Shahid Sadoughi University of Medical Sciences School of Public Health

Social Behavior Research & Health

Social Behavior Research & Health

Social Determinants of Health Research Center

Pilot Analysis of a Survey to Assess University Undergraduate Males Stress, Dressing and Eating Habits

Diana Saiki [a*], Jay Kandiah [b], Jessica Gundlach [c], Mike Melton [d]

[a] Faculty of the Department of Applied Business Studies, Ball State University, Muncie, IN, U.S.A.
[b] Faculty of the Department of Nutrition and Dietetics, Ball State University, Muncie, IN, U.S.A.
[c] Department of Psychological Science, Ball State University, Muncie, IN, U.S.A.
[d] Department of Nutrition and Health Science, Ball State University, Muncie, IN, U.S.A.

ARTICLEINFO

ORIGINAL ARTICLE

Article History:
Received: 18 Feb 2020
Revised: 6 Jul 2020
Accepted: 28 Jul 2020

***Corresponding Author:**
Diana Saiki

Email:
Desaiki@bsu.edu

Tel: 1-765 285 2293

Citation:
Saiki D, Kandiah J, Gundlach J, Melton M. Pilot Analysis of a Survey to Assess University Undergraduate Males Stress, Dressing and Eating Habits. Social Behavior Research & Health (SBRH). 2020; 4(2): 545-552.

ABSTRACT

Background: Stress can effect all aspects of life, including eating and dressing behavior. These changes impact the health and wellness of individuals. With less known research on men, the purpose of this study was to report preliminary findings using an original research instrument to assess the perceived effects of stress on eating and dressing behaviors among undergraduate college males.

Methods: The sample included 32 male undergraduate students enrolled at a Midwestern University in the United States in 2017 completed the survey. The participants completed the survey two weeks apart. The instrument, Male Stress Dressing and Eating Survey, included 42 questions divided into four sections: 1) demographics, 2) effort put forth to control dressing and making healthy eating choices, 3) patterns of dressing and eating when stressed, and 4) clothing items worn and foods eaten when under non-stressful and stressful conditions. Cohen's Kappa (κ) was used to analyze test-retest reliability. The Wilcoxon signed ranks test, a nonparametric, paired sample test, was used to ascertain preliminary results pertaining to eating and dressing during perceived conditions.

Results: Kappa values for these dressing question ranged from $\kappa = -0.01$ to $\kappa = 0.60$. All Infraclass Correlation Coefficient test-retest coefficients were statistically significant ($p < 0.05$), with the median being .66 demonstrating good reliability. Descriptive statistics and nonparametric tests indicated that men under perceived stress were more likely to choose mixed dishes, salty-crunchy foods, sweet foods, and modify their diet. When under perceived stress, these men used fewer accessories and did not dress formally, were not engaged in hair maintenance behaviors, were less likely to use scent enhancer, and did not enhance their appearance.

Conclusion: This survey has the potential to be reliable and useful in research related to stress, food, and dressing. Specifically, the instrument appears to be a useful tool for practitioners and researchers in the applied and academic areas associated with this age group and gender.

