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Impact of Family Meal Time on College Students' Food Consumption and Select Lifestyle Choices

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IMPACT OF FAMILY MEALTIME ON COLLEGE STUDENTS' FOOD CONSUMPTION
AND SELECT LIFESTYLE CHOICES

(TITLE)

BY

RACHAEL JANNUSCH

UNDERGRADUATE THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF

UNDERGRADUATE DEPARTMENTAL HONORS

DEPARTMENT OF FAMILY AND CONSUMER SCIENCES, ALONG WITH
THE HONORS COLLEGE,
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I HEREBY RECOMMEND THIS UNDERGRADUATE THESIS BE ACCEPTED AS
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Abstract

People participating in family mealtimes ≥ 6 times per week while growing up are known to have a better quality diet, GPA, sleeping habits, and a normal BMI. It is hypothesized that college students with a history of family mealtimes continue to experience these benefits while in college. The purpose of this study is to investigate the impact of the history of family mealtime on diet quality, GPA, sleeping habits, and BMI in a college setting.

A convenience sample of students at a midwestern university ($n=100$) were asked to complete a 17 question survey regarding frequency of family meals, food frequency, GPA, sleep, and BMI. GPA was evaluated on a five point scale (one ≤ 2.0 , two = 2.1-2.5, three = 2.6-3.0, four = 3.1-3.5, five = 3.6-4.0). Data were analyzed using a one-tailed, two-sample unequal variance t -test in Microsoft Excel. SPSS was also used for statistical analysis. Study protocol was approved by the university IRB.

College participants growing up eating in a family dinner setting ≥ 6 days a week had a non-significant ($p \geq 0.05$) increase intake of fruits, grains, dairy, and hours of sleep compared to those ≤ 3 times per week. There was a non-significant ($p \geq 0.05$) decrease in daily convenience food consumption and normal BMI between the groups. Also, there was a significant ($p \leq 0.05$) increase in GPA from 3.32 to 4.20 ($p=0.002$) between the groups. These findings indicate that growing up eating in a family dinner setting ≥ 6 days a week is associated with better GPA in college.

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Chapter 1 Introduction

Statement of Problem

As our culture has evolved within the last fifty years, there has been an increase in obesity rates. Research has identified the following risk factors for obesity: overweight, physical inactivity and low fruit and vegetable intake (Wilson, Blakely, Foster, Hadorn, & Vos, 2011). Studies have shown that familial dining has influences on lifestyle and dining choices of children (Birch & Davidson, 2001, Kovivisto-Hursti, 1999, & Roblin, 2007). It is imperative to look at past and current research in the field to gain an understanding of what is known about the impact of familial dining on outcomes such as diet quality, GPA, sleeping habits, and BMI in a college setting.

Purpose of Study

This study targets a specific age sector (college students) to explore this population's past eating habits and connection to current eating, exercising, and sleeping habits. This study is the first of its kind to the researcher's knowledge. When away at college, students experience a change from normal lifestyle at home. Many students are on their own for the first time. They may have to learn skills for needs that have previously been met through the family or develop new skills necessary for college living. The purpose of this study is to investigate the impact of the history of family mealtime on diet quality, GPA, sleeping habits, and BMI in a college setting.

Research Questions

1. How frequently did students share a family dinner while growing up?
2. Do college students with a history of familial dinnertime continue to dine with others at college?
3. Does a higher frequency of familial dinnertime correlate with a higher quality diet in college?
4. Do college students with a higher frequency of familial dinners have other health benefits that can be assessed as part of a healthy lifestyle?

Hypothesis

It is hypothesized that college students with a history of family mealtimes will have a better diet quality, GPA, sleeping habits, and BMI while in college.

Definition of Terms

1. Familial dinner—An evening meal shared with family members.
2. Growing up—A section of participant's life from elementary through junior high school.
3. Diet quality—The frequency and amount of food groups consumed during college.
4. GPA—Grade Point Average in college
5. BMI—Body Mass Index is a measure of body fat in accordance with the height and weight of an individual (Calculate your body mass index, 2012).

