



2012

Caring for Self and Others: Increasing Health Care Students' Healthy Behaviors

Mary Ann Stark

Western Michigan University, mary.stark@wmich.edu

Tena Hoekstra

Debra Lindstrom Hazel

Barbara Barton

Western Michigan University, barbara.barton@wmich.edu

Follow this and additional works at: https://scholarworks.wmich.edu/socialwork_pubs



Part of the Medicine and Health Sciences Commons

WMU ScholarWorks Citation

Stark, Mary Ann; Hoekstra, Tena; Lindstrom Hazel, Debra; and Barton, Barbara, "Caring for Self and Others: Increasing Health Care Students' Healthy Behaviors" (2012). *Social Work Faculty Publications*. 2.

https://scholarworks.wmich.edu/socialwork_pubs/2

This Article is brought to you for free and open access by the Social Work at ScholarWorks at WMU. It has been accepted for inclusion in Social Work Faculty Publications by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.



Caring for self and others: Increasing health care students' healthy behaviors

Mary Ann Stark*, Tena Hoekstra, Debra Lindstrom Hazel and Barbara Barton
Western Michigan University, Kalamazoo, MI, USA

Received 8 May 2009

Accepted 12 March 2010

Abstract. *Objective:* Living a healthy lifestyle in order to manage stress encountered in the health care system is important for health care professionals. The purpose of this study was to increase healthy behaviors of undergraduate students in professional health care majors by introducing a health promotion intervention in a required course.

Participants: The sample consisted of 201 undergraduate health professional students from nursing (NUR) ($n = 82$, 40.8%), occupational therapy (OT) ($n = 72$, 35.8%), and speech- language pathology (SLP) ($n = 47$, 23.4%).

Methods: A pretest-posttest comparison group design was used. The NUR and OT students received a health promotion intervention to encourage a healthy lifestyle in a required course. SLP students served as a comparison group and did not receive content on self health promotion.

Results: The comparison group (SLP) had significantly lower scores on the overall Health Promoting Lifestyle Profile II (HPLPII), physical activity and nutrition scales at posttest when compared to pretest. In contrast, students in the intervention group (NUR & OT) significantly increased in their health responsibility as measured on the HPLPII survey at the end of the semester.

Conclusions: Infusing content on healthy behaviors in undergraduate curricula may better prepare professionals for living a healthy lifestyle.

Keywords: Health promotion, healthy behaviors, health professions, stress, health profession education, college students, self-care, burnout

1. Introduction

An aging population, increased patient acuity and a shortage of health professionals place more responsibility on fewer professionals and contribute to stress or “burn out” in the workplace [1]. With increasing demand on the health care system, losing health care workers to health and stress-related problems becomes an even bigger problem. The Bureau of Labor estimates that there will be an increased demand for health professionals between 2006 and 2016. They expect a 23% increase for nurses and occupational therapists, a 22% increase for social workers and an 11% increase for speech-language pathologists [5]. Attempts to address

the shortage of health professionals includes educating more professionals [12] as well as encouraging those professionals to take better care of themselves in order to avoid stress-related illnesses [43]. Besides recruiting more students into available health professional programs, Scanlon [33], the Director of Health Care Issues in the General Accounting Office, calls for retention of current students in nursing programs and professionals in nursing practice. One approach for retaining nurses and other health professionals in the workforce is to teach students effective stress management and healthy behaviors before they join the workforce. Healthy behaviors are self-initiated actions directed toward enhancing health and well being [30]. Living a healthy lifestyle in order to manage the stress that is so prevalent in the health care system may help retain health care professionals. In addition, productivity may be improved if health care professionals live healthier and more productive lives. The objective of this study

*Address for correspondence: Mary Ann Stark, 915 E. Eagle Lake Dr., Kalamazoo, MI 49009, USA. Tel.: +1 269 375 9701; Fax: +1 269 387 8170; E-mail: mary.stark@wmich.edu.

was to examine the healthy behaviors of undergraduate students in three professional health care majors (nursing, occupational therapy and speech-language pathology) and determine whether an intervention designed to focus on their own health promotion would increase their practice of healthy behaviors.

2. Review of literature

Many health and wellness benefits are attributed to living a health-promoting lifestyle. According to Lachman [23], all major health care theorists suggest that life satisfaction, health status and a sense of well being are experienced by individuals who engage in specific self-caring, health-promoting activities. These healthy behaviors are influenced by numerous factors including self concept, value placed on health and perception of the effectiveness of the behavior and stress. Living a healthy lifestyle is beneficial to health and wellness, productive living, self actualization and fulfillment, and may protect against some stress-related illnesses and burn out.

