Correlations Between Family Meals and Psychosocial Well-being Among Adolescents

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Objective: To determine the association between frequency of family meals and multiple indicators of adolescent health and well-being (tobacco, alcohol, and marijuana use; academic performance; self-esteem; depressive symptoms; and suicide involvement) after controlling for family connectedness.

Methods: Data come from a 1998-1999 school-based survey of 4746 adolescents from ethnically and socioeconomically diverse communities in the Minneapolis/St Paul, Minn, metropolitan area. Logistic regression, controlling for family connectedness and sociodemographic variables, was used to identify relationships between family meals and adolescent health behaviors.

Results: Approximately one quarter (26.8%) of respondents ate 7 or more family meals in the past week, and approximately one quarter (23.1%) ate family meals 2 times or less. Frequency of family meals was inversely associated with tobacco, alcohol, and marijuana use; low grade point average; depressive symptoms; and suicide involvement after controlling for family connectedness (odds ratios, 0.76-0.93).

Conclusions: Findings suggest that eating family meals may enhance the health and well-being of adolescents. Public education on the benefits of family mealtime is recommended.

Arch Pediatr Adolesc Med. 2004;158:792-796
MEASURES

The independent variable, frequency of family meals, was assessed with the question, “During the past 7 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,” and “more than 7 times.” A 4-item scale was used to measure family connectedness.17 Two separate questions asked, “How much do you feel your [mother, father] cares about you?” and 2 asked, “Do you feel you can talk to your [mother, father] about your problems?” Five response categories for all 4 questions were “not at all, a little, somewhat, quite a bit, very much.” Scores from 2 items (where questions regarding a single parent were completed) or 4 items (where questions for both parents were completed) were averaged to create a connectedness score ranging from 1 to 5, with higher scores indicating greater connectedness to family (Cronbach α = .69). One item regarding parents’ relationship status was dichotomized into “married” and “other.”

Academic performance was assessed with the question “Mark the 2 grades you get most often” with the choices being “A,” “B,” “C,” “D,” and “F or incomplete.” Use of 3 substances was assessed with separate questions: “How often have you used [cigarettes, alcohol, marijuana] during the past year (12 months)?” The 5 response choices for each were: “never,” “a few times,” “monthly,” “weekly,” and “daily.” The scale for self-esteem had 6 items adapted from the Rosenberg Self-esteem questionnaire18 and assessed level of agreement with statements such as “I certainly feel useless at times” and “on the whole, I am satisfied with myself.” Scores ranged from 6 to 24; higher scores indicate higher self-esteem (Cronbach α = .79). Depressive symptoms were assessed using a 7-item scale.19 Each item asked participants to rate the extent to which, in the last 12 months, they had been bothered or troubled by each of the indicators of depression. Scores ranged from 7 to 21 with a score of 7 indicating the fewest symptoms of depression (Cronbach α = .82). Suicidal ideation and suicide attempts were each measured with a single item: “Have you ever thought about killing yourself?” and “Have you ever tried to kill yourself?”, respectively.20 Both items had response options: (1) “yes, during the past year,” (2) “yes, more than a year ago,” and (3) “no.” Both “yes” responses were grouped together for analyses with the suicide items.

Additional sociodemographic variables were also assessed. School level was defined as middle school (grades 7-8) vs high school (grades 9-12). Race/ethnicity was assessed with a single item: “Do you think of yourself as (1) white, (2) black or African American, (3) Hispanic or Latino, (4) Asian American, (5) Hawaiian or Pacific Islander, or (6) American Indian or Native American.” Respondents were grouped as white or nonwhite for multivariate analysis. Five levels of SES were based on the highest educational level completed by either parent for most respondents. Where this information was missing or unknown, respondents were grouped as mixed or other (Cronbach α = .69). One item asking parents’ relationship status was dichotomized into “married” and “other.”

DATA ANALYSIS

Simple frequencies for each variable and Pearson correlations between family meals and family connectedness were examined. Four sets of logistic regression models were used to examine the association between family meals and the dependent variables, using family meals as a 6-category continuous variable. Cigarette, alcohol, and marijuana use were each di-
The distribution of key study variables is shown in Table 1. Roughly one fourth (26.8%) of respondents reported eating 7 or more meals with their family in the past week, and almost one third (33.1%) reported eating family meals only 1 to 2 times per week or never. Students reported fairly high levels of family connectedness, with a mean (SD) of 3.8 (0.86). The distribution of family connectedness was approximately symmetrical, with some negative skew. Family connectedness was moderately associated with family meal frequency ($r = 0.27, P < .001$).

