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## The Relationship between Stress and Emotional Eating in Baccalaureate Nursing Students

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**The Relationship between Stress and Emotional Eating in Baccalaureate Nursing Students**

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School of Nursing

**Author Note**

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### **Abstract**

Nursing students consistently report high levels of stress. This replication study examined the relationship between stress and emotional eating in undergraduate nursing students and compared findings with the original 2012 study. The non-experimental study was guided by the Psychosomatic Theory. Sampling and data collection occurred using three waves of recruitment emails to all sophomore and senior nursing students in spring of 2021. Stress was measured with the Perceived Stress Tool. Emotional eating was measured with the Weight and Efficacy Lifestyle Questionnaire. Emotional eating was higher in seniors, there was no level difference in stress, and BMI was higher in sophomores, compared with seniors. No relationship was found between stress and emotional eating in this sample or in subsamples of sophomores or seniors, contrary to the 2012 findings of relationships in the sample and in both subsamples. Further, stress was 52% higher in 2021, compared with 2012. Emotional eating was 11% lower in 2021, compared with 2012. Continual high levels of stress can lead to physical and mental health issues; therefore, it is important to take care of mental and physical well-being during stressful times.

### **The Relationship between Stress and Emotional Eating in Baccalaureate Nursing Students**

College students experience different amounts of stress due to academic demand and responsibilities (Mendes et al., 2019), but nursing students experience higher levels of stress compared to the general population and college students in other health fields (Senturk, & Dogan, 2018). This may be due to the high academic demands and expectations in nursing education (Labrague et al., 2018). There are more than 996 baccalaureate nursing programs in the U.S. (American Association of Colleges of Nursing, 2020). Data from 688 of those Baccalaureate programs showed 2018 total program enrollment of 363,433 nursing students, therefore, many nursing students may be at risk of being affected by the stress during their baccalaureate education.

Stress is defined as an association of an individual and his environment, in which the individual perceives the stressor as a threatening situation that risks well-being and goes beyond ability to cope (Mendes et al., 2019). Every individual perceives stress subjectively and in different ways, and each has their own coping mechanisms, which differ from person to person. Further, one individual may react to a stressor differently compared to the next stressor. Exposure to minimal amount of stress is considered beneficial as it can motivate individuals. However, exposure to high amounts of stress for extended periods of time can have adverse effects on physical and mental well-being (Labrague et al., 2018). Studies have shown that exposure to chronic stress may have negative impact on communication, thinking and memory, interpersonal relationships, decision-making, and often affect academic and clinical performance (Labrague et al., 2018).

Emotional eating is the increase of food intake in response to both negative and positive emotions and is often overlooked when understanding stress and weight in adolescents (Chamberlin et al., 2019). Overeating is a contributing factor to becoming overweight, and according to the American Heart Association (2018), young adults who are overweight begin to develop conditions, such as high blood pressure, that put them at a higher risk of developing heart disease and stroke later in life. The purpose of this honors research project was to examine the relationship between emotional eating and stress in baccalaureate nursing students. This project was a replication of an earlier study conducted at the same site (DeWalt, Shevchuk, & Yanul, 2012). The objective was to answer the following research questions:

- (1) Is there a relationship between emotional eating and stress in nursing students?
- (2) Is there a difference in the relationship between emotional eating and stress in sophomore- and senior-level nursing students?
- (3) Is there a difference in stress and emotional eating since the original honors project study in 2012?

Nursing is the nation's largest healthcare profession with more than 3.8 million registered nurses (RNs) nationwide, and of all licensed RNs, 84.5% are employed in nursing (American Association of Colleges of Nursing, 2019). It is important for everyone to maintain a healthy lifestyle, but nurses have a position of influencing the patients they interact with every day, and patients are more likely to follow instruction about healthy living that they receive from nurses who live healthy lifestyles (Jordan, 2018).

### **Review of Literature**

Researchers have studied stress in nursing students, especially examining the conditions or factors associated with stress in this population, such as stress and the quality of life in nursing students (Labrague et al., 2017), the stress experienced by nursing students during nursing education (Senturk, & Dogan, 2018), instruments for the evaluation of stress in nursing students (Mendes et al., 2019), psychological stress and lifestyle of students (Deasy et al., 2014), and stress among incoming college freshman (Garett et al., 2017). Nursing students (N=547), whether from the Philippines, Greece, or Nigeria, have been found to self-report moderate levels of stress primarily from assignments, workload, and clinical environment (Labrague et al., 2017). These findings are consistent with Senturk and Dogan (2018) who found stress levels were just above moderate in 318 nursing students in Turkey. They found that stress levels in academics and in clinical area were equal and that conditions associated with stress were preparing for and taking exams, homework, and the clinical setting (Senturk, & Dogan, 2018). Overall, it was found nursing students experience moderate stress from school related areas.

Researchers have studied eating habits and other lifestyle choices among nursing students, such as eating attitudes and body perception that lead to eating disorders (Vijayalakshmi et al., 2018), as well as the association between dietary patterns and sociodemographics (Williams et al., 2019). In a study of 548 nursing baccalaureate students in Australia, most nursing students reported to adhere to unhealthy or unbalanced eating pattern (Williams et al., 2019). Among medical and nursing students (N=454) from Bangalore and South India, nearly half were actually underweight yet perceived themselves as normal weight, and more than one-third showed risk for development of eating disorders (Vijayalakshmi et al.,

2018). Overall, nursing students show unhealthy eating patterns which may be attributed to how they perceive their body image or how they manage stress.

