

Healthy lifestyle behaviors in sophomore nursing students: A descriptive correlational study

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ABSTRACT

Aim: The purpose of this research was to describe health perceptions, behaviors, and perceived stress of undergraduate nursing students and to determine if supportive incentives improved students' healthy lifestyle behaviors.

Background: Nurses have a primary responsibility in promoting health in the United States. Nursing students will become the future health workforce and must understand the importance of personal health and wellness, even before entering the profession.

Methods: This descriptive study used a convenience sample of sophomore nursing students (N = 65) from one state university in the Northeast. Students' motivators and barriers of a healthy lifestyle, perceived difficulty in maintaining a healthy lifestyle, perceived stress, and personal health rating were measured at the beginning and end of the semester.

Results: Small and moderate correlations were noted among several variables. Paired t-tests revealed statistically significant findings for students' perceived difficulty in maintaining a healthy lifestyle, health barriers, and personal health rating. Open-ended responses identified time and money/cost as the greatest barriers to making healthy lifestyle decisions. Supportive incentives offered throughout the semester did not increase participation in wellness activities.

Conclusions: Undergraduate nursing students reported barriers and difficulties in relation to maintaining healthy lifestyle behaviors. Future research should focus on the challenges that college students face and provide interventions to promote health and wellness behaviors. Continued research with nursing students may identify healthy lifestyle challenges that are unique to this group of students.

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Nurses have a primary responsibility in promoting health in the United States, and in this capacity serve as role models, educators, and providers of care (Bryer, Cherkis, & Raman, 2013). The American Nurses Association (ANA) introduced the *Healthy Nurse, Healthy Nation*[™] initiative that emphasizes physical activity, nutrition, rest, quality of life, and safety choices for all registered nurses (RNs). The initiative proposes that a healthy nurse can serve as a better role model, educator, and advocate for patients, families, communities, and in the work environment (ANA, 2015). The ANA recognized that nurses often care for others before themselves and identified the need to focus on personal health and wellness.

Although almost four million RNs currently practice in today's workforce, retirements are projected to reach one million by 2030 (AACN, 2019), and nursing students will become the future healthcare workforce to fill this void. To



promote the development of a healthy workforce, nursing students must understand the importance of personal health and wellness, even before entering the profession. Early exposure to these concepts may assist nursing students to adopt healthy lifestyle behaviors and better prepare them for the challenges of completing a rigorous nursing curriculum and their future RN roles (Bryer et al., 2013; Wills & Kelly, 2017).

College students begin a transition to adulthood and start to make independent decisions regarding their health (Melnyk, Kelly, Jacobson, Arcoleo, & Shaibi, 2014). Consequently, they typically engage in unhealthy behaviors including physical inactivity, poor dietary decisions, and other unsafe practices related to alcohol, drugs, and sexual activity (American College Health Association [ACHA], 2019). Attention on college students' health typically focuses on risky behaviors such as alcohol, drugs, and sexual activity, with less emphasis on poor health decisions related to physical inactivity and nutrition. All have long-term health implications, especially since appropriate physical activity and dietary health may prevent lifestyle-associated diseases such as diabetes, hypertension, heart disease, and obesity (Downes, 2015). When examining health, physical activity, weight, and stress in college students the outlook remains poor. According to the ACHA's (2019) *National College Health Assessment*, less than half (45%) of undergraduate students surveyed ranked their health as very good or excellent, and a mere 22% reported doing moderate-intensity cardio or aerobic exercise according to the recommended guidelines of 150 minutes a week (American Heart Association [AHA], 2018). Over 37% self-reported a body mass index (BMI) that classified them as overweight or obese, and only 4% reported eating the recommended five or more servings of fruits and vegetables daily. Furthermore, 58% of students described having more than average or tremendous perceived stress. These findings suggest significant concerns related to college students' health and wellness.

