

AN ASSESSMENT OF PANHELLENIC SORORITY MEMBER MEAL CONSUMPTION PATTERNS

BLAIR MIZE AND MELINDA VALLIANT

The purpose of study was to determine sorority members' frequency of meal consumption versus meals offered in sorority houses at a flagship university in the south and to compare the Body Mass Indices (BMIs) of sorority members who consumed less than six (<6) meals to those who consumed six or more (≥6) meals/week at their sorority houses. Another object of this study was to note the relationship between frequency of sorority meal consumption and adequacy of sorority members' diets in relation to MyPyramid. The sample consisted of 72 Panhellenic sorority members ages 18-22 year old at the time of participation. All members completed a "Questionnaire of Eating Behaviors" and a 24-hour dietary recall. Weight, height, and number of servings consumed of each MyPyramid food group were recorded. Members consuming ≥6 meals/week at their sorority houses had greater mean intake of each food group and lower mean BMIs than those consuming <6 meals. According to the results of this study, structured meals and meal times may help sorority members maintain a healthier weight.

The Body Mass Index (BMI) of the average American is increasing (Flegal, Carroll, Ogden, & Curtin, 2010). As a result, the nation is moving further away from the goal of decreasing the national average BMI (Garrow & Webster, 1985; Racette, Deusinger, Strube, Highstein, & Deusinger, 2008). In many Americans' lives, new lifestyles are formed during young adulthood. The lifestyles such individuals choose may help or hinder the country's chances of reaching the goals specified in Healthy People 2010 and Healthy Campus 2010. Groups of Americans between ages 18 and 29 have shown the greatest average weight gain in recent years compared to other age groups (Racette et al., 2008; United States Department of Health and Human Services, 2000).

With a new level of independence also comes a change in the young adult's food environment. The many changes related to meal planning, food purchasing and food preparation that commonly occur during young adulthood may contribute to the weight gain or weight loss in such individuals. College students' eating be-

haviors have been frequently studied. When individuals come to college, they acquire a new level of freedom and control over their lifestyles (Cilliers, Senekal, & Kunneke, 2006; Dinger, 1999). According to Pliner and Saunders (2008), the effects of lessened parental control on diet, greater variety of food choices, and increased emphasis on social events can eventually lead to weight changes in college students. Excessive weight gain or loss may also be due to harmful dietary practices such as avoidance of certain foods coupled with excessive dieting, unhealthy snacking, and skipping meals (Harlless, Koch, & Slapar, 1996).

A growing number of studies have been conducted on meal plans, nutrition knowledge, restrained or unrestrained eating habits, and eating behaviors of the general college student population as related to their BMI and overall body image; however, little is known about college students' adherence to current dietary guidelines or the reasoning behind the various eating patterns of this population (Kolodinsky, Harvey-Berino, Berlin, Johnson, & Reyn-

olds, 2007). According to the College Health Risk Behavior Survey and the National College Health Assessment, many college students are not meeting suggested dietary and physical goals from their freshman through senior years of college (Centers for Disease Control [CDC], 1997; The American College Health Association, 2005). One study also stated that less than one-third of college students studied reported consumption of the recommended amounts of fruits and vegetables (Racette et al., 2008).

Although college students, at times, face barriers to acquiring all foods necessary to comprise a balanced diet each day, the avoidance or restriction of certain foods or food groups can lead to nutrient and energy deficiencies over time. Students must learn how to overcome as many barriers as possible and to choose nutrient rich foods without high fat content (Hiza & Gerrior, 2002). Strong, Parks, Anderson, Winnett, and Davy (2008) found first and second year college students living on campus consumed less fruits, vegetables, whole grains, and fiber than the recommended amount. Their snacks consisted of chips, crackers, and sweets that could be easily stored in a residence hall room. Students failed to regularly purchase fresh fruits or vegetables reportedly due to their short shelf lives. Many students in this study also skipped breakfast or ate "on-the-run." Throughout this study, students attempted to incorporate more of these food groups into their diets; however, they often failed to monitor their intakes of energy and fat. Clement, Schmidt, Berriaix, Covington, and Can (2004), using a sample of 116 college women, showed that those who did not regularly skip breakfast were more likely to be healthy and physically active. They also consumed less fatty, energy dense foods such as doughnuts, pizza, and french fries. Those who consumed high fat diets also drank less water and more juice and sodas; additionally, they had higher BMIs and had worse overall health statuses (Clement, Schmidt, Berriaix, Covington, & Can, 2004).

