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Dietary Digital Diaries: Documenting Adolescents' Obesogenic Environment

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Abstract

Obesogenic built environments may contribute to excessive eating and obesity. Twenty-three 12- to 17-year-old low-income African American adolescents created digital diaries by photographing their lunchtime food environment in a summer academic program. Digitally depicted foods were classified as appearing on the platescape (student's or others' plate) or the tablescape (food buffet). Height, weight, BMI percentile, and waist-to-hip ratio were calculated at baseline and week 4. Adolescents digitally depicted high caloric, high fat foods on the platescape and tablescape, particularly adolescents with a higher waist-to-hip ratio. Weight gain during the 4-week program was significantly predicted by the number of calories and the amount of fat content depicted on the student's plates. Digital diaries, then, can document adolescents' perspectives of their food environments that promote their overconsumption of high caloric and high fat foods that contribute to weight gain and put them at risk for obesity.

Keywords

adolescence; obesity; tablescape; platescape; digital photography

Adolescents are embedded in obesogenic environments that constantly cue excessive eating, contributing to obesity and associated comorbidities at young ages (McGinnis, Gootman, & Kraak, 2006). Average fat and caloric intake of youth far exceed nutritional recommendations, particularly for low-income and ethnic minority youth (McGinnis, Gootman, & Kraak, 2006). This situation translates to high rates of obesity: in 12- to 19-year-old African American adolescents, 46.3% of females and 33.0% of males were overweight or obese (Ogden et al., 2010). The microscale built environments that promote overeating may best be seen through the eyes of the adolescent.

This study is the first to use digital photography to examine the impact of adolescents' perceived food environment on weight gain. By providing low-income, African American youth with digital cameras, we captured their experiences at a summer school buffet lunch, examining how physical health impacts perceived food availability and caloric and fat intake, which contribute to pediatric obesity.

Food Environments

Microscale contexts, which create one's immediate food environment including rooms, furniture, objects, and actual foods, can promote caloric and fat overconsumption which then promotes unhealthy weight gain (Sobal & Wansink, 2007). In order to better understand how food environment impacts eating behavior, salient environmental cues in the food environment can be classified by their spatial characteristics and scope (Sobal & Wansink, 2007). Kitchenscapes, tablescapes, platescapes, and foodscapes are terms developed by

Sobal and Wansink (2007) to describe the multilayered food environment that facilitates food intake.

Kitchenscapes, the environment largest in physical size, are the rooms in which eating occurs. Food visibility and access, in combination with the people and activities that populate the room, can provide cues for overeating (Sobal & Wansink, 2007). School cafeterias are a primary kitchencape for adolescents, with 52% of eating occasions for teens occurring at school (Story, Neumark-Sztainer, & French, 2003).

School cafeterias also promote a social environment of eating with friends, which can increase food consumption by 40% to 70% compared to eating alone (Shide & Rolls, 1991). Eating duration with friends is longer when compared to eating alone, so there is more opportunity to consume larger amounts of food (de Castro, 1990). Adolescents and college students chiefly eat together in social settings, which distract them from monitoring food consumption (Hetherington et al., 2006). Higher amounts of food consumed in a school cafeteria translate to higher amounts of fat and sugar intake for adolescent males and females (Cusatis & Shannon, 1996).

Within the kitchencape is the tablescape, which is the furniture that presents the variety, abundance, and accessibility of the food to be consumed. A buffet tablescape in particular promotes increased food consumption due to its offerings of plentiful and diverse foods (Stunkard & Mazur, 1978). The effects of buffet tablescapes are notable for college freshmen who experience weight gain during the first year of college, which is largely explained by all-you-can-eat buffets in campus dining halls (Levitsky & Youn, 2004). Buffets may also contribute to expanded portion sizes, which have increased substantially in size over the past three decades (Young & Nestle, 2002).

Within tablescapes are platescapes, defined as the containers that hold the food to be eaten. Larger plates promote increased food intake compared to compartmentalized plates that encourage portion control (Sobal & Wansink, 2007). Participants over-serve themselves and underestimate total food intake when using an exaggerated environmental cue such as a large bowl or plate, on which food can easily be piled (Wansink & Sobal, 2007). Even when physiological satiety signals are released, consumers typically overconsume calories when using large plates (Kral & Rolls, 2004).