Chapter 2 Literature Review

This study seeks to find what the impact of familial dining and lifestyle behaviors in young adults is. The family is not only in charge of surrounding the developing child with appropriate choices for food, but it is also responsible for modeling behavior that the child will follow (Davison & Birch, 2002). For example, if the parents provide a healthy environment for a child, the child is more likely to follow it.

One study suggests that while the family has a large influence over the child, often times the media, specifically television, can eclipse the role that the family is trying to portray (Taylor, Evers, & McKenna, 2005). That study also notes that the nature of other foods available to children and parenting style will factor into the development of the lifestyle preferred by the child and future adolescent. Birch and Davidson (2001) have also noted that the family environment and parents are the major influences for children during the early and middle childhood stages. Children develop their own food preference, eating style, pattern of food intake, and activity preferences during this time. Children also pick up on parents' eating behaviors and food preferences. It is important that parents are setting good examples for them (Kovivisto-Hursti, 1999). Another study confirmed that parents have a major influence over nutrient intake in their children with the mother having the most influence (Oliveria et al., 1992). Nicklas et al. (2001) introduced the idea that caregivers have just as much influence over childhood development of healthy eating styles as parents do because of the amount of time that children spend with their caregiver. The nutrient intake and eating style of the parents will dictate what

food is bought and therefore is in the environment of the child (Ventura & Birch, 2008). It is also been found that children respond better to food role models that are eating the same foods (Adnessi, 2005). Adolescents and young adults make food decisions on what becomes familiar to them which stems from their childhood (Rheingold, 1985; Birch et al., 1982; Birch et al., 1990).

There are numerous benefits that are results of having a familial dinner. Roblin (2007) states that family dinner is an important part of structure in a child's life that allows parents to be role models for healthy eating patterns. He found that it also provides opportunities to build good communication skills. Family dinners that are not centered on the television provide opportunities for children to express themselves, as well as controlling the amount of calories consumed due to mindless eating behaviors (Veugelers, Fitzgerald, & Johnston, 2005). The presence of family and friends at a meal time extends the duration of the meal which can be beneficial or harmful (de Castro, 1994). By lengthening the meal, more food can be consumed which can lead to overeating and excess weight gain. However, it can be beneficial if more time is spent between bites, the consumer has a chance of realizing satiety before overconsumption (1994). Several studies have also found that families that ate together had a better food intake including consuming less soft drinks, saturated fat, fried food, trans fat and consuming more fruits, vegetables, fiber, and essential nutrients (Gilman et al., 2000; Neumark-Sztainer et al., 2003; Taveras et al., 2005; Utter et al., 2008; Woodruff et al., 2010). Fisher et al. (2004) found that mothers that consumed more milk had daughters that also consumed more milk than their peers.

In order to see the benefits from eating together, Veugelers & Fitzgerald (2005) found that a minimum of three meals per week were required.

Chapter 3 Methodology

Design of Study

This was a cross sectional study that looked at the impact of the history of family mealtime on diet quality, GPA, sleeping habits, and BMI in a college setting. The participants were part of a convenience sample at a midwestern university. The Institutional Review Board (IRB) approved the study.

Sample

The sample consisted of a convenient sample of 100 students. They were chosen from a population of 11,630 students at the midwestern university. Student volunteers in select classes were asked to fill out a survey. The principle investigator excluded classes that were taught in the Family and Consumer Sciences Department to avoid a potential bias. The participants were between the ages of 18 and 26 years old. The sample was 34% male and 66% female.

Data Collection Instrument

The instrument used for data collection was self-developed using food frequency questionnaires. For the purpose of analysis, participants were categorized into groups based on their history of familial meal frequency. The investigator wanted to know if familial meal time was a learned behavior that was carried by the individual to the college setting. The review of literature revealed that similar studies group meal frequency as follows: 0-3 times per week (n=19), 4-5 times per week (n=41), and 6-7 times per week (n=40). This method of grouping frequencies was used for further comparison of other research questions.

The instrument was reviewed by a registered dietitian for validity. The instrument was tested in a pilot study completed by ten students. These students reported difficulty in completing the food frequency questions. The investigator revised the questions based on food frequency questionnaires found in the literature.

