAC) described differences by family type in early life accidents and access to health care services for physical illnesses (O'Connor et al., 2000b). At the national level, preliminary analysis from the nationally-representative Millennium Cohort Study (MCS) showed that children of non-married parents were lighter at birth than children of married parents (Panico and Kelly, 2006). Kiernan and Pickett (2006) also found differences in the prevalence of smoking during pregnancy and breastfeeding between married, cohabiting and one-parent mothers. Furthermore, studies tend to be restricted to a particular event (parental divorce) and its effects on specific groups (school-aged children and/or adults). We know less about younger children, especially pre-schoolers, and we know little about cohabitees and their children.

The diversity, instability and inequalities of different family settings have been widely debated in the public discourse, while academic literature often focuses on cross-sectional data which cannot fully capture the intrinsically dynamic quality of family life. The underlying assumption of many studies is that children's family environments are fairly static over their childhood, perhaps allowing for one event such as parental divorce. However, many children experience a variety of family structures before adulthood, and some of the changes might be quite subtle (for example, brief periods of unmarried cohabitations). Therefore, longitudinal data is potentially very important in understanding the relationships between family structure and outcomes for family members.

This presentation seeks to address two main questions: are family structure and changes in family structure associated with children's physical health and, if so, what are the pathways through which these effects operate. "Family structure" describes whether children reside with two married parents, two cohabiting parents, or a lone parent; as well as any changes to these arrangements over the study period. A recent, longitudinal and nationally representative

cohort study, the Millennium Cohort Study, which follows the lives of children born in the UK in a period between 2000 and 2001, is used. Sweeps of data used relate to when the cohort members were aged on average 9 months, 3 and 5 years. Graphical chain models, a statistical technique that lends itself well to longitudinal data and temporally ordered frameworks, are used. Graphical chain models are particularly pertinent to test hypotheses examining complex relationships between a large number of variables, including variables with different measurement properties, as they allow complex models to be broken down into parts that are more easily modelled. The model represents the associations running from background variables to the outcome. Data from this presentation will focus on one set of childhood health, respiratory health, although reference to work which confirms the results for respiratory health with other health outcomes such as BMI an unintentional injury, will be briefly referred to.

Results

Asthma and wheezing are common illnesses during childhood: in the second sweep of the Millennium Cohort Study, when children were on average 3 years old, 12% had ever had asthma and 20% had wheezed in the last year. In cross sectional analyses, reported rates of asthma and wheeze at ages 3 and 5 presented strong socio-economic gradients: poorer households, households in more disadvantaged occupations, households with fewer educational qualifications and households were the mother was younger were more likely to report asthma and wheeze.

In cross sectional analyses, children living with two married parents reported the lowest rates of illness, those living with a lone parent the highest, while those living with two cohabiting parents were in between. A typology of family change showed that children always living with two continuously married parents reported the best respiratory outcomes. Those who experienced a change were a heterogeneous group with diverse outcomes. Some, such as children living with cohabitees who married, reported relatively good outcomes, while those who experienced more than one change in family structure tended to report worse outcome.

Simple cross sectional regression models showed that socio-economic variables such as maternal age, parental education, income, and car ownership were powerful predictors of asthma and wheeze at both age 3 and 5. A graphical chain model allowed exploring the

longitudinal relationship between family structure and respiratory health in a hierarchical manner. All typologies of family change were significantly different from the "always married" group in terms of their socio-economic antecedents, being largely younger, poorer and holding less educational qualifications than the continuously married, even as the other socio-economic antecedents were controlled for. The cohabitants who married appear to be the exception. Results indicated that more proximal determinants of childhood respiratory health such as damp, breastfeeding initiation and maternal mental health and structured parenting, are heterogeneous across various typologies of changes in family structures. The final model shows that the variables tested absorbed most of the differential across the typologies of family change, suggesting the model specified satisfactorily identified proximal mediating pathways.

Conclusion

This presentation will seek to describe and explain differences in childhood health according to family structure, in both a cross sectional and a longitudinal manner. A large, representative cohort study of British children born in 2000-2002, the Millennium Cohort Study, allowed for both cross sectional and longitudinal analyses to be carried out. In unadjusted cross sectional analyses, there was a striking and consistent gradient in respiratory health by family structure, with married parents reporting better child outcomes than those living with cohabiting parents, while lone parent reported the worst outcomes. This gradient is consistent with previous literature, which highlighted differences in cognitive, behavioural, educational, and, to a limited extent, health outcomes among children living with one versus two parent families, or in married versus unmarried households. This work confirms that such findings apply to physical health outcomes. These results support the conclusion that using binary variables to describe family structure (for example, comparing one- versus two-parent households, or married versus unmarried parents) disguises important differences between groups. These results also highlight substantial and consistent inequalities in respiratory health already present in a very young age group (in this case, in the first five years of life) stressing the need to include such age groups in inequality research when possible to understand the determinants that forge health inequalities across the life course. Variation in both outcomes and predictors of ill health could be seen even *within* this young age group, suggesting that distinguishing age groups within the wider "pre-school" age group is also advisable, when possible.