College eateries often offer "all-you-can-eat" dining, a setting which potentially encourages unhealthy food choices and overeating due to continuous availability of larger portion sizes and an increased variety of food. In contrast, when college eateries sell items "a la carte," students typically purchase less food due to financial or other factors; however, "a la carte" style does not always facilitate a balanced diet (Pliner & Saunders, 2008). "A la carte" style dining is often set up with various food stations. Long lines at stations sometimes make getting a variety of foods too time consuming for busy students (Strong et al., 2008).

College students often have little or no cooking experience, leading them to resort to consumption of processed or fast food items rather than eating at home (Haberman & Luffey, 1998). Foods served at on-campus dining facilities and other environments away from home are often lower in nutrients and higher in fat and energy than those prepared at home (Kolo-dinsky et al., 2007). Although some restaurants make nutrition information available online, few have nutrition information readily available in the establishment. Researchers have noted that students may under- or overeat for extended periods if they do not know the amount of energy they are consuming versus the amount their bodies require (Pliner & Saunders, 2008). When patterns of over-consumption develop, weight gain is the result (Lee, 2009).

By increasing the availability of healthy foods such as fruits, vegetables, and low fat items, students' consumption of these are likely to increase. Pliner and Saunders (2008) recommend making nutrient-dense foods easily identifiable in university food service areas to encourage healthful eating (2008). Some students believe they would be less likely to purchase unwholesome foods if they were made less convenient (Strong et al., 2008).

Researchers believe eating habits can be heavily influenced by the group or groups of which a student is a member. Although no direct

correlation has been established, it is possible that gender groups, college athletic teams, sororities, and various ethnicities sometimes push members to maintain a certain weight or size (Schulken, Pinciario, Sawyer, Jensen, & Hoban, 1997). Such expectations are often unrealistic, leading members to feel forced to turn to extreme weight control practices (Hoerr, Bokra, Lugo, Bivins, & Keast, 2002). Though little research has been conducted with these organizations, sorority women may be influenced to adhere to certain methods of weight maintenance based on the degree other members emphasize the importance of a certain body type. Additionally, they may be led to believe that their adherence to such an ideal will affect their status within the sorority (Schulken et al., 1997).

College women in general are at increased risk of developing poor eating habits and disorders due to a higher frequency of dieting and obesity (Koszewski, 1996). College sororities are subgroups that warrant significant attention concerning members' nutritional knowledge and eating behaviors due to the large number of women who are active in them (Schulken et al., 1997). Previous research (Allison & Park, 2004; Schulken et al., 1997) has revealed that some sorority women feel pressure to conform to a certain body shape or size in order to be accepted by other members of their organizations. Many questions have arisen regarding whether or not sorority women are more likely to develop disordered eating patterns or weight management issues upon joining a sorority (Allison & Park, 2004). On a larger scale, research has pointed to a need to study sorority women's eating patterns and diets in relationship to USDA's national recommendations for daily food consumption.

Although few studies specific to this population have been conducted in relation to eating behaviors, sorority members comprise a subgroup often perceived to be prone to utilize

various weight management and weight-loss strategies. For example, dieting methods such as excessive exercise, food avoidance, and purging have been reported as acceptable in various sororities (Schulken et al., 1997). A previous study by Hoerr et al. found sorority members more frequently avoiding high fat foods, taking diet pills, and experiencing extreme weight concerns when compared to nonmembers (2002).