Research examining undergraduate students' physical activity and dietary habits reported findings similar to the NCHA. Students did not participate in physical activity according to recommended guidelines, consumed little fruits and vegetables, and snacked on unhealthy foods. Snacking was associated with barriers such as lack of motivation, health problems, lack of knowledge, and limited finances (Downes, 2015). Additionally, minimal research exists examining health behaviors of undergraduate nursing students. Research examining health-promotion behaviors of traditional and non-traditional undergraduate nursing students noted differences in health behaviors and perceived barriers. Non-traditional undergraduate nursing students reported lower mean scores than traditional students in relation to physical activity and stress management. Non-traditional nursing students also identified higher perceived barriers to health promotion activities than traditional undergraduate nursing students (Bryer et al., 2013). When examining healthy lifestyle behaviors of nursing students most research has occurred outside of the US. Studies measuring healthy lifestyle behaviors of nursing students in the United Kingdom noted similar findings to U.S. college students such as poor health, being overweight or obese, not meeting recommendations for physical activity, and not consuming the suggested daily amounts of fruits and vegetables (Blake et al., 2011; Blake, Stanulewicz, & Griffiths, 2017).

There is a national need to assist college students through health and wellness activities, especially when considering the sobering statistics related to student health behaviors. Barriers to healthy lifestyles exist among college students and have been specifically noted with undergraduate nursing students. Nursing students will transition to practicing nurses and both are expected to serve as role-models for their patients (Bryer et al., 2013). Research needs to further explore obstacles that undergraduate nursing students face when trying to make healthy lifestyle decisions and understand motivators and barriers to a healthy lifestyle in the college setting.

The purpose of this study was to describe nursing students' health perceptions, behaviors, and perceived stress, and to examine if supportive incentives improved students' healthy lifestyle behaviors. Research questions for the study were: 1) What is the relationship among nursing students' motivators and barriers to a healthy lifestyle, perceived difficulty to a healthy lifestyle, perceived stress, and personal health rating? 2) Do supportive incentives that promote physical activity, nutrition, and stress management help to improve nursing students' healthy lifestyle behaviors?

METHODS

The study received university Institutional Review Board (IRB) approval and informed consent was obtained prior to data collection. Inclusion criteria included English-speaking, enrolled in a sophomore level nursing theory course, and able to participate in physical activity such as walking. Sophomore level nursing students were selected because they were enrolled in their first year of nursing courses.

Sample

A convenience sample ($N = 65$) of students enrolled in a sophomore level nursing course was recruited from a state system university located in the Northeastern United States. A total of 75 nursing students consented and completed the questionnaires at time one (T1), and 65 students completed time two (T2) data collection, resulting in a 13% attrition rate. A power analysis was calculated using a power of .80, effect size of .40, and an alpha of .05. Results indicated a sample size of 51, and the study sample of 65 exceeded this recommendation.

Instrumentation

Participants completed four surveys that measured motivators and barriers of a healthy lifestyle, perceived difficulty towards a healthy lifestyle, health behavior questions related to diet and activity, and perceived stress. Demographic data was obtained and participants were asked to rate their current health on a Likert scale ranging from 1 (very poor) to 7 (excellent) at T1 and T2. An open-ended question at T2 data collection asked participants to describe their greatest barrier to making healthy lifestyle decisions.

The *Motivators and Barriers of Health Behaviors Scale* (MABS) is a 19-item instrument with two subscales, one measuring motivators and one measuring barriers to physical activity and dietary habits. Respondents choose from a 4-point Likert scale ranging from 1 (strongly disagree), to 4 (strongly agree). The scale has been used with college students and has a reported Cronbach's alpha of .81 (Motivators subscale) and .88 (Barriers subscale) (Downes, 2015). The *Healthy Lifestyle Perceived Difficulty Scale* is an 11-item scale that measures one's perceived difficulties with living a healthy lifestyle using a 5-point Likert scale ranging from 1 (very hard to do) to 5 (very easy to do). Items are reversed scored for data analysis and higher scores indicate greater perceived difficulty to maintain a healthy lifestyle. The scale has been used with college students and has a reported Cronbach's alpha of .86 (Melnik et al., 2014). The *Youth Risk Behavior Survey* has been developed by the United States Centers for Disease Control and Prevention (CDC) and has been used with college students. A modified version using 12-items related to physical activity and dietary health was included in the study. Respondents referred to the previous 7 days with responses ranging from (0 times) to (4 or more times) and frequency data was reported. The *Perceived Stress Scale* is a 10-item measurement of perceptions of

stress ranging from low, moderate, to high perceived stress. The tool has been used with multiple samples including college students and has well documented reliability and validity data (Cohen, Kamarck, & Mermelstein, 1983).

