Research Brief

Racial and Ethnic Differences in Longitudinal Patterns of Family Mealtimes: Link to Adolescent Fruit and Vegetable Consumption

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ABSTRACT

Objective: To examine the longitudinal patterns of family mealtimes across racial/ethnic groups and to investigate whether the associations between longitudinal patterns of family mealtimes, baseline family and demographic characteristics, and healthy food consumption in adolescence differ by race/ethnicity.

Methods: Data from the Early Childhood Longitudinal Study spanning from kindergarten to 8th grade were used for this study. Longitudinal patterns of family mealtimes and their link to baseline characteristics and healthy food consumption in adolescence, as defined by fruit and vegetable intakes, were determined using latent growth curves.

Results: From childhood to adolescence, family mealtimes were stable among Asian families. Although Hispanic families displayed a downward pattern, mealtimes declined more steeply in non–Hispanic white and black families. The links among family mealtimes, baseline characteristics, and healthy food consumption were not observed equally across racial/ethnic groups.

Conclusions and Implications: Differences in longitudinal patterns of family mealtimes and in the association between family mealtimes and adolescent healthy food consumption across racial/ethnic groups call for targeted intervention in this nutritionally vulnerable period.

Key Words: family mealtimes, racial and ethnic differences, fruit and vegetable consumption, healthy food consumption, adolescent (*J Nutr Educ Behav*. 2016;■:1-6.)

INTRODUCTION

Despite the increased demands for nutrients during adolescence, many youth do not consume the recommended amount of fruits and vegetables.[1,2] The shared experience of eating together may be a potential mechanism for youth to receive necessary nutrients from fruits and vegetables. Family mealtimes provide parents the opportunity to shape children's food preferences through the availability and accessibility of food options and through modeling intake and attitude toward foods.[2,3] Indeed, studies have linked family mealtimes to children's and adolescents' diet quality, and substantial findings in nutrition literature have pointed to several family (eg, parental rules, family connectedness, television use) and demographic (eg, gender, race/ethnicity, socioeconomic status) characteristics that may influence this association.[2,4,5]

Family mealtimes tend to decline in adolescence compared with childhood.[6] Although studies suggested racial/ethnic differences in family mealtimes,[6,7] it is unclear whether these differences continue to exist over time. Past studies relied on cross-sectional or longitudinal data of short duration which provide limited information about the cumulative pattern of family mealtimes from childhood through adolescence in different racial/ethnic groups. Moreover, because the home food environment and parental food practices may vary by ethnicity,[8] a better understanding of whether race/ethnicity may moderate the relationship between long-term patterns of family mealtimes and adolescents' healthy food consumption is warranted.[9]

This study examined the temporal associations between the level and change in family mealtimes with adolescents' fruit and vegetable consumption, subsequently referred to as healthy food consumption, across major racial/ethnic groups. Specifically, the objectives of this study were to (1) examine the longitudinal patterns of family mealtimes from childhood to adolescence across major racial/ethnic groups, and (2) investigate the association between longitudinal patterns of family mealtimes, early family and

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Conflict of Interest Disclosure: The authors' conflict of interest disclosures can be found online with this article on www.jneb.org.
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demographic characteristics, and healthy food consumption in adolescence as moderated by race/ethnicity.

Examination of the longitudinal trajectories (eg, level and change) of family mealtimes can uncover whether some children have more frequent family meals than others (higher initial level or intercept) and whether some have greater rate of change (steeper slope) in family mealtimes from childhood to adolescence than their peers. The initial level corresponds to the baseline level in childhood, whereas the rate of change corresponds to the increase or decrease over time.[10] A better understanding of these patterns allows researchers to ask whether individual change in family mealtimes may be related to early family and demographic characteristics. Both the initial level and change in family mealtimes may also independently contribute to healthy food consumption in adolescence and can have separate implications for intervention. Furthermore, investigation of racial/ethnic differences in the longitudinal association between family mealtimes and adolescents' healthy food consumption can identify differential vulnerability in adolescents from different groups, which could lead to more directed interventions.