The appearance of the food on the platescape is termed the foodscape, which provides visual indicators that promote eating. Focus group discussions reveal that adolescents' food choices are influenced by appearance, smell, how the food is prepared or served, the temperature of food, and the variety of food (Neumark-Sztainer et al., 1999). When asked how to encourage adolescents to eat healthier foods, the most frequent response was to make healthy food look more appealing (Neumark-Sztainer et al., 1999).

Adolescent Food Choices and Perceptions of Food Environment

Even when provided with nutritious options, adolescents may continue to choose high caloric, high fat foods if they are salient in their environment (Rosenheck, 2008). In particular, overweight and obese youth are more likely to consume high fat and high caloric foods (Nicklas et al., 2003), so they may be more drawn towards noticing these foods in their environment.

Low-income youth also tend to live in neighborhoods with a less healthy food environment, characterized by a high concentration of quick serve restaurants that sell low-cost, high-calorie, high-fat foods, and a dearth of supermarkets and healthful foods (McGinnis, Gootman, & Kraak, 2006). Low-income youth often consume a higher percentage of

calories from fat compared to higher income youth (Cole & Fox, 2004), revealing the behavioral impact of living in an unhealthy food environment.

Digital Photography as a Measure of Food Environment

Digital photography is emerging as an accurate, reliable measure of food intake in cafeterias, providing an alternative to direct observation or self-report (Williamson et al., 2004). This measure has been validated in school cafeterias for participants as young as elementary school students (Swanson, 2008), but photos have not been linked to weight loss or weight gain. Digital photography may provide a more accurate and cost-effective measure of food intake than traditional tools of self-report and direct observation, which are limited by recall problems, high costs, and time constraints (Swanson, 2008). In addition to using digital photography as a measurement tool, photographs may also reveal how an adolescent perceives the food environment. Allowing adolescents to digitally capture both their own food intake and their perspective of the cafeteria setting provides unique insight into the accessibility and appeal of foods in their environment, as well as how their food choices may potentially lead to changes in weight.

Present Study

By providing adolescents with digital cameras to capture their summer school food environment and food intake, we hypothesized the following: 1) low-income adolescents will display high caloric and high fat foods on their own platescapes, their friends' platescapes, and the tablescape in their digital diaries, despite having nutritious food available on an affluent college campus; 2) low-income adolescents with higher initial waist-to-hip ratio will include more foods that are high in calories and fat on their own platescapes, their friends' platescapes, and the tablescape in their digital diaries than those with lower waist-to-hip ratios; and 3) low-income adolescents who depict more fat and caloric content on their own platescapes will increase in weight over the four week summer school experience.

Methods

Participants

Twenty-three 12- to 17-year old African American students (17 females) from urban, low-income areas of a metropolitan city were randomly selected from a college-preparatory program on a university campus. The four-week program recruited students from low-income neighborhoods on a first-come, first-served basis, without any academic, financial, or other criteria. The randomly selected sample participated in a summer digital diary course as an elective to their academic classes. Participants and parents signed assent/consent forms per the University's Institutional Review Board policy. Participants were awarded a movie gift certificate for participation.

Measures

Physical health was measured by same-sex trained research assistants in a private space at baseline and at follow-up, which occurred 4 weeks after baseline. Height, waist circumference, and hip circumference were measured with a measurement tape, and weight (clothed, no shoes) was measured on a Tanita body mass scale. Waist-to-hip ratio was calculated by dividing waist circumference by hip circumference, which has been shown to be a valid indicator of health risks due to overweight (Pischon et al., 2008) and a significant predictor for all-cause mortality (Folsom et al., 2000). Body mass index (BMI) percentile was calculated using the age- and sex-specific CDC BMI growth reference charts for 2- to 20-year-old youth. For adolescents, healthy weight is considered to be a BMI percentile

between 5% and 85%, overweight is a BMI percentile between 85% and 95%, and obese is a percentile exceeding 95% (Kuczmarski et al., 2000). In our sample, 30.43% of participants were overweight or obese. See Table 1.

Procedure

During the first week of the students' four week digital diary course, students brainstormed ideas for their diaries and learned how to pitch their ideas to fellow classmates. Students were instructed that their digital diaries would capture their summer camp experiences, through photographs of their academic and social environments, which would then be shared with fellow students. During the second week of the program, students were taught how to use the digital equipment and were given access to digital cameras to take photos in the campus cafeteria twice during the students' lunch period. Participants were instructed to take photos of their lunchtime environment, which could include both food and friends. Students were also given the opportunity to use the cameras during academic class time, though only photos of food in the cafeteria were coded for the present study.

