

Self-Care Practices Among Undergraduate University Students

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## Abstract

Although many factors affect an individual's health status, self-care is paramount. Further investigation of factors that influence self-care practices is key to enhancing illness and injury prevention and health promotion. The purpose of this study was threefold: to explore the self-care practices of undergraduate university students, to identify variables that influence such practices, and to compare the self-care practices of students in health-related programs to students in mainstream programs. A descriptive correlational survey design was used. The sample consisted of 254 students in health and mainstream programs. The study was informed by Pender's Health Promotion Model and Orem's Self-Care Deficit Theory of Nursing. A self-report questionnaire based on Orem's Universal Self-Care Requisites was used to obtain information regarding students' self-care practices related to: food, alcohol use, activity and rest, and normalcy. The scores for the total self-care index did not achieve statistical significance, reinforcing the multidimensional nature of the concept. Students in health programs had statistically higher mean scores in food, but lower mean scores in normalcy. Regression analysis indicates that socioeconomic status, gender and self-efficacy were major factors influencing student self-care practices. Recommendations for future research are discussed.

## Chapter 1

### *Introduction*

Good health enables a person to maximize his or her full potential, whereas the presence of illness can have a devastating impact on achieving this important health-related goal.

Although disease and injury remain everlasting possibilities, the individual does have control over many activities that influence one's health. Each person has the power to enhance or jeopardize his or her health through everyday self-care practices that translate into action or non-action.

Close examination of Canadian statistics reveals that chronic illnesses, many types of which are preventable, are major contributors to skyrocketing morbidity and mortality rates. For example, smoking, a modifiable behavior, is a significant factor in the development of cardiovascular and respiratory disease. Statistics Canada (2008) lists three of the top five causes of death in our nation as chronic diseases. Report after report, including the Romanow (2001) Commission on the Future of Health Care in Canada, clearly illustrate that, in terms of health care delivery, treatment initiatives alone are insufficient and irresponsible. They are also unsustainable given our publicly funded Canadian health care system. In response, the Canadian health care system is increasingly shifting to preventative initiatives. While it is clear that health promotion and illness prevention programs are needed to support the health of Canadians, where does one start?

In order to establish effective health promotion and illness prevention programs, it is important to identify the factors influencing the self-care practices of the population in question. Health promotion and illness prevention programs are especially important for university student populations because university is a time of unprecedented freedom in students' lives. For

example, students may develop unhealthy self-care behaviors without parental feedback or supervision. Students may not know, or choose to ignore the implications of their self-care choices. As health habits become ingrained through repetition, it becomes increasingly challenging to change any negative practices. Therefore, university populations are an essential target for health promotion initiatives.

University students in health programs, such as nursing, are privy to cutting edge health promotion information during their educational program. They are informed about how to safeguard and promote health. It is critical that this knowledge be used to maintain personal health and fitness to practice over the long-term and to model healthy behavior to others; in other words, students in health programs must ‘practice what they preach’. The long-term implications of negative self-care practices affect a student’s ability to become an effective health care provider.

### *Problem Statement*

Presently, there is a dearth of information about the self-care practices of Canadian university students. Given the implications alluded to above, attempts to fill this information gap are imperative. Accordingly, this study explored the following questions: what is the status of self-care practices among university students, what factors influence the self-care practices of university students, and are there any differences in self-care practices between students in health and mainstream programs?

### *Purpose*

The purpose of this study was threefold: to explore the self-care practices of undergraduate university students, to identify variables that influence such practices, and to compare the self-care practices of students in health programs to students in mainstream

programs. Comprehensive assessment provided a clear picture of overall undergraduate university student health. Data collection from students in health programs and mainstream programs presented the opportunity to identify any differences in self-care practices between these two groups.

### *Significance of this Study*

This research contributes to the growing knowledge base about the self-care practices of undergraduate students, particularly from universities in rural-based settings. The collection of holistic, descriptive data about self-care practices was a primary objective. Unlike previous self-report studies conducted with university populations, this research explored many aspects of self-care practices, thus providing a more comprehensive picture than currently exists. These data serve as a baseline for comparison, should a health intervention be implemented with this, or a similar sample, in the future.

The findings from this research identified how, and to what extent, various factors influence self-care practices. In turn, this knowledge helps to identify where, and to whom, health promotion initiatives should be targeted. This study also showcased positive practices that might exist among university students.

Research surrounding student self-care can be greatly enhanced through the development of a ratio-level variable measure. Holistic assessment and a high level of measurement are important aspects of student health research. Tool development also sets the stage for the creation of screening measures and refined indexes. A comprehensive tool, in the form of a questionnaire, was developed specifically to collect data for this study. While self-care practices are often studied in isolation (e.g., smoking), this study captured the broad picture of student health that is currently missing in existing research.



The comparison of students in health programs and mainstream programs was an exciting component of this research. Data analysis from students in health programs and students in mainstream programs enabled the researcher to evaluate the impact of specialized health education on self-care practices. The self-care practices of “up and coming” health care providers has important implications for the whole Canadian health care system. Young practitioners will determine the future of health care; it is important to know if personal health is a priority for these students. If health care professionals do not personally employ positive self-care practices, it will be difficult to maintain credibility in recommending these practices to clients.

The findings of this study were interpreted in the context of relevant theories about chronic disease prevention and health promotion, and in relation to previous research related to the self-care practices of Canadian health care providers. Implications of the findings for the Canadian health care system and for future research were explored.

### *Definition of Terms*

The conceptual terms used in self-care research have been thoroughly classified. For the purpose of clarity and consistent understanding of the conceptual framework and literature review, the following terms are defined:

1. Chronic Conditions are “health problems requiring ongoing management over a period of years, even decades” (Day, Paul, Williams, Smeltzer & Bare, 2007, p.149). They include: noncommunicable diseases, such as diabetes; persistent communicable diseases, such as HIV/AIDS; some mental disorders, such as schizophrenia; and, ongoing structural impairments such as joint disorders (World Health Organization (WHO) as cited in Day et al.). In this research, the terms chronic condition will be used interchangeably with chronic illness, and chronic disease.

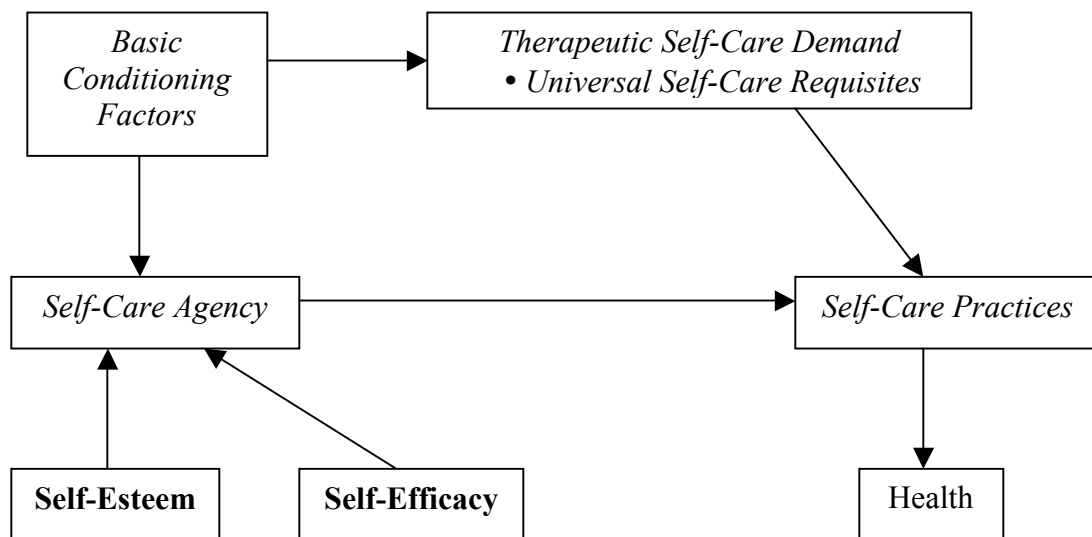
2. Conditioning Factor: "... a factor in a situation of action that affects the values or operability of other situational factors." (Orem, 2001, p. 515).
3. Health: "A state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the object of living. It is a positive concept emphasizing social and personal resources as well as physical capabilities" (WHO, 2000).
4. Health Promotion: "Behavior motivated by the desire to increase well-being and actualize human health potential" (Pender, Murdaugh, & Parsons, 2002, p. 7).
5. Self-Care: "The practice of activities that maturing and mature persons initiate and perform, within time frames, on their own behalf in the interests of maintaining life, healthful functioning, continuing personal development, and well-being, through meeting known requisites for functional and developmental regulations" (Orem, 2001, p. 521-522).
6. Self-Care Agency: "The complex acquired ability of mature and maturing persons to know and meet their continuing requirements for deliberate, purposive action to regulate their own human functioning and development" (Orem, 2001, p. 522).
7. Self-Care Requisite: "... [a] factor to be controlled to be managed to keep aspects of human functioning and development within norms compatible with life, health, and personal wellbeing..." (Orem, 2001, p. 522).
8. Self-Efficacy: "The conviction that one can successfully execute behavior required to produce the [desired] outcomes" (Bandura, 1977, p. 79).
9. Self-Esteem: Trait or global self-esteem is a "personality variable that represents the way people generally feel about themselves" (Brown & Marshall, 2006, p. 4).

10. Therapeutic Self-Care Demand: The required input necessary for meeting an individual's known self-care requisites.” (Orem, 2001).

### *Conceptual Framework*

The conceptual framework guiding this study was developed by blending two theories; namely, the Health Promotion Model (Pender et al., 2002) and the Self-Care Deficit Theory of Nursing (Orem, 2001). Components of these theories were combined to support the development candidate variable model, termed Jackson’s Conceptual Framework, for this research.

