Household Food Insecurity and Mental Health Problems Among Adolescents: What Do Parents Report?

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ABSTRACT

OBJECTIVE: To investigate whether adolescents living in households with food insecurity have poorer parent-reported mental health (MH) than peers.

METHODS: We analyzed cross-sectional data from ~8600 adolescents who participated in the 2007 (8th grade) wave of the Early Childhood Longitudinal Study–Kindergarten. Household food insecurity (HFI) was assessed by parental report on the 18-item US Household Food Security Scale. Total Difficulties score >13 on the parent-reported Strengths and Difficulties Questionnaire (SDQ) indicated problems with adolescent MH. SDQ subscale scores (Emotional, Conduct, Hyperactivity, Peer Problems) were also calculated. Associations between HFI and MH were explored in bivariate and multivariable analyses. Interactions of HFI and gender and HFI and receipt of free/reduced-price school lunch were analyzed with regard to problems with MH.

RESULTS: A total of 10.2% of adolescents lived with HFI; 11.2% had SDQ >13. Adolescents with HFI had higher rates of overall MH problems (28.7% vs 9.2%), emotional problems (21.6% vs 6.6%), conduct problems (26.5% vs 11.6%), hyperactivity (22.4% vs 11.3%), and peer problems (19.8% vs 8.6%) (all $P < .01$). After adjustment for confounders, the association between HFI and overall MH problems (odds ratio 2.3; 95% confidence interval 1.6–3.3) remained. Interactions of HFI and gender and HFI and free/reduced-price school lunch were not significant.

CONCLUSIONS: HFI was associated with increased risk of parent-reported MH problems among both male and female adolescents. Free/reduced-price school lunch did not significantly alter this relationship. Effective interventions to promote MH and reduce HFI among adolescents are necessary.

KEYWORDS: adolescent; food insecurity; mental health; parent report; Strengths and Difficulties Questionnaire

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WHAT'S NEW

Adolescents living in households with food insecurity are at increased risk for parent-reported mental health problems, even after adjusting for other risk factors.

FOOD INSECURITY IS defined as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."[1] Food insecurity has been described as a "complex multidimensional phenomenon," and since 1995 has been assessed nationally by a standardized 18-item Household Food Security Scale developed by the United States Department of Agriculture, which uses a variety of indicators to capture various combinations of food conditions and experiences.[1] Food insecurity currently affects 14.5% of US households and 20% of US households with children.[2] In the United States, unlike in the developing world, food insecurity is often a hidden problem. Nevertheless, it has been shown to have deleterious effects on children's health.[3,4]

There is a growing body of evidence indicating that among young and school-age children, food insecurity is associated with increased risk of developmental problems,[5] more internalizing and externalizing behavior problems,[6,7] difficulty with socialization,[6,7] and academic difficulties.[6–8] Like early childhood, adolescence is a period of rapid growth and brain development.[9] It is plausible that exposure to household food insecurity (HFI) during this particularly vulnerable period could adversely affect adolescents' mental health (MH), possibly, as postulated by others, by acting as a biological stressor, leading to less than optimal nutrition, as well as a psychological stressor for the family and adolescent.[10,11] However, to date, a paucity of literature has explored associations between food insecurity and MH among adolescents. Although the few published studies in this area have shed light on possible associations between food insecurity and adolescent MH, they have been limited by small or local samples, inconsistent

measurements of food insecurity, and failure to adjust for important potential confounders such as maternal depression[12] and stressful life events. To our knowledge, no study has utilized data from a nationally representative sample and validated measures of both HFI and adolescent MH, adjusting for important potential confounders to assess this relationship.