Before and after taking photos, a professional filmmaker taught students how to assemble digital stories using the iMovie editing software. Students were allowed to include any of the photos they had personally captured during their academic class and lunchtime throughout the study to represent their own summer experiences. During the final two weeks of the program, students created and edited their digital diaries, and then presented their final digital diaries to the rest of the class.

Students' lunchtime experiences occurred in a university campus cafeteria. All students ate lunch together during a 1 hour period and could choose where to sit within the dining hall. Food was displayed on self-service buffets. Non-partitioned circular plates were available, and students could return to the buffet as many times as they wished. See Table 2 for the food options available to the participants, which included a full buffet line with meats, fruits, vegetables, grains, desserts, and beverages. Nutritional content was not available to students.

Coding of Food in Digital Diaries

Foods depicted in the digital diaries were coded according to estimated portion sizes that were digitally captured, and caloric and fat amount were calculated from information provided by the University cafeteria's registered dietitian and the 2008 US Department of Agriculture (USDA) National Nutrient Database for Standard Reference (NDB), full version, release 21, for microcomputers. The caloric and fat content of foods digitally captured and included in the digital diaries were calculated for each participant's digital diary and categorized based on whether the food was shown on their platescape (i.e., the student's plate), a friend's platescape, or the tablescape (the buffet). A total sum was also calculated for each participant, which represented total fat and caloric content depicted in the entire digital diary. Platescapes were circular dining plates without partitions, placed on rectangular cafeteria trays that could hold multiple cups, plates, and bowls.

All repeat photos were only coded for the first occurring photo, since these photos did not introduce new material to the digital diary. Twenty-five percent of the sample was coded by a second independent observer for inter-observer reliability. Inter-rater reliability, measured as Kappa's cohen, exceeded $k = .70$ for food depicted on platescape, friends' platescapes, and tablescape. Following the completion of coding, data were compiled and analyzed using the statistical program SPSS.

Results

We hypothesized that the foods depicted in students' digital diaries would include high caloric and high fat content. Table 3 depicts the caloric and fat content for foods appearing on the adolescent's platescape, on their friends' platescapes, on the tablescape, and the combined total score. As predicted, the foods depicted in students' digital diaries for the combined score of platescapes and tablescales was very high for total caloric content ($M = 2019.93$, $SD = 1540.02$) and for total grams of fat ($M = 92.23$, $SD = 71.60$). In order of most to least often depicted, the following foods were most commonly displayed on students' own plates: French fries, ice cream, soda, pepperoni pizza, and chicken wings. Students almost always had at least two servings of each food on their own plates.

Overall, the foods displayed on the tablescape were on average high in caloric and fat content. As depicted in Table 2, 50% of the food categories (7 of 14) captured in the digital diaries exceeded the U.S. Department of Agriculture threshold of 30% calories from fat for school lunch foods. Of all of the food options available to students, 52.17% (36 of 69 food options) exceeded the 30% calories from fat criteria. Five food categories that were available to students were excluded from analysis because nutritional information was unavailable, as indicated in Table 2.

To examine the relationship between baseline physical health and nutritional content depicted in the digital diaries, linear regression analysis was conducted with the baseline health measure of waist-to-hip ratio as the independent variable and nutritional content of foods as the dependent variable. Waist-to-hip ratio significantly predicted fat content on adolescents' platescapes, $F(1,21) = 4.602$, $p = .044$, $R^2 = .180$. The positive relationship indicated that those with higher waist-to-hip ratios at baseline depicted higher amounts of fat content on their own plate.

To examine the relationship between weight change during the four week program and depiction of caloric and fat content on participants' platescape, separate linear regressions were conducted with caloric or fat content on the platescape as the independent variable and with weight change as the dependent variable. Weight gain was significantly predicted by both caloric content on one's platescape, $F(1,19) = 7.333$, $p = .014$, $R^2 = .278$, and by fat content on one's platescape, $F(1,19) = 10.642$, $p = .004$, $R^2 = .359$. Of the 23 participants, 14 gained weight (3 males, 11 females), with an average weight gain of 1.02 kg. Six participants lost weight (2 males, 4 females), with an average weight loss of 1.28 kg.