Keywords: Stress, College, Food, Dressing, Men, Eating Habits

Introduction

The current exploratory research aimed to create and evaluate a measure to assess these same constructs for men. Stress has been associated with differing maladaptive eating behaviors for men and women (Zellner et al., 2007). For example, men report they are more likely to seek out hearty meals such as steaks, while women are more likely to opt for sweet and snack-related foods (e.g., candy) (Wansink et al., 2003). Eating practices of females could be attributed to the triggering of appetite hormones –leptin, which suppresses hunger, and ghrelin that stimulates appetite. It has been demonstrated when stressed, ghrelin production in females increased, and the appetite-suppressing hormone leptin decreased, resulting in diets with higher consumption of sugars, carbohydrates, fat, and calories (Saiki et al. 2012; Habhab et al., 2009; Zellner et al., 2007). Simultaneously other research has demonstrated among college faculty, the stress of both genders can influence the types of foods eaten. Kandiah and Saiki (2010) compiled foods into five categories that included a variety of food options. These were categorized as mixed dishes, salty/crunchy foods, sweet foods, creamy foods, and beverages. Results showed that women indicated less variation in the types of food they consumed when under perceived stress, mostly eating sweet and salty/crunchy foods. Besides, the relationship between appearance management and stress has been suggested to be highly associated with gender, where men and women differ in the types of appearance management behaviors (Reilly & Rudd, 2007). For example, women are more likely to neglect their appearance and make unhealthy food choices to cope with stress (Roach-Higgins & Eicher, 1992). Saiki et al. (2012) analysis of responses from 542 women revealed that during stressful conditions, there was a statistically significant decrease in the selection of accessories, formal dress, make-up, hair maintenance, and use of body lotions/fragrance. There is potential for unique relationships between gender, stress, eating behaviors, and appearance management behaviors. However, because these constructs have not been typically studied together, it would be useful for researchers and health professionals to have access to tools that can reliably measure these behaviors in men's eating and dressing behaviors as they progress through college.

The present study designed an instrument called the Stress Dressing and Eating Survey, which was developed to measure the impact of stress on dressing and eating behaviors of women (Saiki et al., 2012). The results of the original study by Saiki et al. found significant differences in eating and dressing behaviors as a result of stress indicating the results were useful in providing intervention for stress.

The purpose of the current study was to report exploratory data related to the reliability of the Men's Stress, Dressing, and Eating Survey (MSDES), so that future research could be conducted to assess the relationship between gender, dressing, and eating patterns during stressful and non-stressful conditions of the male university students.

Methods

The face validity of the survey instrument was evaluated by six research professionals specializing in dietetics, fashion, and statistics at a Midwestern University and was found to have content validity. After face validity was established, the reliability of the survey was verified by administering the instrument twice, both electronically and in person, to a convenience sample of male undergraduate students. Because the items comprising the scales were heterogeneous rather than homogeneous by design, test-retest was used to investigate reliability. Upon approval from the University's Institutional Committee on Investigations Involving Human Subjects and after receiving informed consent, male participants enrolled in undergraduate courses were asked to complete the survey on two separate occasions, spaced exactly two weeks apart.

This pilot study collected data from 32 male undergraduate students from a non-medical Midwestern University in the United States, where

80.6% were between 18-22 years, and 19.4% were between 23-30 years. Most participants were Caucasian (n = 29).

The Men's Stress Dressing and Eating Survey was developed from the Stress Dressing and Eating Survey, which focused primarily on dressing and eating behaviors among females during perceived stressful and non-stressful conditions. The questions pertaining to dressing were completely revised for the Men's Stress Dressing and Eating Survey. This instrument comprised 42 questions divided into four sections, namely: 1) demographics, 2) typical patterns of dressing and eating behaviors, 3) patterns of dressing and eating during perceived stress and 4) dress items worn and foods eaten when under perceived non-stressful and stressful conditions. The demographics section evaluated ethnicity, height, weight, marital status, and residency. Using Likert scales, typical patterns for dressing and eating behaviors were assessed by asking participants to rate their amount of effort in completing various tasks as great, considerable, some, or little/not (e.g., "How much effort do put forth to plan and maintain what you will wear?"). Additionally, typical patterns for dressing and eating behaviors were evaluated using a series of yes/no and multiple-choice questions. To investigate participants' preference for certain foods, they were asked to select from a list of options which foods they ate when under perceived stressful and non-stressful conditions. Food categories included mixed dishes, salty/crunchy, sweet, creamy foods, and beverages along with dietary modifications (e.g., skipping meals, fasting). Types of clothing, accessories worn and dress habits, as defined by Roach-Higgins and Eicher (1992) when under these perceived conditions, were assessed using multiple-choice questions. These sections included the use of accessories, informal dress, formal dress, hair products, scent, and appearance enhancement.