Researchers have studied the relationship of stress and emotional eating (DeWalt, Shevchok, & Yanel, 2012), as well as stress and obesity among nursing students (Urbanetto et al., 2019), the effects of anxiety, depression and stress on eating (Doumit et al., 2015), and food intake levels in students with high and low stress (Nataskin, & Fiocco, 2015). Psychological stress may contribute to weight gain and obesity, as anxiety may lead to increased food intake, inadequate appetite control, and compulsive overeating (Souza Urbanetto et al., 2019). In a study of 894 female undergraduates at a Lebanese university, high levels of stress were found to be associated with a greater drive to eat, including feelings of restrained eating, binge eating, and hunger (Doumit et al., 2015). The findings are similar to findings by DeWalt, Shevchok, and Yanel (2012) who studied nursing students in the U.S. Nataksin and Fiocco (2015) studied 136 undergraduate students from a university in Toronto, Canada and found perceived stress within the sample was above the standardized normal. The research suggested unhealthy food intake is a common coping mechanism implemented in response to stress in undergraduate students (Nataksin, & Fiocco, 2015). Overall, there seems to be a positive relationship between stress and emotional eating.

### **Theoretical Framework**

This study is driven by the Psychosomatic Theory, which was advanced in 1973 and associates excessive eating with a mistaken awareness of hunger. According to the theory, people may not eat in response to their hunger or the feeling of fullness; they may instead eat in response to their emotions. Emotional eating is thus considered a psychological coping

mechanism for positive or negative emotions, many of which may be related with stress (Sanlier, & Serin, 2019). According to the American Heart Association (2017), prolonged exposure to stress can affect both mental and physical health. Some of these include anxiety, depression, weight gain, high blood pressure, memory and concentration issues, sleep problems, heart disease and stroke (American Heart Association, 2017). Because of these negative health outcomes, it is important to study people who are under higher levels of stress, nursing students being one of these groups. Based on the psychosomatic theory, a positive correlation between stress and emotional eating is expected.

## **Methods**

### **Design**

This research study used a non-experimental design with cross-sectional data collection methods. Data were collected during the spring semester of 2021 using electronic surveys from a convenience sample of sophomore and senior nursing students in the baccalaureate program at a large urban university located in a Midwest state of the United States. Approval was received from the university IRB before beginning any recruitment and data collection.

### **Site and Sample**

The setting was in a baccalaureate nursing program at large urban public university in the Midwest of the United States. The total number of students at university for fall 2020 was 17,829 (University Institutional Research). The number of graduate and undergraduate students in school of nursing in 2019 was 1,272. There were about 271 graduate students in the nursing program; the types of nursing programs for graduate students were nurse practitioner, nurse anesthetist, and Doctor of Nursing program. The undergraduate students made up about 998

students and the undergraduate programs included traditional baccalaureate (BSN) (468), RN to BSN, accelerated, and LPN to BSN.

The sample included participants from the university that were current sophomore or senior nursing students. The inclusion criteria for these participants included: current enrollment in the university's baccalaureate nursing program at a sophomore or senior level and 18 years of age or older. RN/BSN and accelerated students, as well as both 4 and 5-year BSN students were included in the sample, although only data sophomore and senior levels were included in the analysis. As long as inclusion criteria were met, no participant was excluded from the study because of race, ethnicity, gender, or age.

### **Sampling and Data Collection**

The college student success center emailed all current university sophomore and senior nursing students about the honors project during early spring semester 2021. The email contained a description of the research project as well as the link to the consent form (see Appendix E) and online survey (see Appendix B, C, D). Recruitment included three waves of emails to sophomore and senior baccalaureate students to increase sample. Each wave was released at 10-day intervals and emails in the second and third wave included thanking those who had already participated and asked others to take part in the study.

The participation in this survey was voluntary, and the informed consent was attached to the online survey for the participants to read; submitted surveys conveyed informed consent. The survey took around 15 minutes to complete. These surveys contain no identifiable information to maintain confidentiality. Survey data was then imported to a data analysis

software program, and only the honors students and project advisor had access to the data that was stored in a password-protected computer and destroyed according to the IRB protocol.

### **Measures**

As in the earlier study (DeWalt, Shevchuk, & Yanul, 2012), stress was measured with the 10-item Perceived Stress Scale (see Appendix C), the most widely used instrument in measuring stress perception (Cohen, Kamarck, & Mermelstein, 1983). The participants were asked to rate each item using a Likert scale from 0 to 5, with 0 being 'never' and 5 being 'very often.' Ratings from the 10 items were summed so variable measure would be at the interval level, fitting correlation analysis with Pearson correlation coefficients. Items were coded and summed so that higher scores would indicate higher levels of stress. The reliability and validity of this tool has been shown over a series of trials (Cohen, Kamarck, & Mermelstein, 1983).

Also, as in the earlier study (DeWalt, Shevchuk, & Yanul, 2012), emotional eating was measured with the Weight Efficacy Life-Style Questionnaire (see Appendix D) which includes 20 items to measure ability to resist the desire to eat (Clark, Abrams, & Niaura, 1991). Participants were asked to respond to each item on a Likert scale from 0-9, with 0 being 'not at all confident' to 9 'extremely confident.' As with the Perceived Stress measure, items were coded and summed so that higher scores would indicate higher levels of emotional eating. This tool is one of the most widely used questionnaires to evaluate eating control and lifestyle. It has been tested for validity and reliability using several clinical trials of subjects, which determined cross-validity and external validity (Clark, Abrams, & Niaura, 1991).

Demographic values included age, sex, ethnicity, nursing level, GPA, marital status, weight, height, living situation (on campus, off campus along, off campus with family, off campus with others), and average number of hours worked weekly.

### **Plan of Data Analysis**

Data were imported into a data analysis software program and examined for completion. Missing data were managed based on type of data with decisions made by the honors researchers and project sponsor. Demographic data were analyzed to describe the sample and the variables of stress and emotional eating. Level of statistical significance was set at alphas ( $p$ - values) < .05.