*Figure 1: Jackson’s Conceptual Framework*



Legend: *Italicized* items from Orem’s Self-Care Deficit Theory of Nursing  
**Bolded** items from Pender’s Health Promotion Model

### *Health Promotion Model*

The Health Promotion Model seeks to explain how individuals can be motivated to engage in healthy behaviors and achieve overall better health (Pender et al., 2002). The model is composed of many elements, including both cognitive-perceptual factors and modifying factors

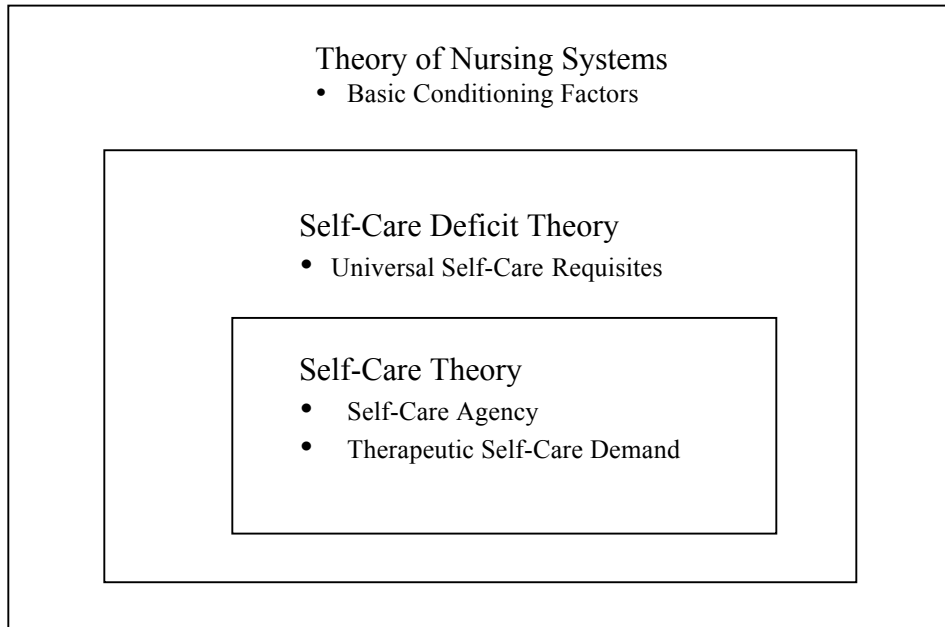
(Pender et al.). Bandura's (1977) Social Cognitive Theory, which has played a major role in the development of the Health Promotion Model, has been used in blended nursing theories frequently because of its emphasis on behavior (Callaghan, 2003). The cognitive-perceptual factors portrayed in the Health Promotion Model include self-efficacy, and the modifying factors include demographic information, such as age and gender (Pender et al.).

Additionally, the Health Promotion Model focuses on approaches that motivate individuals in a non-threatening way; for instance, improving activity levels is a positive behavior, rather than a measure to avoid chronic disease. This is significant for university students, who are generally healthy and would not necessarily perceive an immediate threat to health because of poor lifestyle choices. The Health Promotion Model states that individuals interact through interpersonal relationships, which can include health care professionals, to model healthy behavior and seek support or positive feedback (Pender et al., 2002). Clients take an active role in developing their own health, and assess their own abilities and limitations (Pender et al.). Self-efficacy, which was examined in this study, is articulated as an important part of the Health Promotion Model.

### *Self-Care Deficit Nursing Theory*

As part of her grand Theory of Nursing, Dorothea Orem was the first theorist to truly consolidate the concept of self-care as a means of maintaining health. Although her theory is complex and multidimensional, several aspects of her work inform this study. Accordingly, the Self-Care Deficit Theory of Nursing is the focus of this conceptual framework (see Figure 2).

*Figure 2: Orem's (2001) Self-Care Deficit Theory of Nursing*



*Basic conditioning factors.* The first area of Orem's (2001) theory to be explored in this discussion is basic conditioning factors. These factors directly affect the amount of self-care an individual will require, thus influencing one's therapeutic self-care demand (Orem). Any of the basic conditioning factors can be considered antecedent variables to therapeutic self-care demand. The basic conditioning factors also influence how one meets Universal Self-Care Requisites, and the extent to which technology or assistance is required (Orem). The most current list of basic conditioning factors are depicted in Table 1.

Age	Gender
Developmental State	Health State
Socio-cultural orientation	Health Care System Factors
Family System Factors	Pattern of Living
Environmental Factors	Resource Availability and Adequacy

Several basic conditioning factors were investigated as independent variables in the Jackson Self-Care Practice Model. It is notable that Orem's basic conditioning factors are very similar to the determinants of health (Public Health Agency of Canada (PHAC), 2006); therefore, both the frameworks were considered in the review of the literature (see Chapter 2).

*Self-care agency.* Self-care agency is an exceptionally complex concept. Simply defined, it is the acquired ability to meet one's therapeutic self-care demand (Orem, 2001). Self-care agency collectively represents the talents, resources and capacities a person has to meet his or her needs (Orem). Self-care is a product of the application of self-care agency to meet therapeutic self-care demand. Self-care agency fluctuates based on an individual's environmental context and personal state. Self-care is a learned, deliberate use of self-care agency, though this practice can become habitual over time.

Self-care agency has three major parts: self-care operational capabilities, power components, and foundational capabilities (Orem, 2001). Briefly, self-care operational capabilities relate to reasoning, judgment, and decision-making about self-care (Orem). Power components refer to the physical and cognitive abilities to control the body and mind to produce purposeful actions. Foundational capabilities include: learned skills, attitudes, self-image, values, interests, and other constitutional factors. Many independent variables selected for this study (e.g., health information seeking behavior) have roots in self-care agency and its sub-categories.

*Universal self-care requisites.* The major component of the Self-Care Deficit Theory of Nursing is the universal self-care requisites. The effectiveness of an individual's self-care can be evaluated by way of the universal self-care requisites (Orem, 2001). It is paramount that these factors be considered as guidelines and not an absolute measure, as each individual has different health needs and practices. However, Orem's universal self-care requisites are aptly named, as they apply to every individual's basic needs. For instance, effective oxygenation is necessary for survival, and is an appropriate measure for every person. The universal self-care requisite categories and sample measures are listed in Table 2. These categories are not mutually exclusive, but this table presents a general outline.

Oxygenation	<ul style="list-style-type: none"> <li>• Smoking</li> </ul>
Nutrition and Metabolism	<ul style="list-style-type: none"> <li>• Eating habits</li> <li>• Balanced meals</li> </ul>
Fluids	<ul style="list-style-type: none"> <li>• Caffeine use</li> <li>• Hydration status</li> </ul>
Elimination and Reproduction	<ul style="list-style-type: none"> <li>• Bowel and bladder habits</li> <li>• Hygiene</li> </ul>
Activity and Rest	<ul style="list-style-type: none"> <li>• Regular exercise</li> <li>• Sleeping behaviour</li> </ul>
Social Interaction and Solitude	<ul style="list-style-type: none"> <li>• Time for self daily</li> <li>• Social activities</li> <li>• Involvement in hobbies or sports</li> <li>• Family relationships</li> </ul>
Normalcy	<ul style="list-style-type: none"> <li>• Coping with stress</li> </ul>
Prevention of Hazards	<ul style="list-style-type: none"> <li>• Alcohol and drug use</li> <li>• Regular health care appointments</li> <li>• Screening for STI's</li> <li>• Performance of SBE and/or STE</li> <li>• Seat belt use, drinking and driving</li> <li>• Helmet and sunscreen use</li> <li>• Gambling</li> <li>• Vaccines</li> </ul>

The Universal Self-Care Requisites form the dependent measure in Jackson's Self-Care Practice Model for this study, and provide the basis for the assessment of student self-care behavior.

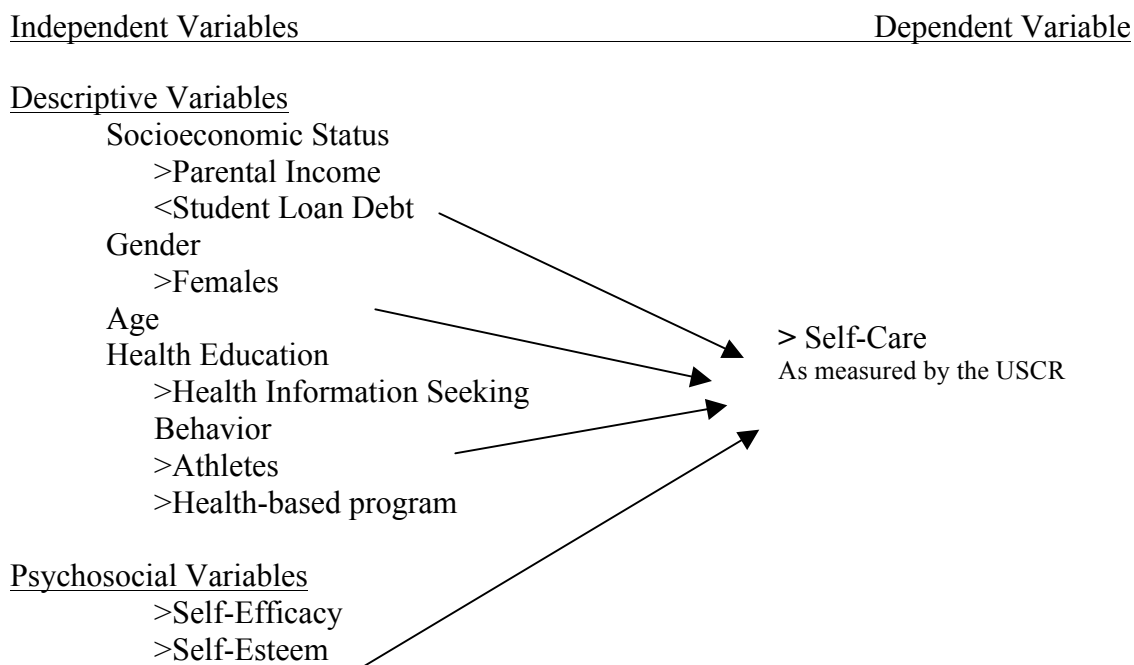
*Self-care theory.* Self-Care Theory focuses on the regulatory human action necessary to maintain basic functioning (Orem, 2001). Ideally, an individual can independently provide for his or her own needs, and achieve optimal personal performance. Self-care is determined by two factors: therapeutic self-care demand and self-care agency (Orem). Therapeutic self-care demand is the amount and kind of self-care a person requires; this is not synonymous with what level of self-care they can actually perform (Orem). Therapeutic self-care demand is specific to each individual; it is determined by the basic conditioning factors and assessed via the Universal Self-Care Requisites (Orem).

#### *Causal Model*

Jackson's Self-Care Practice Model illustrates the predicted relationships among variables (Figure 3).



*Figure 3: Jackson's Self-Care Practice Model*



The independent variables investigated in this research reflect various aspects of the conceptual framework. The universal self-care requisites provided a comprehensive model for assessing self-care practices in undergraduate university students. A composite of the universal self-care requisites formed the dependent variable. Each individual has unique health needs, but the holistic model used in this research encompassed major factors influencing health.

## Chapter 2

### *Literature Review: Dependent Measure*

The dependent variable measured in this research was self-care practices. Although a great deal of research has been done on individual health behaviors, few studies have focused on comprehensive assessment of self-care practices. Furthermore, no ratio-level self-care measure currently exists. It is important to know how the conceptualization of self-care measurement has changed to appreciate current perspectives.