Prior to distributing the survey the study was approved by the University's Institution Review Board (#198628-1). To fulfill the purpose of the study on males, inclusion criteria included males at least 18 years, excluding females and minors from the study. A convenience sample of males enrolled in a university course completed the survey twice one week apart.

Cohen's Kappa (κ) was used to analyze test-retest reliability for all categorical questions measuring dressing and eating behaviors during perceived stressful and non-stressful conditions. This measure was selected, as κ is a measure of the extent to which raters assign the same scores to questions while controlling for chance level agreement. Higher κ values represent greater levels of agreement. A p of < 0.05 was considered statistically significant.

Exploratory analyses were conducted to investigate if male undergraduate students dressing and eating behaviors differed between perceived stressful and non-stressful conditions. Each food and dressing category was given a mean score. The Wilcoxon signed ranks test, a nonparametric, paired sample test, was used to ascertain preliminary results pertaining to eating and dressing during perceived conditions.

Results

The survey instrument had high content validity. Test-retest reliability was assessed using 32 male university undergraduate students. The majority were 18-22 years (80.6%) and Caucasian (96.6%).

The Men's Stress Dressing and Eating instrument demonstrated good reliability for questions measuring participants' typical effort put forth toward dressing and eating behaviors (Table 2). Kappa values for these questions are displayed in Table 1, with Kappa values ranging from $\kappa = 0.25$ to $\kappa = 0.78$. The question with the lowest percent agreement (50%) was, "Do you typically put forward effort to control eating behaviors by managing calorie intake, food choices, or reading food labels?" The question with the highest percent agreement (90.6%) was, "Do you typically dress up, which includes formal dress such as suits, dress, pants, ties, and button-down shirts? No statistics were computed for the question "Do you typically dress casually, which includes jeans, t-

shirts, and sweatpants?" because there was 100% participant agreement to this question.

This survey was found to have good reliability for measuring participants dressing and eating behaviors when under perceived stressful conditions (Table 2). Kappa values for these dressing question ranged from to $\kappa = -0.01$ to $\kappa = 0.60$. The question with the lowest percent agreement (50.1%) was, "When stressed, do you spend less time than you ordinarily would enhance your appearance?" The question with the highest percent agreement (80.7%) was, "When stressed, do you dress fashionably?" No statistics were computed for the question "When stressed, do you typically dress casually, which includes jeans, t-shirts, and sweatpants?" because there was 100% participant agreement to this question. Kappa values for the food questions ranged from $\kappa = -0.062$ to $\kappa = 0.515$. The question with the lowest percent agreement (53.2%) was, "When stressed, do you spend less time than you ordinarily would prepare food?" The food item with the highest percent agreement (75%) was, "When stressed, does eating food tend to comfort you or relieve stress."

As displayed in table 3, overall tests of internal consistency suggested that most scales which measure participants dressing and eating behaviors when under perceived stressful and non-stressful conditions were reliable. The dressing scale with the lowest reliability for both perceived conditions was hair, $\alpha_{Non\text{-}stressed} = -0.572$, ICC = 0.66, $p < 0.001$, 95% CI = [0.41, 0.82], $\alpha_{Stressed} = -0.09$, ICC = 0 .79, $p < 0.001$, 95% CI = [0.60, 0.89]. The dressing scale with the highest reliability for both perceived stressful and non-stressful conditions was formal dress, $\alpha_{Non\text{-}stressed} = 0.85$, ICC = 0.73, $p < 0.001$, 95% CI = [0.52, 0.86], $\alpha_{Stressed} = 0.85$, ICC = 0.67, $p < 0.001$, 95% CI = [0.42, 0.83]. The food scale with the lowest reliability for both perceived conditions was beverages, $\alpha_{Non\text{-}stressed} = 0.51$, ICC = 0.63, p = x, 95% CI = [0.36, 0.80], $\alpha_{Stressed} = 0.55$, ICC = 0.69, $p < 0.001$, 95% CI = [0.46, 0.84]. The food scale with the highest reliability for both perceived stressful and non-stressful conditions was creamy foods, $\alpha_{Non\text{-}stressed} = 0.73$, ICC = 0.69, $p < 0.001$, 95% CI = [0.46, 0.83], $\alpha_{Stressed} = 0.73$, ICC = 0.61, $p < 0.001$, 95% CI = [0.33, 0.79]. All Infraclass Correlation Coefficients test-retest coefficients were statistically significant ($p < 0.05$) with the median being .66 demonstrating good reliability.