Sororities span across U.S. colleges and universities; however, little research has been conducted to study the effects, if any, of sorority life on members' nutrition-related thoughts and practices. On many campuses, including the one that was subject to the present study, members of sororities are required to purchase meal plans for meals to be served by the sorority that include breakfast, lunch, and dinner Monday through Thursday and breakfast and lunch on Friday. A total of fourteen meals are offered during a typical week; however, attendance at breakfast is consistently low at the university subject to the present study. Sorority members may choose to skip breakfast or eat at home or "on-the-run." Although the cost of the meals is paid at the beginning of the semester, members' attendance at meals is often not required. Meals at sorority houses are most often served buffet style, and each member may serve herself as much or as little of each item as she chooses. Members at the sorority houses in the southern university investigated do not have access to nutrient analyses on their menus. As the body of evidence showing inappropriate eating behaviors in young adults grows, sororities are important subgroups of this population to analyze. Information about sorority members' adherence to dietary guidelines and the reasoning behind their eating patterns is virtually nonexistent; therefore, this study was performed in an effort to acquire knowledge regarding eating behaviors of sorority members in order to know the ways in which they could be improved.

Overview of the Dataset

Data from 72 Panhellenic sorority members were obtained for analysis in this study (Table 1). Members were Caucasian females ranging from 18-22 years of age at the time of participation. Members were recruited through announcements in classes and weekly sorority chapter meetings. Attempts were made to recruit a diverse sample from each of the nine Panhellenic sororities on campus.

Overview of the Instrument

All components of the investigation were conducted in a quiet, private setting in the Nutrition Laboratory and were approved by the Institutional Review Board. After providing informed consent, each member was asked to complete a 62-item Questionnaire of Eating Behaviors that was developed by the primary investigator. The questionnaire was designed for the purpose of examining sorority members' diet and weight management practices and various influences on their food choices. Prior to beginning the investigation, the questionnaire was pilot-tested using a convenience sample of sorority members. Sorority members who participated in pilot-testing were asked to assess the clarity and flow of the questionnaire. Sorority members involved in pilot-testing were excluded from participation in the present study. The questionnaire included 26 fill-in-the blank and qualitative questions, 6 true/false statements, 1 ranking item, 7 multiple selection questions, and 1 rating item. These questions asked about

eating behaviors, including number of meals and cues to eat more or less, what factors influence food choices, dietary attempts at weight loss, peer influences on food selection and perceptions of the meals served in their sorority house. Each member's height, age, and school classification was self-reported. Members were allowed unlimited time to complete the questionnaire.

Next, members were asked to complete a 24-hour dietary recall interview detailing their food and beverage consumption during the previous day (Monday-Thursday). Dietary intake data were analyzed using Nutrition Data System for Research (NDSR) software version 2009, developed by the Nutrition Coordinating Center (NCC), University of Minnesota, in Minneapolis, MN. This program provides a detailed nutrient profile with accurate calculations for each food item specified in members' dietary recalls (Schakel, 2001). Although this program is not routinely used in analyzing sorority member diets, it was a vital component in analyzing each member's 24-Hour Dietary Recall. With the use of the multiple-pass system supported by NDS-R, the chances of a more accurate picture of members' actual food and beverage consumption may have been recorded.

Each dietary recall was conducted following a day when three meals were available at the member's sorority house. The 24-hour dietary recall provided a general representation of the types and amounts of foods members consume on a daily basis. A Food Amounts Handbook provided by the Nutrition Coordinating Center in Minneapolis, Minnesota was available to assist

Table 1

Member Demographics

Variable	Number Observed	Mean	SD	Min.	Max.
Age	72	20.10	1.12	18.00	22.00
Height	70	64.81	2.40	60.00	71.00
Weight (in pounds)	69	132.67	17.15	97.00	178.00
BMI	70	22.46	2.86	16.86	29.13

members in estimating the amount consumed of a certain food (2009). Members who reported atypical consumption were asked to reschedule their appointments in order to allow for the assessment of a more “usual consumption” pattern. Specific data of interest gathered from the 24-hour dietary recall included numbers of servings of the following items: grains, protein, fruits, vegetables, dairy, and fats. This data was compared to the MyPyramid recommendations for women ages 18-23.