### RESULTS

**DESCRIPTION OF STUDY POPULATION**

Bivariate relationships between family meals and each dependent variable are shown in model 1 of Table 2. Greater frequency of family meals was associated with significantly lower odds of the following variables: cigarette, alcohol, and marijuana use; low grade point average; high depressive symptoms and suicidal ideation (among boys and girls); and poor self-esteem and suicide attempts among girls (odds ratios [ORs], 0.68-0.89). (among boys and girls); and poor self-esteem and suicide attempts among girls (odds ratios [ORs], 0.68-0.89). To determine if family meals were acting as a proxy for family connectedness, model 2 examined the previous relationships, controlling for family connectedness and parents’ marital status, and model 3 was adjusted for these family variables plus sociodemographic factors (school level, white race, and SES). Because several of the dependent variables are known to be closely related to each other (eg, substance use, depression, and suicidal ideation), model 4 was adjusted for all of the previous covariates plus closely related risk behavior variable(s). Additionally, least-squares regression models using the subset of respondents who reported eating cigarettes, alcohol, or marijuana in the past year were run using frequency of use of each substance as a continuous dependent variable. All analyses were conducted separately for boys and girls. Data were analyzed using SAS statistical software, version 8.2 (SAS Institute, Cary, NC).

**FAMILY MEALS AND ADOLESCENT HEALTH INDICATORS**

| Table 2. Odds of Each Dependent Variable Associated With a 1-Unit Difference in Family Meal Frequency* |
|-------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Boys                                                  | Model 1†                                      | Model 2‡                                       | Model 3§                                       | Model 4¶                                       |
| Cigarette use                                         | 0.81 (0.76-0.86)†                              | 0.84 (0.79-0.89)‡                              | 0.89 (0.84-0.95)§                              | 0.90 (0.83-0.98)¶                              |
| Alcohol use                                           | 0.82 (0.78-0.87)‡                              | 0.85 (0.80-0.90)‡                              | 0.91 (0.85-0.97)‡                              | 0.94 (0.87-1.02)‡                              |
| Marijuana use                                         | 0.84 (0.79-0.90)‡                              | 0.88 (0.83-0.94)‡                              | 0.95 (0.88-1.02)‡                              | 1.03 (0.94-1.13‡)                              |
| Low grade point average                               | 0.88 (0.84-0.93)‡                              | 0.95 (0.89-1.00)‡                              | 0.94 (0.89-1.00)‡                              | NA                                             |
| Low self-esteem                                       | 0.92 (0.84-1.01)‡                              | 0.99 (0.91-1.09)‡                              | 0.96 (0.87-1.06)‡                              | NA                                             |
| High depressive symptoms                              | 0.86 (0.80-0.92)‡                              | 0.93 (0.87-0.99)‡                              | 0.93 (0.86-1.00)‡                              | 0.93 (0.86-1.00)‡                              |
| Suicide ideation                                      | 0.89 (0.83-0.95)‡                              | 0.96 (0.89-1.03)‡                              | 0.99 (0.92-1.07)‡                              | 1.00 (0.93-1.09)‡                              |
| Suicide attempt                                       | 0.92 (0.82-1.03)‡                              | 1.06 (0.95-1.19)‡                              | 1.04 (0.92-1.17)‡                              | 1.08 (0.92-1.23)‡                              |
| Girls                                                  | Model 1†                                      | Model 2‡                                       | Model 3§                                       | Model 4¶                                       |
| Cigarette use                                         | 0.74 (0.70-0.79)†                              | 0.79 (0.75-0.84)‡                              | 0.84 (0.78-0.89)‡                              | 0.99 (0.91-1.08)‡                              |
| Alcohol use                                           | 0.70 (0.67-0.75)‡                              | 0.73 (0.69-0.77)‡                              | 0.78 (0.73-0.83)‡                              | 0.83 (0.77-0.90)‡                              |
| Marijuana use                                         | 0.68 (0.63-0.73)‡                              | 0.72 (0.67-0.78)‡                              | 0.76 (0.71-0.83)‡                              | 0.84 (0.76-0.94)‡                              |
| Grade point average                                   | 0.89 (0.85-0.94)‡                              | 0.93 (0.88-0.99)‡                              | 0.92 (0.87-0.98)‡                              | NA                                             |
| Low self-esteem                                       | 0.89 (0.84-0.95)‡                              | 0.98 (0.91-1.05)‡                              | 0.96 (0.90-1.04)‡                              | NA                                             |
| High depressive symptoms                              | 0.85 (0.81-0.90)‡                              | 0.91 (0.86-0.96)‡                              | 0.92 (0.87-0.98)‡                              | 0.92 (0.86-0.98)¶                              |
| Suicide ideation                                      | 0.84 (0.79-0.89)‡                              | 0.90 (0.85-0.95)‡                              | 0.93 (0.88-0.99)‡                              | 0.96 (0.90-1.02)¶                              |
| Suicide attempt                                       | 0.82 (0.76-0.89)‡                              | 0.90 (0.83-0.97)‡                              | 0.90 (0.83-0.98)‡                              | 0.92 (0.83-1.01)¶                              |

Abbreviation: NA, not applicable.