Practice of healthy behaviors may be of critical importance to health care profession students because of the many threats that they report to their own wellness. For example, stress is experienced by many health care profession students, due to the nature of the health care system and their role as students. Burnout is not a new concept to the helping professions with publications on the topic dating back to 1980 [11]. Heavy workload and organizational change can increase stress and lead to burnout for health professionals [4,13,16]. For students, clinical practice requirements in addition to course work, employment responsibilities, family obligations and social commitments require health care profession students to juggle many demands. Speech-language pathology students reported moderate stress in their clinical placements and that work and family commitments accentuated their stress [26]. For undergraduate social work students, fulfilling multiple social and family roles, coping with financial problems and supplying child care needs were identified as sources of stress [39]. All health care profession students face stressors during their education and upon entry to the health care system as graduates and practitioners.

Taking care of one's self by living a healthy lifestyle may help mitigate the effects of stress while improving the ability to educate, motivate and encourage patients to participate in healthy behaviors. Dahlqvist, Soderberg and Norberg [10] explored the coping mecha-

nisms of 168 healthcare students (nursing, occupational therapy, physiotherapy and medicine) by examining their ability to self-comfort. Students were asked to document their strategies for comforting themselves in stressful times. Their responses fell into two themes: ingressing which included "unloading, distracting, nurturing oneself, withdrawing and reassuring" (pp. 479–480) and transcending which involved "opening up and finding new perspectives" (p. 481). The authors suggested that professional programs which guide students in reflecting upon their personal patterns of self-comfort for managing stress also deepen the students' awareness of these patterns. Similarly, the authors predicted that students who learn to reflect in this manner can also guide their patients in this process. Decreased occupational stress was seen in nurses who took positive action and personal control of their lives through increased utilization of healthy behaviors [23]. Larouche [24] found that individuals who exercised more had lower stress levels, felt a greater sense of purpose and performed more healthy behaviors when they felt they were in excellent health. Health care professionals who care for others face the challenge of having limited time and energy to properly care for themselves [6]. Students in professional health programs are taught to care for others, but often fail to care for themselves [36].

Health professionals often act as role models for their patients and for members of the community in which they practice. Participating in healthy behaviors provides health care professionals with personal resources to better advise and assist clients effectively in their own self care [8,27]. In a recent study that examined responses to nurses' body sizes, the subjects who viewed a picture of a nurse who was weight appropriate were more confident of the nurses' ability to provide diet and exercise education than those who viewed a picture of an overweight nurse [17]. This suggests that health care workers who are perceived as taking care of themselves might be viewed more positively by clients than those who are perceived as unhealthy.

Kamwendo [21] conducted an interdisciplinary study that examined some healthy behaviors in a sample of 225 students enrolled in occupational therapy, nursing and physiotherapy. This study found no differences in health behaviors (smoking, diet, sleep and walking to work/school) between students of the different disciplines. There were significant differences in levels of activity: physiotherapy students were the most active, followed by occupational therapy students. All three groups reported "high back pain" with occu-

pational therapy students reporting significantly more neck pain in the past year than their colleagues. While healthy behaviors may be beneficial, health profession students may lack the time or motivation to live a healthy lifestyle.

Not only do students fail to practice healthy behaviors, but some students also engage in risky behaviors. Many authors report that both nursing students and college students in general tend to be involved in risky behaviors including use of alcohol, illegal drugs and tobacco, in addition to unsafe sexual and nutritional practices [7,24,27,31].

Content on the components of healthy lifestyles can and should be part of health care professionals' curricula [43]. Facilitation of healthy behaviors by health profession students may be accomplished by infusing health promotion content into the curricula [7,14,27,35,36]. Poston et al. [31] suggested nursing faculty are in the unique position to intervene early with students and demonstrate how academic life affects physical and psychological health and how the health behaviors of nursing students can have a great impact on the future profile of practicing nurses. Faculty members can also engage in their own program of healthy behaviors and serve as positive role models [9,18].

Building healthy practices into curricula can emphasize the importance of health-promoting behaviors. According to Timmerman [38], developing the skills to plan a lifestyle change is important for healthy behaviors. Timmerman studied these skills in a sample of students attending a wellness class in which the students were required to develop a Lifestyle Self-Care Plan (LSCP). The results found the student-generated individualized self-care plans were effective in achieving goals toward improved health. Stark et al. [36] studied the effectiveness of self care and use of an LSCP with students in a nursing course. The LSCP was effective in improving healthy behaviors. The students were given clinical time to participate in healthy behaviors, which proved to be an effective strategy for behavior change since, in the past, perceived lack of time was one of the greatest barriers to self-care participation [37,38].