Procedure

Data collection occurred during weeks two (T1) and 12 (T2) of the semester. Students were provided a description of the study during the beginning of their sophomore level nursing theory course. All students were provided a packet with the informed consent, study questionnaires, and an alternative learning assignment. Students could choose to sign the consent and complete the questionnaires or opt not to participate and complete the alternate assignment. The same process was used for data collection at T2. Study participants were encouraged to participate in a variety of supportive activities promoting healthy lifestyle behaviors throughout the semester. This included tracking physical activity over a two-week period, attending an on-campus nutritional education program, and participating in at least two on-campus stress management activities such as pet therapy or mindfulness sessions. Incentives for participating in these healthy lifestyle activities included gift cards to Subway restaurant or the campus dining hall. Additionally, students who participated in all of the healthy lifestyle activities were eligible for a paid fitness membership. The study also incorporated technology by using the Remind messaging application (app). This app was used to provide weekly motivational messages and to inform students of healthy lifestyle activities throughout the semester. The Remind app allowed faculty to communicate with students via text messaging or email. Receiving the Remind messages was optional.

Data Analysis

Descriptive statistics were used to examine demographic data. Initial analysis using Pearson Product-Moment Correlation revealed that the data was not normally distributed. Therefore, non-parametric testing using Spearman's rho was completed to determine relationships among the variables at T1 and T2. Paired-samples t-tests examined mean scores to measure differences from T1 to T2. An alpha level of 0.05 was used to determine significance.

Results

Demographic data showed participants were primarily female (95%, $n = 62$), Caucasian (95%, $n = 62$), and the mean age was 20 (range 18 to 52). Correlation analyses found several statistically significant relationships among the variables at T1 and T2 (Tables 1 and 2). Findings at T1 noted small to moderate relationships between the variables perceived difficulty and stress ($.441, p = .001$), and perceived difficulty and barriers ($.649, p = .001$). In addition, small inverse relationships were noted between health rating and barriers ($-.355, p = .001$) and moderate inverse relationships were found between health rating and perceived difficulty ($-.518, p = .001$). Findings at T2 noted moderate correlations between perceived difficulty and barriers ($.554, p = .001$) and moderate inverse relationships between health rating and perceived difficulty ($-.573, p = .001$). A small inverse relationship was found between health rating and barriers ($-.359, p = .001$). Consequently, motivators were not correlated with any study variables.

Table 1. T1 Correlations for Perceived Difficulty (PD), Motivators, Barriers, Perceived Stress (PS), and Health Rating

	PD	Motivators	Barriers	PS	Health Rating
PD	--	-.175	.649**	.441**	-.518**
Motivators	-.175	--	-.124	-.056	.061
Barriers	.649**	-.124	--	.292*	-.355**
PS	.441**	-.056	.292*	--	-.100
Health Rating	-.518**	.061	-.355**	-.100	--

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 2. T2 Correlations for Perceived Difficulty (PD), Motivators, Barriers, Perceived Stress (PS), and Health Rating

	PD	Motivators	Barriers	PS	Health Rating
PD	--	.048	.554**	.241	-.573**
Motivators	.048	--	-.079	.021	.042
Barriers	.554**	-.079	--	.241	-.359**
PS	.239	.021	.241	--	-.066
Health Rating	-.573**	.042	-.359**	-.066	--

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Paired t-test analyses revealed statistically significant findings (Table 3). Mean scores increased from T1 to T2 for perceived difficulty ($M = 35.77$ T1; $M = 37.55$ T2) and barriers ($M = 20.05$ T1; $M = 22.12$ T2) and the findings were statistically significant ($p = .030$; $p = .000$). Participants' mean health rating score decreased from 5.04 (T1) to 4.78 (T2) and the findings were statistically significant ($p = .037$). Scores of 5 indicated "good" health rating and 4 indicated "average" health rating. In addition, perceived stress mean scores increased slightly from T1 ($M = 20.41$) to T2 ($M = 21.52$). Although the findings were not statistically significant ($p = .140$) the perceived stress scores indicated moderate stress levels.