Discussion

This study examined the use of digital diaries as a method to capture student eating patterns and weight gain. Given the high obesity rates and poor nutrition typical of urban, low-income African American adolescents (Mullen & Shield, 2004), we hypothesized that students would include high caloric and high fat content from the cafeteria in their digital diaries, despite the availability of low caloric, low fat, nutritious food. As expected, digital diaries contained foods with high caloric and fat content. More specifically, foods with a total caloric average of 2020 calories and a total fat average of 92 grams were digitally captured. Students' platescapes during lunch time consisted of food with an average of 962 calories and 46 grams of fat. This caloric amount is 25.75% higher than the average caloric intake by middle and high school students at lunchtime in a school cafeteria (Newman et al., 2009). The higher than average depiction by study participants may be because adolescents were exposed to an open buffet line in which they selected their own portions and could return for additional portions.

Average caloric depiction for lunchtime was very also high when compared to daily caloric recommendations. The U.S. Department of Agriculture recommends a daily intake of 2000 calories for a moderately active 14- to 18-year-old female, and 2400 to 2800 calories for a moderately active male within this age range (USDHHS & USDA, 2005). The average calories depicted on the girls' own platescapes in their digital diaries was 42% of total recommended daily caloric intake for females and 47% to 55% of the recommended daily caloric intake for males in boys' digital diaries. This finding is of particular concern considering that the depiction was only of one meal, excluding breakfast, dinner, and snacks. Moreover, the average fat content depicted on student's own platescapes exceeded recommendations. Based on a 2000 calorie diet, it is recommended that an individual eat a daily intake of 65 grams of fat (USDHHS & USDA, 2005), yet the average amount of fat depicted on our girls' lunch plates was 54% of the recommended fat intake (based on a 2000 average calorie daily consumption model), and a whopping 83% to 97% of recommended fat intake (based on a 2400–2800 average calorie daily consumption model) on boys' lunch plates.

Although nutritious foods were available to the students, many of the food options at the cafeteria were high in caloric and fat content. National School Lunch Program guidelines developed by the U.S. Department of Agriculture do not allow foods to exceed 30% total calories from fat (Newman et al., 2009), yet over 50% of the food options available to participants in the cafeteria exceeded this criteria. This finding echoes national trends in which 88% of middle and high schools serve foods that exceed the 30% maximal fat from calories USDA guideline (Newman et al., 2009). Interest in these unhealthy foods was captured in the adolescents' digital diaries, in which 3 of the 5 most frequently depicted foods exceeded the maximal calories from fat recommendation. The depiction of ice cream and French fries, two high caloric and high fat content foods, is particularly problematic considering these foods are available in 73% and 71% of middle and high school cafeterias, respectively (Newman et al., 2009). As students chose to include photos of high caloric, high fat foods in their digital diaries out of all the photos they had captured during the course of the study, it is apparent that students found these foods most appealing in comparison to more nutritious foods.

While previous literature shows that low-income, urban African American adolescents often do not have access to nutritional foods, this study illustrates that students choose to eat the poor nutritional food choices the most, even when healthier options were present. As the participants were from low-income homes, it is possible that they did not have access to an abundance or diversity of foods at school or at home (see the Federal Research and Action Center, 2006; Prevention Institute, 2002). Therefore, students may have compensated by eating several portions of foods in the school cafeteria during the summer program. Nonetheless, healthy options were also available at the cafeteria, including an array of fruits and vegetables.

As expected, participants who depicted higher caloric and fat content on their platescape gained more weight during the four-week summer school program. Participants who had a higher baseline waist-to-hip ratio also depicted more fat content on their platescape than those with a lower waist-to-hip ratio. High waist circumference and high waist-to-hip ratio predict cardiovascular risk factors including high triglyceride levels, high insulin levels, and the metabolic syndrome (Janssen et al., 2005). An effective weight loss strategy is to restrict caloric and fat intake (Spear et al., 2007), a strategy that was not being implemented at this particular cafeteria kitchenscape.

Interestingly, males depicted less fat and caloric content for their friends' plates and tablescapes than females did. Sex differences in adolescents' concern for others' food choices and their food environment warrants future research.

This study was limited to capturing only adolescents' lunchtime environment, without accounting for breakfast, dinner, or snacks consumed outside of the school lunch. Even so, selections for just one meal of the day nearly met recommended amounts for an entire's day worth of caloric and fat intake. Although the digital diaries only documented the food that participants put on their plates and not what was actually consumed, those who photographed more fat and calories on their own plates were also more likely to gain weight during the summer program. Therefore, examining adolescents' platescapes revealed a relationship between food environment and health outcomes.

