Stress and Unhealthy Eating in a College Sample

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Abstract

The obesity epidemic in the United States has caused concerns among health professionals and the lay public alike. Researchers have investigated the factors that contribute to unhealthy eating, an underlying factor in obesity. Previous research has established a strong relationship between stress and unhealthy eating in both children\(^1, 6\) and adults\(^9\). Due to the high-stress nature of the college environment, the present study sought to confirm the relationship between stress and unhealthy eating in a sample of college students. Additionally, the present study explored whether or not using food as a coping mechanism contributed to the relationship between stress and unhealthy eating. Surveys were passed out to 114 university students in their core classes. Stress levels were measured with an adapted version of The Perceived Stress Scale\(^2\) and an investigator-developed questionnaire was used to measure eating habits. The results indicated a significant relationship between high levels of stress and the increased consumption of unhealthy foods. Further analysis also revealed a strong association between the use of food as a coping mechanism and eating more when stressed. These results suggest that interventions aimed at stress reduction may be useful in the fight against unhealthy eating and obesity. Future studies should address additional factors that may contribute to high levels of stress and unhealthy eating such as the cost of food and convenience of preparation.

Keywords: Stress, unhealthy eating, college

1. Introduction

The negative consequences of unhealthy eating, such as an increase in the incidence of eating disorders and obesity, have caused concerns among both health professionals and the general public. In response to these concerns, researchers have investigated factors that contribute to unhealthy eating. Previous studies have found a strong relationship between stress and unhealthy eating\(^1, 3, 6, 9\) in both children\(^1, 6\) and adults\(^9\). However, few studies have focused specifically on college students. Because the relationship between stress and unhealthy eating has been well established in other populations, it is likely it also exists for college students. In fact, the high levels of stress that many college students experience may cause them to be particularly vulnerable to unhealthy eating practices. Therefore, the current study sought to confirm the relationship between stress and unhealthy eating in a college sample.

Although few studies have focused on college students, researchers have examined the relationship between stress and unhealthy eating in younger children. Jenkins, Rew, and Stern glanz, 2005\(^6\) conducted a study examining the eating habits and stress levels of fourth, fifth, and sixth-grade students. The results showed a relationship between stress and the use of unhealthy foods as a coping mechanism\(^6\). A similar study also observed that stress was related to unhealthy eating behaviors including an increase in the consumption of fatty foods and a decrease in the consumption of fruit and vegetables\(^1\). Although these results indicate a relationship between stress and unhealthy eating behaviors in children, it is likely this relationship is also present in college students because both are subject to academic stressors.
Academic or performance-related pressures may play a role in unhealthy eating behaviors. Michaud, et al., 1990\(^7\) conducted a study that explored the impact of a major academic stressor on the eating habits of high school students. The results showed a significant increase in both the overall energy intake and the consumption of fat during the day of a major exam\(^7\). Although this study focused on high school students, college students also experience academic stressors and therefore likely respond with similar changes in eating habits. Oliver, Wardle, and Gibson, 2000\(^10\) offered further support for this hypothesis in a laboratory study using a population of college students and faculty. The results from their study indicated that performance stress is related to the increased consumption of fatty foods in emotional eaters\(^10\). Although these results provide evidence for the hypothesis that performance or academic stress is related to unhealthy eating habits, it is possible that this relationship is specific to individuals who engage in emotional eating.

It is unclear whether or not emotional eating plays a role in the stress-eating relationship. In their study of psychological states and emotional eating in high school students, Nguyen-Rodriguez, Unger, and Spruijt-Metz, 2009\(^7\) found a strong relationship between perceived stress, worries, and emotional eating. In contrast, Conner, et al., 1999\(^3\) found that emotional eating wasn’t a significant factor in the relationship between a high number of daily stressors and increased consumption of snacks. These conflicting results suggest that although emotional eating may play a role in stress-related eating, it is not always a contributing factor.

For some people, stress may be related to a reduction in food intake. Stone and Brownell, 1994\(^11\) found stress to be correlated with a reduction in food intake in a population of married couples. The results of this study may conflict with other findings because the type of food participants ate was not evaluated\(^11\). Other research has found that stress was related to both an increase in the intake of fatty and sugary foods and a decrease in the intake of fruit and vegetables\(^1,8\). Therefore, it is possible that when stressed, people’s overall food consumption decreases because they choose to eat foods that are higher in caloric-value.