#### *Early Measures and Conceptualizations*

The measurement of self-care behavior has evolved considerably since its initial theoretical conception. The earliest measures of self-care defined the behavior with a narrow, simplistic scope. Linn and Lewis (1979) articulated that self-care was linked to chronic disease prevention and health promotion, but their conceptualization of self-care meant consumers taking increased responsibility for health, resulting in decreased dependence on physicians. The literature suggests that Linn and Lewis approached self-care through a cookbook-cure perspective. A tool was developed to assess physicians' attitudes towards a client's use of self-care (Linn & Lewis). Surprisingly, physicians felt that self-care would not decrease physician visits, and in fact would do more harm than good! Over half of the doctors surveyed felt that clients could not learn how to adequately care for themselves, and that medical information was not appropriate for the general public (Linn & Lewis). Although the findings may seem laughable by current standards, it is still significant that self-care conceptualized as an aspect health promotion.

Green and Moore (1980) continued research on self-care by using an experimental design to assess use of and attitudes toward self-care practice. They modified the questionnaire used by

Linn and Lewis (1979) to assess self-care attitudes. The focus of self-care remained on cost effectiveness and the number of physician visits. Green and Moore provided families with a book on step-by-step medical self-care, and offered one experimental group \$50.00 if the participants' families could reduce their physician visits by one third! The ethical considerations of this experimental design are worrisome; however, Green and Moore did conclude that self-care was indeed a worthwhile medical concept which merited further research.

Fleming, Giachello, Andersen, and Andrade (1984) examined the use of self-care behavior to decrease medical visits and expenses. The measure of self-care was the use of non-prescription medication and lay-person analysis, such as taking a temperature, before initiating a treatment (Fleming et al.). Their findings indicated that the use of self-care decreased physician visits and decreased the length of hospital admissions. This study focused specifically on the cost related benefits of self-care, a trend which does not continue in current research.

The scope of self-care research began to gradually expand, based on these early findings. Hartweg and Metcalfe (1986) used the same scale as Linn and Lewis (1979), now termed the Linn-Lewis Self-Care Attitude Scale. Using a pre-test post-test design, Hartweg and Metcalfe examined nursing student responses to a self-care curriculum, developed with Orem's theory. This study followed earlier work by Hartweg (as cited in Hartweg & Metcalfe) who found that self-care attitudinal differences existed between nurses of different educational backgrounds. It is not surprising that nursing students had significantly higher levels of acceptance of self-care following their education under an Orem's based curriculum (Hartweg & Metcalfe). While the results of this research were predictable given the study design, this work did serve to raise awareness about the practical application of Orem's theory.

Although current research on self-care has shifted away from a financial perspective, evidence supports the potential of self-care to decrease health care costs. Many studies focus on self-care in populations with chronic illness. Recently, healthy populations have been studied from a chronic disease prevention perspective. Indeed, the majority of chronic illnesses that are prevalent in Canadian society have roots in previous poor health maintenance (Starzomski, as cited in Shriver & Scott-Stiles, 2000), making ongoing research into self-care practices timely and relevant.

#### *Current Conceptualization*

More recently, the manifestations of self-care in university-aged populations have been studied using a variety of sophisticated health assessment tools (Orem, as cited in Hartweg, 1990; Pender, as cited in Riordan & Washburn, 1997). Identifying differences between students in health and mainstream programs continues to be a general trend in research, in both descriptive and experimental studies. The results of recent studies on the self-care practices of undergraduate university students are discussed and summarized below.

*Physical activity.* The most widely evaluated measure of self-care was physical activity (Chow & Kalischuk, 2008; Clement, Jankowski, Bouchard, Perreault, & Lepage, 2002; Kuuppelomaki & Utriainen, 2002; Riordan & Washburn, 1997; Seo, Nehl, Agle, & Ma, 2007; Shriver & Scott-Stiles, 2000; Stark, Manning-Walsh, & Vliem, 2005). Clement et al. (2002) employed a longitudinal design to study the behavior of nursing students, compared to education students and general population statistics (N=145). No interventions were used in this study; differences were largely attributed to differences in educational background. No statistically significant difference was found in nursing student rates of activity over 3 years. There was also no significant difference in activity rates when compared with education students. During the

first 2 years of the study, nursing students had significantly higher rates of physical activity than the general population. At the end of their program, nursing student rates decreased and no difference was present when compared to the general population. Time constraints and limited access to fitness facilities were cited as the major reasons for this decrease.

Stark et al. (2005) sampled a single group using a pretest/posttest method. A lifestyle self-care plan intervention was integrated into nursing students' clinical practice. Students (N=64) were designated 2 hours a week to perform self-care behavior as part of course requirements. The students selected personal self-care practices they wished to improve, such as physical activity. Behaviors were evaluated by using the HPLP-II measure. A statistically significant increase was seen in physical activity rates at the conclusion of the study. It is notable that activity had the highest rate of improvement following the self-care course.

Kuuppelomaki and Utriainen (2002) conducted a 3 year study examining health behavior in students in health care and mainstream programs (N=287). Students who used personal resources more effectively (e.g. coping mechanisms such as support networks), regardless of program, had the highest levels of physical activity. It is suggested that students who exercise regularly experience less stress and use coping mechanisms more effectively. Overall rates of physical activity did not change during the study.

Riordan and Washburn (1997) used the HPLP-II tool to assess health behavior in nursing students (N=82). This study used a cross-sectional design and surveyed nursing students during the first semester of their program. Graduating nursing students were also surveyed during their last semester of undergraduate education. There was no significant difference in overall HPLP-II scores; however, rates of physical activity dropped significantly between first year students to fourth year students. Also of interest is that physical activity did not strongly correlate with other

measures for first year students. For fourth year students, correlations were noted between: physical activity, stress management, interpersonal support and self-actualization. The authors indicated that many students wished to exercise more frequently, but placed activity as low priority when balancing other commitments.

Shriver and Scott-Stiles (2000) compared the health habits of nursing and English students over 2 years (N=154) using their own derived Health Habits Inventory (HHI). The English students were required to take a course on basic health maintenance as part of their university program, so they engaged in basic health education. Nursing students had significantly higher overall HHI scores than English students. However, nurses had lower levels of physical activity within the HHI. Nursing students also saw significant improvement in their health scores over the course of their education. Nursing students' rates of physical activity increased during the study, but were not statistically significant. It is notable that although it did not achieve statistical significance, the rates of physical activity in English students were almost double that of nursing students.

Seo et al. (2003) studied physical activity in university students (N=1134). Over a seven day period, 56% of respondents reported participating in vigorous physical activity for at least 3 of the days, with 39% participating in moderate activity for 5 of the past 7 consecutive days. Physical activity was found to correlate strongly with not smoking, fruit consumption, and perceptions of body weight. Students who reported their body weight was 'about right' were more likely to meet minimum levels of activity than students who reported their weight as 'overweight'. Overall, a significant part of the sample did not meet basic minimum requirements for physical activity.

Chow and Kalischuk (2008) analyzed nursing student health behaviors using a cross-sectional design. The sample consisted of 211 students from a Canadian university, in all four years of the nursing program. The study was exploratory in nature, and did not involve any intervention component. Only 4% of the respondents stated that they did not exercise at all, while 27% reported consistent exercise. However, 65% of students indicated that their activity level was “not enough” (Chow & Kalischuk, p. 33). Students reported participation in a wide variety of activity, including running, aerobics, swimming and weight training.

*Nutrition.* Nutritional status of university students was measured in several different ways. The frequency of eating breakfast was examined by Clement et al. (2002) and Shriver and Scott-Stiles (2000). Clement et al. did not find any statistically significant changes in rates of university students eating breakfast, but noted that rates were higher than the general population. Initially, a significant increase in rates of eating breakfast in nursing students was found by Shriver and Scott-Stiles, but this relationship did not hold after adjusting for multiple comparisons for significance. There was no change in the breakfast habits of non-nursing students. Nursing students did increase their reading of food labels for nutritional information, while other students did not.

Seo et al. (2007) had interesting findings regarding nutrition. For example, vigorous physical activity correlated strongly with increased fruit consumption while, oddly enough, increased vegetable consumption did not correlate with physical activity. Although it is difficult to interpret the nuance of these results, it is clear that physical activity and nutrition are related in some capacity.

House, Su and Levy-Milne (2006) explored student eating habits using a qualitative design. Groups of nutrition and non-nutrition students participated in focus groups, discussing

their understanding of healthy eating. All groups identified the key themes of Canada's Food Guide for Healthy Eating, namely moderation and variety, as being important to them personally. Nutrition students were the only participants to point out emotional enjoyment as a reason for eating, while only non-nutrition students identified cost as a barrier to healthy eating. All groups identified fad dieting as unhealthy and body image as a factor that influenced food choices.

Chow and Kalischuk (2008) sampled nursing students to assess their nutritional practices. Both food and fluid intake were assessed using a questionnaire. Forty-nine percent of nursing students reported eating a balanced diet, and 23% responded that they rarely ate well. Nursing students also indicated that on non-clinical practice days they consumed an average of six glasses of juice and water. However, on clinical days, 69% of students indicated they drink two to six glasses of water. The authors do not identify any specific reasons for the decrease in fluid consumption while students are in the clinical practice setting.

Researchers also used the HPLP-II tool to assess nutritional practices, with a focus on overall eating behavior (Riordan & Washburn, 1997; Stark et al., 2005). Stark et al. found a statistically significant positive increase in healthy eating, following a self-care intervention where class time was provided to perform self-care activities. However, Riordan and Washburn noted no difference in eating habits over the course of the nursing program.

*Tobacco use.* It is well known that tobacco products, both cigarettes and smokeless tobacco, create a plethora of health problems. Clement et al. (2002) found no significant change in tobacco use among nursing students during their undergraduate education, and that nursing and education students had similar rates of tobacco use. Ten percent of nursing students were habitual smokers. However, it is notable that the university students' rates of smoking were lower than the general population. Clement et al. state that receiving health education was not a



factor in determining rates of smoking in nursing students. Kuuppelomaki and Utriainen (2002) found no statistically significant change in tobacco use following the completion of health education courses. Shriver and Scott-Stiles (2000) also found no significant change in tobacco use following the completion of a university degree. Seo et al. (2007) found that students who had not smoked in the past 30 days also had higher rates of healthy behavior, especially physical activity. Vaez, Ponce de Leon, and Laflamme (2006) discovered a strong association between smoking/ smokeless tobacco use and young working adults; university students had much lower rates of tobacco use. Chow and Kalischuk (2008) found that 85% of nursing students were non-smokers, with only 7% reporting frequent or heavy smoking.

