How Early do Social Determinants of Health Begin to Operate? Results From the Fragile Families and Child Wellbeing Study

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ABSTRACT

From a life course perspective, important insights about how social determinants of health operate can be gained by analyzing the various forms that social climate can take in different life periods. For children, a critical aspect of social climate is exposure to bullying. Bullying can serve as a proxy for power imbalance and social exclusion analogous to adult social climate of discrimination and racism. We used the Year 9 follow-up data of the Fragile Families and Child Wellbeing Study (N = 3301) that, for the first time included interviews with the children. We drew on a national sample of children and their families, which allowed us to account for broader contextual variables and represented a broad range of geographic areas and schools. Multinomial logistic regression was used to estimate the effects of exposure to bullying on self-rated health among primarily 9- to 10-year-old children while controlling for socio-demographic and diagnosed health-conditions. Both frequency and forms of bullying were associated with lower odds of reporting excellent, very good or good health. The effect of forms of bullying on children’s self-rated health fell on a gradient. Subgroup analysis indicated a significant effect on self-rated health for children who experienced peer rejection but not for those who experienced physical aggression. The results of the study provide new evidence that the harmful health consequences of power imbalance and discriminatory practices may extend to children in early development. It also accentuates the need to study social determinants of health from both an ecological/contextual and a developmental angle.

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Introduction

It is well established that social environmental factors, beyond biology, genetics and individual behaviors, can have a profound influence on health (Jensen, Currie, Dyson, Eisenstaedt, & Melhuish, 2013; Marmot, Allen, Bell, Bloomer, & Goldblatt, 2012; Wilkinson & Marmot, 2003). These social environmental factors, often referred to as “social determinants of health”, involve a constellation of determinants of health that can have real consequences by weakening the immune system (e.g. Johnson, Riley, Granger, & Riis, 2013), impairing neural substrates of cognitive and mental health functions (e.g. Krishnadas et al., 2013), and even disrupting resources, social relationships, and coping behaviors (e.g. Hatzenbuehler, Phelan, & Link, 2013). The effects are not confined to any subgroup of the general population but rather fall on a gradient, manifesting themselves across the whole spectrum of the social ladder depending on social conditions. This dose-response relationship further supports the biological plausibility of a fundamental causal role for one or more social determinants (Braveman, Egerter, & Williams, 2011).

The social environment plays a key role throughout the life course. We know that young children are disproportionately sensitive to the interplay of the developing brain with the external environment as the driving force of development (Hertzman, 2010). Subsequently, adolescents and young adults undergo numerous developmental processes whose course is influenced by their environment, including growing academic expectations, changing social and familial relationships, and physical and emotional changes associated with maturation (Sawyer et al., 2012; Viner et al., 2012). Studies show that developmental processes are likely to be disrupted when the immediate social environment is characterized by family instability or by poor parenting (Waylen, Stallard, & Stewart-Brown, 2008), harmful peer relations (Zambo et al., 2010), an unsafe school environment (Freeman et al., 2009), and deteriorating neighborhood conditions (Nichol, Jassen, & Pickett, 2010). The consequences for health can be significant as the immune system, cognitive functions, and health-related behaviors can become compromised (Kathol, Knutson, & Dehnel, 2016).

The powerful effects of social environment throughout the life span suggest the potential benefit of studying analogous social determinants at various periods of the life course. Indeed, studies indicate that
mechanisms of social determinants evident in adults may also be observed in younger populations, albeit in different forms (Currie et al., 2012; Smith, 2014). We examined the effects of social climate on child health to see how they compared to what we know about the effects in adult populations. Based on data from the Fragile Families and Child Wellbeing Study, we analyzed the influence of school climate in elementary school on the health outcomes of 9- to 10-year-old children, using exposure to bullying as an indicator. We expand on a rich body of literature on the prevalence of bullying and its association with health problems. Unlike most studies on bullying, however, which use school samples, we draw on a national sample of children and their families, which allows us to account for broader contextual variables. In addition, unique to our study was the availability of a global measure of child self-rated health for this very young population. The subjective assessment of health through self-rated health has been consistently shown to be strongly associated with objective health status, including disease prevalence, laboratory parameters, and other health-related factors (Wu et al., 2013).

**Background**

**Importance of Understanding Social Determinants of Health in Pre-adolescent Children**

Pre-adolescence is one of the most critical yet challenging developmental stages. Children's health at this stage is key to later overall biopsychosocial well-being (e.g. Mendle & Ferrero, 2012; Turney, 2013). Positive health during pre-adolescence is associated with lower risk of substance use (Bekman, Goldman, Worley, & Anderson, 2011), healthier BMI scores (Nan et al., 2012), better cognitive performance (Chaddock et al., 2012), and overall superior health during adulthood (Case & Paxson, 2010). Although crucial, this stage is full of challenges. In addition to numerous peaks of neurological, cognitive, affective and brain development in preparation for adolescence (e.g. Giedd et al., 1999; Hartley & Lee, 2015; King, Lengua, & Monahan, 2013; Mills, Lalonde, Clasen, Giedd, & Blakemore, 2014), pre-adolescent children are simultaneously exposed to a much more complex social environment—primary school—as their self-identity, self-concept, and many other capacities develop vastly (e.g. Hay & Ashman, 2003; Plante, 2007; Willoughby, Starks, & Taylor-Leech, 2015). This puts the social environmental context of pre-adolescent children at center stage, emphasizing the significance of understanding social determinants of health at this phase of life.