Although in some cases stress may be related to a reduction in food intake, most research points to a relationship between stress and an increase in unhealthy eating\(^7,9,9\). Furthermore, research points to academic or performance related stress as a common proponent of stress-induced eating behaviors\(^7,10\).

The present study explored the relationship between stress and unhealthy eating in a college population. Stress levels were measured with an adapted version of The Perceived Stress Scale\(^2\) and an investigator-developed questionnaire was used to measure eating habits. The main hypothesis was that students who reported high stress levels would eat more unhealthy foods than students who reported low stress levels. The second hypothesis was that using food to cope with stress would be a higher predictor of eating more when stressed than eating unhealthy foods when stressed.

2. Method

2.1 Participants

One hundred and fourteen Seattle University students in seven different core classes were asked to take a voluntary questionnaire in one of their core classes. Of these, 112 agreed to participate in the study. One participant indicated the consumption of an extraordinary number of unhealthy foods within the past week and thus was determined to be an outlier and removed from the data file. Therefore, the total number of participants included in the study was 111, 97% of those approached.

The current sample consisted of 80 females (72.1%) and 31 males (27.7%) with an average age of 20.18 years (SD= 3.876). This sample seemed to reflect the natural distribution of sex among students at Seattle University. The sample consisted of 51 freshmen (45.9%), 25 sophomores (22.5%), 24 juniors (21.6%), and 11 seniors (9.9%). This distribution also seemed indicative of the current distribution of class standing among Seattle University undergraduates in core classes with the exception of the freshmen to senior ratio (See table 1). However, we believe this sample reflected the accurate class distribution among students enrolled in core classes. Of the sample, the majors of the participants were varied among the different colleges and degrees. The most common majors among the sample were Digital Design (n=12, 10.7%), History (n=12, 10.7%), and Nursing (n=7, 6.3%). Twelve of the students were undeclared (10.7%).
Table 1.

Demographic and descriptive information for participants (n=111)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender M(%)/F(%)</td>
<td>31 (27.9)/ 80 (72.1)</td>
</tr>
<tr>
<td>Age (yr) (mean ± SD)</td>
<td>20.18 ±3.876 (range: 18-52)</td>
</tr>
<tr>
<td>Class Standing (%)</td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>51 (45.9)</td>
</tr>
<tr>
<td>Sophomores</td>
<td>25 (22.5)</td>
</tr>
<tr>
<td>Juniors</td>
<td>24 (21.6)</td>
</tr>
<tr>
<td>Seniors</td>
<td>11 (9.9)</td>
</tr>
<tr>
<td>Declared Major (%) (Most common)</td>
<td></td>
</tr>
<tr>
<td>Digital Design</td>
<td>12 (10.8)</td>
</tr>
<tr>
<td>History</td>
<td>12 (10.8)</td>
</tr>
<tr>
<td>Nursing</td>
<td>7 (6.3)</td>
</tr>
<tr>
<td>Undeclared</td>
<td>12 (10.8)</td>
</tr>
</tbody>
</table>

3. Materials

All 111 participants completed identical questionnaires. No personally identifying information such as the participants’ names, addresses, phone numbers or emails were collected for this study. The questionnaire was a four-part survey about college student’s stress levels and unhealthy food consumption. Part one consisted of demographic or descriptive questions such as gender, age, and declared majors. The second section of the questionnaire asked participants to rate their feelings, thoughts, and eating habits during the previous week on a scale from 1 to 5 where “1 = Never” and “5 = Very Often.” Some examples of the types of questions asked in this section were “In the last week, how often have you used food to cope with stress” or “In the last week, how often did you eat unhealthy foods when stressed” or “In the last week, how often did you eat less than usual when stressed?” This section allowed the participants to begin to objectively look at their habits around stress in regards to food. The purpose of these questions was to help identify examples of personal stressors or unhealthy stress behaviors in the daily lives of college students at Seattle University.

Part three of the questionnaire was an adapted version of the Perceived Stress Scale\(^2\) that asked participants to rate how often they felt or thought a certain way about different stress indicators in the previous week. Participants rated their responses on a scale of 1 to 5 where “1 = Never” and “5 = Very Often.” Examples of the types of questions asked in this section were “how often have you felt upset unexpectedly,” “how often were you unable to control the important things,” and “how often have you felt on top of things”\(^2\). In order to match the time frame of the food section of the survey, the questions from the original PSS were adapted to ask about stress indicators during the previous week, rather than the previous month. In addition, the PSS was adapted to address more college relevant stressors as opposed to general stressors. For example, instead of the question “in the last month, how often have you felt confident about your ability to handle your personal problems”\(^2\), the question was adapted to better apply to our sample by asking “in the last week, how often have you felt confident about your ability to handle your academic and school related problems?”