*Alcohol use.* Gillespie, Holt, and Blackwell (2007), studied university students from a variety of disciplines (N=421). They found that increased frequency of alcohol consumption was strongly associated with increased volume of alcohol consumed. Thus, students who drank more often, drank larger amounts per session than others. Whereas alcohol consumption in the past 30 days was not associated with significant negative outcomes, binge drinking was a significant precursor to personal problems and risky behavior (Gillespie et al.). Shriver and Scott-Stiles (2000) found no significant change in rates of alcohol use during university among nursing students. Kuuppelomaki and Utriainen (2002) supported these findings, as they reported no statistically significant change in alcohol consumption after health education. Vaez et al. (2006) established that university students drink more than their working peers and more often. Seo et al. (2007) found no relationship between binge drinking and rates of physical activity. Chow and Kalischuk (2008) found that 35% of nursing students reported that they never consume alcohol, with 59% of nursing students self-identifying as occasional drinkers. In fact, only 10 students, or 5% of the sample, reported binge drinking (Chow & Kalischuk). This is in stark contrast with

other reports of university student alcohol consumption. No reasons are given for the high percentage of non-drinkers.

*Illicit substance use.* It was no surprise that cocaine use caused increased personal and lifestyle problems (Gillespie et al. 2007). Shriver and Scott-Stiles (2000) found that 12% of non-nursing students used illicit drugs, compared to 1.4% of the nursing student population. At the conclusion of the study, these rates had dropped to 10% for non-nursing students and 0% for nursing students (Shriver & Scott-Stiles). It is possible that health promotion information about drugs impacted the rates of use for these students.

*Overall health and responsibility for health.* Riordan and Washburn (1997) and Stark et al. (2005) both evaluated overall health and perceptions of personal responsibility for health using the HPLP-II tool. One study found no significant difference in either category, regardless of the student level of university education (Riordan & Washburn). Stark et al. reported a significant increase in overall health and personal responsibility for health following the implementation of a self-care intervention. Health responsibility was the area with the second-largest improvement, after physical activity (Stark et al.). Shriver and Scott-Stiles found that nursing students had better overall health than other students. Nursing students also increased their levels of healthy behavior during their education (Shriver & Scott-Stiles).

Chow and Kalischuk (2008) asked nursing students to estimate total daily time expenditure on self-care. The average time reported was 68.5 minutes, with 57% of students reporting 60-120 minutes. The authors identified employment, family, and academic obligations as barriers to increased self-care.

*Stress management.* Sharif and Armitage (2004) examined rates of anxiety and stress in nursing students (N=100) in a study that used a triangulation design. In the experimental portion

of the study students in the control group were compared to students who participated in a 12 week program that focused on anxiety reduction, relaxation, stress management, and study skills. For the purposes of qualitative analysis, focus groups were used to discuss student experiences of stress. The study findings revealed that students who participated in the 12 week program experienced a significant reduction in stress levels by the end of the study. Students in the experimental group also reported a statistically significant improvement in their marks and self-esteem.

Riordan and Washburn (1997) and Stark et al. (2005) evaluated stress management using the HPLP-II tool. Stark et al. found a significant increase in students' abilities to manage stress, following the participation in a self-care course. In contrast, Riordan and Washburn found no difference in new nursing students' and graduates' abilities to cope with stress.

Chow and Kalischuk (2008) surveyed nursing students to identify what coping methods were used to manage stress. Seventy-six percent of the sample reported complementary therapy use as a stress reduction technique. Yoga, music, prayer, meditation, and massage were identified as effective complementary therapies to minimize stress. Other methods of stress reduction included exercise, reading, socializing, and participating in hobbies.

*Spiritual growth and interpersonal relations.* The HPLP-II tool was used by two groups of researchers (Riordan & Washburn, 1997; Stark et al., 2005) to measure spiritual growth and interpersonal relations. Stark et al. reported significant increases in spiritual growth following a self-care intervention. Interpersonal relations was the only category of the HPLP-II that did not increase. It is unclear why this area was the lone measure to remain unchanged. Riordan and Washburn did not find statistically significant changes in either category.

*Screening.* Clement et al. (2002) and Shriver and Scott-Stiles (2000) examined diagnostic and preventative screening behavior. These included: self-breast and self-testicular exams, annual dental appointments, knowledge of personal blood pressure and cholesterol levels, clinical breast exams, and pap tests. Of these, the self-breast and the self-testicular screening behavior showed statistically significant rise in frequency following health education (Shriver & Scott-Stiles). Although nursing students' rates of self-breast exams did not change significantly, their rates were higher than the general population overall (Clement et al.). All other health screening behaviour did not change during undergraduate education.

*Sexual health.* Shriver and Scott-Stiles (2000) examined safe sex practices among Nursing and English students. Nursing students' rates of condom use decreased during their time at university, but this relationship was not significant.

*Additional measures.* Clement et al. (2002) and Shriver and Scott-Stiles (2000) studied frequency of seatbelt use. Clement et al. did not note any significant differences in rates of seatbelt use. Shriver and Scott-Stiles found that nursing students' rates of seatbelt use increased, while non-nursing students' rates decreased. However, neither of these changes were statistically significant.

Clement et al. (2002) assessed hours of sleep, and reported no differences between the amount of sleep students received. Hours of sleep each night for nursing students was significantly lower than the general population (Clement et al.). Chow and Kalischuk (2008) assessed nursing students' sleeping habits and found the mean response for hours of sleep per night was 6.7. Thirty-nine percent of respondents indicated that they did not get enough sleep. It was surprising that this area has not been researched further, as sleep certainly has a profound impact on general well-being.

There remains much inconsistency in the literature surrounding student health behaviors. It was notable that researchers covered a wide variety of topics and often studied topics in isolation rather than perform a holistic assessment in a single study. This limitation was considered in the development of the current study. The literature suggested that nursing students have the information necessary to make positive self-care choices. In areas where self-care is a matter of one selection over another, such as eating healthy foods or non-nutritious foods, nursing students tended to select the healthier option. Nursing students were less likely to engage in activities that required a time commitment, rather than a selection based on preference. For instance, sleep and physical activity rates were generally low in nursing students; this could be because both of these activities require a time commitment. When the barrier of time was mediated, such as providing a self-care intervention, rates of time-dependent activities increased. This has significant implications for health promotion initiatives among nursing students.

### *Independent Measures*

The independent variables considered in this study are depicted in the candidate variable model (Figure 3). For ease of classification, these variables are categorized as descriptive and psychosocial.

#### *Descriptive Variables*

*Socioeconomic status.* No health discussion is complete without mention of socioeconomic status, or SES. This term is applied to the general rating of occupation, income, and education (Grabb, 2002). This enables one to place a person on the continuum of a social structure which determines an individual's place in society (Grabb). In terms of overall health outcomes, socioeconomic status has been noted as the single most important determinant of health-seeking behavior (Ahmed, Tomson, Petzold, & Kabir, 2005). This is articulated in both

the determinants of health (PHAC, 2006) and the social determinants of health (Canadian Nursing Association (CNA), 2005). In the determinants of health, SES was rated as the most important factor in predicting whether a person will experience good or poor health (PHAC). This relationship was discussed by non-nutrition students, who identified cost as a barrier to purchasing healthy food (House et al., 2006). The social determinants of health include poverty, economic inequality, and social status as major contributing factors to morbidity and mortality (CNA). This is not just applicable on an individual level; the overall health of a population is strongly related to the educational levels and income of that population (Vollman, Anderson, & McFarlane, 2004). Canadians with a low income have poorer levels of health than their richer counterparts (Potter & Perry, 2006). “People in the lower income bracket have lower levels of self-esteem, coherence and sense of mastery” (Potter & Perry, p.8). This important variable was measured by examining both parental income and student loan debt, to determine the impact of SES on student self-care practices. Annual income is usually used to assess SES, but this measure was not appropriate for this population.

*Gender.* Gender has been identified as an important determinant of health (PHAC, 2006). While women live longer than men, they experience more chronic physical and mental illness (PHAC). Gender-based norms continue to influence priorities and policies in the Canadian health care system (PHAC). Callaghan (2005) stated that women have higher levels of self-care than men. However, women in the general population have less access to health promoting opportunities such as recreation and health care education (Stamler & Yiu, 2005). In this study, it was predicted that females would have higher rates of self-care than males.

*Health education.* Education and literacy are key determinants of health (PHAC, 2006). People with increased levels of education are expected to better navigate health services and

critically appraise health information (Potter & Perry, 2006). It was predicted that students who seek out health information more frequently, and from more sources, will have higher rates of self-care. It was also predicted that student athletes, who receive a great deal of health education, would have higher levels of self-care. This is consistent with Orem's (2001) theory, which identifies education as an important aspect of self-care.

Each of the theoretical frameworks integrated into the causal model for this study emphasize the role of education and modeling in behavior (Orem, 2001; Pender et al., 2002). Students in health programs are informed about the latest, cutting-edge research, and are privy to significant amounts of health information. It was hypothesized that students in health-based programs would have higher levels of self-care.

*Age.* Health disparities clearly exist across different age groups. However, it was anticipated that the sample in this study would have a narrow age range, given that the majority of undergraduate university students are between the ages of 18 and 22. It is notable that overall, health behavior patterns are good in childhood, deteriorate in adolescence and young adulthood, and then begin to improve again as a person ages (Leventhal, Prochaska, & Hirschman, as cited in Taylor, 1999). It was predicted that overall engagement in self-care practices would be low.

### *Psychosocial Variables*

Each of the psychosocial variables associated with the theoretical framework used in this study were discussed in detail in Chapter 1. The specific tools used are showcased in Chapter 3. This section briefly discusses each psychosocial concept.

*Self-Esteem.* Self-esteem is one of the most ambiguous concepts in psychology. There is a great deal of debate surrounding its origin, influence, and even its existence (Brown & Marshall, 2006). For the purposes of this study, trait or global self-esteem was evaluated. This

refers to the way an individual generally feels about him or herself, which remains relatively stable in different situations (Brown & Marshall). Lo (2002) studied the self-esteem of nursing students (N=333) at a rural university, using the Rosenberg Self-Esteem Inventory (see Chapter 3). A statistically significant difference in positive self-esteem was found between second and third year students, with third year students having higher self-esteem (Lo). Further, students with higher self-esteem exhibited higher rates of positive stress management behavior (Lo). For this research, it was hypothesized that students with higher self-esteem would have increased rates of self-care behavior.