In summary, college students, especially those in health care related disciplines, are exposed to stressful academic and personal life conditions and often unhealthy lifestyles. College students who are preparing for health related professions have additional stressors inherent in caring for others. Previous research suggests that including healthy behaviors in the educational curriculum may be beneficial for preventing stress-related illnesses and burnout while practicing in

the health care system later [43]. The purpose of this study was to examine whether health profession students increased healthy behaviors after taking courses that emphasized the health of the professional, not only of the client. The primary research question for this study was: Do students increase in the practice of healthy behaviors after taking courses emphasizing their own healthy behaviors when compared to students taking courses that do not emphasize their own healthy behaviors?

3. Methods

A pretest-posttest design with a comparison group was used to test whether health profession students engaged in more healthy behaviors after taking courses that emphasized their own healthy behaviors when compared to students in a similar course that did not emphasize healthy behaviors. Students from three professional undergraduate programs (nursing, occupational therapy and speech-language pathology) at one university were included in the study. As the curricula for all these programs were prescribed by accrediting agencies, content on healthy behaviors was injected into established courses. Having a separate course devoted to healthy behaviors was not feasible with the prescribed curricula of the three programs. Consequently, content about healthy behaviors was designed by nursing (NUR) and occupational therapy (OT) course faculty (who were both full-time faculty and members of their professional disciplines) to be relevant to the students in the discipline and easily incorporated into the course. One discipline (speech-language pathology [SLP]) did not have content on healthy behaviors introduced in a course and they served as the comparison group. Because all students progressing through a professional curriculum were required to take the same courses, it was not possible to give some students the health promoting content as part of a course (intervention group) and not others in the same course (control group). Thus, a comparison group at the same point in their professional studies and from another discipline was used.

After obtaining approval by the University's institutional review board, students were recruited at the beginning of the semester in which they were enrolled in a course that emphasized their own healthy behaviors. All students enrolled in the courses of interest to this study were invited to participate; only one student did not agree to participate in the study. All were undergrad-

uate students who were enrolled in second semester sophomore (NUR) and first semester junior level (OT) courses in which a professor included healthy behavior content for health care professionals. This intervention was tested in an earlier study of nursing students [36]. For the comparison group, first semester junior level speech-language pathology (SLP) students were invited to participate, as the required course in which the SLP students were enrolled did not include content on health promotion for health care professionals. The NUR course in which the intervention was included was a community health course taught by a nursing faculty member. The OT course that was infused with health promotion was a mental health course taught by an OT faculty member where the students learned appropriate OT interventions for people with mental health issues (including stress). The intervention was the same for both disciplines. While students were learning content about the health of others, they were also given an intervention in which they explored their own health promotion behaviors.

The intervention consisted of three elements. The first element was the teaching and discussion of the importance of health professionals living a healthy lifestyle. It was emphasized to students that health professionals are better able to care for others when they care for themselves [36]. The second element of the intervention was the creation of a health promotion plan. Before writing this plan, the students were asked to self-assess their own lifestyle and identify an area in which they would like to improve. The students were encouraged to establish realistic goals for the semester. After identifying specific behavioral goals, students implemented their plan over the semester. The last element of the intervention was evaluation and accountability. Students were asked to monitor and track their performance over the semester. They also wrote a paper (OT) or regularly wrote weekly journal entries (NUR) that included assessment of progress and reflection on the experience in terms of its value, results obtained, goals met or not, reasons for progress or lack of, what they learned about themselves, and what they learned that might help them in assisting patients who wish to make behavioral changes. Informally, students would discuss their plans, accomplishments, and frustrations with other students and faculty.

The students in the three disciplines were pretested (Time 1) at the beginning of the semester, prior to receiving any content on health promotion. They were tested again at the end of the semester (Time 2) after students in the intervention courses received all

elements of the intervention. Data were collected for students enrolled in courses during the academic year 2006–2007 (two semesters).