The final portion of the questionnaire asked participants to check off all of the unhealthy foods or drinks from the provided list of 74 items that they consumed in the last week. These items were adapted from a list of “The 100 most unhealthy foods in the American diet” by turning foods such as KFC chicken into “fried chicken” to better apply to college students\(^12\). Examples of the items found in section four were eggnog, energy drinks, alfredo, mayonnaise, popcorn, etc. This section was scored by adding up the number of items that were checked off by each participant in order to determine the total number of unhealthy foods consumed in a week.
4. Results

4.1 Students Who Reported High Stress Levels Would Eat More Unhealthy Foods Than Students Who Reported Low Stress Levels

In order to test the first hypothesis, participant’s responses to the perceived stress questionnaire and the list of unhealthy foods were totaled and scored. After determining there were no violations of assumptions, a Pearson Correlation was used to examine the relationship between the two continuous variables: total adapted perceived stress and the total number of unhealthy foods consumed by participants. The results of the analysis showed a significant low positive correlation between total adapted perceived stress and total unhealthy foods consumed, \( r = .274, n = 111, p = .004 \). This means that students who reported high stress levels ate more unhealthy foods than students who reported low stress levels (See Figure 1).

![Figure 1. Correlation between total unhealthy foods consumed and total adapted PSS](image)

4.2 Using Food To Cope Was A Better Predictor Of Eating More Than Eating Unhealthy Foods

Standard multiple regression was used to evaluate whether using food to cope with stress was a higher predictor of eating more when stressed than eating unhealthy foods when stressed. Preliminary analyses indicated that all of the assumptions were met. Results from the analysis showed the use of food as a coping mechanism was a larger predictor of eating more than usual when stressed, \( \beta = .560, p < .001 \), than eating unhealthy foods when stressed, \( \beta = .128, p = .150 \) (See figures 2 and 3). Therefore, using food to cope with stress was more strongly related to eating more than usual when stressed, than eating unhealthy foods when stressed.
The findings from this study support a relationship between stress and unhealthy eating in college students. As has been shown in previous research, high stress was associated with the increased consumption of unhealthy foods. This study also identified a relationship between using food to cope with stress and eating more when stressed. This is supported by previous research that found a relationship between stress and the use of food as a coping mechanism in children. The current study provides a foundation for further exploration into other factors that may contribute to high stress and unhealthy eating as well as ways in which both can be prevented.

Although the results of this study support the relationship between high levels of stress and unhealthy eating, the direction of the relationship is unclear. It is possible that high levels of stress increase the consumption of unhealthy foods, particularly when people use foods as a means to cope with stress. Alternatively, it also may be that eating unhealthy foods increases stress levels or that another variable contributes to the relationship between stress and unhealthy eating. For example, people who struggle with their weight may experience more stress than individuals who are naturally thin. Thus, individuals who struggle with their weight may be more likely to eat unhealthy foods due to higher stress levels. Future research should explore how a person’s weight impacts the relationship between stress and eating behaviors.

Other variables such as the price of food and its accessibility may also contribute to the relationship between stress and unhealthy eating in college students. Glanz, Basil, Maibach, Goldberg, and Snyder, 1998 suggest that cost and convenience play a role in food selection. It is likely that when busy and stressed buying fast food is easier and cheaper than putting together a home-cooked meal. Future research should explore whether time and budget constraints impact food choice for college students.

Despite its limitations, this study provides further support for the relationship between high stress and an increase in unhealthy eating. The findings also support a relationship between using food to cope with stress and eating more than usual when stressed. Although the sample in this study was limited to Seattle University students, the results have important implications for students at other universities. Despite the healthy food options offered at Seattle University it appears that students still struggle with unhealthy eating. Therefore, unhealthy eating could be an even greater problem for students at other universities that don’t have such a strong focus on healthy eating. Future research should evaluate the effectiveness of healthy eating programs and address other ways in which unhealthy eating can be prevented or reduced in college students. Furthermore, research should identify positive coping mechanisms for college students so that they are able to get through the high stress time period armed with the tools necessary to become strong, healthy, and capable people.
6. References