Procedure for Data Collection

Professors were asked for permission to administer the survey to their students. Based on their willingness to participate in the study, participants were given an informed consent form prior to survey distribution. All participants remained anonymous throughout data collection. Participants did not provide their name at any point during the study. Professors did not disclose the name of the course or student information either. All surveys have been stored with the principle investigator. The data analysis was kept on the researcher's computer and flash drive under password protection.

Data Analysis

There were 100 participants that completed surveys. Only one participant did not provide a height and weight so the BMI could not be calculated, but all other data from that survey was used in the analysis. BMI was computed and categorized in accordance to the standards on the *National Heart, Lung, and Blood Institute's* website (Calculate your body mass index). The Dietary Guidelines for Americans and standard serving sizes were used to define a quality diet and the recommended level for exercise and hours of sleep (2010).

Data were analyzed using Microsoft Excel. A one-tailed, two-sample unequal variance t-test was used to find the significance between the 0-3 meal history

frequency group and the 6-7 meal history frequency group, the two extremes. The two extremes were used for comparison in order to have a better understanding if there is an impact of family mealtime on college students' food consumption and select lifestyle choices.

Chapter 4 Results

The purpose of the study was to investigate the impact of the history of family mealtime on diet quality, GPA, sleeping habits, and BMI in a college setting. It was hypothesized that college students with a history of family mealtimes will have a better diet quality, GPA, sleeping habits, and BMI while in college. The hypothesis was rejected because a higher frequency of familial dinner did not lead to a better quality diet, GPA, sleeping habits, and BMI while in college. There was however, a significant increase in GPA ($p=0.002$) for participants that had a familial dinner time 6-7 days per week compared to those that had familial dinner time 0-3 days per week.

Research Question 1: How frequently did students share a family dinner while growing up?

In a group of 100 students, 19% had a familial dining history of 0-3 nights per week, 41% had a history of 4-5 nights per week, and 40% had a history of 6-7 nights per week. For sake of analysis, comparison can be made between the two extremes. See Results in Table 1.

Table 1.
Percentage of participants (n=100) according to familial dining frequency history

Familial Meal Frequency History	0-3 meals per week	4-5 meals per week	6-7 meals per week
Percentage of participants	19%	41%	40%

Research Question 2: Do college students with a history of familial dinnertime continue to dine with others at college?

Of the participants that had family dinner time 0-3 times per week (n=19), 26% sought out others for dinner 6-7 times per week. Of the participants that had family dinner time 6-7 times per week (n=40), 40% continued to eat with others 6-7 times per week. See Results in Table 2.

Table 2.
College Meal Frequency: Percentage of participants within the same familial history frequency group that seek out others during mealtime in college

Meal Frequency in College	Family History 0-3 times/ week (n=19)	Family History 4-5 times/ week (n=41)	Family History 6-7 times/week (n=40)
0-3 meals/week	47%	61%	40%
4-5 meals/week	26%	15%	25%
6-7 meals/week	26%	24%	35%
Total	100%	100%	100%

Research Question 3: Does a higher frequency of familial dining correlate to a higher quality diet in college?

There was a non-significant ($p \geq 0.05$) increase in fruit (5%), grains (2%), and dairy (3%) intake between the 0-3 familial meal frequency and 6-7 familial meal frequency groups. There was a non-significant ($p \geq 0.05$) decrease in convenience food consumption (6%) between these groups. Non-significant ($p \geq 0.05$) decreases were found in vegetable (1%), whole grains (8%), and protein (9%) intake between the two groups. See results in Table 3.

Table 3.
Percent of food frequency in college among same familial
history frequency group

Measured Intake	Standard for Analysis	0-3 Familial Meal Frequency (n=19)	6-7 Familial Meal Frequency (n=40)	p Value
Fruit	2+ / day	5%	10%	0.39
Vegetables	2+ / day	26%	25%	0.29
Grains	5+ / day	11%	13%	0.49
Whole Grains	≥1/2 of grains	58%	50%	0.31
Dairy	2+ / day	32%	35%	0.35
Protein	2+ / day	47%	38%	0.34
Convenience Food	1-2 / week	47%	53%	0.12

Research Question 4: Do college students with a higher frequency of familial dinners have other health benefits that can be assessed as part of a healthy lifestyle?