Two instruments were used to collect data for this study. First, a questionnaire designed by the researchers measured demographic variables of interest (such as professional discipline, age, gender, etc.). The second measure was the Health Promoting Lifestyle Profile II, used to measure health-promoting behaviors at the two data collection points [41]. For this study, healthy behaviors were defined as self-initiated actions that promote health and well-being and were measured by the Health Promoting Lifestyle Profile II (HPLPII), a 52 item instrument that uses a 4 point Likert scale (never, sometimes, often, routinely). An overall HPLPII score was determined by finding the mean of all 52 items, as directed by the authors [42]. Six subscales were calculated according to the authors' instructions. These subscales (Health Responsibility [HR], physical activity [PA], nutrition [NUT], spiritual growth [SG], interpersonal relations [IPR] and stress management [SM]) represent specific areas of a health promoting lifestyle. Higher scores on all scales indicate more health promoting behaviors. This measure demonstrated validity and reliability when developed [41] and has been used with other samples of college students [3,24,25,36]. Further testing of the instrument demonstrated content, construct, and criterion-related validity [40]. In a similar study with college students, Cronbach's alpha was 0.91 for the HPLPII scale; the subscales ranged from 0.67 to 0.82 [36]. For the current study, Cronbach's alpha was 0.92 for the overall HPLPII scale; subscales ranged from 0.68 to 0.83.

Data were analyzed after entry into SPSS. Changes in healthy behaviors (as measured by the HPLPII scales) from Time 1 to Time 2 were the primary variables of interest. Change scores from Time 1 to Time 2 were calculated and the two groups were compared by Student *t* tests. Paired student *t* tests were used to determine if there were significant changes from Time 1 to Time 2 in students in courses emphasizing their own healthy behaviors (NUR & OT) compared to students in SLP. Appropriate parametric and nonparametric statistics were used for data analysis. An alpha of 0.05 was designated *a priori*.

4. Sample

The sample for this study consisted of 201 undergraduate health professional students from NUR ($n =$

Table 1
Health Promoting Lifestyle Profile II of treatment and comparison groups

	Time 1 mean (SD) comparison <i>n</i> = 47	Time 1 mean (SD) treatment <i>n</i> = 154	<i>t</i> = (df) <i>p</i> =	Time 2 mean (SD) comparison <i>n</i> = 43	Time 2 mean (SD) treatment <i>n</i> = 140	<i>t</i> = (df) <i>p</i> =
Overall HPLP	2.77 (0.41)	2.91 (0.35)	-2.25 (199) 0.025	2.67 (0.39)	2.92 (0.34)	-3.98 (181) 0.000
Health responsibility	2.32 (0.58)	2.52 (0.52)	-2.20 (199) 0.029	2.27 (0.51)	2.64 (0.63)	-0.384 (181) 0.000
Physical activity	2.42 (0.60)	2.70 (0.61)	-2.74 (199) 0.007	2.19 (0.54)	2.64 (0.56)	-4.28 (180) 0.000
Nutrition	2.74 (0.54)	2.82 (0.53)	-0.84 (199) ns	2.62 (0.54)	2.78 (0.48)	-1.90 (180) ns
Spiritual growth	3.31 (0.55)	3.35 (0.40)	-0.57 (61.46) ns	3.23 (0.54)	3.34 (0.37)	-1.33 (54.49) ns
Interpersonal relationships	3.38 (0.50)	3.41 (0.40)	-0.47 (199) ns	3.32 (0.53)	3.41 (0.42)	-1.06 (59.07) ns
Stress management	2.39 (0.42)	2.61 (0.48)	-2.81 (199) 0.005	2.32 (0.45)	2.61 (0.48)	-3.36 (180) 0.000

82, 40.8%), OT (*n* = 72, 35.8%), and SLP (*n* = 47, 23.4%). Most of the students were single (*n* = 181, 90.0%), white (*n* = 186, 92.5%), and female (*n* = 187, 93.0%). The mean age of the sample was 22.9 (SD = 6.0) years; ages ranged from 19 to 52 years. Many of the students worked (*n* = 163, 81.1%) in addition to being students (range of hours worked per week: 1.5 to 40).

5. Results

The intervention group (NUR & OT) was compared to the comparison group (SLP) for equivalency on age, gender, race and marital status. There were no significant differences between the groups on these demographic variables. The two groups were examined for equivalency on all initial (Time 1) HPLPII scales. On all scales, the treatment group had higher mean scores prior to treatment than the comparison group (see Table 1). Since there were significant differences between the treatment and comparison groups prior to treatment, change scores were computed to account for the initial scale scores.