METHODS

Data collected in kindergarten, first, third, fifth, and eighth grade from the Early Childhood Longitudinal Study–Kindergarten Class of 1998–1999 (ECLS-K) were used for this study. The ECLS-K is a nationally representative study of US children who began kindergarten in 1998–1999 and followed them through eighth grade. Information was collected from parents through telephone and in-person computer-assisted interviews. In the eighth-grade data collection, a student questionnaire was added.[11] Analyses in this study were based on data from 6,503 children who participated across all 5 waves and were identified by their parents in kindergarten as being in the non-Hispanic white, non-Hispanic black, Hispanic, or Asian race/ethnic category. Sample attrition from kindergarten through eighth grade was mostly due to a combination of field and sampling procedures that was applied in ECLS-K,

such as children who were excluded from the fifth-grade data collection because they became ineligible in an earlier round as a result of moving out of the country or out of the school system, death, parental refusal to participate, or lacking data from first- and third-grade data collections. This study was considered exempt by the Institutional Review Board, Northern Illinois University, because data are publicly available and do not contain confidential information that can be linked to a particular child. Information on human subject recruitment and approval for the larger ECLS-K study are available elsewhere.[11]

Measures

At each wave, parents reported family mealtimes based on the number of breakfasts and dinners eaten together by the family in a typical week (range, 0–14). A latent variable representing adolescents' healthy food consumption was created using 4 items in eighth grade that asked adolescents the frequency of fruits, green salads, carrots, and other vegetables consumed within the past week (1 = did not eat; 2 = 1–3 times; 3 = 4–6 times; and 4 = ≥7 times). Standardized factor loadings for the latent variable ranged from .51 to .67 (all $P < .001$). Child's race/ethnicity was reported by parents in kindergarten based on 5 racial/ethnic categories: non-Hispanic white, non-Hispanic black, Hispanic, Asian, and other (including American Indian or Alaska Native, Native Hawaiian or Pacific Islander, and multiracial). Because of sample size restriction related to the purpose of this study, analyses were based on the 4 largest racial/ethnic groups represented in the ECLS-K.

Early family characteristics measures were included based on data collected in kindergarten. Because regular family meals can be a proxy for family connectedness and the overall routine and structure within the family,[2] this study included related baseline measures of parental involvement, the presence of family rules on television use, and regular bedtime. Parental involvement was assessed based on the average of 6 items (eg, In a typical week, how often do you read books to your child? [Range, 1 = not

at all to 4 = everyday; $\alpha = .64$]). Television rules were measured using the sum of 3 items that asked parents about whether (1 or 0) there were family rules for television programs the child could watch, rules on the number of hours, and rules about how early or late the child could watch television. Higher scores on this variable indicated greater parental control on children's screen time. Regular bedtime was measured using 1 item that asked parents whether (1 or 0) the child had a regular bedtime.

Baseline demographic characteristics, including gender, family structure, family socioeconomic status, and maternal employment at kindergarten were included as potentially important covariates.[12] Gender was coded 1 (male) and 0 (female). Family structure was coded 1 for 2-parent family and 0 for other family arrangement. Family socioeconomic status was created by ECLS-K at the household level in kindergarten based on parental education, parental occupation, and household income.[13] Maternal employment was based on 1 item, scored 1 or 0, that indicated mother's full-time employment.

Statistical Analysis

Latent growth curve models within the structural equation modeling framework were estimated to describe change over time in family mealtimes and to investigate their correlates. Relative to competing methods, latent growth curves allow for better examination of within-person change (ie, intra-individual variability) and between-person differences (ie, inter-individual variability) over time while being able to test for the antecedents and consequences of change.[14] Analyses began by estimating the univariate growth curve for family mealtimes across all 5 waves of data. To test for the moderating influence of race/ethnicity, multiple group analyses with and without group invariance were conducted. Satorra–Bentler scaled χ^2 difference test[15,16] was conducted to compare the nested model (ie, a model that constrained intercept and slope to be equal across groups) with the comparison model (ie, a model that allowed the parameters to vary across race and ethnic groups). The next set of analyses addressed whether the longi-