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Research Article

Prevalence and Correlates of Family Meals among Families of 3rd Graders

Abstract

Introduction: Dietary intake has a significant role in promoting health and preventing disease. Family meals have been associated with higher nutrient intake, lower obesity rates, and other social benefits, yet little is known about what influences family meal frequency.

Methods: We examined psychosocial and demographic factors potentially related to eating dinner together among families of third graders (N=1474) participating in "Hi5+," a family- and school-based nutrition program. Families were recruited from 33 schools to participate in a randomized trial to evaluate the efficacy of a fruit and vegetable promotion program.

Results: Hierarchical sequential multiple regression identified nine independent variables that contributed significantly to predicting the frequency of family dinners. Meal-planning capability was the strongest predictor, followed by an increased number of children in the household, lower income bracket, being White, and mothers who are not externally employed, want the family to eat together, monitor their child's intake, strongly encourage fruit and vegetable intake, and are satisfied with their family's current fruit and vegetable intake.

Conclusions: Given the importance of diet in preventing obesity and many of the leading causes of death, the importance of the family in shaping future health behaviors among youth, and the influence of family practice physicians in encouraging and reinforcing caregiver behaviors, physician efforts to encourage meal planning and support family meals among their patients are warranted. These findings can have important implications for efforts to intervene before the shift to adolescence where both family meals and vegetable intake become less frequent.

Introduction

Current dietary practices of both children and adults pose a significant public health problem. Under-consumption of fruits and vegetables and over-consumption of highly processed, high-fat foods increase the risk for obesity [1] and a number of chronic diseases, including cancer [2,3], coronary heart disease [4], hypertension [5], and diabetes [6]. Given that dietary practices have such a tremendous impact on health, understanding what influences diet is important.

Eating together as a family is associated with a range of benefits (e.g., eating more fruits and vegetables [7,8], lower BMI [9], reduced risk of disordered eating [8] and depression [10], improved school and psychological performance) [11-13]. While parents report that family meals are important [14,15], the proportion of children eating with their families is low [16]. Several societal trends have adversely affected family mealtimes, especially in families with older children. These include an increased proportion of meals consumed away from home, increased participation in outside activities, more fast food availability, and an increase in dual-income households [17,18]. The increased prevalence of eating out may contribute to the poor quality of many children's diets, as away-from-home foods tend to be nutritionally inferior to those consumed at home [17].

While family members' participation in scheduled activities away from home has increased, and family eating styles have changed to adapt, the fundamental need for nutritious family meals persists. While shared family meals is an important goal in light of data showing they

lead to better diets, they are also potentially advantageous in keeping families engaged [19]. The potential for physical, emotional and social benefits from regular family meals together are significant. Meals together provide opportunities for family bonding, sharing, building memories, and learning consideration of others. Sharing mealtime can be especially important for children in fostering the development of communication and social skills, along with a feeling of belonging [12]. As children approach the turbulent adolescent years, regular family meals where open communication and sharing are encouraged may ease the transition and aid in preventing future tribulations. Of course, the benefits of family meals likely depend on their quality as well as their frequency. Eating in front of the television, for example, may negate many of the potential benefits (e.g., conversation, interaction) of family meals. Indeed, television viewing during meals has been positively associated with poorer dietary intake patterns and increased rates of obesity in children [20-23].

Because dietary intake patterns are predominantly formed and consistently reinforced within families [24,25], and are influenced by both the frequency of meals eaten together and the eating behaviors modeled by parents [26,27], families are ideal targets for dietary intervention. And because the evening meal provides the largest proportion of daily calorie and nutrient intake for most children and adolescents [17], family dinners provide an ideal setting for interventions that seek to increase fruit and vegetable intake. Given the potential physical and social benefits of family meals together, interventions that encourage families to increase the number of meals

eaten together could enhance both diet quality and family and social functioning. But before appropriate interventions can be developed, a better understanding of the factors that are associated with eating meals together is needed. Herein we examine the prevalence and correlates of eating dinner together at home among families of third graders participating in the Hi5+ family nutrition intervention.

Materials and Methods

Families were recruited from 33 schools in the greater Birmingham, Alabama area to participate in a randomized trial to evaluate the efficacy of a fruit and vegetable promotion program (Hi5+ Enhanced Family Intervention) [28,29]. Study data were derived from surveys completed at the baseline assessment by third grade children (N=1,785) and their parents (N=1,650). After eliminating children and/or parents with missing data, 1,474 participant pairs were included in this study. The overall participation rate among third graders was 66.5%. The study protocol was approved by the Institutional Review Board.

Measures

Family Home Meal Frequency: Our formative research indicated that the term “suppers” was most closely associated with the evening meal among members of the sample population. A single-item assessed the frequency of suppers the family eats together at home: “In a usual week, my family eats supper at home together ...” Response options were: less than once a week; 1-2 suppers; 3-4 suppers; 5-6 suppers; or 7 suppers.