Students chose what to photograph and include in their digital diaries. Because of this procedure, only platescapes and tablescapes were documented, without providing evidence of other environmental factors that affected adolescent food choice such as peers, food placement, and the cafeteria layout. Examining these additional important environmental factors is an area for future research.

The kitchenscape in our study was also unlike a typical high school cafeteria in which portions are not self-served and returns to the buffet may be restricted. A full lunch hour is also atypical of students' lunchtime experiences during high school. Using food photography to capture more typical lunchtime experiences would provide additional examination of adolescent food environments. Nevertheless, we did capture what these students may soon be experiencing in their food environments if they enter college, and they enrolled in a program designed to prepare them for college so that outcome seems likely. Future studies could also investigate whether adolescent food patterns change as a result of digitally photographing their food choices, particularly if combined with a nutrition course about caloric intake and fat concentrations of various foods.

In conclusion, digital diaries provided a snapshot of low-income adolescents' high caloric, high fat food environment during a summer school program in which lunch was served. School meal policies should consider the obesogenic environments promoted during school lunchtime, including the tablescape of all-you-can-eat buffets, the platescape of non-partitioned plates and large trays that encourage multiple portions, and the foodscape of appealing unhealthy foods that tempt students to overconsume caloric and fat content. Our use of digital photography is a unique method to capture how adolescents' perceptions of their food environment impact weight gain. Photographs reveal the environmental cues that promote excessive eating, which once identified can be altered to shape adolescents' food choices. Digital photography may be, then, an important method to identify adolescents who are consuming high amounts of caloric and fat content and are thus at higher risk of developing obesity and its problematic comorbidities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Descriptive statistics for student weights, BMI percentiles, waist-to-hip ratios, and proportion overweight and obese.

	Males (n = 6)		Females (n = 17)		Total (n = 23)
	Time 1	Time 2	Time 1	Time 2	Time 2
Weight (kg) (low to high values)	60.15 (35.63–105.48)	60.45 (35.10–106.20)	55.28 (39.32–98.99)	54.20 (40.50–101.00)	55.60 (35.10–106.00)
Body Mass Index Percentile (low to high values)	67.50 (18.00–98.00)	67.50 (18.00–98.00)	65.00 (7.00 to 91.00)	65.00 (7.00 to 91.00)	65.00 (7.00 to 98.00)
Waist-to-Hip Ratio (low to high values)	.82 (0.77 to 0.92)	.80 (0.73–0.92)	.80 (0.73 to 0.88)	.78 (0.71–0.88)	.78 (0.71–0.92)
Number Overweight (%)	1 (16.67%)	1 (16.67%)	2 (11.76%)	2 (11.76%)	3 (13.04%)
Number Obese (%)	1 (16.67%)	1 (16.67%)	3 (17.65%)	3 (17.65%)	4 (17.39%)

Note. Median values reported for weight, BMI percentile, and waist-to-hip ratio. A BMI percentile between 85% and 95% indicates overweight and over 95% indicates obese.

Table 2

Caloric and fat content of one serving of each food option for participants during school buffet lunch.

	Total Calories	Total Fat (g)	Percent Calories from Fat
<i>Depicted in digital diaries^{1,2}</i>			
French fries	414.43	22.15	48.10
Ice cream	140.00	8.00	51.43
Soda	182.00	0.00	0.00
Pepperoni pizza	553.57	15.38	25.00
Chicken wings	300.00	19.00	57.00
Salad bar	<i>unknown</i>	<i>unknown</i>	<i>unknown</i>
Crispy chicken strips	321.05	19.19	53.80
Grilled cheese and tomato	233.81	6.08	23.40
French toast	155.00	3.00	17.42
Assorted fresh fruits	<i>unknown</i>	<i>unknown</i>	<i>unknown</i>
Deep fried chicken	700.00	48.00	61.71
Chicken pattie sandwich	304.64	12.90	38.11
Garlic breadsticks	196.42	5.21	23.87
Chocolate chip cookies	96.00	4.52	42.38
Captain Crunch cereal	110.00	1.50	12.27
Steamed broccoli spears	30.19	0.35	10.44
<i>Not depicted in digital diaries</i>			
Fried red fish	1767.69	6.98	3.55
Vegetable quesadilla	809.99	41.87	46.52
Cheese ravioli in pesto	791.59	37.65	42.81
Hamburger	704.74	42.17	53.85
Patty melt	698.09	42.18	54.38
Meatball sandwich	686.98	30.28	39.67
Beef with broccoli and black bean sauce	629.59	16.22	23.19
Philly cheese steak sandwich	551.01	16.51	26.97
Chicken cacciatore	536.47	33.04	55.43
Fried tofu sweet and sour	467.18	12.25	23.60
Eggplant parmesan	465.61	27.7	53.54
Beef lo mein	464.18	10.92	21.17
Vegetable Indian curry	459.52	8.71	17.06
Sloppy Joe sandwich	413.83	14.22	30.93
Baked macaroni and cheese	407.91	14.48	31.95
Alfredo sauce	380.71	29.26	69.17
Grilled ham and swiss	366.42	17.20	42.25
Black bean burger	346.35	10.71	27.83
Cream of vegetable soup	332.82	18.11	48.97
Cream of chicken soup	328.89	16.59	45.40