The purpose of the study was to determine whether there were changes in health promoting behaviors from Time 1 to Time 2. After change scores were computed by taking the Time 1 scale score and subtracting the Time 2 scale score, significant differences between the treatment and comparison groups were found on the overall HPLPII scale ($t = 2.59$, $df = 178$, $p = 0.011$), Health Responsibility ($t = 2.23$, $df = 178$, $p = 0.027$), Physical Activity ($t = 2.41$, $df = 177$, $p = 0.017$) and Nutrition ($t = 2.00$, $df = 177$, $p = 0.047$). On these

scales, the increase in healthy behaviors by the treatment group was significantly different when compared to the decrease in healthy behaviors of the comparison group. The comparison group consistently had lower means on all scales at Time 2 while the treatment group either retained or increased their Time 1 level of health promoting behaviors.

Paired *t* tests were performed to detect differences between Time 1 and Time 2 scores for both groups. The comparison group scores at Time 2 were significantly lower than at Time 1 for HPLPII (paired $t = 2.58$, $df = 42$, $p = 0.014$), Physical Activity (paired $t = 3.53$, $df = 42$, $p = 0.001$) and Nutrition (paired $t = 2.33$, $df = 42$, $p = 0.025$). The intervention group had significantly higher Health Responsibility at Time 2 when compared to Time 1 ($t = -3.23$, $df = 136$, $p = 0.002$). This indicates that while the comparison group declined significantly on some of the HPLPII scales at the end of the semester, the intervention group maintained their initial level of healthy behaviors and improved significantly in their health responsibility.

In summary, the differences between the intervention and comparison groups were that the comparison group had significantly lower scores on the overall HPLPII, Physical Activity and Nutrition at Time 2 when compared to Time 1, while students who received a healthy behavior intervention increased their health responsibility while maintaining other health promoting behaviors at the end of the semester.

6. Discussion

While the intervention group realized a significant increase in health responsibility only, they did not de-

crease as the comparison group did at the end of the semester. There are some factors that may explain this finding. When the pretest HPLPII scales were compared to means of other samples with similar ages, the means in this sample were relatively high. The overall HPLPII mean in this sample was 2.88 (SD = 0.37), similar to the mean of an earlier study (2.83 [SD = 0.35] in [36]) and higher than reported in Arab nursing students (2.6 [SD = 0.5] in [3]), Korean nursing students (2.30 calculated from sum of HPLP II items in [25]), and a sample of college students (2.58 [SD = 0.35] in [24]). The students in this sample had a lower mean than a sample of African American women with risk factors for diabetes (2.96 [SD = 0.59] in [20]). For a sample with already high mean scores, making improvements that would show statistical significance would be difficult.

Students from three different health professions participated in this study. While preparing for different careers, they are similar in many ways. All subjects in this study had been admitted to their program through a competitive admissions process. Selection for all three programs requires high academic accomplishments as well as evidence of motivation to complete the chosen curriculum. The students in this study were either second semester sophomores (NUR) or first semester juniors (SLP & OT) in their chosen undergraduate program. On demographic characteristics, the treatment and comparison groups were similar but on the pretest HPLPII scales there were some significant differences. Even though paired t tests and change scores were computed to allow for differences in pretest scores, the SLP students were different than the NUR and OT students on the pretest HPLPII scales. Their lower scores on the pretest measures and their significant decline at the end of the semester indicate that this group of students may benefit also from a health promotion intervention as part of their curriculum. Students in SLP may be different in other ways from NUR and OT students; NUR and OT curricula may be more holistic by nature than SLP.

That the intervention group did not decline in its practice of healthy behaviors at the end of the semester is a benefit. At a time when students in each of the three disciplines experienced stress, apprehension, anxiety and time pressure preparing for final exams and completing course requirements, the benefit of continued health promotion and increased health responsibility was important. While the comparison group decreased their healthy behaviors, the treatment group seemed to have been protected from the loss of healthy behaviors

at the end of the semester. This is consistent with other research indicating that nursing, medical and other student behavior could be improved through daily self-induced relaxation training to mitigate the effects of anxiety [19,22,29,32].

Another factor that may have influenced the findings was loss at post testing of four students in the comparison group and 14 in the intervention group. Loss of follow up in a longitudinal study is not uncommon. For this study, the dropout rate was 9.0%. The health behavior status of students not present for class at the end of the semester when post testing was administered is unknown.

Shipton [34] and Shrier and Scott-Stiles [35] both called for nurse educators to incorporate and implement stress management measures within nursing programs. They recommended that nursing students go beyond learning about health to practicing positive healthy behaviors in their own lives. The challenge is to create an intervention for health profession students that will effectively educate and motivate them to incorporate healthy behaviors into their own lives so that these behaviors can become habits before they enter the workforce. Incentives have become a significant motivator in adopting healthy behaviors in the workforce [15], and educators have the incentive of grades that can be a very strong motivator for health care students.