Descriptive statistics and nonparametric tests indicated there was variation in dressing and food choices during perceived stressful and non-stressful conditions. When comparing these two conditions, men under perceived stress were more likely to choose mixed dishes (4.00±1.59 vs. 3.66±1.72), salty-crunchy foods (3.38±1.96 vs. 3.16±1.94), sweet foods (2.19±1.62 vs. 2.03±1.58), and modify their diet (2.53±2.12 vs. 2.09±2.12). When under perceived stress, these men used fewer accessories (2.00±1.34 vs. 2.28±1.57), did not dress formally (3.44±2.53 vs. 3.66±2.56), were not engaged in hair maintenance behaviors (1.00±0.76 vs. 1.25±0.67), were less likely to use scent enhancers (2.13±1.10 vs. 2.38±1.07), and did not enhance their appearance (0.81±0.78 vs. 1.00±0.76). Stress had little to no effect on the choice of creamy foods (mean difference (MD = 0), beverages (MD = 0.09), or deciding to dress informally (MD = 0.04). The Wilcoxon signed-rank test results indicated that under perceived stress, there was a statistically significant difference in choosing mixed dishes ($p = 0.013$), hair maintenance (0.005), and fragrance usage (0.01). Stress, diet modification, accessory use, and appearance enhancement behaviors were close to statistical significance.

Table 1. Summary of Test-Retest results for participants' perceived typical dressing and eating behavior

Do you typically…	50	0.25
Put forward effort to control eating behaviors by managing calorie intake, food choices, or reading food labels	56.4	0.40***
Put forward effort to plan and maintain what you will wear	84.4	0.61***
Make healthy eating choices?	90.6	0.78***
Dress up, which includes formal dress such as suits, dress pants, ties, and button-down shirts?	87.5	0.75***
Dress fashionably?	100	‡
Dress casually, which includes jeans, t-shirts, and sweatpants?	50	0.25

Note: *$p < 0.05$. **$p < 0.01$. ***p < 0.001. †No statistics computed because answers were constants.

Table 2. Summary of Test-Retest results for participants dressing and eating behaviors when under perceived stressful conditions

Variable	Percent Agreement	Kappa Coefficient
When stressed do you/does		
Try to make healthy eating choices?	68.7	0.37*
Try to enhance your appearance?	70.9	0.41*
Dress up, which includes formal dress such as suits, dress pants, ties, and button-down shirts?	75.0	0.26
Dress fashionably?	80.7	0.60***
Dress casually, which includes jeans, t-shirts, and sweatpants?	100.0	‡
Eating food tend to comfort you or relieve stress?	75.0	0.51**
Changing your appearance comfort you or relieve stress?	71.9	0.39*
Spend less time than you ordinarily would prepare food?	53.2	-0.06
Spend less time than you ordinarily would get dressed?	71.9	0.43*
Spend less time than you ordinarily would enhance your appearance?	50.1	-0.01
Experience a change in appetite?	59.5	0.35***
Typically put forward effort to maintain your appearance?	71.9	0.53

Note: *$p < 0.05$. **$p < 0.01$. ***p < 0.001. †No statistics computed because answers were constants

Table 3. Summary of internal consistency results for scales measuring changes in dressing and eating behaviors when under perceived stressful and non-stressful conditions