After completion of the Questionnaire of Eating Behaviors and the 24-hour dietary recall, each member was weighed on a scale calibrated according to the manufacturer’s instructions. Finally, each member’s BMI was calculated using her measured weight and self-reported height. BMI was calculated by dividing weight in kilograms by height in meters squared (Garrow & Webster, 1985).

All items on the Questionnaire of Eating Behaviors were coded with a number and/or letter and entered into a spreadsheet. Members were categorized into < 6 meals per week or ≥ 6 meals per week consumed at the sorority house. This number was selected as it represents half of total meals available for consumption by members each week. Next, data were analyzed using Stata statistical software (2007). Frequencies of responses regarding the number of meals consumed at the sorority house during the week were reported. Means and standard deviations were reported, and T-tests were performed comparing the mean BMI of members who consumed ≥ 6 meals per week to those who con-

sumed < 6 meals per week. Additionally, a t-test was performed comparing members reported consumption of food groups compared to nutritional needs as defined by the MyPyramid guidelines. Statistical significance was set at $p < 0.05$.

ANALYSIS AND RESULTS

The mean BMI of members consuming six or more meals per week at their sorority houses was 22.1. The mean BMI of members consuming less than six meals per week at their sorority houses was 24.1 ($p = .02$) (Tables 2-4).

According to members’ 24-hour recalls, the mean energy intake of those consuming ≥ 6 meals/week at their sorority houses was approximately 1,958 calories compared to an average of 1,483 calories consumed by those who reported eating < 6 meals/week at their sorority houses ($p = .044$) (Table 5). Energy consumption data includes all of members’ reported food and beverage consumption. More research is needed to determine the reasoning behind the significantly higher mean energy intake but significantly lower mean BMI in the subgroup consuming ≥ 6 meals per week at their sorority houses.

The MyPyramid recommendation for women ages 18-23 for fruits is two cups per day. According to members’ 24 hour dietary recall, average consumption of fruit was 1.20 ± 1.66 cups; therefore, members did not meet their fruit needs according to the Food Guide Pyramid.

Table 2

Demographics for Members Consuming ≥ 6 Meals/week at Their Sorority Houses

Variable	Number Observed	Mean	SD	Min.	Max.
Age	59	20.10	1.09	18.00	22.00
Height	58	64.83	2.42	60.00	71.00
Weight	57	130.86	16.12	97.00	178.00
BMI*	58	22.11	2.63	16.86	28.73

*Denotes variables that are significantly different from group of members consuming < 6 meals/week at their sorority houses

Table 3

Demographics for Members Consuming <6 Meals/week at Their Sorority Houses

Variable	Number Observed	Mean	SD	Min.	Max.
Age	13	20.08	1.26	18.00	22.00
Height	12	64.75	2.41	61.00	70.00
Weight	12	141.27	19.94	111.00	173.00
BMI*	12	24.12	3.43	19.43	29.13

*Denotes variables that are significantly different from group of members consuming ≥ 6 meals/week at their sorority houses

Table 4

*Body Mass Index of Member Subgroups**

Group	Number Observed	Mean \pm SD	[95% Conf. Interval]	
≥ 6 Meals	58	22.11 \pm 2.63	21.42	22.801
<6 Meals	12	24.12 \pm 3.43	21.95	26.30

Note. * $p = 0.0256$

Table 5

*Mean Energy Consumption of Member Subgroups**

Group	Number Observed	Mean	SD	[95% Conf. Interval]	
≥ 6 Meals	59	1957.80	799.57	1749.43	2166.17
< 6 Meals	13	1482.69	484.31	1190.03	1775.36
Total	72	1872.01	771.86	1690.64	2053.39

Note. * $p = 0.0437$

It is also recommended that women ages 18-23 consume two and a half cups of vegetables per day; however, members' 24-hour dietary recalls showed an average consumption of 2.68 ± 2.11 cups per day; therefore, the majority of members met the recommended intake of vegetables. Interestingly, the subgroup of members who consumed <6 meals per week at their sorority houses did not meet the MyPyramid recommendations for vegetables, consuming 2.44 ± 1.96 servings.