Hypothesized correlates: Table 2 lists nine variables (e.g., poor meal planning, employment status, income) hypothesized to associate with family meal frequency; one from the child’s report and eight from the parent’s report. Surveys were administered to children in the classroom while parent surveys were sent home with the child to be completed and returned by the parent. Hierarchical sequential multiple regression was performed using SAS Proc GLM to examine potential predictors of family meals.

We also were interested in the prevalence of family meals without the presence of television which was assessed with a single item: “When your family eats supper at home together, how often do you watch TV while eating?” Response options were: all of the time; a lot of the time; about half the time; once in a while, and never.

Results

Table 1 provides descriptive statistics of the study population. According to recent census data [30], these demographics are identical to the Birmingham metropolitan area from which the sample was drawn.

The self-reported frequency of family eating supper at home together every night in a typical week was 15.7%, while 46.8% ate 5-6 suppers together per week, 30% ate 3-4 suppers together, 6% ate 1-2 suppers together and 1.2% ate less than one supper together per week on average. We then examined how many family suppers were consumed without (or rarely) watching TV, and the self-reported family supper frequencies dropped significantly (e.g., while nearly 47% ate 5-6 suppers per week together, less than 25% reported eating

Table 1: Baseline Sample Description: Hi5+ Program Parent Participants (N=1474).

Age, mean (SD), in years	36.8 (6.9)
Ethnicity:	
African American	31.6%
Caucasian	68.4%
Gender	
Male	6.4%
Female	93.6%
Marital Status	
Married or living with partner	74.3%
Single, divorced, separated or widowed	25.7%
Education	
< High school	8.7%
Completed high school	29.1%
Some college	24.6%
Completed college	37.6%
Employment Status	
Employed, full-time or part-time	73.8%
Unemployed	7.7%
Homemaker	18.5%
Income	
< \$10,000	6.2%
\$10-\$19,999	8.8%
\$20-\$29,999	9.0%
\$30-\$39,999	9.0%
\$40-\$49,999	9.6%
\$50-\$59,999	8.7%
\$60-\$69,999	7.8%
> \$70,000	20.4%
Did not respond	20.5%

that many suppers together without TV). Overall, 52.1% of meals together were consumed in front of the TV (Table 2).

Table 3 shows the relationships between family suppers and the hypothesized variables. The hierarchical sequential multiple regression identified nine independent variables that contributed significantly in predicting the frequency of family suppers [$F(12, 1461) = 21.05; p < .001$]. Altogether, almost 15% (Model R-Square = 0.147) of the variability in family supper frequency was predicted by these variables. Meal planning capability demonstrated greater association ($R^2 = 8.4\%$) than any of the other correlates, accounting for more than half of the total variance explained. Mother’s employment status was the next most significant predictor ($R^2 = 1.4\%$, with families where the mother is not employed outside the home engaging in more family suppers together), followed by parental monitoring of child’s intake ($R^2 = 1.2\%$, with parents who know what their child eats at home being associated with more suppers together).

Other significant variables in the regression analysis were race (with families who are white being more likely to eat supper together), having an increased number of children in the household, child’s perception of mom’s desire for family to eat together, how the mom feels about the amount of fruit and vegetables the family eats, family income (with parents who earn less than \$60,000 being more likely to eat supper together than those who earn more), and the degree to which the mother “pushes the issue” of regularly eating fruits and vegetables.

Discussion

This study reveals a population of third graders and their families

Table 2: Distribution of family suppers together by TV viewing during supper.

How often do you watch TV while eating?	In a usual week, my family eats at home together...					Total
	> 1 supper	1-2 suppers	3-4 suppers	5-6 suppers	7 suppers	
All of the time	5	23	50	80	39	197
A lot of the time	6 <i>LH</i>	17	83	119 <i>HH</i>	45	270
About half the time	2	17	113	140	45	317
Once in a while	6 <i>LL</i>	18	137	236	63	457
Never	1	12	69	139 <i>HL</i>	44	265
Total	17	87	452	714	236	1506

HH = 5 or more dinners together and watch TV ½ time or more.
 HL = 5 or more dinners; watch TV once in a while/never.
 LH = 4 or fewer meals together; watch TV ½ time or more.
 LL = 4 or fewer meals together; watch TV once in a while/never.

Table 3: Hypothesized Correlates of Meals Together.

