Journal of Adolescent Health 52 (2013) 201–206

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Original article

Changes in the Frequency of Family Meals From 1999 to 2010 in the Homes of Adolescents: Trends by Sociodemographic Characteristics

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Article history: Received March 14, 2012; Accepted June 11, 2012
Keywords: Family meals; Adolescents; Secular trends; Disparities

A B S T R A C T

Objective: To examine secular trends from 1999 to 2010 in family meal frequency in a population-based sample of adolescents across sociodemographic characteristics.
Methods: A repeated cross-sectional design was used. Participants were from middle schools and high schools in the Minneapolis/St. Paul area and included 3,072 adolescents (mean age = 14.6 ± 1.8 years) in 1999 and 2,793 adolescents (mean age = 14.4 ± 2.0 years) in 2010 from diverse ethnic/racial and socioeconomic backgrounds. Trends in family meal frequency were examined using inverse probability weighting to control for changes in sociodemographic characteristics over time.
Results: Family meal frequency remained fairly constant from 1999 to 2010 in the overall sample, but decreases were found in population subgroups including girls, middle school students (grade: 6–8), Asians, and youth from low socioeconomic backgrounds. Among youth from the lowest socioeconomic backgrounds, the mean number of family meals in the past week decreased from 4.0 in 1999 to 3.6 in 2010 ($p = .003$). Furthermore, the percentage of youth from low socioeconomic backgrounds eating five or more meals in the past week decreased from 46.9% in 1999 to 38.8% in 2010 ($p < .001$). In contrast, family meal frequency tended to increase over time among youth from higher socioeconomic backgrounds.
Conclusions: The widening gap in family meal frequency between youth from low and high socioeconomic backgrounds is concerning, particularly given the greater risk for poor health outcomes among low-income youth. Given findings from other studies suggesting multiple benefits of family meals, interventions to increase family meal frequency are needed that target adolescents and their families from the most vulnerable segments of the population.

IMPLICATIONS AND CONTRIBUTION

Little is known about how family meal frequency has changed over time. The current study examines secular trends in family meals from 1999 to 2010 among a diverse population of adolescents. This study further identifies subgroups of the population in greatest need of interventions to increase family meal frequency.

Research shows that more frequent family meals are associated with several positive outcomes in adolescents, including better dietary intake [1–10], fewer disordered eating behaviors [11–16], higher levels of psychological well-being [14,17,18], less substance use [16,17,19,20], and better academic success [17]. Much of this research has been published in the past decade or so. The growing interest and scientific attention to family meals research is evident, in that approximately 25 scientific articles were published in the peer-reviewed literature before 1999, whereas over 125 articles were published between 1999 and 2011. Activities aimed at promoting family meals also appear to have increased over the past decade; for example,

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http://dx.doi.org/10.1016/j.jadohealth.2012.06.004

based on their research regarding the importance of family meals for preventing substance use, in 2001, the National Center on Addiction and Substance Abuse at Columbia University launched a national campaign promoting family meals in which 1 day a year is called Family Day—A Day to Eat Dinner with Your Children [21].

To advance the state of the science, it is now important to assess whether there have been trends in the frequency of family meals over time and to examine these trends across sociodemographic characteristics of adolescents. Although it is commonly stated that family meals have declined over time [22], we were unable to find any empirical data showing such a trend for families of adolescents. Nicklas et al found a decrease in the percentage of 10-year-old children eating a home dinner from 1973 to 1994 (89.2% to 75.9%), but did not report on family meals [23]. The only study identified that studied trends in family meal frequency over time was conducted by the National Center on Addiction and Substance Abuse at Columbia University [20]. In this study, the percentage of adolescents reporting five or more family meals per week remained fairly consistent in annual assessments conducted from 1999 to 2011, with slightly higher levels in 2011 (58%) than in 1999 (51%). However, trends were not reported for different subgroups of the adolescent population, which may be important for efforts targeting change. Cross-sectional research has indicated that the frequency of family meals differs across sociodemographic characteristics [1,24]. For example, in Project EAT-I (Eating and Activity in Teens), conducted in 1999, our research team found that family meal frequency differed across gender (higher in boys than in girls), school level (higher in middle schools students than high school students), ethnicity/race (highest in Asian Americans), and socioeconomic status (SES) (most frequent in youth from highest socioeconomic backgrounds) [1]. Exploring whether these differences have become smaller or larger over time may have important implications for interventions.