Overall, members consumed the MyPyramid-recommended 6 ounces of grains (6.25 ± 3.45 ounces); however, when divided into subgroups, the mean grain intake for the group consuming < 6 meals at the sorority house per week fell below the recommendations due to an

average of 4.66 ± 3.64 ounces.

MyPyramid recommends consuming 3 cups of dairy on a daily basis; however, the overall mean dairy intake was 1.68 ± 1.14 cups. This level of reported intake suggests that members do not consume adequate amounts of dairy products.

Women ages 19-23 should be consuming $5\frac{1}{2}$ ounces per day of protein (meats and beans), and 18 year old women should be consuming 5 ounces in the same time period. According to members' 24-hour dietary recall, average consumption of protein was 4.55 ± 2.94 ounces; therefore, members did not meet their protein needs according to the MyPyramid guidelines.

Finally, MyPyramid recommendations are for the daily consumption of 5 and 6 teaspoons

of oils for 18 year olds and 19-23 year olds, respectively; however, the overall mean fat/oil intake was 3.05 ± 2.83 teaspoons. This level of reported intake suggests that sorority members do not consume adequate amounts of oils on a daily basis.

The mean food group intake from members' 24-hour dietary recalls shows that the members in this study failed to eat a balanced diet according to the MyPyramid guidelines due to their inadequate consumption of fruit, dairy, protein, and fats/oils (Table 7). No statistically significant differences were found between members who ate ≥ 6 meals per week and those who ate < 6 meals per week at their sorority houses. In fact, average food group intakes were generally higher for those who reported eating ≥ 6 meals at their sorority houses, although statistically insignificant. Those who reported eating ≥ 6 meals per week also had a higher consumption of grains than those who ate < 6 meals, which is statistically significant at $p = 0.10$ level but insignificant at the $p = 0.05$ level.

As a part of the questionnaire, members were asked about the various obstacles preventing them from consuming a greater number of meals at their sorority house. Table 6 shows the frequency and percentages of members' responses to each statement. Each member was allowed to select all applicable statements. Although the percentage of health-related statements chosen was higher (26.39% versus 22.04% of selected non-health related statements), the highest-ranking obstacle marked by members was "I do not like what is being served at that meal," and the fourth-highest ranking obstacle was "I do not like the lack of nutrition labels and the unknown nutrition content of the food." Interestingly, 53.8% of those consuming < 6 meals reported the lack of nutrition labels and unknown nutrition content of the food as obstacles to meal consumption; this statement was the second-highest ranking among this subgroup. In members of both subgroups, mean percentages of health-related statements select-

ed were higher than mean percentages of non-health-related statements (Table 6).

DISCUSSION

Women join sororities for a variety of reasons, some of which include: opportunities for social interaction, leadership development, and community involvement (Allison & Park, 2004). Members' organizations often become a component of their identities throughout their college years and beyond; therefore, it is important to support the development of healthy eating behaviors throughout the time each member is active (Allison & Park, 2004). Eating at a sorority house provides opportunities for social interaction during meals. Members who reported consumption of ≥ 6 meals per week at their sorority houses were more likely to meet the MyPyramid recommendations, have higher overall mean calorie intake, and lower mean BMIs.

Multiple studies report lower BMIs in individuals who exhibit less dietary restraint; therefore, members who reported eating more meals at their sorority houses may exhibit lower levels of restraint than those who eat fewer meals at their sorority houses (Klesges & Isbell, 1992; Lowe et al., 2006; Moreira, de Almeida, & Sampaio, 2005; Stewart, Williamson, & White, 2002). More research is needed to determine whether or not such a correlation exists in this population.