When comparing the two groups, there was a non-significant ($p \geq 0.05$) increase in exercising for at least 30 minutes a day outside of normal activities for 5-7 days per week (4%), sleeping 7-9 hours a night (20%), and BMI (23%) for the group with a history of 6-7 familial meal frequency. In the 0-3 familial meal frequency, 21% of participants had a GPA of 3.1-4.0 compared to 75% of participants in the 6-7 familial meal frequency ($p = 0.002$). See results in Table 4.

Table 4.
 Percentage of participants with elect lifestyle impacts compared
 among familial dining history frequency group

Measured Characteristic	Standard for Analysis	0-3 Familial Meal Frequency (n=19)	6-7 Familial Meal Frequency (n=40)	p Value
Exercise	5-7 Days/Week of ≥30 Minutes	21%	25%	0.14
Hours of Sleep	7-9 Hours/Night	53%	73%	0.08
BMI	18.5-24.9	42%	65%	0.21
GPA	3.1-4.0	21%	75%	0.002

Chapter 5 Discussion, Limitations, & Conclusion

Discussion

Research Question 1: How frequently did students share a family dinner while growing up?

The small sample size for the familial dining frequency in the 0-3 meals a week could potentially have an adverse effect in the results. The participants were evenly distributed between the 4-5 meal frequency group and the 6-7 meal frequency group. It was decided to compare the lower and higher groups for comparison.

Research Question 2: Do college students with a history of familial dinnertime continue to dine with others at college?

Students were likely to seek out a familial dining setting in college if they had a higher frequency of familial dining while growing up. However, a larger percentage of students in all groups reported eating in a familial setting only 0-3 times with other students while in college. This could be a result of the college lifestyle regarding class schedules and not meeting a lot of people to dine with.

Research Question 3: Does a higher frequency of familial dinnertime correlate to a higher quality diet in college?

College participants growing up eating in a familial dining setting ≥ 6 days a week had a non-significant ($p \geq 0.05$) increased intake of fruits, grains, and dairy compared to those 0-3 times per week. There was a non-significant ($p \geq 0.05$) decrease in daily convenience food consumption between the groups. These results support research that children with a history of familial dining 6-7 nights per week

have a higher quality diet than those with a history of 0-3 nights per week. While not all components of a healthful diet saw increased consumption, it is important to note that these students were more likely to eat fruits, grains, and dairy compared to their classmates.

Research Question 4: Do college students with a higher frequency of familial dinners have other health benefits that can be assessed as part of a healthy lifestyle?

Students were more likely to exercise, sleep and have a better BMI than those with 0-3 nights per week. The only significant change was noted in the GPA category. There was a non-significant ($p \geq 0.05$) increase in exercising for at least 30 minutes a day outside of normal activities for 5-7 days per week (4%), sleeping 7-9 hours a night (20%), and BMI (23%). A significant ($p = 0.002$) increase in GPA (54%) was found between the two groups. These results support research that children with a history of familial dining 6-7 nights per week experience more health benefits than those with a history of 0-3 nights per week.

Limitations

The small sample size will limit the generalizability of the results, as does the selection of a convenience sample. Some previous studies have shown that middle-upper class families are more health conscious and this could potentially affect the outcome of the study (Fritz, 2006).

One factor that this study did not control for was family social economical status. Dr. G.K. Fritz mentioned this along with other factors for the correlation between familial dinner and developmental outcomes (2006). While he mentions

that the correlations happen more often than what could occur by chance, there are other influences that could play a role. For example, a family that is economically stable would have frequent family meals as well as better developmental outcome compared to a family that is not as economically stable.

Conclusion

These findings indicate that growing up eating in a familial dining setting ≥ 6 days a week is associated with a better GPA in college. These findings may be used to support the importance of family mealtimes in outcomes for children.

Recommendations for Future Studies

This study indicates the need for further research that explores the influence of familial dining on a variety of outcomes for children. Future studies could expand the efforts of this research by looking in depth at other variables on diet quality and lifestyle choices. All three analysis groups should be compared in further research.