	Total Calories	Total Fat (g)	Percent Calories from Fat
Vegetable pizza	323.74	9.09	25.27
Cheese pizza	312.99	9.06	26.05
Tater puffs	308.83	14.01	40.83
Cheese and tomato casserole	284.35	14.16	44.82
Hot dog	282.53	16.59	52.85
Three bean chili	262.19	2.84	9.75
Beer-battered fish	245.81	8.93	32.70
Tomato soup	233.75	13.47	51.86
Broccoli cheese soup	231.84	15.3	59.39
Cream of mushroom soup	226.24	11.09	44.12
Vegetable fried rice	189.95	9.18	43.50
Egg noodles	181.44	2.10	10.42
Creamy coleslaw	166.29	15.52	84.00
Manhattan clam chowder	160.02	3.35	18.84
Potatoes O'Brien	158.46	6.41	36.41
Marinated grilled chicken	152.9	4.74	27.90
Baked beans	132.3	2.10	14.29
Jasmine rice	129.64	0.28	1.94
Baked tilapia	120.17	3.66	27.41
Herb-roasted red potatoes	112.73	2.43	19.40
Lentil stuffed peppers	108.7	3.83	31.71
Herb-roasted vegetables	106.68	4.14	34.93
Greek orzo	85.12	2.43	25.69
Sweet 'n sour carrots	84.29	3.37	35.98
Old fashioned chicken with rice soup	84.06	3.12	33.40
Vegetable soup	78.84	0.59	6.74
Peas and carrots	76.24	3.99	47.10
Turkey vegetable chowder	74.10	1.04	12.63
Marinara sauce	68.91	1.55	20.24
Chicken noodle soup	67.06	1.78	23.89
Oriental beef noodle soup	64.32	2.07	28.97
Corn on the cob	61.74	0.49	7.14
Grilled asparagus	41.81	2.49	53.60
Tomato and zucchini sauté	37.40	2.33	56.07
Waffle bar	<i>unknown</i>	<i>unknown</i>	<i>unknown</i>
Deli	<i>unknown</i>	<i>unknown</i>	<i>unknown</i>
Asian stir fry	<i>unknown</i>	<i>unknown</i>	<i>unknown</i>

Note.

¹Foods are ordered from most to least depicted on adolescents' platescapes when presented in the digital diaries and by total calories for foods that were not depicted in digital diaries.

²Foods that exceed the recommendation of < 30% calories from fat are bolded. Caloric and fat values are based on 1 serving size.

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Table 3

Means of caloric and fat content depicted on male (n = 6) and female (n = 17) own platescapes, friends’ platescapes, and tablescales.

	Platescape			Friends' Platescape			Tablescale			Total	
	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Caloric Content	1312.62 (993.56)	838.29 (792.36)	962.03 (852.24)	90.00 (146.29)	786.24 (873.80)	604.61 (811.09)	130.23 (170.42)	567.32 (881.15)	453.30 (780.89)	1532.85 (850.17)	2191.85 (1707.27)
Fat Content (g)	75.92 (64.23)	35.64 (36.81)	46.15 (47.44)	4.08 (6.48)	33.40 (39.00)	25.75 (35.91)	7.78 (11.66)	24.77 (49.97)	20.34 (36.19)	87.79 (57.22)	93.80 (77.56)

Note. Standard deviation indicated in parentheses. For each All column, the summary score is weighted by sex.