*Self-efficacy.* Self-efficacy has also been studied in relation to self-care practices. Bray (2007) examined the role of self-efficacy in supporting physical activity during the transition to university. Students from a variety of disciplines (N=127) were asked about their rates of physical activity before and after their arrival at university. Self-efficacy was found to be a predictor of higher rates of physical activity, both before university, and during the transitional period. The trends in previous work indicate that self-efficacy positively correlates with positive health behaviors. Therefore, it was predicted that increased self-efficacy would be positively associated with increased self-care.

All these independent variables were expected to influence the self-care practices of undergraduate university students. Evaluating these factors shed light on the factors influencing the self-care practices of undergraduate university students. The impact of the psychosocial variables on self-care has been largely unstudied and therefore highly justifies the inclusion of these variables in this study.



## Chapter 3

### *Method*

This research study took place at an undergraduate university in Eastern Canada. The study was conducted using a descriptive correlational design. A self-report questionnaire developed by the researcher was administered to consenting undergraduate students for their completion.

#### *Population and Sample*

This study was open to registered undergraduate students who consented to participate. Second and third year university students were the primary target population, although first and fourth year students were also welcome to participate. It was expected that new and graduating students would experience a variety of additional stressors, such as adjustment to university or career preparation. Second and third year students were targeted to minimize these confounds.

Concerted efforts were made to include similar numbers of students in health programs and mainstream programs. At this university, health programs consist of: human nutrition, human kinetics, and nursing. These programs were specifically targeted, in addition to students without a health education background, such as business students. This effort was made in order to facilitate the comparison of students with intensive health education and mainstream university students. The inclusion of all campus health programs also produced a sample with suitable numbers of male and female students to facilitate gendered analysis. This overcame a significant limitation of previous work: all female samples from health programs. A convenience sample was used to maximize participation under the given time constraint.

#### *Data Collection and Consent*

Data were collected by requesting class participation, following instructor approval. The questionnaire was distributed during classes to maximize potential participation. Data collection began once ethical approval from the Research Ethics Committee was obtained. Consent was obtained by providing each student with an Invitation to Participate letter. The researcher visited classrooms, with the professor's permission, to distribute the questionnaires. Students were clearly informed that they could refuse to participate, or withdraw their participation at any time prior to submitting their responses, without any academic or other penalties. Participants were informed that once the questionnaire was completed, it would be impossible to remove the data from the study, because no identifying marks were on the questionnaire. Completion of the questionnaire signaled a participant's consent to participate in the study.

#### *Ethical Considerations*

Maintaining rigorous ethical standards, as mandated by the Canadian Nursing Association (2008) and the Research Ethics Committee was of the utmost importance to the researcher. Confidentiality was maintained throughout the study, by avoiding any distinguishing marks or identifiers on the questionnaires. The data were kept in a locked filing cabinet in an office that only the researcher was able to access. All computer files were carefully protected. Questionnaires were destroyed at the completion of the study.

The questionnaire contained several sensitive questions; for instance, sexual health and illicit drug use were assessed. Although these topics were of a personal nature, these issues were considered important for health assessment. Participants were clearly informed that they could leave any questions in the survey blank, if they wished. Information about the Health and Counseling Center was provided to all participants before completing the questionnaire. No risks

were expected from participation in this study, but information about health services was provided nevertheless.

### *Instruments*

The self-report survey instrument that was used to collect data consisted of a combination of mature research scales and a new researcher developed questionnaire (see Appendix C). The mature instruments included the General Self-Efficacy Subscale (Sherer, 1982) and The Self-Esteem Scale (Rosenberg, as cited in Robinson et al., 1991). The General Self-Efficacy Subscale is composed of 17 items and measures overall self-efficacy, without application for specific behaviors (Sherer et al.). The questions consist of a 5 point Likert scale response, and include standard and reverse coding. Following a factor analysis, this scale produced an alpha coefficient of .71 (N=376) (Sherer et al.). Because of its general scope and application, this instrument was selected to measure self-efficacy in this study.

The Self-Esteem Scale, developed by Rosenberg was well-suited to this study, as it was initially tested on adolescents, and it is designed for easy administration (Robinson et al., 1991). This measure evaluates global, or trait self-esteem, which will determine overall feelings of worth (Robinson et al.). The measure consists of 10 questions, with 4 point Likert responses, although 5 and 7 point Likert items have also been used (Robinson et al.). A Cronbach alpha of .88 was reported by Flemming and Courtney (as cited in Robinson et al.). The validity of this instrument has been well established, as it correlates highly with many related measures; in fact, new measures of self-esteem are now evaluated by comparison with the Self-Esteem Scale (Robinson et al.). All of these considerations made this measure well-suited for the present study.

Self-care practices were assessed by a researcher-developed instrument. Orem's (2001) Self-Care Deficit Theory of Nursing guided item development. Specific information, such as that

regarding minimum physical activity requirements was taken from Canada's Physical Activity Guide (n.d., PHAC), and Canada's Food Guide (Health Canada, 2007). The tool consisted of 54 questions, which covered all categories of the universal self-care requisites. Face validity was established by having six experts review the tool for literacy level, suitability for the population and conceptual congruency. The experts included: a male and a female undergraduate university student, two practicing nurses who work with university students, a nurse researcher who studies youth health, and a statistical expert. The experts responded to three 9-point Likert items, with a response of 6 or above identified as support for the tool. The percent agreement was 100% from each expert, and hence, no items were removed.

In the researcher- developed tool, questions about frequency of alcohol use, drug use, hours of sleep per night, and smoking practices were designed as ordinal level measures. The participant selected from a specified range of behavior. For questions about sexual health and alcohol use, there were opt-out instructions for participants who were not sexually active or who did not consume alcohol. All other questions were assessed with 5-point Likert items. The Likert scales ranged from 1 "Never" to 5 "Always" based on the frequency that an individual engaged in a self-care practice. The tool had specific instructions that participants may leave any question blank. The entire questionnaire, including the mature tools, the researcher-developed tool, and demographic information contained 96 questions.

In summation, a survey instrument comprised of mature tools and a new researcher-developed tool was administered to university students. Data collection targeted second and third year students, in health and mainstream programs. High ethical standards, especially confidentiality, were maintained at all times.

## Chapter 4

Chapter 4 presents the findings arising from the statistical analyses of participants' responses to the self-care practices questionnaire. The descriptive and regression results are outlined and internal consistency reliabilities are presented.

### *Sample*

Table 4 provides a summary of the demographic information from this research. Overall, 254 students participated in this research. Females composed 64.8% of the sample (n=164) while males composed 35.2% (n=89). The age of participants ranged from 18 to 49 years with 87.4% of the participants being between the ages of 19 and 22. Sixty-one percent of participants (n=155) reported that they had student loan debt, while 39.0% or 99 participants did not. Parental income was recoded to categories of less than \$75,000 annually and \$75,000 and more, with 123 students (48.4%) reporting a parental income of less than \$75,000 and 131 (51.6%) reporting a parental income of \$75,000 and more. Given that the target years of study were students in the second or third year of a four year program, they constitute a majority with 86.1% being either sophomore or junior students. The majority (74.3%) of participants deny athletic involvement, whereas 25.7% identify themselves as athletes. Finally, 51.6% of the sample (n=131) were enrolled in mainstream programs, and the remaining 48.4% (n=123) participants were distributed across the following health programs: nursing, human nutrition, and human kinetics.

Table 4

## Summary Table of Participant Sample

	Percentage (%)	Cases
<b>Gender</b>		
Men	35.2	89
Females	64.8	164
<b>Age</b>		
18-22 years	87.8	215
23-49 years	12.2	39
<b>Student Loan Debt</b>		
Loan Debt	61.0	155
No Loan Debt	39.0	99
<b>Parental Income</b>		
Less than \$75,000	48.4	123
\$75,000 and More	51.6	131
<b>Year of Study</b>		
Second or Third	86.1	217
Other	13.9	37
<b>Athlete</b>		
Yes	25.7	65
No	74.3	188
<b>Program of Study</b>		
Health	48.4	123
Mainstream	51.6	131

*Independent Variables*

In addition to the independent variables listed in Table 4, self-efficacy, self-esteem and health information seeking behavior were also measured in this research. The mean scores for these variables are described in Table 5.

Self-efficacy and self-esteem were measured using the General Self-Efficacy Subscale (Sherer, 1982) and the Self-Esteem Scale (Rosenberg as cited in Robinson et al., 1991) as illustrated in Table 5. All mean inter-item correlations for indexes used in this research were above the acceptable .30 level. The Rosenberg's Self-Esteem Scale which consisted of 10 items had a Cronbach's alpha of .85. The Self-Efficacy Subscale which consisted of 17 items had a Cronbach's alpha of .88.

Health information seeking behavior was also evaluated (see Table 5). The score of this count measure reflected how many sources an individual used to seek out health information, and also how frequently these sources were used. This measure yielded a range of 8.0 to 30.0, with a mean score of 18.11 and a standard deviation of 4.1.

Table 5

Summary Table of Select Independent Variables

Variable	Minimum	Maximum	Mean	Standard Deviation
Self-Esteem Scale	17.00	50.00	40.90	6.35
General Self-Efficacy Subscale	32.00	81.00	61.81	8.65
Health Information Seeking Behavior	8.00	30.00	18.11	4.14

*Dependent Variable*

The universal self-care requisites formed the basis of the dependent variable measure. With the exception of oxygen, which was measured with one question, items from the assessment tool were combined in logical groupings to create categories, and subsequently, indexes of the universal self-care requisites (See Table 6). To ensure that higher scores reflected higher self care, reverse coding was used on several questions. Attempts to create a

comprehensive ratio-level assessment tool failed on the basis that several of the sub-indexes did not achieve acceptable alpha levels (See Table 6). Further, the scales that did reach significant alpha levels were combined, but unfortunately did not form a valid index.

Table 6

Summary Table of Index Reliability Data

<u>Index</u>	<u>Number of Items</u>	<u>Alpha</u>	<u>Significance</u>
Food	4	.737	+
Fluids	3	.313	-
Alcohol Use	3	.668	+
Elimination	5	.516	-
Sexual Health	3	.089	-
Prevention of Hazards	9	.618	-
Drug Use	3	.376	-
Activity and Rest	6	.784	+
Solitude and Social Interaction	6	.661	-
Normalcy	5	.762	+
Self-Care Practice Index	4	.360	-

+ Achieved statistical significance

- Did not achieve statistical significance

### *Self-Care Practices*

The self-care practices of undergraduate university students were measured using four indexes to assess food, alcohol use, activity and rest, and normalcy practices (See Table 7). The mean score was near the midpoint for each index, such as the food index, which had a minimum value of 5.00, a maximum value of 20.00 and a mean score of 13.68. Activity and rest had the



highest variation in responses, with a standard deviation of 4.88. The standard deviation for normalcy was also higher at 3.90.