Table 3. Paired Samples t-test for Pre/Post Perceived Difficulty (PD), Motivators, Barriers, Perceived Stress (PS), and Health Rating

	Pretest <i>M</i>	Posttest <i>M</i>	Paired <i>M</i>	t	sig
PD	35.767	37.550	-1.783	-2.231	.030
Motivators	28.476	27.968	.508	1.347	.183
Barriers	20.052	22.121	-2.069	-3.881	.000
PS	20.413	21.524	-1.111	-1.495	.140
Health Rating	5.05	4.78	.262	2.133	.037

Frequency data was obtained by asking participants about their dietary intake of fruits and vegetables and physical activity during the past seven days. Results at T1 noted that only 10.8% reported eating fruit and vegetables at least once a day (in the past seven days). The findings were similar at T2 as only 7.7% of subjects reported eating fruit once a day, while 10.8% of subjects reported eating vegetables once a day (in the past seven days). Physical activity findings noted that 23.1% of all participants reported not participating in any physical activity (in the past seven days) at T1 while 18.5% recorded not participating in any physical activity at T2. Furthermore, 83% of all participants did not meet the recommended guidelines of 30 minutes of physical activity five days a week at T1 and T2. Finally, an open-ended question asked participants to describe their greatest barrier to making healthy lifestyle decisions. Written student responses identified time and money/cost as the biggest barrier.

DISCUSSION

The study results determined that significant relationships existed among sophomore nursing students' perceived barriers, perceived difficulty, perceived stress, and personal health rating. The strongest relationships supported that perceived barriers to health were associated with greater difficulty to living a healthy lifestyle, while a higher personal health rating was inversely related to perceived barriers. Notably, perceived difficulty to living a healthy life mean scores increased from T1 to T2, which was consistent with Melnyk et al.'s (2014) findings in a comparison group of freshman students. In addition, mean barrier scores and perceived stress scores increased while personal health ratings decreased from T1 to T2. These findings suggest that students experienced more obstacles and difficulty with maintaining a healthy lifestyle as the semester progressed while their overall personal health rating decreased. Not surprising is that time and money/cost were identified as the biggest barriers to maintaining a healthy lifestyle. Study findings related to dietary habits and physical activity were consistent with previous research and the *NCHA* (Blake et al., 2011; Blake et al., 2017; Downes, 2015; NCHA, 2019), indicating that college students including undergraduate nursing students do not consume the recommended amounts of fruits and vegetables each day. AHA guidelines recommend four to five servings of fruits and vegetables daily (AHA, 2016), yet 7-10% of participants reported eating only one fruit and one vegetable each day. Similarly, AHA physical activity guidelines propose 150 minutes of moderate intensity activity per week (AHA, 2018), but over 80% of subjects did not meet these guidelines and almost one fifth reported participating in no weekly physical activity.

Faculty, nursing programs, and universities may consider several strategies to begin addressing these unhealthy lifestyle behaviors. First, nursing curricula must begin to focus on health promotion and healthy lifestyle behaviors. Nursing curricula should prepare undergraduate students to reflect on personal health and self-care activities. Structured curricula may include health and self-care concepts that begin with freshman students and are reinforced annually to all students. Offering educational wellness programs or guidelines such as The Ohio State University's *Freshman Wellness Checklist* may assist students to better manage their own health as they transition to the college setting (Melnyk, 2019). Additionally, nursing students may participate in the *Healthy Nurse, Healthy Nation™* initiative and complete the Health Risk Appraisal (HRA) which addresses health, safety, and wellness risks (Carpenter, 2017). Nursing students should be encouraged to complete the HRA and access the many resources related to health and wellness that are offered by the ANA.