The current study addresses an important gap in the literature on family meals, in that it examines *secular trends* in family meal frequency within a large and diverse adolescent population. Trends are examined from 1999 to 2010, thus capturing a period in which there was an increase in the dissemination of information on family meals in both the scientific and popular media. Furthermore, the diverse nature of the sample allows for an examination of trends in family meal frequency by adolescents' sociodemographic characteristics, including gender, school level, ethnicity/race, and SES, all of which could be important to inform future interventions.

Methods

Study design and population

A repeated cross-sectional study design was used to compare family meal patterns between 1999 and 2010 among adolescent participants in Project EAT. Data from 1999 are from Project EAT-I, the first wave of a longitudinal study following adolescents into young adulthood [25–27]. Data from 2010 are from EAT 2010, a multilevel study in adolescents. Both studies were designed to assess variables of relevance to eating behaviors, physical activity patterns, and weight-related outcomes in participants. Study procedures were approved by the University of Minnesota's Institutional Review Board Human Subjects Committee and by the research boards of the participating school districts. At each wave, approximately 90% of adolescents who were at school on the days of survey administration had parental consent and chose to participate.

In Project EAT-I, participants included ethnically/racially and socioeconomically diverse students from 31 public schools in the Minneapolis/St. Paul metropolitan area of Minnesota [25,26]. For EAT 2010, a new cohort of students from 20 public schools in the same metropolitan area participated in the study. To facilitate the examination of secular trends, the earlier study sample was restricted to 27 schools from the two urban school districts that participated at both time points. At both time points, middle schools and high schools were included. Mean ages and standard deviations (SDs) of middle school youth were 12.8 (SD = .82) and 12.6 (SD = .83) in 1999 and 2010, respectively. Mean ages of high school participants were 16.0 (SD = .90) and 16.0 (SD = 1.29) in 1999 and 2010, respectively. The study sample included 3,072 adolescents in 1999 and 2,793 adolescents in 2010.

Measures

Adolescents completed surveys in school classrooms for both study waves; all survey questions used in the current analysis were identical in 1999 and in 2010. We examined the test–retest reliability of survey questions in 161 diverse adolescents in 1999 and found good agreement [11]. In 2010, we again examined test–retest reliability of survey questions in 129 diverse adolescents; psychometric properties from 2010 are reported in this article.

To assess the frequency of family meals, adolescents were asked the question "During the past seven days, how many times did all, or most, of your family living in your house eat a meal together?" Response categories were never, 1–2 times, 3–4 times, 5–6 times, 7 times, or >7 times (test–retest r = .63). Three variables were developed from this question for the current analysis and included *family meal frequency* (mean number of family meals in the past week), *infrequent family meals* (two or fewer family meals in the past week), and *frequent family meals* (five or more family meals in the past week) (test–retest agreement for both infrequent and frequent family meals = 82%).

Sociodemographic variables were reported by adolescents and included *gender, age, ethnicity/race*, and *SES*. *Ethnicity/race* was assessed with the question "Do you think of yourself as . . .? 1) White, 2) Black or African American, 3) Hispanic or Latino, 4) Asian American, 5) Native Hawaiian or Pacific Islander, 6) American Indian or Native American, or 7) Other" (test–retest agreement = 98%–100%). As few adolescents reported "Hawaiian or Pacific Islander," they were coded as "mixed/other" at both time points. A follow-up question asked about background (e.g., Hmong, Cambodian, Somali, Ethiopian) (test–retest agreement = 92%); of note, most of the Asian American adolescents reported that they were Hmong (weighted percentages: 76% in 1999 and 82% in 2010). *SES* was determined primarily using the higher education level of either parent, based on adolescent report (range: 1–5, test–retest r = .90). To prevent the misclassification of participants as high SES based on education if their family had economic stress, an algorithm was developed that also took into account family eligibility for public assistance, eligibility for free or reduced-cost school meals, and parental employment status [26,28].