## **Results**

### **Sample**

In this study, 101 participants completed the online survey investigating the relationship between stress and emotional eating. Age ranged from 18-41 years with mean age of 21.72 (SD=3.595.) Approximately 33% (N=31) were sophomores and 67% (N=64) were seniors. The vast majority was Caucasian (85%) with 9% African American, 1% Asian, and 1% Hispanic/Latino. Most (86%) were never married with 5% married, and 8% living together. The majority lived off campus with others (56%), with 27% living off campus with parents, 9% living on campus with others, 4% living alone off campus, and 2% living alone on campus. The majority (94%) was enrolled in the baccalaureate nursing program and 6% are enrolled in the RN/BSN program. GPA ranged from 2.89 to 4.00 with a mean of 3.58 (SD=0.29). Mean hours worked per week was 16.31 (SD=12.73), ranging from 0 to 60. Mean BMI was 25.71 (SD=5.39)

and ranged from 17.52 to 45.20. Approximately 8% (N=8) were categorized as underweight, 50% (N=51) were normal weight, 22% (N=22) were overweight, and 20% (N=20) obese.

Sample emotional eating mean was 112.14 (SD=26.99, range=52-200), and sample stress mean was 33.51 (SD=3.25, range=26-42). Scale inter-item reliability in this sample was adequate with a Cronbach's alpha of .84. Emotional eating mean varied by level, with sophomore level emotional eating mean = 107 (SD=17.56) and senior level emotional eating mean = 114.55 (SD=30.90). An independent sample t-test showed significant group mean difference in emotional eating ( $t = -1.03, p = .019$ ), with higher levels of emotional eating in seniors, compared with sophomores. Stress mean also varied by level, with sophomore level stress mean = 34.38 (SD=3.51) and senior level mean = 33.13 (SD=3.09). Scale inter-item reliability for this sample was adequate with a Cronbach's alpha of .89. An independent sample t-test showed no significant group mean difference on stress ( $t = 1.84, p = .36$ ). BMI mean was also compared in sophomore and senior levels with an independent t-test. Sophomore level BMI mean was 27.61 (SD=6.30), and senior level BMI was 24.91 (SD=4.69) with significantly higher BMI mean in sophomores, compared with seniors ( $t = 2.35, p = .017$ ). Therefore, emotional eating was higher in seniors, there was no level difference in stress, and BMI was higher in sophomores, compared with seniors.

### **Research Question #1**

The first research question was: Is there a relationship between stress and emotional eating in sophomore and senior baccalaureate nursing students. Pearson correlation was used to determine relationship between stress and emotional eating and found no correlation ( $r = 0.176, p = .139$ ) between stress and emotional eating in the sample. However, there was

moderate, positive relationship between BMI and emotional eating ( $r = -.24, p = .041$ ). Therefore, no relationship was found between stress and emotional eating, however, as emotional eating increased, so did BMI in the sample.

### Research Question #2

The second research question asked if there is a difference in the relationship between stress and emotional eating habits related to year of schooling. Pearson correlations were used to determine the relationships between stress and emotional eating based on level. Again, no relationships between stress and emotional eating were found in sophomores ( $r = .15, p = .52$ ) and in seniors ( $r = -.24, p = .10$ ).

### Research Question #3

The last research question asked if there was a difference in stress and emotional eating compared with the original honors project study in 2012 (DeWalt, Shevchuk, & Yanul, 2012). Although unable to combine the datasets for this sample and the 2012 sample, Table 1. shows stress and emotional eating for the two samples. Despite lack of statistical analysis, stress was reported to be higher in 2021, compared with 2012, and specifically 57% higher in 2021,

**Table 1. Comparison of 2012 and 2021 Samples**

	Study		Seniors		Sophomore	
	2012 (287) M (SD)	2021 (101) M (SD)	2012 (139) M (SD)	2021 (64) M (SD)	2012 (148) M (SD)	2021 (31) M (SD)
Stress	19 (6.50)	33.51 (3.25)	16.96 (6.23)	33.13 (3.09)	21.26 (6.03)	34.38 (3.51)
Emotional Eating	125 (26.84)	112.14 (26.99)	128.57 (27.82)	114.55 (30.90)	122.49 (25.67)	107 (17.56)

52% higher in 2021 seniors, and 62% higher in 2021 sophomores. In contrast, emotional eating was reported lower in 2021, compared with 2012, and specifically 11% lower in 2021, 11% in seniors, and 13% lower in sophomores. Also notable in the 2021 sample was that 56% reported living off campus with others, compared with 77% in 2012, and that 27% in 2021 reported living off campus with parents, compared with none in 2012 (DeWalt, Shevchok, & Yanel, 2012).

### **Discussion**

No relationship between stress and emotional eating was found in the sample of sophomore and senior level baccalaureate nursing students. Further, there were no relationships between stress and emotional eating in sophomores or in seniors. Emotional eating was higher in seniors, and there was no difference in stress in sophomores, compared with seniors. BMI was higher in sophomores, compared with seniors. There was also a positive correlation between body mass index (BMI) and emotional eating.

When comparing the findings of this study with findings of the original study (DeWalt, Shevchok, & Yanel, 2012), there are several differences. Stress in baccalaureate nursing students in 2021 are significantly higher than those in the original study, with higher levels in sophomore level students than senior level students. In contrast, emotional eating in 2021 was lower than in 2012, and specifically lower in sophomore level students than senior level. The sample size in 2021 was also smaller at 101, compare with 287 in the sample of the original study (DeWalt, Shevchok, & Yanel, 2012).

DeWalt, Shevchok, and Yanel (2012) found that there was a positive relationship between emotional eating and stress in baccalaureate nursing students, whereas this study did not conclude a relationship between emotional eating and stress. Findings of this study were

also consistent with those of Nataskin and Fiocco (2015), who studied students in Canada. Their research suggested a positive correlation between unhealthy food intake and stress. The Psychosomatic Theory, which proposes that people may not eat in response to their hunger or the feeling of fullness; they may instead eat in response to their emotions (Sanlier, & Serin, 2019), implies a positive correlation between emotional eating and stress, which was found in the 2012 study (DeWalt, Shevchok, & Yanel, 2012), but the findings of this study did not support the theory.