One unmatched case-control study focused on 228 school-age children 6 to 17 years old who were homeless or living in low-income housing in Massachusetts. That study reported that after controlling for housing status, mother's distress, and stressful life events, "severe child hunger" was associated with higher rates of mother-reported child anxiety.[11] Another study of children aged 4 to 14 years living in Chicago investigated the associations of poverty and food insecurity over a 2-year period; it reported that persistent food insecurity was associated with both internalizing and externalizing problems after adjusting for confounders, including caregiver depression.[13]

A larger study that analyzed data from the 2002 National Survey of American Families for 11,139 adolescents aged 12 to 17 reported that food insecurity was associated with increased parental emotional distress, poor quality of parenting, and increased adjustment problems among adolescents.[14] Two reports using data from the Third National Health and Nutrition Examination Survey (NHANES III) reported associations between food insufficiency and having been seen by a psychologist, having been suspended from school, and difficulty getting along with peers,[6] as well as depressive and suicidal symptoms among adolescents.[15] These studies both investigated associations between food insufficiency and important aspects of MH but did not adjust for caregiver depression or stressful life events, either of which could have explained the associations between food insecurity and parent-reported MH. It is also important to note that in NHANES III, a child was defined as "food insufficient" if the family member completing the survey reported that the family "sometimes or often did not have enough food to eat."[6,15] In contrast to the question about food insufficiency included in NHANES III and used in those studies, the US Household Food Security Scale, which has been used more recently in national surveys, captures the multidimensional nature of food insecurity, including whether the family worried that food would run out before getting money to buy more or could not afford to buy balanced meals.[1]

The purpose of this study was to use data from a nationally representative sample, as well as validated measures of HFI and adolescent MH, to evaluate the hypothesis that after adjustment for potential confounders, including parental symptoms of depression and stressful life events, adolescents from households with food insecurity are more likely than peers to have problems with MH on the basis of parental report.

Because prior research has suggested that girls and boys may respond differently to food insecurity with regard to other aspects of health,[7,16] we also were also interested in assessing whether the association between HFI and MH differs by gender, which to our knowledge has not previously been tested.

Additionally, we sought to determine whether receipt of free/reduced-price school lunch, which potentially could reduce to some extent biological and psychological stress related to uncertain access to nutritious food, buffers the relationship between HFI and adolescent MH.

METHODS

We used publicly available data from the 2007 (8th grade) wave of the Early Childhood Longitudinal Study–Kindergarten (ECLS-K) class of 1998–1999, a study that followed a large and nationally representative cohort of children from kindergarten until 8th grade. A detailed description of the ECLS-K methodology is available online (http://nces.ed.gov/ecls/kindergarten.asp).[17]

Data were obtained primarily from the ECLS-K 8th grade parent interview, which was conducted by telephone using a computer-assisted interview. A small percentage (2.2%) of interviews were conducted in person. In 88% of the cases, the respondent was the child's mother, and in 9% of the cases, the respondent was the child's father. In 3% of the cases, the respondent was another caregiver in the home, most commonly the child's grandparent. Hereafter, we use the term *parent* to refer to the responding caregiver.

The study population consisted of ~8600 students aged 12 to 16 years. Although most students were 8th graders, students who were in kindergarten in the base year sample and who were retained 1 or more years or skipped a grade were also included in the sample.

MEASURES

HFI

The US Household Food Security Scale, a standardized 18-item measure designed to assess the household's food situation and economically based difficulties in meeting food needs in the past 12 months,[18] was administered to the parent via telephone interview to assess household food security status. Scores on the Household Food Security Scale were computed by ECLS-K in accordance with standardized scoring guidelines. Households in which the parent affirmed 3 or more items on the scale were characterized by ECLS-K as food insecure.[1,17]

ADOLESCENT MH

Parental report of adolescent MH was measured using the Strengths and Difficulties Questionnaire (SDQ), a 25-item MH measure that has been used widely for clinical and research purposes and as a screening tool, and has been demonstrated to identify likely cases of MH disorders, based on DSM-IV criteria.[19–22] Parents reported whether each item was "not true," "somewhat true," or "certainly true." In accordance with scoring recommendations, the items were summed to create 5 subscale scores, including Emotional Symptoms, Conduct Problems, Hyperactivity, Peer Problems, and Pro-social Scale. Four of the 5 can be totaled to create a Total Difficulties score, which we used