Hypothesized correlate	Survey response options	Change R ²	p-value
How much does poor meal planning keep you & your family from eating FV?	Likert scale ranging from 1 to 5: 1=not at all, 3=some, 5=a lot	.084	<.0001
What is your current employment status?	Not employed, full time homemaker, employed full-time (30 or more hours/week), employed part-time (less than 30 hours/week)	.014	<.0001
As parents, how well do you know what your child eats when they are at home?	Likert scale ranging from 1 to 5: 1=almost never, 3=sometimes, 5=almost always	.012	.0004
What is your race or ethnic background?	___ White ___ African-American ___ Hispanic ___ Native American ___ Asian/Pacific Islander ___ Other _____ (What)	.008	<.0001
Write in the ages of the children (under 21) currently living in your home.	___ (fill in the blank, where parents list age of each child and number of total children)	.007	.001
(From child survey) My mom wants our family to eat together most of the time.	Likert scale ranging from 1 to 3: 1=not like her, 2=a little like her, 3=a lot like her	.006	.003
How do you feel about the amount of FV that you and your family eat now?	Likert scale ranging from 1 to 3: 1=eat too much, 2=eat enough, 3=should eat more	.005	.009
What is your total household's approximate yearly income?	< \$10,000, \$10,000-19,999, \$20,000-29,999, \$30,000-39,999, \$40,000-49,999, \$50,000-59,999, \$60,000-69,999, > \$70,000, Do not wish to answer	.005	.004
As parents, how much does not pushing the issue of FV keep you and your family from eating FV?	Likert scale ranging from 1 to 5: 1=not at all, 3=some, 5=a lot	.004	.008

FV = fruit and vegetables.

who eat a great number of suppers together, although more than half of those family suppers are consumed while watching TV. Importantly, the strongest predictor of family meal frequency, poor meal planning, is highly amenable to intervention. While the mother working outside the home was a predictor of less frequent family suppers, it had much lower predictive value than poor meal planning. This suggests that if meal planning skills were attained and regularly practiced, families may share meals more often, even in families where the mother has external employment. As 80% of the mothers in this sample were employed, efforts to enhance meal planning in this population have the potential to markedly increase the number of meals that these families share. Other research indicates that parents are receptive to meal planning assistance [31].

This is where health practitioners and other health professionals can be highly influential. Family physicians, community interventionists and other practitioners can have frequent contact with patients at high risk for chronic disease. Their advice can be pivotal in initiating

patient behavior change efforts. Practitioners play a significant role in increasing their patient's motivation [32], and intentions for behavior change [32]. While a number of barriers exist that make it difficult for clinicians to integrate nutrition counseling into routine practice [34], research shows that when they are able to overcome these obstacles, they have a positive impact on patient behaviors [32]. Many patients see their health care provider as a trusted reliable source of expert health information [33]. Practitioners can: raise awareness of the benefits of good nutrition through family meals together; encourage meal planning and family meals without the presence of TV; assess progress at future visits and provide positive reinforcement when this advice is taken; and share or suggest meal planning tools and apps, which are abundant on the internet, in bookstores and many grocery stores. Providing tangible aids or strategies may be all that's needed to initiate action. A recent meta-analysis showed that individuals with chronic disease were significantly more successful at increasing their physical activity levels when they received face to face strategies for behavior change, compared to when they were given information

intended to change their knowledge and beliefs about physical activity [35].

These findings also have implications for a broad range of professionals and service providers who regularly interact with caregivers. Health professionals in various roles (e.g., nurses, dietitians, health educators) can provide skill-building workshops, meal planning aids, informational materials and social support. School and/or community personnel (e.g., teachers, coaches, PTA groups, WIC staff, and childcare workers) can offer cooking demonstrations and mobilize parents to share family meal strategies and success stories. Church clergy and congregational staff can promote the benefits of family meals (e.g., strengthen family ties, improve dietary intake), as food plays a central role in many church functions and social events. Given the finding that most parents in our study work, employers can also play an important role in supporting family meals together with efforts both large (e.g., offering flex-time hours to employees) and small (distributing meal planning tools, recipes and coupons for healthy foods). Employers who have cafeterias and/or food preparation capabilities could sell prepackaged healthy meals to go. Armed with both the knowledge that family meals are beneficial and the tools that enable regular meal planning, parents are more likely to make family meals together a priority.

Obesity is increasing worldwide, contributing to numerous chronic diseases, including type 2 diabetes, cardiovascular disease, cancer, osteoarthritis, work disability, and sleep apnea [36]. These trends will likely continue unless new strategies are adopted and maintained across all relevant contexts. While parents have been largely recognized as a significant influence on child's dietary intake and eating behaviors, they have been underutilized in efforts to reverse these public health challenges. Adopting a practice of regular family meals is one such strategy to improve dietary intake and other important psychosocial factors.

This study has several limitations that should be noted. Findings are limited by the use of self-reported data and single-item measures for the number of family meals and the frequency of TV viewing during meals. Also, meals "together" could be interpreted different ways (e.g., some may have included any suppers with two or more family members).

Conclusion

The potential for physical, emotional and social benefits from regular family meals (in the absence of TV) are significant. This study extends the literature by providing data related to family meals from a large, multi-ethnic general population sample of urban southern families. We found that, of nine significant correlates, meal-planning capability most strongly predicted the frequency of family suppers. Interventions that facilitate meal planning may lead to more family suppers together, which in turn may improve the family diet and bring other important benefits, including keeping families engaged. Health professionals can have significant influence in promoting the benefits of family meals to mothers and families.

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