Table 7

Index	n	Mean Scores for Select Indexes			
		Minimum	Maximum	Mean	Standard Deviation
Food	250	5.00	20.00	13.68	2.92
Alcohol Use	233	4.00	15.00	9.88	2.25
Activity and Rest	248	8.00	28.00	19.20	4.88
Normalcy	249	6.00	25.00	15.21	3.90

Several items in the questionnaire yielded findings worthy of note, especially given the nature of the given population. An overwhelming majority of participants (92.1%) reported that they did not smoke or use other tobacco products. The majority (55.4%) of participants reported that they “Never” (41.2%) or “Rarely” (14.2%) receive flu shots. In relation to illicit drug use, 22.6% of participants indicated that illicit drugs were used once a month or more, with 6.3% (N=16) using illicit drugs “More than once a week”. Finally, 16.8% of participants scored high on gambling behavior (3 or above on a 5 point Likert scale).

#### *Self-Care Practices by Program of Study*

The second research question asked: are there were differences in the self-care practices of students in health programs and mainstream programs? To explore the impact of program of study on self-care practices, means analyses were used to assess differences in the ratio-level indexes. The results of this analysis are depicted in Table 8.

Table 8

Mean Scores for Self-Care Practices by Program of Study

Index	Health Programs	Mainstream Programs	Significance
Food	14.32	13.05	.000*
Alcohol Use	10.02	9.74	.336
Activity and Rest	19.69	18.73	.125
Normalcy	14.61	15.78	.018*

\* Achieved statistical significance

These findings indicate that students in health programs had significantly higher scores on the food index, but lower scores on the normalcy index. Respondents in health programs also reported statistically significant higher rates of flu shots ( $p=.000$ ), with 29.8% reporting they “Always” receive a flu shot, compared with only 10.1% of students in mainstream programs. It is notable that there was no significant difference by program of study for rates of drug use, gambling, seeking medical assistance or the likelihood of compliance with health care providers’ instructions. There was a statistically significant difference between rates of self-breast exam or self-testicular exam screenings ( $p=.026$ ) with 8.9% of respondents in health programs reporting they “Always” perform screening. This was contrasted with only 5.7% of students in mainstream programs reporting they “Always” perform screenings. While differences in self-care practices did exist between participants based on program of study (e.g. rates of self-breast or self-testicular exams), the majority did not achieve statistical significance.

*Factors Influencing Self-Care Practices*

To determine the relative importance of factors that influence student self-care practices, a regression analysis was performed on each self-care practice index. The independent variables

included in the analysis were: age, health information seeking behavior, self-esteem, and self-efficacy. The following dummy variables were also included: athletes with 1 indicating yes, program of study with 1 indicating health program, parental income with 1 indicating \$75,000 and over, student loan debt with 1 indicating no debt, and gender, with 1 indicating female. A correlation analysis was performed before the regression analysis was completed; self-esteem and self-efficacy were moderately correlated with  $r=.579$  and  $p=.000$ . This creates the possibility of multicollinearity, but for the purposes of examining the established model, both variables were included in the regression analysis.

### *Food Index*

The first regression analysis examined factors affecting the food index. All independent variables were entered into the regression analysis with the dependent variable being the healthy eating habits of respondents ( $n=234$ ). These results are summarized in Table 9. The variables excluded were: age, gender, student loan debt, athletic participation, health information seeking behavior and self-esteem. The final regression equation was:

$$Y_{(\text{food})} = 8.132 + 1.162_{(\text{program of study})} + 1.027_{(\text{parental income})} + .072_{(\text{self-efficacy})}$$

The  $R^2$  was .121; thus, 12.1% of the variance was explained by the combination of program of study, parental income and self-efficacy.

Table 9

Summary Table of Multiple Regression Analysis  
Statistically Significant Variables in Predicting Variations in Food Index

Variable	b Coefficient	Beta Coefficient	Percent Explained
Program of Study	1.162	.196	4.1
Self-Efficacy	.072	.206	4.3
Parental Income	1.027	.173	3.6

Constant: 8.132  
 R Square: .121  
 % Explained: 12.1

### *Alcohol Use*

Alcohol use was examined using an index of three questions. Respondents who did not consume alcohol had the option to indicate this on the questionnaire (n=219). All independent variables were included in the regression analysis with the dependent variable being alcohol use. The results of the regression analysis are summarized in Table 10. The R<sup>2</sup> was .283 so 28.3% of the total variance was explained by the following regression equation:

$$Y_{(\text{alcohol use})} = 5.526 + 1.508_{(\text{gender})} + 1.012_{(\text{student loan debt})} + .060_{(\text{self-efficacy})} + .150_{(\text{age})} - .896_{(\text{parental income})} - 0.059_{(\text{athlete})} - .057_{(\text{health information seeking behavior})} - .055_{(\text{self-esteem})}$$

Interestingly, program of study was the only variable excluded from this regression.

Table 10

Summary Table of Multiple Regression Analysis  
 Statistically Significant Variables in Predicting Variations in Alcohol Use Index

Variable	b Coefficient	Beta Coefficient	Percent Explained
Age	.150	.235	4.1
Athlete	.590	-.117	2.1
Health Information Seeking Behavior	-.057	-.106	1.8
Self-Esteem	-.055	-.152	2.7
Self-Efficacy	.060	.230	4.1
Parental Income	-.896	-.200	3.6
Student Loan Debt	1.012	.220	3.9
Gender	1.508	.326	5.8

Constant: 5.526  
 R Square: .283  
 % Explained: 28.3

---

### *Activity and Rest*

A third regression analysis was used to determine the relative importance of the independent variables in influencing the dependent variable of activity and rest. The results of the regression analysis are summarized in Table 11. The independent variables: gender, self-esteem, student loan debt, health information seeking behavior, program of study and age were eliminated from this regression analysis. The  $R^2$  was .186 indicating that 18.6% of the total variance was explained. The final regression equation was composed of the following:

$$Y_{(\text{activity and rest})} = 11.039 + 2.610_{(\text{athlete})} + 2.218_{(\text{parental income})} + .103_{(\text{self-efficacy})}$$

Table 11

Summary Table of Multiple Regression Analysis  
 Statistically Significant Variables in Predicting Variations in Activity and Rest Index

Variable	b Coefficient	Beta Coefficient	Percent Explained
Athlete	2.610	.237	6.7
Self-Efficacy	.103	.186	4.3
Parental Income	2.218	.231	6.6
Constant:	11.039		
R Square:	.186		
% Explained:	18.6		

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### *Normalcy*

The final regression analysis determined the relative importance of the independent variables in influencing the dependent variable of normalcy, which reflected respondents' perceptions of stress and coping in the university setting. The results of the regression analysis

are summarized in Table 12. The variables excluded from the analysis based on their association with normalcy were: parental income, athletic participation, age and program of study.

There were 234 responses analyzed, and the  $R^2$  was .360; thus 36.0% of the total variance in normalcy scores was explained. The regression equation included:

$$Y_{(\text{normalcy})} = 7.036 - 2.213_{(\text{gender})} + .798_{(\text{student loan debt})} - .157_{(\text{health information seeking behavior})} + .146_{(\text{self-esteem})} + .100_{(\text{self-efficacy})}$$

Table 12

Summary Table of Multiple Regression Analysis  
Statistically Significant Variables in Predicting Variations in Normalcy Index

Variable	b Coefficient	Beta Coefficient	Percent Explained
Health Information Seeking Behavior	-.157	-.166	6.0
Self-Esteem	.146	.237	8.5
Self-Efficacy	.100	.223	8.0
Student Loan Debt	.798	.101	3.6
Gender	-2.213	-.276	10.0
Constant:	7.036		
R Square:	.360		
% Explained:	36.0		

### *Summary*

This chapter discussed the demographic profile of the sample, and the psychometric properties of the tools used in this study. The findings were presented for each research question. An examination of these results in Chapter 5 provides valuable insight into the findings of this study.

## Chapter 5

In this concluding chapter, the research findings are interpreted and discussed within the context of prior research and the study's conceptual framework. The limitations of this research are presented. Finally, the implications and recommendations for future research are proposed.

### *Interpretation of Findings*

#### *Tool Development*

While an attempt to develop a reliable and valid tool to measure self-care practices has yet to be achieved; however, definite progress toward developing a comprehensive, ratio level assessment tool has been made. For example, valid indexes were developed in the areas of food, alcohol use, activity and rest, and normalcy, making these indexes viable measures to be included as the tool to measure self-care practices is further refined. Instrumentation has been developed for other parts of Orem's theory, such as self-care agency (Kearney & Fleischer, 1979; McBride, 1991), making the continued development of a self-care practice tool a realistic objective.

#### *Student Self-Care Practices*

The results suggest that variation exists in self-care practices among undergraduate university students. Both beneficial and risky practices were evident. For instance, a low smoking rate of 7.9% in this university population is a positive finding. The fact that this low percentage is corroborated by Clement et al. (2002) who found a 10% rate of smoking in a university population is very encouraging in terms of its impact on the future health of this generation. On the other hand, risky behaviors such as one in five students using illicit drugs were observed.

The mean scores for the four self-care practice indexes were near the midpoint of the data- an expected finding. For instance, the activity and rest index had a mean score of 19.20 and a range of 8.00 to 28.00. Activity and rest also had the widest variety of responses, accounting for the largest standard deviation. This is not surprising, for two reasons. First, this category was broad, and included both sleep and physical activity practices. Second, previous research demonstrates a wide variation in the findings describing physical activity in university students (Chow & Kalischuk, 2008; Clement et al., 2002; Kuuppelomaki & Utriainen, 2002; Riordan & Washburn, 1997; Seo et al., 2007; Shriver & Scott-Stiles, 2000; Stark et al., 2005).

#### *Self-Care Practices and Program of Study*

There was a statistically significant difference in the mean scores for the food scale according to program of study. This result might reflect the influence of increased education on the importance of healthy eating, especially among nutrition students. Another plausible explanation could be that selecting healthy foods is a matter of choice, rather than time consuming. Simply put, it does not require additional time to select an apple over a chocolate bar. Thus, this may be one area where students in health programs are able to apply their knowledge without significantly changing their lifestyle or creating an additional time commitment.

There was a statistically significant difference in normalcy scores between students in health programs and mainstream programs, with the former having lower scores. Perhaps it is an indication that students in health programs experience more stress or additional stressors may be related to the complexity and intensity of the clinical components associated nursing programs. While nursing students study the nature of stress and its management, it is possible that they view this information as being more applicable to clients, rather than their own daily lives. It



could also be that this questionnaire was distributed during the mid-term period, which skewed participant responses. On the basis of the findings in this research, particularly in relation to the experiences and management of stress, further investigation of normalcy is merited.