6.1. Designing a healthy behaviors intervention

The researchers for this study used what little evidence was available to plan an intervention that might be useful for health profession undergraduate students [36,38]. In the absence of more research evidence, educators must rely on practice experience and interactions with others who seek to improve health promotion in students to devise effective interventions [28]. The intervention presented to the subjects in this study showed some modest success but more effective interventions must be proposed and tested as the health of health care professionals is valuable. The Theory of Planned Behavior (Ajzen, n.d.) could serve as a guiding model for interventions that address healthy behaviors for interdisciplinary health profession students. This intervention should begin with an assessment to determine the students' personal needs in the area of healthy behavior. Taking the assessment themselves allows students experience in administering the assessments that they will use in practice. Once the students have completed self-assessments, they can begin the process of determining what they need to

change and how to effectively make that change. At that point, classroom activities and discussion can incorporate the concepts of behavioral beliefs, attitudes toward behavior, normative beliefs, subjective norms, control beliefs and perceived behavioral control as the students explore making a change in behavior. As the students understand the process of changing behavior, they create an empowerment/health behavior/self-care plan for themselves as a class assignment.

In order to effectively maintain the intention to change behavior, students ought to explore throughout the semester their intention to maintain the commitment to the behavioral changes they planned. Focused weekly reflective journaling on the six foundational concepts of changing intention and behavior will allow the students to be accountable to their plan and give them documentation to create a monthly "progress report" to submit to the class instructor. In this progress report, they will discuss their successes and barriers to plan completion. Near the end of the term the students will conduct a final discipline-specific self-assessment to determine their current status in empowerment/healthy behavior/self-care.

The initial self-assessment, the monthly progress reports and the final self-assessment will then form the foundation for a final reflective paper. This final paper should include the status of healthy behavior goal(s), facilitators and inhibitors of success in reaching those goals, the value of interventions selected and application of this self-directed program on the students' ability to carry out such an intervention with future patients.

If this activity is conducted concurrently with students of other professional disciplines, conducting small interdisciplinary groups sometime during the semester may be helpful for health care students to share their successes and barriers and learn from each other about approaches for maintaining intentions for behavior change. In addition to such groups encouraging healthy behaviors, this activity also may foster communication between health care professionals that may promote future effective interdisciplinary teams. Introducing this focus on healthy behaviors early in the curricula will allow behavioral changes to be reinforced throughout the remaining program of study. It is unknown whether students learning health promotion early in the curricula will maintain healthy behaviors or whether maturity and experience might prompt further increase in health promotion later.

In the midst of a turbulent health care environment, having health professionals enter the health care system prepared to care for themselves may offer some pro-

tection from stress-related illnesses and burnout. What better time to prepare professionals for living a lifestyle that includes practicing healthy behaviors than in undergraduate preparation? As professional curricula are guided by accreditation agency standards, incorporating content on healthy behaviors into education standards would be an important step in increasing the healthy lifestyles of graduates who enter the health care field. Healthy professionals may be more effective and productive practitioners.

7. Limitations

Several limitations of this study must be acknowledged. The integration of three health service disciplines into an interdisciplinary concurrent study that investigated the preservation and promotion of healthy behaviors provided a unique opportunity but also presented some challenges. Each discipline operates from a unique perspective and has curricular requirements mandated by different accrediting agencies. As course content is largely dictated by the accrediting agencies, incorporating a health promotion intervention was a minor part of the courses (NUR and OT). As students progress as a cohort through each professional curriculum, a randomized controlled study was not possible and a weaker study design was implemented. In addition, the students select the discipline in which they are educated. Consequently, there could be some inherent differences between students in the various disciplines besides the demographic variables examined for this study. The intervention delivered to the students needs more refinement and testing. Last, a fairly homogeneous convenience sample of students from one university provided the sample for this study and limited the generalizability of the findings to other groups.

In conclusion, the practice of healthy behaviors by undergraduate health professional students is important not only to their health and success as students, but also to the effectiveness of their professional practice after graduation. As health care professionals understand and practice healthy behaviors, they are empowered to teach and model healthy behaviors to their patients, as well as be more productive professionals. While this study suggests that an educational intervention may be beneficial, further research is needed to identify effective methods to integrate healthy behaviors content into already demanding professional curricula.

Acknowledgements

The authors gratefully acknowledge Ms. Sandra Glista, M.S., CCC-SLP for her assistance with this study.