### **Limitations**

Findings are limited in generalizability by the convenience sampling. Cross-sectional data collection further limits findings because two different groups of students, sophomore and seniors, were studied, preventing analysis about cause and effect. No analysis comparing groups on demographics were conducted, therefore, it is unknown if groups were similar in gender distribution, number of hours worked weekly, GPA, etc. Further, there were more senior participants (n=64), compared with sophomore participants (n=31), which may have affected the validity of findings.

Additional confounding variables affecting findings could be group differences in professors and classes being taken. During this study's time frame the COVID Pandemic was occurring, affecting how classes were delivered, as well as additional pandemic-related stressors, although both sophomore and senior level students were affected by these stressors. Another limitation that could have possibly skewed the results was including different nursing programs, such as the traditional, RN-BSN, and accelerated program. Finally, findings are limited by the small convenience sample at one university.

In future studies, a longitudinal design that studies one group of students over a period of time, rather than two different groups of students at single period of time, may better control extraneous variables, such as the COVID 19 Pandemic, different professors, different course material, and different level expectations and demands. A larger sample may also yield more valid findings. By using longitudinal data collection and following the same group of students throughout their sophomore and senior years, this may strengthen findings about the difference in stress and emotional eating in the same group of nursing students as they progress through undergraduate nursing studies. This approach may also allow for study of the same group of students under two different circumstances rather than two different groups of students under different circumstances, which was the case in this study.

### **Nursing Implications**

In this study, there was no correlation between emotional eating and stress in baccalaureate nursing students. However, findings showed increased amounts of stress in baccalaureate nursing students compared to those in 2012 (DeWalt, Shevchok, & Yanel, 2012). Continual high levels of stress can lead to health problems, such as anxiety, depression, weight gain, high blood pressure, memory and concentration issues, sleep problems, heart disease and stroke (American Heart Association, 2017). It is important for nursing students to take care of their mental and physical health as it can have a negative impact on them not only in the present but in the future. Nursing instructors need to put forth effort in educating nursing students on the importance of taking care of the mental health along with their physical health throughout the stress of undergraduate education as health plays a large role in overall well-being.

**Recommendations**

Additional research needs to be conducted at other universities as well as in other states, which may increase understanding about stress and emotional eating at different locations and nursing programs. Not only can this be used to find correlation in stress and emotional eating relative to geographical location, but it may increase understanding about more diverse samples of nursing students. Different nursing curriculum may also be important to analyze as each program has different plans of study, which can greatly affect the stress level of students going through the programs.

**Conclusion**

The purpose of this study was to examine the relationship between emotional eating and stress in baccalaureate nursing students and to compare findings with those from a previous study (DeWalt, Shevchok, & Yanel, 2012). The study sample included 101 sophomore and senior baccalaureate nursing students. No relationship was found between emotional eating and stress in either the sample or in the subsamples of sophomore or senior studies, as compared to the previous findings of relationships. Findings from both studies, however, included a positive relationship in emotional eating and BMI. Although this study found no significant relationship between emotional eating and stress in sophomore and senior baccalaureate nursing students, stress levels were equally high in both student levels.

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Appendix A

Research Table of Evidence<sup>1</sup>

APA formatted reference	Purpose statement. Research Question <sup>2</sup>	Theoretical Framework <sup>3</sup>	Design of study, Site, Sampling Method, Sample Size <sup>4</sup>	Variables and measurement tools <sup>5</sup>	Findings, Conclusion <sup>6</sup>	Limitations of Findings <sup>7</sup>
<p><b>1</b>Garett, R., Liu, S., &amp; Young, S. D. (2017). A longitudinal analysis of stress among incoming college freshmen. <i>Journal Of American College Health: J Of ACH</i>, 65(5), 331–338. <a href="https://doi.org/10.1080/07448481.2017.1312413">https://doi.org/10.1080/07448481.2017.1312413</a></p>	<p><b>Purpose statement:</b> (1) examine changes in stress during first semester among freshmen undergraduate students and (2) identify predictors of stress <b>Research question:</b> stress level would peak during exam periods and higher stress level would be</p>	<p>Understanding the predictors of stress is important in order to help students adjust to the academic environment and for their overall well-being. Stress results in an array of negative outcomes for undergraduate students, ranging from poor academic performance and health, increased depression levels, increased alcohol use, increased drug/psychostimulant</p>	<p><b>Design:</b> nonexperimental  <b>Site:</b> UCLA  <b>Sampling method:</b> Convenience sampling (in person consent)  <b>Sample size:</b> 197 freshmen students</p>	<p>weekly online surveys  the total number of tweets on each student’s twitter account</p>	<p>Stress was elevated during examinations periods. Women reported a greater stress level than men. Increased stress level was significantly associated with lower sleep quality and greater negative emotions (fear, anger). Exercise was an effective stress coping strategy, while other coping methods</p>	<p>Only freshmen students at one university were studied,  Only 197 of the freshmen students were studied, not the whole class.</p>

<sup>1</sup> As you complete your summarizing tables/TOE, be succinct, accurate, and summarize with your own words. Minimally use quotes, and IF you do, e.g., the purpose statement, use quotation marks and a page number to acknowledge quote. In the past, students have used quotes more in these tables, which doesn't reflect understanding as much as, maybe, copy and paste skills. It also makes these tables longer and more cumbersome.

<sup>2</sup>These are typically in the introduction of the publication and in the abstract. Construct a research question if it is not stated in the article.

<sup>3</sup> What theory did authors use to guide study? This typically follows the ROL, but it may also be discussed in introduction.

<sup>4</sup> What design did author use in study? Where did they conduct the study? How did they select subjects? How large was the sample?

<sup>5</sup> What variables did authors study? How did they measure each variable? If more than two variables, complete for each variable.

<sup>6</sup> How did data answer research question? What do authors conclude in the discussion section?