*Adjusted for family connectedness, parents’ marital status.
†Unadjusted.
‡Adjusted for family connectedness, parents’ marital status, school level, white race, and socioeconomic status.
§Adjusted for family connectedness, parents’ marital status, school level, white race, socioeconomic status, and related outcome variable(s). (Each substance use model controls for other 2 substances; high depression symptoms model controls for low self-esteem; suicidal ideation model controls for high depressive symptoms; suicide attempt model controls for suicidal ideation. Emotional health models control for only 1 related variable to avoid problems of collinearity.)
¶Significant at $P < .05$. 

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most half as likely to report a suicide attempt compared with girls eating no family meals (OR, 0.58). After controlling for additional sociodemographic characteristics (model 3), family meals remained significantly associated with cigarette and alcohol use and depressive symptoms for boys (ORs, 0.89-0.93) and for all dependent variables except self-esteem for girls (ORs, 0.76-0.93). Family meals remained significantly associated with boys’ smoking (OR, 0.90) after further controlling for alcohol and marijuana use (model 4). For girls, family meals remained significantly associated with alcohol and marijuana use (ORs, 0.83-0.84) after controlling for cigarette smoking, and with high depressive symptoms after controlling for low self-esteem (OR, 0.92).

To determine if family meal frequency was associated with frequency of cigarette, alcohol, and marijuana use in addition to ever use, linear regression models corresponding to logistic models 1, 2, and 3 (described earlier) were calculated for respondents reporting any use in the past year. Results showed no significant associations between frequency of family meals and frequency of substance use for boys. However, for girls, family meal frequency had a weak inverse relationship with frequency of cigarette use (β = −0.09; SE, 0.03; P < 0.05), alcohol use (β = −0.08; SE, 0.02; P < 0.01), and marijuana use (β = −0.10; SE, 0.04; P < 0.01), after controlling for family and sociodemographic variables (model 3).

**LIMITATIONS AND STRENGTHS**

This study has several strengths that improve on previous research. First, it has consistently strong associations with family meals. After adjusting for family and personal covariates, only 2 substance use behaviors and depressive symptoms remained significantly associated with family meals for boys. By contrast, all dependent variables except self-esteem remained significantly associated with family meals for girls after adjusting for family and personal covariates. Similar sex differences have been found in previous analyses using Project EAT data, where stronger associations between family meal characteristics and disordered eating behaviors were found for girls. Girls may be particularly sensitive to the nuances of family interactions, and the frequency of family meals may therefore be more important to their behavioral and emotional health. Further research is warranted to identify the different mechanisms through which family meals and connectedness may function for girls and boys in these domains.

In examining relationships between family meals and dependent variables controlling for related risk behaviors, we found that family meals were protective against some substance use even when use of other substances may have already been initiated. We did not find that family meals continued to be protective in the area of emotional health; however, this may be because of the progressive, causal relationship among these variables. This may preclude finding significant relationships with more distal factors.

This study explored the association between frequency of family meals and substance use, academic performance, self-esteem, depressive symptoms, suicidal ideation, and suicide attempts. We found family mealtime to be a potentially protective factor in the lives of adolescents for nearly all of these variables, particularly among adolescent girls. These associations held even after controlling for family connectedness, which provides additional evidence suggesting that eating meals as a family has benefits for young people above and beyond their general sense of connection to family members and that these benefits may apply to a broad range of health domains.

Previous literature in several disciplines has described numerous advantages of family meals, such as eating healthier foods, providing family identity, order, and consistency, and promoting family communication. Findings from the present study are consistent with past research, even around specific behaviors such as cigarette smoking and alcohol consumption, where family meals correlated negatively with use of these substances. Family meals may operate in a number of ways in their associations with the adolescent health indicators examined here. Associations with lower likelihood and frequency of substance use, for example, may reflect a greater proportion of supervised time and therefore less opportunity to engage in behaviors that typically occur without a parent present. Family meals may also provide a formal or informal “check-in” time during which parents can tune in to the emotional well-being of their teens, particularly girls. Likewise, family mealtimes may serve as a marker for young people spending more time at home and away from negative peer influences or youth culture more generally. Regular family meals may also be a proxy in this study for other elements of family connectedness that are not captured in the measures used here.