The self-care practice of receiving flu shots had not been examined in previous research and therefore comparisons with earlier work cannot be made. The finding in this study that over 40% of participants never received flu shots is plausible considering that this university student population is generally healthy and, with the exception of undergraduates with compromised health states, do not necessarily require annual flu shots. Likewise, it is not surprising that the comparison of vaccine rates between students in health and mainstream programs was found to be statistically significant. For example, nursing students, who comprise part of the health program sample, are required to obtain flu shots before going to clinical practice. Having this requirement imposed likely accounts for the higher rate of vaccination among students in health programs.

Gambling has been examined as a risk taking behavior but it has not been included in previous comprehensive work on self-care practices. In this study, 16.8% of participants reported that they gambled sometimes, often, or always. This finding supports the work of other researchers, including MacRae (2006) and Schrans and Schellinde (2003) who reported a high prevalence rate of gambling in university aged participants. It is interesting to note that there was no significant difference in gambling behavior between students in health and mainstream programs. This finding is significant in itself, and needs to be explored in more depth. Perhaps a general lack of awareness of this issue on university campuses is related to this high rate. This area has also been overlooked by researchers who have examined numerous aspects of student health. Clearly, gambling as a risk taking behavior should not be overlooked any longer.

It is also significant that 22.6% of participants used illicit drugs once or more a month, with no significant differences between programs of study. This figure exceeds those of previous studies, such as Shriver and Scott-Stiles (2000) who reported illicit drug use rates of 10% for non-nursing students and 0.0% for nursing students. The fact that this research does not support the findings of previous studies suggests that illicit drug use is an area that should be addressed in more detail in future work.

It is encouraging to note that participants in health programs reported the performance of regular self-breast and self-testicular exams at statistically higher rates than students in mainstream programs. This finding suggests that education about the importance of screening and secondary prevention is having an important impact on self-care practices. As such, it is plausible to extrapolate that broad awareness initiatives might have a positive effect on screening rates among students in mainstream programs.

#### *Factors Influencing Self-Care Practices*

Regression analyses were performed to determine what factors influence student self-care practices in four key areas: food, alcohol use, activity and rest, and normalcy. Given that socioeconomic status has been reported as the most important factor influencing health (Ahmed et al., 2005; PHAC, 2006), it was expected that higher parental income and lower student loan debt as proxy measures of socioeconomic status would have a positive influence on students' self-care practices. Indeed, this finding was supported in this study, lending credibility to the often touted determinants of health.

Another influential factor in self-care practices was gender. Because previous studies of self-care practices employed primarily samples of nursing students, who are predominantly female (Chow & Kalischuk, 2008; Riordan & Washburn, 1997; Shriver & Scott-Stiles, 2000;

Stark et al., 2005) an understanding of the influence of gender on self-care practices has been limited. In this research, gender was influential predicting self-care practices in two areas, specifically alcohol use and normalcy. The findings indicate that females were more likely to use alcohol than males, while males were more likely to have higher normalcy scores. For instance, the mean scores for the alcohol index were 8.89 for males and 10.43 for females, and the mean scores for the normalcy index were 17.33 for males and 14.04 for females ( $p=.000$ ). Females may have lower normalcy scores based on increased stress levels related to gender roles. In Canadian society, females often experience the “double shift”; that is, they have paid employment in addition to family responsibilities at home, such as childcare. Similarly, on university campuses, females experience multiple roles and pressures such as managing both academic and personal commitments. This additional burden may contribute to the increased stress that females experience. It is also notable that the normalcy index and the alcohol index had a correlation of  $-.128$ . This correlation suggests that the increased rate of drinking among females may be a coping mechanism to offset higher rates of stress. It is clear that this is an important area for future assessment and research.

Self-esteem and self-efficacy also played a significant role in influencing the self-care practices of undergraduate university students. However, it is suspected that there was a moderate degree of multicollinearity between these two variables. Self-efficacy was influential in all four of the regression analyses, indicating it is an important contributor to self-care practices. It was appropriate to place both self-efficacy and self-esteem in the research model, but they should be applied independently to achieve accurate results.

It is notable that age only influenced the alcohol use index. This is not surprising, as the legal drinking age would greatly impact who could purchase alcohol or go to bars etc. Also, the

age range of the respondents was very narrow, so it is understandable that many age-related trends are not evident in student self-care practices.

The findings of this study indicate that being a student athlete influenced self-care practices in predictable ways. It was not surprising that athletes had higher scores on the activity and rest scale, because of their participation in team sports. Athletes had lower rates of drinking, which could be related to their participation in competitive sports where athletic performance is critical. Athletes represent a university and are looked up to as role models, which may influence their alcohol consumption. Finally, athletes are often away from university on the weekends to participate in competitive sporting events. The distance from the university and from one's peer group might influence the consumption of alcohol.

Contrary to expectations, health information seeking behavior and program of study had relatively little influence on student self-care practices suggesting that health literacy and education do not have the significant, broad-based impact on the self-care practices of students as previously thought (Bandura, 1977; Pender et al., 2002; Orem, 2001). The assumption that health literacy and education had a primary influence on self-care has been a foundational assumption in previous research. On the basis of the findings of this study, this primary assumption must be critically reviewed. While health education undoubtedly plays a role in self-care practices, perhaps other factors are mitigating the influence of education in the university student population. Thus, it is important that the role of health education is explored further.

This research was approached from a chronic disease prevention and health promotion paradigm. This perspective is essential for a university population, because young students are at a critical point in the development of their self-care practices. The findings of this study indicate that student self-care practices also have short-term consequences, such as the damaging effects

of illicit drug use. While it is important to be mindful of the long-term implications of self-care practices, it is also essential that student self-care practices are examined with short-term outcomes in mind.

While nursing students were not specifically isolated in this research, it is important to note that nursing is a self-regulating profession. This has implications beyond legal regulation, as nurses must acknowledge responsibility for their own self-care practices. While all individuals require self-care, a health care professional's self-care practices affect his or her fitness to practice and role modeling for clients. Young health care professionals must be aware that their self-care practices will influence their credibility in the workplace, long term health, and affect their ability to practice in a health care setting.

#### *Limitations*

There are several limitations to this study. First, the findings cannot be generalized to all university students. University students in large, urban, culturally diverse centers elsewhere in Canada may have very different health practices than the undergraduate university students surveyed in this rural setting. Likewise, the research tool for assessment of self-care behavior was used for the first time. It is unknown whether this tool would produce the same results among university students at another location or in those in a different age group or cultural context. More culturally diverse student populations would likely identify different self-care practices than the current participants.

An unexpected limitation was the lack of sensitivity of some items on the self-care practice tool to the mature student situation. The fact that mature students may be financially independent was not considered in tool development, nor was the fact that sexual practices in this group may be less risky in monogamous relationships (e.g. with a spouse or common-law

partner). These factors will be an essential consideration in tool refinement and in future research.

It is possible that social desirability influenced student responses, especially for questions relating to drug use and other sensitive areas. Although participants were informed that their responses were confidential, they may have responded in more socially acceptable ways or in keeping with what they perceived to be the researcher's expectations. Limiting the influence of social desirability is an ongoing challenge for quantitative researchers who employ self-report measures.

#### *Recommendations for Future Research*

This research provided evidence regarding specific self-care practices among participants, such as food intake, and activity and rest behavior, yet it is clear that tool refinement using Orem's (2001) universal self-care requisites remains an important goal. Because of her holistic and comprehensive framework, Orem's work is well suited for exploring the self-care practices of university students.

Although the self-care practices related to illicit drug use, gambling and immunization have not been widely studied as part of an overall health assessment in university students, they were prominent in the findings of this study. Accordingly, they warrant further consideration, particularly in future studies involving undergraduate university students.

There exists virtually no qualitative research on student self-care practices. The literature review produced only one article that addressed student self-care from a qualitative perspective (House et al., 2006). Qualitative research would contribute greatly to an understanding of factors that affect student self-care practices.

The assumption that health education is the basis for self-care practices among university students is not supported by this research. This challenges many previous studies. The findings of this study seemingly indicate that health education plays an important role in some areas such as health screening, but not in other areas like illicit drug use. As it is not known why health education is minimally influential in this population, it is an important area for future investigation to support healthy self-care practices.

Finally, a great deal of variation exists between self-care practices of students at different universities. It is acknowledged that different populations and research designs contribute to this disparity. However, self-care practices are clearly theoretically defined which should limit disparities in measurement. A plausible explanation for the discrepancies between populations might be the result of differences in structurally determined lifestyles; that is, behaviors that are externally determined (Ostlin, Sen, & George, 2004). In other words, discrepancies in university environments may account for differences in self-care practices. For example, if unhealthy food is served at a cafeteria, students who live on campus may inadvertently have poor eating habits. The influence of socioeconomic status, gender, and self-efficacy in this university population points to the impact of external factors on student self-care practices. Clearly, another important direction for future research of student self-care practices is to determine external factors, and their impact on self-care practices. Only then can methods for mediating the negative influences upon self-care practices be sought.

### *Conclusion*

This research explored the self-care practices of university students, compared students in health and mainstream university programs, and addressed the factors that influence student self-care practices. In so doing, this research has contributed to tool development and enhanced

understanding of student self-care practices. While many questions remain, it is clear that knowledge about student self-care practices is essential as a means to support health of this population.

The study of student self-care practices is an important component of health promotion and disease prevention research. Students are at a transitional period in their lives, a time in which they may develop long-lasting health habits. Thus, in the interest of promoting positive self-care practices, it is important that the factors influencing self-care practices be understood and incorporated into effective health education programs. It is also essential to perform a comprehensive student health assessment in order to identify both strengths and areas for improvement.



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Study 10- Seo et al. (2007) Examined associations between physical activity and other health behaviors in college students

Study 11- Chow & Kalischuk (2008) Cross-sectional study of undergraduate nursing students in all 4 levels of the program



Appendix B  
**Invitation to Participate**  
**Self-Care Practices Among Undergraduate University Students**  
**Researcher: Jennifer Jackson, Nursing Student**  
**St. Francis Xavier University School of Nursing**

Dear Potential Participant:

You are invited to participate in a study exploring health behavior among St. Francis Xavier University students. The purpose of this study is to identify the practices that St. FX students use to maintain their health and to identify what influences students' choices about engaging in these health-related practices.

Participation in this study requires completion of a questionnaire, which will take about 15 minutes. The questionnaire has no marks or identification on it, so no one will ever be able to connect you with your answers.