<sup>7</sup> List limitations related to validity and reliability of methods and applicability of findings. Consider strengths and weaknesses of study, i.e., sample size, no randomized group assignment, no control/comparison group, tools lacking reliability and validity, no use of blinding, no power analysis/data saturation to determine sample size, no use of theory to guide study, threats to internal and external validity, etc.

	associated with poor coping strategies, emotional state, academic confidence, sleep quality, and higher Twitter usage.	use, lowered self-esteem and self-worth, and suicidal ideation. Students who are able to better cope with their stress have improved academic performance, healthier eating habits, lower depression levels, and improved mood.			(Internet usage, meditation, and self-isolation) were associated with higher stress. Social media usage did not influence stress level.	
2Nastaskin, R. S., & Fiocco, A. J. (2015). A survey of diet self-efficacy and food intake in students with high and low perceived stress. <i>Nutrition Journal</i> , 14, 42. <a href="https://doi.org/10.1186/s12937-015-0026-z">https://doi.org/10.1186/s12937-015-0026-z</a>	<p>Purpose Statement: understanding the relationship between stress, self-efficacy and food choice in young adulthood may have implications for preventing negative health outcomes later in life that stem from poor eating habits.</p> <p>Research Question: whether stress levels and diet self-efficacy may be associated with unhealthy eating habits in young adults.</p>	Over the past few years, reports of increased stress among college and university students have surfaced [2,3]. In a related vein, studies have shown that stress is a significant instigator of poor eating behaviors, especially in the young adult population [4]. Animal research shows that stress exposure increases both fat and sodium intake. The majority of human studies have focused on fat intake in relation to stress.	<p>Design: Nonexperimental</p> <p>Site: Ryerson University in Toronto, Ontario, Canada</p> <p>Sampling Method: students who were completing any degree which would allow them to take the Introductory Psychology courses were eligible to participate in the study. Those who were eligible were recruited through Sona</p> <p>Sample Size: 136 male and female undergraduate students (23 male and 113 female)</p>	participants completed six questionnaires, including those that measure levels of perceived stress, self-efficacy, and nutrient intake.	Findings indicate an interaction between perceived stress and diet self-efficacy on fat intake and a main effect for diet self-efficacy on sodium intake in this population. As expected, low levels of perceived stress and high diet self-efficacy were associated with the lowest levels of fat and sodium intake in students. Findings were driven by females.	<p>Only students from one University</p> <p>Significantly less males than females</p>

<p>Williams, S. L., Vandelanotte, C., Irwin, C., Bellissimo, N., Heidke, P., Saluja, S., Saito, A., &amp; Khalesi, S. (2020). Association between dietary patterns and sociodemographics: A cross-sectional study of Australian nursing students. <i>Nursing &amp; Health Sciences</i>, 22(1), 38–48. <a href="https://doi.org/10.1111/nhs.12643">https://doi.org/10.1111/nhs.12643</a></p>	<p><b>Purpose Statement:</b> the aim of this study was to examine the dietary patterns of nursing students and the sociodemographic factors associated with these patterns to inform the development of future health-promotion activities for students enrolled in a Bachelor of Nursing (BN) program.</p> <p><b>Research Question:</b> patterns of dietary intake and associated sociodemographic and university training factors</p>	<p>The current body of evidence suggests that many university students adopt unhealthy lifestyle behavior as a result of a range of individual, social, and environmental factors, and nursing students might be at risk of poorer health behavior and dietary patterns due to the additional pressures of clinical placement and clinical experiences associated with caring for others</p>	<p><b>Design:</b> cross-sectional study</p> <p><b>Site:</b> two Australian universities (Central Queensland University [CQU], Rockhampton and Griffith University, Gold Coast, Queensland, Australia)</p> <p><b>Sampling Method:</b> convenience and snowball sampling methods</p> <p><b>Sample Size:</b> 487 BN students</p>	<p>Participants were asked to report their food consumption frequency in the past 12 months in daily, weekly, or monthly format using a 10 point scale (from “never” to “3–5 times per day”). Intake of supplements, fast food, and restaurant foods; the frequency of meals; and special dietary regimens were also recorded</p>	<p>In this study, we found that most nursing students adhere to an unhealthy or unbalanced eating pattern.</p>	<p>Further research is necessary to understand the factors contributing to these dietary patterns and their impact on the students' physical and psychological well-being.</p>
<p>Doumit, R., Zeeni, N., Sanchez Ruiz, M. J., &amp; Khazen, G. (2016). Anxiety as a Moderator of the Relationship Between Body</p>	<p><b>Purpose Statement:</b> To examine three indicators of psychopathology (stress, anxiety, and depression) as potential moderators of the relationship between body</p>	<p>the importance behind studying DE stems from the fact that these behaviors are believed to be at the roots of the development of eating disorders if they are not</p>	<p><b>Design:</b> A descriptive, correlational cross-sectional design</p> <p><b>Site:</b> at a Lebanese university</p>	<p>self-reported questionnaire.</p>	<p>Moderation analyses indicated that anxiety significantly moderated the relationship between BID and restrained eating, whereas</p>	<p>Relied on self-reported information from the students</p> <p>body composition analysis might have further enriched the data about BID as it allows</p>

<p>Image and Restrained Eating. <i>Perspectives in Psychiatric Care</i>, 52(4), 254–264. <a href="https://doi.org/10.1111/ppc.12126">https://doi.org/10.1111/ppc.12126</a></p>	<p>image dissatisfaction (BID) and restrained, emotional, and external eating, while controlling for family-related variables (i.e., household income, living situation, and psychopathology in the family) and individual variables (i.e., body mass index, physical activity, and major life events).</p> <p>Research Question: this study aims to investigate whether anxiety, depression, and stress symptoms moderated the relationship between BID and the three categories of DE (restrained, emotional, and external eating) while controlling for individual and family-related variables.</p>	<p>diagnosed at their preliminary stages</p>	<p>Sampling Method: Convenient sample</p> <p>Sample Size: 894 female undergraduates aged between 18 and 25</p>		<p>depression and stress did not</p>	<p>distinguishing between lean body mass and body fat, which is not possible with BMI alone. Second, this study was cross-sectional in nature, and therefore any relationships suggested between variables are purely associations (not causation).</p>
<p>5de Souza Urbanetto, J., Silva da</p>	<p>Purpose Statement: analyze associations between</p>	<p>In this context, the demands of academic life and</p>	<p>Design: Cross-sectional Study</p>	<p>Data collection was performed between September and</p>	<p>The population of this study showed no association</p>	<p>Research was done with a very small</p>