Although nutritional analysis of meals served at sorority houses and other foodservice establishments were not performed, some of the meals served at sorority houses and elsewhere are likely not balanced according to MyPyramid guidelines. Consistent with previous studies of college students, many members included in the sample failed to meet MyPyramid guidelines (CDC, 1997; Racette et al., 2008; The American College Health Association, 2005). Failure to meet MyPyramid guidelines may be related to barriers selected by members on The

Table 6

Obstacles to Eating at Sorority House

Response	Frequency	Total Percentages	≥6 Meals consumed	< 6 Meals consumed
I have a class that conflicts with meal service.	35	48.61	47.5%	53.8%
I live off campus.	28	38.89	35.6%	53.8%
I do not like what is being served at that meal.	52	72.22	72.9%	69.2%
My close friends aren't eating there for that meal.	6	8.33	6.8%	15.4%
I do not have time.	24	33.33	32.2%	38.5%
I feel self conscious if I eat there.	3	4.17	3.4%	7.7%
I do not have transportation to and from the sorority house.	0	0.00	0%	0%
I want to get the most for my money.	11	15.28	16.9%	7.7%
I do not like the lack of nutrition labels and the unknown nutrition content of the food.*	26	36.11	32.2%	53.8%
The food seems like it is low quality.	17	23.61	23.7%	23.1%
I do not like the times food is served.	20	27.78	28.8%	23.1%
It is inconvenient.	9	12.50	8.5%	30.8%
I do not have to time to eat a meal.	4	5.56	6.8%	0%
I am not able to use nutrition labels to choose which foods I will eat.*	12	16.67	11.9%	38.5%
There is a lack of available parking.	21	29.17	25.4%	46.2%
Other	7	9.72	11.9%	0%
None of these	1	1.39	1.7%	0%

*Denotes a health-related statement.

Questionnaire of Eating Behaviors; however, the provision of meals at sorority houses may eliminate some of the barriers faced by other college students and young adults Furthermore, service of meals at sorority houses may reduce the frequency of meal-skipping and eating “on-the-run” in sorority members.

In sorority houses, nutrition information is not always available for meals served; therefore, many members fail to monitor their energy and fat intakes. For this reason, Dinger (1999) proposed that healthy food choices should be offered consistently, and members should have access to the nutritional information of the foods

served in their sorority houses. By providing this information, sorority members who frequently consume meals at their houses would have the opportunity to make better food choices for weight maintenance. The availability of healthy choices and nutritional information may also encourage sorority members to eat at their sorority houses more frequently.

FUTURE RESEARCH

Additional research is needed to determine whether or not sorority houses are offering all of the components of balanced meals accord-

Table 7

*Mean MyPyramid Servings Consumed by Members as Reported in 24 Hour Dietary Recall**

MyPyramid food groups	MyPyramid Recommendations	Total Sample (Mean ± SD)	≥ 6 Meals (Mean ± SD)	< 6 Meals (Mean ± SD)
Grains	6 oz.	6.25 ± 3.45	6.60 ± 3.34	4.66 ± 3.64*
Vegetables	2 ½ cups	2.68 ± 2.11	2.74 ± 2.16	2.44 ± 1.96*
Fruits	2 cups	1.20 ± 1.66*	1.21 ± 1.76*	1.16 ± 1.11*
Dairy	3 cups	1.68 ± 1.14*	1.78 ± 1.18*	1.24 ± 0.82*
Protein	Age 18: 5 oz.			
	Age 19-23: 5 ½ oz.	4.55 ± 2.94*	4.73 ± 2.92*	3.73 ± 2.98*
Oils	Age 18: 5 ts			
	Age 19-30: 6 ts	3.05 ± 2.83*	3.04 ± 2.40*	3.08 ± 4.41*

*Denotes values are lower than the recommended minimum number of MyPyramid servings.

ing to MyPyramid Guidelines. More research is also necessary to determine the influence serving and dining styles in sorority houses (i.e. buffet, a la carte, etc.) can have on members' intake at meals. The subgroup reporting consumption of ≥6 meals at their sorority houses had a lower mean BMI but a higher mean energy intake; therefore, future studies focusing on energy intake and BMI in relation to the levels of dietary restraint and/or physical activity of sorority members may be beneficial. According to the results of this study, structured meals and meal times may help sorority members maintain healthier, lower BMIs.