Some differences emerged between boys and girls regarding the importance of family meals. After adjusting for family and personal covariates, only 2 substance use behaviors and depressive symptoms remained significantly associated with family meals for boys. By contrast, all dependent variables except self-esteem remained significantly associated with family meals for girls after adjusting for family and personal covariates. Similar sex differences have been found in previous analyses using Project EAT data, where stronger associations between family meal characteristics and disordered eating behaviors were found for girls. Girls may be particularly sensitive to the nuances of family interactions, and the frequency of family meals may therefore be more important to their behavioral and emotional health. Further research is warranted to identify the different mechanisms through which family meals and connectedness may function for girls and boys in these domains.

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This study has several strengths that improve on previous reports of the benefits of family meals. The high response rate (81.5%) and large, ethnically and socioeconomically diverse sample improve the generalizability of the findings. Second, this study controlled for the potential confounding effect of family connectedness on the relationships between family meals and adolescent health and well-being.

These findings must also be viewed in light of several limitations. All data were self-reported, thus responses may be affected by social desirability, recall bias, or response bias. In an effort to minimize the social desirability and response biases, all participants were told that the data were confidential. In addition, the study’s cross-sectional design means the results do not imply a causal relationship between eating family meals together and adolescent health behaviors. For example, youth who engage in substance use or perform poorly in school may avoid eating meals with family members to avoid discussion of “problem” behavior. Finally, no data are available on the 18.5% of eligible students who did not participate in the study. It is possible that these students differed systematically from participants, and the extent to which selection bias may affect these findings is unknown.
Several recent studies have demonstrated the benefits for adolescents of eating family meals, including better nutritional intake, decreased risk of unhealthy weight control practices, and decreased risk of substance use, engaging in sexual intercourse, and suicidal involvement. Existing literature, however, has not addressed the possibility that family meals may serve as a proxy measure for family connectedness, which has previously been shown to be protective in a variety of adolescent health domains.

The present study demonstrated that frequency of family meals was inversely associated with tobacco, alcohol, and marijuana use; low grade point average; depressive symptoms; and suicide involvement, particularly among adolescent girls. These associations held even after controlling for family connectedness, suggesting that eating meals as a family has benefits for young people above and beyond their general sense of connection to family members.

RECOMMENDATIONS AND IMPLICATIONS

Future research on family mealtime should identify the mechanisms underlying the protectiveness of family mealtime in the lives of adolescents. Possible areas for exploration include the role of increased communication, increased time together, role modeling by parents (in behaviors such as positive coping skills), or sharing a family ritual. The primary construct used in this study, frequency of family meals, should also be explored further to identify possible differences in the importance of eating breakfast, lunch, or dinner as a family. In addition, in 2-parent families, the importance of both parents being present for meals (vs only 1) has not been explored. Such research could have implications for families whose conflicting schedules may preclude family dinners. In addition, longitudinal studies and experimental research are needed to demonstrate time ordering and causality.

These findings, and those of previous studies, suggest that eating family meals may enhance the health and well-being of adolescents. Although many families certainly do not have the choice to be home together at mealtimes—in light of late work schedules, for example—for many, the lack of family mealtime reflects priority given to other optional activities. Public education on the benefits of family mealtime is recommended. Health professionals and social service professionals working with adolescents and their families should be informed of the benefits of family meals in order to educate their clients. These professionals should also be cognizant of barriers faced by families and work toward a gradual increase where necessary. Changes in policy (such as requiring after-school activities to end by 6 PM) or in social norms (such as the expectation of 9-to-5 workers in some sectors to consistently work late) may allow more parents and students to be home together in the evenings and facilitate regular family meals.

Accepted for publication March 18, 2004.

This study was supported by grants MCI-270834 (Dr Neumark-Sztainer), 5-T71-MC00006-24-Leadership Education in Adolescent Health (R. W. Blum, MD, PhD, principal investigator), and 2-T30-MC 00021-110 (L. H. Bearinger, PhD, MS, director, Center for Adolescent Nursing, Minneapolis, Minn) from the Bureau of Maternal and Child Health (Title V, Social Security Act), Health Resources and Services Administration, Department of Health and Human Services, US Public Health Service, Washington, DC.

We thank Marjorie Ireland, PhD, for assistance with statistical analysis and Michael Resnick, PhD, for helpful feedback during the preparation of the manuscript.

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