<p>Rocha, P., Carvalho Dutra, R., Maciel, M. C., Gonçalves Bandeira, A., &amp; Bosi de Souza Magnago, T. S. (2019). Stress and overweight/obesity among nursing students. <i>Revista Latino-Americana de Enfermagem (RLAE)</i>, 27, 1–10. <a href="https://doi.org/10.1590/1518-8345.2966.3177">https://doi.org/10.1590/1518-8345.2966.3177</a></p>	<p>demographic, academic, health, stress, overweight and obesity characteristics among nursing students.</p> <p>Research Question: What are the factors associated with overweight or obesity among nursing students? Is stress associated with overweight or obesity among nursing students?</p>	<p>the uncertainty related to the professional career may cause an important emotional load to students, changing their behaviors and lifestyle. According to health students, academic activities, besides causing stress, encourage students to consume food out of the home. In the medium and long time, without a balanced diet, this behavior can contribute to weight gain among students.</p>	<p>Site: private university in Rio Grande do Sul, Brazil</p> <p>Sampling Method: Convenience sampling</p> <p>Sample Size: 95 students from a private university in Rio Grande do Sul, Brazil</p>	<p>December 2016, using non-probability sampling (all of them were invited), as scheduled with the students.</p>	<p>among stress, overweight and obesity. A significant association was observed between overweight and/or obesity and male students, high blood pressure, weight gain since the beginning of the course, altered waist circumference, no physical activity, eating more in stressful situations, and eating unhealthy foods.</p>	<p>sample size at one university.</p>
<p>6Labrague, L. J., McEnroe, P. D. M., Papatthanasiou, I. V., Edet, O. B., Tsaras, K., Christos, K. F., Fradelos, E. C., Rosales, R. A., Cruz, J. P., Leocadio, M., &amp; Lucas, K. V. S. (2018). A cross-</p>	<p>Purpose Statement: to compare perceptions of stress and quality of life among nursing students from three countries (the Philippines, Greece, and Nigeria). Also to examine the impact of stress on their QoL.</p> <p>Research Question:</p>	<p>Continuous high levels of stress has proven to have poor effects on overall physical and mental health. Studies have shown that chronic stress in addition to absence of effective coping skills may have a negative impact on</p>	<p>Design: Cross-sectional study</p> <p>Site: Philippines, Greece, and Nigeria</p> <p>Sampling method: convenience</p>	<p>Two standardized questionnaires were used: the quality of life evaluation skill (QOLES) and the perceived stress scale (PSS).</p> <p>The variables are the levels of stress and the quality of life.</p>	<p>This study found that student nurses from all three countries are consistently exposed to moderate to high stress levels. Overall, higher stress perceptions of nursing students from various stressors, including</p>	<p>A longitudinal study may have been more beneficial considering the dynamic and always changing nature of stress. This would help to have a baseline before the participants entered nursing school and even at different points during their</p>

<p>country comparative study on stress and quality of life in nursing students. Perspectives in Psychiatric Care, 54(4), 469–476. <a href="https://doi-org.ezproxy.uakron.edu/2443/10.1111/ppc.12248">https://doi-org.ezproxy.uakron.edu/2443/10.1111/ppc.12248</a></p>	<p>Is there a comparison between stress and QoL among nursing students in three countries: the Philippines, Greece, and Nigeria? Furthermore, what is the impact of stress perceptions on the QoL of nursing students?</p>	<p>communication skills, decision-making skills, and other functions critical to peak academic and clinical performance.</p>	<p>Sample size: 547 nursing students from 3 countries</p>		<p>workload, taking care of patients, and others, predicted a more negative quality of life.</p>	<p>schooling. In addition, the population of this study is somewhat limited in number and because all participants were volunteers (for example, a more stressed out student may not take the time to participate in a study).</p>
<p>7Senturk, S., &amp; Dogan, N. (2018). Determination of the Stress Experienced by Nursing Students' During Nursing Education. International Journal of Caring Sciences, 11(2), 896–904.</p>	<p>Purpose: To determine of the stress experienced by nursing students' during nursing education.  Research Question: 1. What are the levels of stress felt by nursing students during the course of education? 2. "What is the relationship between the levels of stress experienced during nursing education and socio-demographic characteristics of nursing</p>	<p>Through the course of nursing education, students are exposed to high stress that may hinder learning and performance both directly and indirectly. It also has impacts on decision making and on physical health.</p>	<p>Design: descriptive and cross-sectional  Site: a city in the Southeastern Anatolia Region in Turkey  Sampling method: convenience  sample size: 318 students</p>	<p>Two questionnaires were used: 'Stress in Nurse Education Questionnaires (SINE)' and a 'Student Information Form' developed by the researchers  The variables are stress levels and demographics</p>	<p>The study showed a positively strong correlation between academic stress and other life stressors. It also revealed that some demographic variables indicated higher stress levels, but for the most part all of the students reported moderate stress levels.</p>	<p>This study is localized to one city and has a small sample size. When looking at many different demographic factors, it would be more beneficial to sample a larger group and from outside of just one city.</p>

