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The generational transmission of socioeconomic inequalities in child cognitive development and emotional health

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Abstract

Socioeconomic inequalities in the health of adults have been largely attributed to lifestyle inequalities. The cognitive development (CD) and emotional health (EH) of the child provides a basis for many of the health-related behaviours which are observed in adulthood. There has been relatively little attention paid to the way CD and EH are transmitted in the foetal and childhood periods, even though these provide a foundation for subsequent socioeconomic inequalities in adult health.

The Mater-University of Queensland Study of Pregnancy (MUSP) is a large, prospective, pre-birth cohort study which enrolled 8556 pregnant women at their first clinic visit over the period 1981–1983. These mothers (and their children) have been followed up at intervals until 14 years after the birth.

The socioeconomic status of the child was measured using maternal age, family income, and marital status and the grandfathers' occupational status. Measures of child CD and child EH were obtained at 5 and 14 years of age. Child smoking at 14 years of age was also determined.

Family income was related to all measures of child CD and EH and smoking, independently of all other indicators of the socioeconomic status of the child. In addition, the grandfathers' occupational status was independently related to child CD (at 5 and 14 years of age). Children from socioeconomically disadvantaged families (previous generations' socioeconomic status as well as current socioeconomic status) begin their lives with a poorer platform of health and a reduced capacity to benefit from the economic and social advances experienced by the rest of society.

Keywords: Grandfather; Socioeconomic; Longitudinal; Child; Cognitive; Mental health

Introduction

Traditional risk factors measured at an adult baseline (smoking, cholesterol, blood pressure, etc.) predict about one-third of the socioeconomic gradient in subsequent mortality (van Rossum, Shipley, van de Mheen, Grobbee, & Marmot, 2000; Lantz et al., 2001). The identification of a risk behaviour at a point in time may well underestimate the importance of this risk factor, largely because the length of time an individual has been exposed to risk may not have been considered. Is a design which focuses upon the cumulative health effects of exposure to risk likely to change the way we understand the contribution of socioeconomic inequalities to health care outcomes? In particular there has been little attention paid to the development of a child's cognitive abilities and emotional competence as these might contribute to socioeconomic inequalities in health outcome. General intelligence and emotional competence are likely to contribute to socioeconomic inequalities in health outcome in a variety of important health

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domains. This is not to deny that the likely causal sequence may be complex and varied. For example, data from the 1932 Scottish Mental Health Survey Cohort indicates an association between parental social class and child intelligence at 11 years of age (Shenkin et al., 2001) and child intelligence at 11 years of age and inequalities in health in later life (Starr, Deary, Lemmon, & Whalley, 2000). These associations will be mediated by such influences as lifestyle decisions (e.g. tobacco use, diet), employment outcomes and by environmental factors.

To what extent are general intelligence and emotional competence a consequence of socioeconomic inequalities that are experienced by the child at various points in his/her life course? This paper examines the association between maternal socioeconomic status (SES) and indicators of the child's cognitive development and emotional health at 5 and 14 years of age. It aims to distinguish the generational transmission of health inequalities (grandparents' SES) from the impact of the concurrent SES of the child as assessed by family income.

The importance of early cognitive development

Over the last decade, there has been growing support for the view that there is a "critical" period for brain development from birth through the early years of childhood (Wynder, 1998). Both genetics and environment are likely to be important determinants of brain development (Kotulak, 1998). Tirozzi (1998, p. 248) explains the relationship between these two influences by describing genes as "the bricks and mortar that build a child's brain", and a child's environment as "the master architect". The quality of the child's early life environment plays an important role in determining the level of brain stimulation and thus brain development. Brain development is fundamental to the child's school performance and achievement, and most likely sets the limits within which his/her future economic, social, educational and health outcomes are likely to occur. A child's cognitive development is likely to be central to an individual's academic and economic progress as an adult. Cognitive ability and development are perceived to be central to an individual's capacity to learn, and to adapt to and exploit the opportunities available within his/her environment.

Evidence that childhood mental health has effects on health in adulthood is limited, in large part because relevant data is scarce. One review argues that it is well known that well-adjusted, stable and integrated individuals have lower rates of disease (Friedman, 2000). Pine, Cohen, Brook, and Coplan (1997) longitudinally examined the relationship between psychopathology and obesity in young adulthood. Given that some forms of mental illness have a biological/genetic basis, it is not surprising to find that childhood psychiatric disorder predicts adult psychopathology (Amminger et al., 2000). Emotional control and cognitive and social capacity are significantly associated with reduced risk of adult drug use (Stenbacka, 2000). Cardiovascular patients with higher intelligence and greater cognitive flexibility have a better prognosis than patients with a lower cognitive ability (Myers, 1998).

SES and cognitive development

Child verbal ability and educational outcomes are positively related to SES variables (Alwin & Thornton, 1984). Duncan, Yeung, Brooks-Gunn, and Smith (1998) identified family income in early childhood as having a larger impact on completed schooling than in middle childhood. The quality of the home environment during preschool years has also been found to have a greater impact on children's mathematics and reading scores, than the home environment at the time mathematics and reading ability were measured (Baharudin & Luster, 1998). Maternal income has been found to influence the cognitive abilities of children independently of maternal educational status, with the home environment being found to be a mediating factor (Smith, Brooks-Gunn, & Klebanov, 1997).

The highly intercorrelated nature of many of the variables involved makes the determination of causal and mediating variables particularly problematic. Children born to generally lower SES and teenage mothers appear to be at increased risk for impaired of lower IQ scores (Kenny, 1995) and poorer linguistic outcomes (Spieker & Bensley, 1994). Data from the 1958 British Birth Cohort Study (Jefferis, Power, & Hertzman, 2002) indicates that class inequalities in cognitive ability increase over the life course. Turley (1999) suggests that maternal age at first birth is significantly associated with cognitive test scores of firstborn children as well as those from subsequent births, however conflicting evidence has been provided by Geronimus, Korenman, and Hillemeier (1994). Other research has shown no direct association between teenage maternity and IQ, but has pointed to a possible indirect effect of parental education on offspring intelligence (Cohen, Belmont, Dryfoos, Stein, & Zayac, 1980).

SES and child mental health/behaviour

There is an emerging body of research suggesting that parental socioeconomic disadvantage is associated with child mental health. Poverty has been associated with youth delinquency (Pagani, Boulerice, Vitaro, & Tremblay, 1999), and with externalising, internalising and attentional problems in children at age 5 (Bor et al., 1997). Similar findings have been noted for an older child cohort (Zubrick et al., 1995).