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Survey Questions based off of Research Objectives

Research Questions	Survey Questions
How frequently did students share a family dinner while growing up?	1. When you were growing up (elementary through junior high), how often during the week did your family sit down and eat an evening meal together?
Do college students with a history of familial dinnertime continue to dine with others at college?	1. How often do you eat an evening meal with at least one other person a week in college?
Does a higher frequency of familial dinnertime correlate to a higher quality diet in college?	<ol style="list-style-type: none"> 1. A serving of fruit is considered as a medium size piece of fruit, ½ cup of canned fruit, or 8 oz serving of 100% fruit juice. How many servings of fruit do you typically consume? 2. A serving of vegetables is considered as a ½ cup of cooked or raw vegetables, or 1 cup of leafy greens. How many servings of vegetables do you typically consume? 3. A serving of grains counts as 1 piece of bread, 1 cup of cereal, or ½ cup of cooked pasta. How many servings do you typically consume? 4. How often were the servings you ate whole grain such as brown rice, whole wheat, or oatmeal? 5. A serving of dairy is considered to be 1 cup of milk or yogurt, 1 ½ ounces of natural cheese, or 2 ounces of processed cheese. How many servings of dairy do you typically consume? 6. A serving of protein is considered to be 1 egg, 1 ounce of nuts or seeds, 2 tablespoons peanut butter, or 1 ounce of cooked meat. A small hamburger or chicken breast is about 3 ounces. How many servings of protein do you typically consume? 7. How often do you consume foods from convenient sources such as fast food chains, gas stations, or any form of pre-packaged dinners?
Do college students with a higher frequency of familial dinners have other health benefits that can be assessed as part of a healthy lifestyle?	<ol style="list-style-type: none"> 1. How often do you exercise apart from normal activities for at least 30 minutes? 2. How many hours of sleep do you average a night? 3. Height 4. Weight 5. GPA

Appendix B:

Survey Frequency Distribution with Significance Value

Characteristics Measured		0-3 Meal History Frequency (n=19)	4-5 Meal History Frequency (n=41)	6-7 Meal History Frequency (n=40)	P Value
GPA	2.1-3.0	10	18	10	0.002
	3.1-4.0	9	23	30	
BMI	Underweight	1	2	0	0.21
	Normal	8	25	26	
	Overweight or Obese	10	14	13	
Frequency in College	0-3 times/week	9	25	16	0.26
	4-5 times/week	5	6	10	
	6-7 times/week	5	10	14	
Fruit Intake	1-2 times/week	4	9	8	0.39
	3-4 times/week	7	16	14	
	5-6 times/week	3	8	7	
	1 time per day	4	8	7	
	2+ times per day	1	0	4	
Vegetable Intake	1-2 times/week	3	9	8	0.29
	3-4 times/week	9	19	12	
	5-6 times/week	2	8	3	
	1 time per day	0	5	7	
	2+ times per day	5	0	10	
Grains	1-2 times/week	0	2	3	0.49
	3-4 times/week	4	13	7	
	5-6 times/week	4	8	4	
	1-2 times per day	5	9	12	
	3-4 times per day	4	5	9	
	5+ times per day	2	4	5	
Whole Grains	Almost never or never	4	8	5	0.31
	About 1/4 of the time	4	15	15	
	About 1/2 of the time	5	11	11	
	About 3/4 of the time	2	3	5	
	Almost always or always	4	4	4	
Dairy	1-2 times/week	1	4	3	0.35
	3-4 times/week	7	10	8	
	5-6 times/week	0	8	6	
	1 time per day	5	7	9	
	2+ times per day	6	12	14	
Protein	1-2 times/week	0	3	3	0.34
	3-4 times/week	4	10	10	
	5-6 times/week	4	10	4	
	1 time per day	2	7	8	
	2+ times per day	9	11	15	
Convenience Food	1-2 times/week	9	22	21	0.12
	3-4 times/week	4	13	12	
	5-6 times/week	2	4	4	
	1 time per day	1	1	3	
	2+ times per day	3	1	0	
Exercise	1-2 times/week	6	16	17	0.14
	3-4 times/week	7	15	12	
	5-6 times/week	3	6	8	
	1 time per day	1	4	2	
	2+ times per day	2	0	1	
Sleep	0-3 hours	0	2	0	0.08
	4-6 hours	9	13	11	
	7-9 hours	10	26	29	
	10+ hours	0	0	0	

Appendix C: Frequency of Participants Meeting Dietary Guidelines