LIMITATIONS

Procedures were followed to ensure the accuracy of the data; however, this study had some limitations. Members consisted of a convenience sample of volunteers from each of the nine sororities at the institution. The sample consisted of a greater number of members reporting consumption of six or more meals per week at their sorority houses than members reporting consumption of less than six meals per week at their sorority houses. Although attempts were made to recruit an equal number of members from each sorority, some sororities may have been underrepresented in this investigation.

Members were required to complete a

twenty-four hour dietary recall following a day during which three opportunities were given to eat at their sorority houses. With only one day of food and beverage consumption reported, some records may not be a true representation of the member's usual diet. Twenty-four hour dietary recalls rely on members' self-reported food and beverage intake; as a result, some members may have over- or underestimated their food and beverage consumption during the previous day. With immediate recall, most people tend to underestimate their actual food consumption, and this problem may be increased with twenty-four hour dietary recalls among college females. Since few of the members prepared their own meals, they did not know specific ingredients in each item consumed at their sorority houses or elsewhere.

In addition to the twenty-four hour dietary recall, members completed the "Questionnaire of Eating Behaviors;" however, this questionnaire was not validated. In future studies, using a validated questionnaire would strengthen the results.

CONCLUSION

The college years are a time of transition into adulthood. Students become more independent, and they experience more freedom and control over making their own decisions.

As a result, a healthy diet is sometimes not a priority compared to convenience, social obligations, and other factors. Sororities that serve meals are in a unique position to influence the health choices of members by offering and communicating healthy food options in an appealing social setting. In order to ensure healthy meals

that meet current dietary guidelines are served, individuals such as house mothers or directors and chapter leaders should receive education on planning and communicating healthy meals.

REFERENCES

- Allison, K. & Park, C. (2004). A prospective study of disordered eating among sorority and non-sorority women. *International Journal of Eating Disorders*, 35(3), 354-358.
- Centers for Disease Control and Prevention [CDC]. (1997, November 14). Youth risk behavior surveillance: National college health risk behavior survey. United States, 1995 (CDC surveillance summaries). *Morbidity and Mortality Weekly Report*, 46 (SS-6).
- Cilliers, J. Senekal, M., & Kunneke, E. (2006). The association between the body mass index of first-year female university students and their weight-related perceptions and practices, psychological health, physical activity and other physical health indicators. *Public Health Nutrition*, 9(2), 234-243.
- Clement, J., Schmidt, C., Berriaix, L., Covington, N., & Can, T. (2004). Obesity and physical activity in college women: implications for clinical practice. *Journal of the American Academy of Nurse Practitioners*, 16(7), 291-299.
- Dinger, M. (1999). Physical activity and dietary intake among college students. *American Journal of Health Studies*, 15(3), 139-148.
- Flegal KM, Carroll MD, Ogden CL, Curtin LR. (2010). Prevalence and trends in obesity among US adults, 1999-2008. *Journal of the American Medical Association*, 303(3):235-241
- Garrow, J., & Webster, J. (1985). Quetelet's index (W/H²) as a measure of fatness. *International Journal of Obesity Related Metabolic Disorders*, 9, 147-153.
- Haberman, S. & Luffey, D. (1998). Weighing in college students' diet and exercise behaviors. *Journal of American College Health*, 46(4), 189-192.
- Harless, T., Koch, J., & Slapar, H. (1996). Diet and health among college students. *HPER C511 Course for Epidemiology*, 1-17.
- Hiza, H., & Gerrior, S. (2002). Using the Interactive Healthy Eating Index to assess the quality of college students' diets. *Family Economics & Nutrition Review*, 14(1), 3-6.
- Hoerr, S., Bokra, R., Lugo, B., Bivins, T., & Keast, D. (2002). Risk for disordered eating relates to both gender and ethnicity for college students. *Journal of American College Nutrition*, 21(4), 307-314.
- Klesges, R., & Isbell, T. (1992). Relationship between dietary restraint, energy intake, physical activity, and body weight: A prospective analysis. *Journal of Abnormal Psychology*, 101(4), 668-673.
- Kolodinsky, J., Harvey-Berino, J., Berlin, L., Johnson, R., & Reynolds, T. (2007). Knowledge of current dietary guidelines and food choice by college students: Better eaters have higher knowledge of dietary guidance. *Journal of the American Dietetic Association*, 107(8), 1409-1413.
- Koszewski, W. (1996). Factors that influence the food consumption behavior and nutritional adequacy of college women. *Journal of the American Dietetic Association*, 96(12), 1286.