	students’?” p.897					
8Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., & Mcnamara, P. M. (2015). Psychological distress and lifestyle of students: implications for health promotion. <i>Health Promotion International</i> , 30(1), 77–87. <a href="https://doi-org.ezproxy.uakron.edu/2443/10.1093/heapro/dau086">https://doi-org.ezproxy.uakron.edu/2443/10.1093/heapro/dau086</a>	<p>Purpose: To examine lifestyle behaviours relationship to psychological distress and ways of coping among undergraduate nursing/ midwifery and teacher education students</p> <p>Research Question: Is there a relationship between lifestyle and its effect on psychological distress and coping among undergraduate students?</p>	<p>A concern is that the ways of coping with stressful situations are often characterized by escape and avoidance acts that are health-risk behaviours. So, while the evidence points to the fact that stress and unhealthy behaviours correlate, not enough is known about the role coping plays in this.</p>	<p>Design: Cross-sectional</p> <p>Site: Large University in Ireland</p> <p>Sampling method: convenience</p> <p>Sampling Size: 1577 undergraduate nursing, midwife, and teaching students</p>	<p>Set of 3 questionnaires: The General Health Questionnaire (GHQ; Goldberg, 1981), The Ways of Coping Questionnaire (WOC; Folkman and Lazarus, 1988) and The Lifestyle Behaviour Questionnaire (LBQ)</p>	<p>It is apparent that many students are enduring high levels of stress which will most likely negatively influence other lifestyle behaviours with potentially long-term impact.</p>	<p>One limitation to this study is the use of self reporting. Also, a longitudinal study would be more helpful in drawing conclusions over the course of schooling.</p>
9Mendes, S. S., Salvi, C. P. P., Moraes, B. F. M., & De Martino, M. M. F. (2019). Instruments for the Evaluation of Stress in Nursing Students. <i>Journal of Nursing UFPE /</i>	<p>Purpose: To identify instruments for the evaluation of stress in nursing undergraduate students.</p> <p>Research Question: Which evaluation tool is best suited to accurately represent student nurse stress?</p>	<p>“In this study, in view of the above and considering improving the understanding of stress during Nursing graduation, we aim to contribute to the knowledge of instruments</p>	<p>Design: a bibliographical study</p> <p>Sampling size: 260 articles initially analyzed, narrowed down to 25</p> <p>Sampling method: integrative review</p>	<p>Variables measured are type of studies, prevalence in articles, and the most common reported stressors.</p>	<p>There are several validated evaluation tools that are capable of evaluating various sources of stress in nursing students during undergraduate and the use can depend on when during schooling they are used and what</p>	<p>The limitations of this study include that the results give many different evaluation tools, There is not one definitive answer, so it will be difficult to choose one or a few evaluation tools to use during our data collection.</p>

<p>Revista de Enfermagem UFPE, 13(3), 829–838.  <a href="https://doi-org.ezproxy.uakron.edu/2443/10.5205/1981-8963-v13i03a236076p829-838-2019">https://doi-org.ezproxy.uakron.edu:2443/10.5205/1981-8963-v13i03a236076p829-838-2019</a></p>		<p>with known psychometric properties, available for the evaluation of stress in Nursing students, taking into account that the stress can be a triggering factor for possible changes in health, which may impair the performance of academic activities, as well as compromise the quality of life and professional activity of future nurses.”                  p.830</p>			<p>stressors they most accurately present.</p>	
<p>10Vijayalakshmi, P., Thimmaiah, R., Gandhi, S., &amp; BadaMath, S. (2018). Eating Attitudes, Weight Control Behaviors, Body Image Satisfaction and Depression Level Among Indian Medical and Nursing</p>	<p>Purpose: to assess the presence of eating disorders among Medical and Nursing students                   Research Question: “Is there a correlation between students in undergraduate medical and nursing schools and developing eating disorders?”</p>	<p>Medical and nursing students are associated with high levels of stress which is one cause/ factor of eating disorders. Eating disorders are also commonly associated with anxiety, substance abuse and depression, which can have a correlation with</p>	<p>design: descriptive cross sectional                   Site: 2 medical and nursing colleges in Bangalore, South India                   Sample size: 454 undergraduate medical (n=241) and nursing (n=213) students</p>	<p>Socio-Demographic Questionnaire, SCOFF (Sick, Control, One, Fat, Food) questionnaire, Eating Attitudes Test-26, and Patient Health Questionnaire</p>	<p>The study found that 34.1% and 10.4% of the participants were at high risk to suffer from eating disorders based on the scales used. This signifies that there is an increased risk of eating disorders.</p>	<p>This study was done using self-reporting questionnaires, which can be especially inaccurate when discussing sensitive topics such as eating disorders.</p>

<p>Undergraduate Students. Community Mental Health Journal, 54(8), 1266–1273. <a href="https://doi-org.ezproxy.uakron.edu/2443/10.1007/s10597-018-0333-x">https://doi-org.ezproxy.uakron.edu/2443/10.1007/s10597-018-0333-x</a></p>		<p>high stress environments.</p>	<p>Sample method: convenience</p>			

## Appendix B

**Directions: Please tell me some things about yourself.**

✓ **Checkmark your response or write in the requested information.**

1. What is your gender?

Female

Male

2. What is your age?

Years of age \_\_\_\_\_

3. What racial/ethnic category do you identify with?

White

African American

Asian

Hispanic/Latino

Other \_\_\_\_\_ (Please specify)

4. What is your marital status?

Never married

Married

Separated

Divorced

Widowed

Living together

Other \_\_\_\_\_ (Please specify)

5. What is your Height?

Height: \_\_\_\_\_ feet and \_\_\_\_\_ inches

6. What is your Weight?

Weight: \_\_\_\_\_ (please report in number of pounds)

7. What is your current GPA to the nearest 2 decimals?

GPA \_\_\_\_\_

8. On the average, approximately how many hours do you work weekly? Enter 0 if you are unemployed.

Average number of hours worked weekly \_\_\_\_\_

9. What are your current living arrangements?

On campus by myself  
On campus with others  
Off campus by myself  
Off campus with others  
Other

10. What program are you currently enrolled in at the College of Nursing

4-year Baccalaureate nursing program  
RN/BSN program  
Accelerated program  
Other—Please specify: \_\_\_\_\_

11. What year (level-status) are you currently in?

First year CON status  
Third or final year CON status

Appendix C

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, CIRCLE THE OPTION THAT BEST DESCRIBES YOU. REMEMBER THAT THERE ARE NO RIGHT OR WRONG ANSWERS.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

2. In the last month, how often have you felt that you were unable to control the important things in your life?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

3. In the last month, how often have you felt nervous and “stressed”?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

5. In the last month, how often have you felt that things were going your way?.

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

7. In the last month, how often have you been able to control irritations in your life?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

8. In the last month, how often have you felt that you were on top of things?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

9. In the last month, how often have you been angered because of things that were outside of your control?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

0	1	2	3	4
Never	Almost never	Sometimes	Fairly often	Very often

## Appendix D

## Weight Efficacy Life-Style Questionnaire

The following section is about your opinion of your ability to behave in ways specific to emotions and eating. Mark your response using a scale from 1 to 9. How strongly do you agree or disagree with these statements about yourself?