			Stressful	**Non-Stressful**	
Scale	N items	α	ICC (95% CI)	α [1]	ICC (95% CI)
Mixed Dishes	7	0.68	0.72*** (0.50 - 0.85)	0.58	0.50** (0.18 – 0.72)
Salty/Crunchy Foods	8	0.56	0.75*** (0.51 – 0.88)	0.59	0.68*** (0.42 – 0.83)
Sweet Foods	6	0.57	0.57*** (0.28 – 0.77)	0.59	0.41** (0.08 – 0.66)
Creamy Foods	9	0.73	0.69*** (0.46 – 0.83)	0.73	0.61*** (0.33 – 0.79)
Beverages	8	0.51	0.63 (0.36 – 0.80)	0.55	0.69*** (0.46 – 0.84)
Diet Modification	9	0.77	0.30* (-0.06 – 0.58)	0.79	0.30* (-0.06 – 0.58)
Accessories	8	0.63	0.74*** (0.53 – 0.86)	0.51	0.69 (0.45 – 0.83)

Informal Dress	9	0.58	0.60*** (0.32 – 0.78)	0.57	0.67*** (0.43 – 0.83)
Formal Dress	8	0.85	0.73*** (0.52 – 0.86)	0.85	0.67*** (0.42 – 0.83)
Hair Products	3	-0.57	0.66*** (0.41 - 0.82)	-0.09	0.78*** (0.60 – 0.89)
Scent	5	0.47	0.51** (0.20 - .72)	0.51	0.52** (0.22 – 0.73)
Appearance Enhancement	5	0.31	0.76*** (0.57 – 0.88)	0.19	0.51** (0.21 – 0.73)

Note: *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Discussion

The results from the reliability analyses suggest that the Men's Stress Dressing and Eating Survey is overall a reliable instrument to measure how dressing and eating behaviors change in association to stress for male undergraduate university students.

The results from nonparametric paired-sample tests suggested that these participants engaged in various dressing and eating behaviors when under stressful compared to non-stressful conditions. These analyses were exploratory, as the authors did not have a priori hypotheses for these tests. In general, when under perceived stress, undergraduate male students are less likely to eat a variety of food categories with only increasing their intake of mixed dishes (e.g., casserole, pizza, etc.). These results contrast previous research on females who had a preference for sweet and snack-related foods and an increased variety of foods when stressed (Wansink et al., 2003; Saiki et al., 2012). It has been demonstrated that during low and moderate levels of stress, men had the tendency to eat less when stressed. This pattern appears to be consistent across various stressful situations (Stone & Brownell, 1994). Further, this finding has been replicated in other studies where research has suggested that men, compared to women, consistently reported decreasing their food consumption in response to stress (Zellner et al., 2007). In reference to dressing, men exhibited similar behaviors to that of eating in that they were less likely to engage in various dressing behaviors. Mainly they did not engage in the maintenance of their hair and use of fragrances. In previous studies on women, similar patterns emerged with women engaging less in appearance-related behaviors (e.g., formal clothing, accessories, etc.) when stressed among a wider array of categories when compared with men (Saiki et al., 2012).

This research was the first of its kind, as no prior work was found addressing relationships between stress, dressing, and eating behaviors in male undergraduate university students. Future research may use this instrument to investigate the relationship between dressing and food habits in men across their lifespan. It may also be used to characterize the dressing and eating habits of men with different psycho-graphical (e.g., attitudes) and demographical characteristics (e.g., age, socio-economic group, educational level, and marital status). While this survey was designed for the use in a sample of college male undergraduate students, the validity of the instrument could be tested by including other male population groups (e.g., teenagers, older adults, individuals with psychological disorders).

This study, like all research, is not without limitations. First, using undergraduate students as research participants poses many advantages and disadvantages. While the population is easily accessible and the sample size for test-retest was desirable, there is a potential for results to be non-generalizable to other populations outside of male university students, thus limiting the instrument's versatility. Future research using the Men's Stress

Dressing and Eating Survey could address this issue by altering the sample for which the survey was tested.