References

- [1] AACN (2008). *Fact sheet*. Retrieved September 25, 2008 from <http://www.aacn.nche.edu/Media/FactSheets/NursingShortage.htm>.
- [2] Ajzen, I. (n.d.). *Theory of Planned Behavior*. Retrieved October 12, 2008 from <http://www.people.umass.edu/ajzen/tpb.html>.
- [3] Al-Kandari, F., Vidal, V. and Thomas, D. (2008). Health-promoting lifestyle and body mass index among College of Nursing students in Kuwait: A correlational study. *Nursing and Health Sciences*, 10, 45-50.
- [4] Billeter-Koponen, S. (2005). Long-term stress, burnout and patient-nurse relations: qualitative interview study about nurses' experiences. *Scandinavian Journal of Caring Science*, 19, 20-27.
- [5] Bureau of Labor Statistics (2009). *Occupational Outlook Handbook*. Retrieved from <http://www.bls.gov/oco/>.
- [6] Burkhardt, M. and Nagai-Jacobson, M. (2001). Nurturing and caring for self. *Nursing Clinics of North America*, 16, 23-31.
- [7] Chalmers, K., Seguire, M. and Brown, J. (2002). Tobacco use and baccalaureate nursing students: A study of their attitudes, beliefs and personal behaviors. *Journal of Advanced Nursing*, 40(1), 17-24.
- [8] Clement, M., Jankowski, L.W., Bouchard, L., Perreault, M. and Lepage, Y. (2002). Health behaviors of nursing students: A longitudinal study. *Journal of Nursing Education*, 41(6), 257-265.
- [9] Connley, M., Gulanick, M., Keough, V. and Holm, K. (1997). Health practices of critical care nurses: Are these nurses good role models for patients? *American Journal of Critical Care*, 6, 261-266.
- [10] Dahlqvist V., Söderberg A., Norberg A. (2007) Dealing with stress: Patterns of self-comfort among healthcare students. *Nurse Education Today*, 27, 476-484.
- [11] Edelwich, J. (1980). *Burn-out: Stages of disillusionment in the helping professions*. New York: Human Sciences Press.
- [12] Ewart, G., Marcus, L., Gaba, M., Bradner, R., Medina, J. and Chandler, E. (2004). The critical care medicine crisis: A call for federal action. *CHEST*, 125, 1518-1521.
- [13] Fimian, M., Lieberman, R. and Fastenau, P. (1991). Development and validation of an instrument to measure occupational stress in speech-language pathologists. *Journal of Speech & Hearing Research*, 34, 439-446.
- [14] Grossman, S. and Wheeler, K. (1999). Integrating multidimensional stress management into a baccalaureate nursing curriculum. *Nursing Connections*, 12(2), 23-29.
- [15] Hall, B. (2008). Health incentives: The science and art of motivating healthy behaviors. *Benefits Quarterly*, 24(2), 12.
- [16] Harris, L.M., Cumming, S.R. and Campbell, A.J. (2006). Stress and psychological well-being among allied health professionals. *Journal of Allied Health*, 35, 198-207.
- [17] Hicks, M., McDermott, L.L., Rouhana, N., Schmidt, M., Seymour, M.W. and Sullivan, T. (2008). Nurses' body size and public confidence in ability to provide health education. *Journal of Nursing Scholarship*, 40(4), 349-54.
- [18] Jackson, P. (2001). Primary care approaches. Healthy people 2010: The pediatric nursing challenge for the next decade. *Pediatric Nursing*, 27(5), 498-502.
- [19] Jain, S., Shapiro, S.L., Swanick, S., Roesch, S.C., Mills, P.J., Bell, I. and Schwartz, G.E. (2007). A randomized controlled trial of mindfulness meditation versus relaxation training: Effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine*, 33(1), 11-21.
- [20] Jefferson, V., Melkus, G. and Spolett, G. (2000). Health-promotion practices of young black women at risk for diabetes. *The Diabetes Educator*, 26(2), 295-302.
- [21] Kamwendo, K. (2000). Adherence to healthy lifestyles: A comparison of occupational therapy students with nursing and physiotherapy students. *Scandinavian Journal of Occupational Therapy*, 7(4), 156-64.
- [22] Kanji, N., White, A. and Ernst, E. (2006). Autogenic training to reduce anxiety in nursing students: Randomized controlled trial. *Journal of Advanced Nursing*, 53(6), 729-35.
- [23] Lachman, V.D. (1996). Stress and self care revisited: A literature review. *Holistic Nursing Practice*, 10(2), 1-12.
- [24] Larouche, R. (2005). Determinants of college students' health-promoting lifestyles. *Clinical Excellence for Nurse Practitioners*, 2(1), 35-45.
- [25] Lee, R. and Loke, A. (2005). Health-promoting behaviors and psychosocial well-being of university students in Hong Kong. *Public Health Nursing*, 22(3), 209.
- [26] Lincoln, M., Adamson, B. and Covic, T. (2004). Perceptions of stress, time management and coping strategies of speech pathology students on clinical placement. *Advances in Speech Language Pathology*, 6(2), 91-99.
- [27] McCann, T., Clark, E. and Rowe, K. (2005). Undergraduate nursing students' attitudes towards smoking health promotion. *Nursing and Health Sciences*, 7, 164-174.
- [28] McDonald, P.W. and Viehbeck, S. (2007). From evidence-based practice making to practice-based evidence making: Creating communities of (research) and practice. *Health Promotion Practice*, 8, 140. DOI: 10.1177/1524839906298494.
- [29] Moscaritolo, L.M. (2009). Interventional strategies to decrease nursing student anxiety in the clinical learning environment. *The Journal of Nursing Education*, 48(1), 17-23.
- [30] Pender, N., Murdaugh, C. and Parsons, M.A., (2001). *Health Promotion in Nursing Practice (4th ed.)*, Upper Saddle River, NJ: Pearson Education.
- [31] Poston, I., Bowman, J. and Rouse, J. (1994). Health behaviors and academic success. *Nurse Educator*, 19(2).
- [32] Rosenzweig, S., Reibel, D.K., Greeson, J.M., Brainard, G.C. and Hojat, M. (2003). Mindfulness-based stress reduction lowers psychological distress in medical students. *Teaching and Learning in Medicine*, 15(2), 88-92.
- [33] Scanlon, W.J. (2001). *Nursing workforce: Recruitment and retention of nurses and nurse aides is a growing concern*. No. GAO-01-75OT. Washington D.C.: USA General Accounting Office.
- [34] Shipton, S.P. (2002). The process of seeking stress-care: Coping as experienced by senior baccalaureate nursing students in response to appraised clinical stress. *Journal of Nursing Education*, 41(6), 243-256.
- [35] Shrive, C. and Scott-Stiles, A. (2000). Health habits of nursing versus non-nursing students: A longitudinal study. *The Journal of Nursing Education*, 39(7), 308-314.
- [36] Stark, M.A., Manning-Walsh, J. and Vliem, S. (2005). Caring for self while learning to care for others: A challenge for nursing students. *Journal of Nursing Education*, 44, 266-270.