1. I can resist eating when I am anxious (nervous).

Strongly disagree

Neutral

Strongly agree

1    2    3    4    5    6    7    8    9

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2. I can control my eating on weekends.

Strongly disagree

Neutral

Strongly agree

1    2    3    4    5    6    7    8    9

---

3. I can resist eating even when I have to say "no" to others

Strongly disagree

Neutral

Strongly agree

1    2    3    4    5    6    7    8    9

---

4. I can resist eating when I feel physically run down.

Strongly disagree

Neutral

Strongly agree

1    2    3    4    5    6    7    8    9

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5. I can resist eating when I am watching TV.

Strongly disagree

Neutral

Strongly agree

1    2    3    4    5    6    7    8    9



11. I can resist eating when I am angry (or irritable.)									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
12. I can resist eating when I am at a party.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
13. I can resist eating even when others will be upset if I don't eat.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
14. I can resist eating when I am in pain.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
15. I can resist eating just before going to bed.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
16. I can resist eating when I have experienced failure.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
17. I can resist eating even when high-calorie foods are available.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
18. I can resist eating even when I think others will be upset if I don't eat.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
<b>Please continue to show how strongly you agree or disagree with these statement about yourself.</b>									
19. I can resist eating when I feel uncomfortable.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	
20. I can resist eating when I am happy.									
Strongly disagree				Neutral					Strongly agree
1	2	3	4	5	6	7	8	9	

## Appendix E

## Consent Form

Title of Study: The Relationship Between Stress and Emotional Eating in Baccalaureate Nursing Students

Introduction: You are invited to participate in a research project being conducted by Rachel Gasser and Sydney Dominek, nursing students in the College of Health Professions, School of Nursing at The University of Akron.

Purpose: The purpose of this research is to identify connections between levels of stress and eating habits in sophomore and senior nursing students.

Procedures: If you volunteer to participate in this study, you will be asked to complete a short, online survey about stress levels and eating habits. It will approximately 15 minutes to complete the survey. Additionally, you will be asked to give some information about your age, gender, ethnicity, height, weight, and current living status. You will not be asked to give any identifying information at any time.

You are eligible to participate in the study if you are enrolled in traditional undergraduate, an accelerated nursing student or a student in the RN/BSN, LPN/RN, or nursing program and at least 18 years old. You are not eligible if you are in any graduate nursing programs. No persons will be excluded based on gender, ethnicity, race, sexual orientation, marital status, or age as long as they are 18 years or older.

Benefits and Risks: You will receive no direct benefit from your participation in this study, but your participation may help us better understand correlations between stress and emotional eating in undergraduate nursing students. There are some possible risks involved in completing the survey because you are asked to answer questions about personal and sensitive topics such as weight and stress levels. And although we hope you respond to every item on the survey, whether or not you do is up to you! Should you choose to opt out of certain questions, you may do so. We still encourage you to submit the survey even if you have chosen to opt out of certain questions. Because no identifying information is collected in the survey and because survey distribution and submission occur anonymously and online, there is very minimal risk of participant identification. You will complete the survey at your leisure and in a comfortable, secure, and private environment. In case you feel the need to talk with a counselors and health care provider after completing this survey, please contact: (1) The Counseling Center, Simmons Hall 306, Phone: 330-972-7082, Website: <http://www.uakron.edu/counseling/> and/or (2) Student Health Services, Student Recreation and Wellness Center, Suite 260, Phone: 330-972-7808 Website: <http://www.uakron.edu/healthservices/>

Right to refuse or withdraw: Participation is voluntary. Refusal to participate or withdraw from the study at any time will involve no penalty. Failure to participate in no way affects your academic standing.

Anonymous and Confidential Data Collection: No identifying information will be collected, and your anonymity is further protected by not asking you to sign and return the informed consent form.

Confidentiality of Records: Data are collected with an online survey. The survey is loaded into Qualtrics, an electronic survey software program. You will complete the survey electronically and at your own convenience. Electronic survey completion means that data are automatically entered into a data set. Disconnecting participants from their surveys is also related to protection of human participants.

Who to Contact with Questions: If you have any questions about this study, you may contact Rachel Gasser (rag82@zips.uakron.edu), Sydney Dominek (snd49@zips.uakron.edu), or Christine Graor, PhD (Advisor) (graor@uakron.edu). This project has been reviewed and approved by The University of Akron Institutional Review Board. If you have any questions about your rights as a research participant, you may call the IRB at (330) 972-7666.

Acceptance & Signature: I have read the information and voluntarily agree to participate in this study. Beginning this survey will serve as my consent. I may print a copy of this consent statement for future reference.

Now, begin to complete the survey!

## Appendix F

## Recruitment Email

Hello Nursing Students!

You are invited to participate in a nursing honors research project entitled 'The Relationship Between Stress and Emotional Eating in Baccalaureate Nursing Students'. The purpose behind this study is to look at the relationship between the amounts of stress nursing students face and the amount of emotional eating that students partake in. This study is by senior nursing students: Rachel Gasser and Sydney Dominek at The University of Akron. If you are interested in participating, go to [online survey site] to learn more and complete the online survey, which should take about 15 minutes. All data are collected anonymously.

Thank you in advance for your time and commitment to supporting research by undergraduate students in our nursing program! We appreciate your time and support!

Rachel Gasser and Sydney Dominek