Nursing programs may promote healthy lifestyle activities. Approaches include sharing health information with students through departmental newsletters, Infographic educational materials, and social media. In addition to

educating students about self-care, faculty can role model healthy lifestyle behaviors and partner with students to encourage engagement in healthy lifestyle activities (Chunta, 2017).

Additionally, nursing students would benefit from education on time management strategies. Study results noted that barriers to a healthy lifestyle and perceived stress scores increased as the semester progressed. In addition, time was identified as one of the greatest barriers to making healthy lifestyle decisions. T2 data collection occurred during week 12 of a 14-week semester. High numbers of exams and due dates for assignments typically occur during this time. Furthermore, nursing students juggle a demanding curriculum that includes classroom, clinical, and lab components (Bryer et al., 2013). Helping students understand how to budget their time will assist them in balancing academic and healthy lifestyle activities, especially during busy times of the semester. Time management tips may focus on finding small increments of time for students to use in a productive manner. This may be beneficial for addressing the perceived barrier of time but also for managing stress. Perceived stress scores increased from T1 to T2 which may be associated with the rising demands of the semester. Healthy lifestyle behaviors such as good nutrition, increased physical activity, and time management strategies may be effective strategies to help students manage stress.

In addition to time, money/cost was also identified as the greatest barrier to making healthy lifestyle decisions. Limited money/costs could be associated with not having fitness memberships or being able to purchase healthy but more expensive food options such as fruits and vegetables. Data collection occurred during the winter months in a Northeast setting, thus limiting students' ability to engage in physical activities outdoors. Providing accessible fitness facilities at no or minimal cost to students may help prevent this physical activity barrier. Additionally, students should have access to an ample selection of fruits and vegetables that are reasonable in price. Only 7-10% of student participants reported consuming at least one fruit or vegetable per day at both data collection points. It is unclear if these food choices were due to a desire to consume less healthy food options or from the higher costs associated with fruits and vegetables. College students must make good choices so that lifelong habits may be developed and that chronic diseases may be prevented (Downes, 2015). Opportunities to promote healthy food options that are accessible and affordable to all students should be further explored.

Finally, participants were offered free gifts card incentives to encourage engagement in healthy lifestyle activities throughout the semester. Yet, only six students tracked their physical activity for two weeks, while 39 students signed up to receive the Remind app messages. No students participated in the nutritional education session or stress management activities. Consequently, the study identified physical activity and nutritional concerns and moderate stress levels among participants. As nursing students struggle with the demands of a rigorous curriculum and schedule, future research may help determine what incentives and interventions will better assist students to choose healthy lifestyle behaviors.

LIMITATIONS

A convenience, homogeneous sample of nursing students from one university limits generalizability of the study findings. In addition, student participants provided self-reported data over one semester. Future research should include a multi-site study that uses a more longitudinal approach to further examine healthy lifestyle behaviors beyond one semester. Students were asked an open-ended question to identify their greatest barrier to making healthy lifestyle decisions. Exploring nursing students' perceptions of their health and wellness barriers through interviews or focus

groups would provide rich data to fully understand obstacles that students face when trying to incorporate healthy lifestyle activities in a college setting. Future research with evidence-based interventions designed to engage students in healthy lifestyle activities would identify what strategies are most effective in providing student support and promoting healthy lifestyle behaviors. Finally, future research that includes student outcome measures such as grades or grade point average (GPA) would provide additional data to support the benefits of healthy lifestyle behaviors.

CONCLUSIONS

Nurses have a responsibility to promote health, yet student nurses in this study reported barriers and difficulties with maintaining a healthy lifestyle and additional health concerns related to nutrition, physical activity, and stress. Nursing students complete a demanding curriculum that may limit their focus on self-care and healthy lifestyle behaviors. Faculty and nursing programs may encourage the importance of health and wellness to college students. Focusing on healthy lifestyle behaviors will allow student nurses to adopt these behaviors early so they may serve as role-models in their professional career and prevent future lifestyle-associated diseases.

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