- [37] Stetson, B. (1997). Holistic health stress management program: Nursing student and client health outcomes. *Journal of Holistic Nursing, 15*(2), 143-157.
- [38] Timmerman, G. (1999). Using self-care strategies to make lifestyle changes. *Journal of Holistic Nursing, 17*(2), 169-183.
- [39] Ting, L., Morris, K. McFeaters, S. and Eustice, L., (2006). Multiple roles, stressors and needs among baccalaureate social work students: An exploratory study. *Journal of Baccalaureate Social Work, 12*(1), 39-55.
- [40] Walker, S.N. and Hill-Polerecky, D.M. (1996). Psychometric evaluation of the Health-Promoting Lifestyle Profile II. Unpublished manuscript, University of Nebraska Medical Center. Retrieved December 17, 2009 from [http://app1.unmc.edu/nursing/conweb/view_content.cfm?lev1=hplpii&lev2=\(none\)&lev3=\(none\)&pubstat=\(none\)&web=pub](http://app1.unmc.edu/nursing/conweb/view_content.cfm?lev1=hplpii&lev2=(none)&lev3=(none)&pubstat=(none)&web=pub).
- [41] Walker, S., Sechrist, K., Pender, N. (1987). The health-promoting lifestyle profile: Development and psychometric characteristics. *Nursing Research, 36*(2), 76-81.
- [42] Walker, S., Sechrist, K., Pender, N. (n.d). *The health-promoting lifestyle profile II*. University of Nebraska. Retrieved August 11, 2009 from [http://app1.unmc.edu/nursing/conweb/view_content.cfm?lev1=hplpii&lev2=\(none\)&lev3=\(none\)&pubstat=\(none\)&web=pub](http://app1.unmc.edu/nursing/conweb/view_content.cfm?lev1=hplpii&lev2=(none)&lev3=(none)&pubstat=(none)&web=pub).
- [43] Zellmer, D. (2005). Teaching to prevent burnout in the helping profession. *Analytic Teaching, 24*(1), 20-25.

Copyright of Work is the property of IOS Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.