- Lee, R. (2009). Energy balance and body weight. In M. Nelms, K. Sucher, K. Lacey & S. Roth (2nd eds.), *Nutrition Therapy & Pathophysiology* (238-282). Belmont, CA, USA: Wadsworth.
- Lowe, M., Annunziato, R., Markowitz, J., Didie, E., Bellace, D., Riddell, L. et al. (2006). Multiple types of dieting prospectively predict weight gain during the freshman year of college. *Appetite*, 47(1), 83-90.
- Moreira, P., de Almeida, M., & Sampaio, D. (2005). Cognitive restraint is associated with higher intake of vegetables in a sample of university students. *Eat Behaviors*, 6(3), 229-237.
- Nutrition Coordinating Center. (2009). *Nutrient data system for research:Version 2009*. Minneapolis, MN: University of Minnesota.
- Pliner, P. & Saunders, T. (2008). Vulnerability to freshman weight gain as a function of dietary restraint and residence. *Physiology & Behavior*, 93(1/2), 76-82.
- Racette, S., Deusinger, S., Strube, M., Highstein, G., & Deusinger, R. (2008). Changes in weight and health behaviors from freshman through senior year of college. *Journal of Nutrition Education & Behavior*, 40(1), 39-42.
- Schakel, S. (2001). Maintaining a nutrient database in a changing marketplace: keeping pace with changing food products - a research perspective. *Journal of Food Composition and Analysis*, 14:315-322.
- Schulken, E., Pinciario, P., Sawyer, R., Jensen, J., & Hoban, M. (1997). Sorority women's body size perceptions and their weight-related attitudes and behaviors. *Journal of American College Health*, 46(2), 69.
- StataCorp. (2007). *Stata statistical software: Release 10*. College Station, TX: StataCorp LP.
- Stewart, T., Williamson, D., & White, M. (2002). Rigid vs. flexible dieting: Association with eating disorder symptoms in non-obese women. *Appetite*, 38(1), 39.
- Strong, K., Parks, S., Anderson, E., Winett, R., & Davy, B. (2008). Weight gain prevention: Identifying theory-based targets for health behavior change in young adults. *Journal of the American Dietetic Association*, 108(10), 1708-1715.
- The American College Health Association. (2005). The American College Health Association National College Health Assessment (ACHA-NCHA), Spring 2003 Reference Group report. *J Am College Health*. 53: 199-210.
- U. S. Department of Health and Human Services. (2000). *Healthy People 2010* (Conference Edition, in 2 volumes). Washington, DC.

AUTHOR BIOGRAPHIES

Blair Mize (MS, The University of Mississippi) is a Clinical Dietitian currently working with the Transplant Institute at Methodist University Hospital in Memphis, Tennessee. She conducted this research as a part of her thesis for the Sally McDonnell Barksdale Honors College at The University of Mississippi. Blair is a member of Chi Omega sorority. She may be contacted at blairhmize@gmail.com.

Melinda Valliant (Ph.D., The University of Mississippi) is an assistant professor of nutrition at The University of Mississippi. Her research interests are disordered eating and applied sports nutrition. Melinda is a board certified sports dietitian (CSSD) and serves as the director of the graduate coordinated program in dietetics. She can be reached at valliant@olemiss.edu.