**Why Would We Expect Bullying to Operate as a Social Determinant of Children's Health?**

One of the mechanisms by which social determinants – for example, gender, race/ethnicity, education, income, and occupation (Solar & Irwin, 2010) – have been shown to have an effect on adult health is through perceptions of power and exclusion associated with discriminatory practices. Various forms of discrimination (e.g. racial discrimination and minority stress) have been consistently documented to significantly predict poorer adult health, including self-rated health, chronic diseases, high blood cholesterol, and depression (Chen & Yang, 2014; Frost, Lehavto, & Meyer, 2015; Harris, Cormack, Stanley, & Rameka, 2015). A key aspect of the environment is the inducement of social environmental context of pre-adolescent children at center stage, emphasizing the significance of understanding social determinants of health at this phase of life.

There are strong theoretical connections between adult and child health responses to social dominance. Indeed, recent empirical analyses of children have identified patterns similar to those observed in studies of social determinants of health in adults, but in different forms. For children, one of the predominant dynamics that represents power imbalance and exclusion is bullying (Søndergaard, 2012). Bullying is a form of aggressive behavior intentionally and repeatedly imposed from a position of power – including physical, verbal, relational, sexual, cyber, and racial bullying (Craig & Pepler, 2007; Hymel & Swearer, 2015; Vieno, Gini, & Santinello, 2011). The form of bullying that U.S. adolescents most engaged in were verbal (37.8%) followed by relational (24.4%), physical (13.8%), and cyber (8.9%; Wang, Iannotti, & Luk, 2012). Sources of power imbalance range from simply physical advantage, such as size and strength, to highly complicated systemic discrimination based on race or ethnicity, sexual orientation, and economic disadvantage. Bullying is particularly powerful and potentially harmful because it exists in a pre-adolescent child's immediate social context – school. School is the most important venue of children's socialization, optimally the context of healthy development, including the formation of behaviors and capacities that facilitate transitions in family, peer, and other social relationships, and, ultimately, the transition to adulthood (Kidger, Araya, Donovan, & Gunnell, 2012). Yet, harmful experiences of power imbalance at school associated with exposure to bullying can put children at the bottom of the social hierarchy and at the receiving end of subordination and victimization (Halpern, Jutte, Colby, & Boyce, 2015). Bullying at school puts children under constant vigilance and stress which, in turn, can cause detrimental health effects.

**Empirical Evidence Linking Bullying and Children's Health**

Studies demonstrate a strong association between exposure to bullying and children's mental health. Research shows that victims of bullying have a significantly higher risk of mental disorders (Benedict, Vivier, & Gjselvik, 2015; Evans-Lacko et al., 2016) and significantly worse psychological well-being (Turner, Exum, Brame, & Holt, 2013). Children who are bullied are under a constant state of fear, stress, anxiety, isolation and insecurity coupled with poor self-esteem and self-concept (e.g. Boulton, 2013; Søndergaard, 2012; Malecki et al., 2015). These psychosocial challenges have a negative impact on children's overall wellbeing, such as a higher risk of social isolation (Hensley, 2013), increases in self-harming behaviors (Meltzer, Vostanis, Ford, Bebbington, & Dennis, 2011), and a higher prevalence of psychosomatic problems (Gini & Pozzoli, 2009).

As with mental health, research findings on the association between bullying and children's health support the view that victimization from bullying is reliably associated with significantly impaired physical health (Due et al., 2005, Rigby, 2001). A population based cross-sectional study of 419 school-aged children between 7 and 16 years old revealed that, compared to children who had never being victimized, weekly/daily victimization was associated with approximately a seven-fold likelihood of experiencing stomach aches and an even higher likelihood of suffering from headaches (Lahre et al., 2011). Lower exposure to bullying was observed to be significantly associated with higher levels of children's positive self-assessed health and well-being in a prospective cohort study of 1479 children ranging from 9 to 14 years of age (Forrest, Bevans, Riley, Crespo, & Louis, 2013). To measure health outcomes, the study used the Healthy Pathways Child-Report Scale, a multiple-item scale of children's self-assessed health and well-being. Sample items include physical comfort, emotional comfort, low stress reactions, physical activity, active coping, self-worth, life satisfaction, and others. In a summative report on the health effects of bullying among children, Hensley (2013) concluded that bullying not only remains a serious threat to children's physical wellbeing during the time they are involved, it also can persist for many years into adulthood.

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