Conclusion

The Men's Stress Dressing and Eating Survey is a reliable instrument that can detect changes in dressing and eating behaviors in male undergraduate university students' perceived stress. Future research with a larger sample needs to be conducted to observe if a cause-effect relationship truly exists between stress and dressing/eating behaviors. This study is valuable for practitioners and researchers because i) health professionals can educate undergraduate university male students or intervene in the implications of limited food selection and unhealthy eating practices. An absence of a wide variety of food could result in not only nutrient deficiencies but could possibly predispose them to chronic diseases (e.g., obesity, cardiovascular diseases). ii) Men will become more aware of their dressing and eating practices during perceived stressful and non-stressful conditions, thus can make healthy eating and appropriate dressing modifications in preparation for adulthood (e.g., career success, sustained quality of life). iii) Finally, early intervention strategies (e.g., yoga, wellness regimen, planned physical activities, cognitive therapy) (Nasab et al., 2018) can be implemented given visible signs of stress as evidenced by men's selected dressing behaviors and food choices. Further research includes having an instrument expert assess the testing of the MSDES instrument, along with utilizing a larger demographical population of males. In addition, these results could be compared with that of additional research on women.

Conflicts of Interest

In this study, was not reported any potential conflicts of interest by the authors.

Acknowledgments

The researchers would like to thank all the participants who contributed to the study.

Authors' Contribution

Conceptualization, D.S. and J.K.; Methodology, D.S. and J.K.; Investigation, D.S. and J.K.; Formal analysis, D.S. and J.G.; Data Curation, D.S. and J.K.; Writing – Original Draft, D.S. and M.M.; Writing – Review & Editing, D.S. and M.M.

All authors read and approved the final manuscript and are responsible about any question related to article

References

Habhab, S., Sheldon, J. P., Loeb, R. C. (2009). The relationship between stress, dietary restraint, and food preferences in women. Appetite, 52, 437-444.

Kandiah, J., Saiki, D. (2010). Instrument to assess perceived effects of stress on dressing and eating behaviors. The Forum for Family and Consumer Sciences Issues, 15(2). Retrieved from https://www.theforumjournal.org/2010/06/03/summer-2010-vol-15-no-2/

Nasab, A., Yousefian, Z., Sehatti, M. (2019). The Effectiveness of Stress Reduction-Based Cognitive Therapy on Perceived Stress and Migraine Symptoms of Women Suffering from Migraine. Social Behavior Research & Health., 2(2). https://doi.org/10.18502/sbrh.v2i2.282

Reilly, A., Rudd, N. A. (2007). Stress and dress: Investigating the relationship between social anxiety and appearance management among gay and straight men. Journal of homosexuality, 52(3-4), 151-166. https://doi.org/ 10. 1300/ J082v52n03_07

Roach-Higgins, M. E., Eicher, J. B. (1992). Dress and identity. Clothing and textiles research journal, 10(4), 1-8. https:// doi.org/ 10.1177/ 0887302X9201000401

Saiki, D., Kandiah, J., McCarthy, L. (2012). Women's perceived influence of stress on their dressing and eating behaviors. International Journal of Home Economics, 5(2), 279.

Stone, A. A., Brownell, K. D. (1994). The stress-eating paradox: multiple daily measurements in adult males and females. Psychology and Health, 9(6), 425-436.

https://doi.org/10.1080/08870449408407469

Wansink, B., Cheney, M. M., Chan, N. (2003). Exploring comfort food preferences across age and gender. Physiology & behavior, 79(4-5), 739-747. https:// doi.org/ 10.1016/S0031-9384(03) 00203-8

Zellner, D. A., Saito, S., Gonzalez, J. (2007). The effect of stress on men's food selection. Appetite, 49(3), 696-699. https:// doi.org/10.1016/j.appet.2007.06.013.