All the questionnaires will be kept in a filing cabinet in a secure, locked office and then destroyed at the end of the study. No one but the researcher and supervisor will see the completed questionnaires.

You are under no obligation to participate in the study and you may end your participation at any time by not completing the questionnaire. There are no penalties if you decide that you do not want to participate; however, it is important to consider that once you pass in your questionnaire, you will not be able to withdraw from the study.

Some of the questions in this study are personal, including questions about your sexual health, alcohol use, and illicit drug use. If you choose, you may leave these or any other questions blank.

There are no risks to participating in this study. However, if participating in this study causes you any concern, please visit the Health and Counseling Center, which is located on the third floor of the Bloomfield Center (SUB). While there is no direct benefit to participation in this study, you may experience the personal satisfaction of contributing to research about student health. There is no cost to participate and no compensation will be made.

The results of this study will be presented at Student Research Day, to be held March 2009; however, no identifying information from specific questionnaires will be used. The study will also be published in a bound Honours thesis and placed in the St. FX library.

Please feel free to ask any questions about this research or your rights as a participant. You may contact Jennifer Jackson at (902) 867 4000 ext. 5288 from 9:00 -5:00, Monday to Friday. You may also use email: x2005evd@stfx.ca.

If you have questions for the research supervisor, please contact Dr. Angela Gillis at (902) 867 3955 from 9:00-5:00, Monday to Friday. Her email address is: agillis@stfx.ca.

You may keep this letter for your personal records. Your completion and return of this questionnaire is taken as an indication that you have read and understood this letter and have consented to participate in this study.

Sincerely,

Jennifer Jackson  
Student Researcher

Appendix C  
QUESTIONNAIRE

**The following is a research project conducted by a student for a Nursing honours thesis. The goal is to examine health behavior in university students. Should you agree to participate in this study, you should know that your participation is voluntary and your identity will be protected. You have the right to refuse to answer any of the questions and you may stop your participation at anytime. You do not have to participate in this study and there is no penalty if you do not participate. There is no identifying information on this questionnaire so any responses are confidential. By filling out the questionnaire, you are consenting to partake in this study. Thank you for considering the invitation to participate. Do not put your name on this questionnaire.**

1. I am:  
Male ---- 1   
Female - 2
  
2. How old are you? \_\_\_\_\_ years
  
3. Please estimate your parents' combined annual income:  
Under \$15,000 ----- 1   
\$15,000-\$39,999----- 2   
\$40,000-\$74,999----- 3   
\$75,000-\$100,000 ----- 4   
Over \$100,000 ----- 5
  
4. My current student loan debt totals approximately:  
No debt----- 1   
Under \$5,000----- 2   
\$5,000- \$9,999- ----- 3   
\$10,000-\$19,999----- 4   
\$20,000-\$29,999----- 5   
Over \$30,000----- 6
  
5. I am currently in the \_\_\_\_ year of my program
  
6. I am a student athlete (varsity athletics or a non-university sports team):  
Yes----- 1   
No----- 0

7. I am studying towards a degree in:
- Bachelor of Science -----1
- Bachelor of Arts -----2
- Bachelor of Business Administration -----3
- Other-----4
- If other, please specify\_\_\_\_\_

**For students who are majoring in programs such as English, sociology etc. please select “Arts” as your major. For programs such as physics, biology etc. please select “Science”.**

8. My major area of study is:
- Arts ----- 1
- Science----- 2
- Business----- 3
- Nursing----- 4
- Human Kinetics----- 5
- Human Nutrition----- 6
- Engineering----- 7
- Music----- 8
- Computer Science ----- 9

For each of the following questions, please select how often you purposely used any of the following sources to gain information about your health in the past year. Please indicate 1- Never, 2- Rarely, 3- Sometimes, 4- Often, 5- Always.

	Never	Rarely	Sometimes	Often	Always
9. Magazines	1	2	3	4	5
10. Internet	1	2	3	4	5
11. Family Members or Friends	1	2	3	4	5
12. Workshops or Guest Speakers	1	2	3	4	5
13. Health Care Professionals	1	2	3	4	5
14. The University Health Center and Counseling Center	1	2	3	4	5
15. University Classes	1	2	3	4	5

<p><b>The following questions relate to your personal attitudes. There are no right or wrong answers. Please be honest and describe yourself as you really are. Please indicate the extent to which you agree or disagree with the following statements. 1- Strongly Disagree, 2- Moderately Disagree, 3- Neither Agree/ Disagree, 4- Moderately Agree, 5- Strongly Agree.</b></p>	<p>Strongly Disagree Moderately Disagree Neither Agree/ Disagree Moderately Agree Strongly Agree</p>
16. I feel that I'm a person of worth, at least on an equal basis with others.	1 2 3 4 5
17. I feel that I have a number of good qualities.	1 2 3 4 5
18. All in all, I am inclined to feel that I am a failure.	1 2 3 4 5
19. I am able to do things as well as most people.	1 2 3 4 5
20. I feel I do not have much to be proud of.	1 2 3 4 5
21. I take a positive attitude toward myself.	1 2 3 4 5
22. On the whole, I am satisfied with myself.	1 2 3 4 5
23. I wish I could have more respect for myself.	1 2 3 4 5
24. I certainly feel useless at times.	1 2 3 4 5
25. At times, I think I am no good at all.	1 2 3 4 5
26. When I make plans, I am certain I can make them work.	1 2 3 4 5
27. One of my problems is that I cannot get down to work when I should.	1 2 3 4 5
28. When I decide to do something, I go right to work on it.	1 2 3 4 5
29. When I set important goals for myself, I rarely achieve them.	1 2 3 4 5
30. I give up on things before completing them.	1 2 3 4 5
31. I avoid facing difficulties.	1 2 3 4 5
32. If something looks too complicated, I will not even bother to try it.	1 2 3 4 5
33. When I have something unpleasant to do, I stick with it until I finish it.	1 2 3 4 5
34. When unexpected problems occur, I don't handle them well.	1 2 3 4 5
35. If I can't do a job the first time, I keep trying until I can.	1 2 3 4 5
36. When trying to learn something new, I soon give up if I am not initially successful.	1 2 3 4 5
37. I avoid trying to learn new things when they look too difficult for me.	1 2 3 4 5
38. Failure just makes me try harder.	1 2 3 4 5
39. I feel insecure about my ability to do things.	1 2 3 4 5
40. I am a self-reliant person.	1 2 3 4 5
41. I give up easily.	1 2 3 4 5
42. I do not seem capable of dealing with most problems that come up in my life.	1 2 3 4 5

**The following questions focus on your personal health.**

43. I would describe my tobacco use best as:  
 Tobacco includes: cigarettes, chewing tobacco and cigars.  
 No tobacco use -----1   
 Former tobacco use -----2   
 Use less than one can/pack per day -----3   
 Use one or more cans/packs per day-----4

44. The average number of hours I sleep each night is:  
 1-3 hours----- 1   
 3-6 hours----- 2   
 7-10 hours ----- 3   
 10+ hours----- 4

45. I would describe my illegal drug use (e.g. marijuana, cocaine) best as:  
 I have never tried ----- 1   
 I have tried once or twice-----2   
 I use illegal drugs once or twice a year -----3   
 I use illegal drugs once a month-----4   
 I use illegal drugs once a week -----5   
 I use illegal drugs more than once a week -----6

The following questions are about your health. Please indicate how often you engage in each practice, by indicating 1- Never, 2- Rarely, 3- Sometimes, 4- Often, 5- Always.					
	Never	Rarely	Sometimes	Often	Always
46. I have healthy eating habits.	1	2	3	4	5
47. I eat three balanced meals a day.	1	2	3	4	5
48. I eat 7-10 servings of fruits and vegetables a day.	1	2	3	4	5
49. I eat fast food (e.g. McDonalds).	1	2	3	4	5
50. I drink coffee and/or tea to stay awake.	1	2	3	4	5
51. I drink enough water every day. Recommended daily water intake is at least 1500 mL, or 6 cups.	1	2	3	4	5
52. I drink pop or sweetened juice daily.	1	2	3	4	5

53. Do you consume alcohol?  
 Yes ----- 1   
 No ----- 0

**If you answered no to question 53, please skip to question 57.**

54. How much alcohol do you usually drink per session (e.g. party, night at a bar)?

Note: 1 drink = 1 beer (bottle) = 1.5 oz. Spirit = 5 oz glass wine

1-2 drinks----- 1

3-5 drinks----- 2

6-9 drinks----- 3

9+ drinks----- 4

55. Have you passed out or vomited after you drank alcohol?

I have never vomited or passed out ----- 1

I have vomited or passed out once or twice----- 2

I vomit or pass out once or twice a year----- 3

I vomit or pass out once a month----- 4

I vomit or pass out once a week ----- 5

I vomit or pass out more than once a week ----- 6

	Never	Rarely	Sometimes	Often	Always
56. I drink more than the recommendations for daily alcohol intake. Recommendations for alcohol intake are not to exceed 1 drink per day for females, or 2 drinks per day for males.	1	2	3	4	5
57. I go to the bathroom right away if I need to urinate.	1	2	3	4	5
58. If I am busy, I will wait before going to the bathroom to have a bowel movement.	1	2	3	4	5
59. I wash my hands after using the bathroom.	1	2	3	4	5
60. I eat foods that help regulate my bowel habits.	1	2	3	4	5
61. I have good personal hygiene.	1	2	3	4	5
62. If I am having medical problems (e.g. flu, pain) I will arrange to see a doctor.	1	2	3	4	5
63. When a doctor, nurse or other health care provider gives me instructions, I follow them.	1	2	3	4	5

64. I am sexually active (including vaginal, anal and oral sexual activity).

Yes ----- 1

No ----- 0

**If you answered no to question 64, please skip to question 68.**

	Never	Rarely	Sometimes	Often	Always
65. In the past year, I have had unprotected sex with someone who is not a long term partner.	1	2	3	4	5

66. I am screened for sexually transmitted infections (STIs) at least once a year, or when I have a new sexual partner.	1	2	3	4	5
67. I use condoms or other barriers to prevent STI transmission when engaging in sexual activity.	1	2	3	4	5
68. I perform a self breast exam or self testicular exam monthly.	1	2	3	4	5
69. I wear a seat belt in a moving vehicle.	1	2	3	4	5
70. I drive over the speed limit.	1	2	3	4	5
71. I drive under the influence of alcohol.	1	2	3	4	5
72. I wear sunscreen of SPF 15 or more during sun exposure.	1	2	3	4	5
73. When riding a bike or motorbike, I wear a helmet.	1	2	3	4	5
74. I take too much or too little of a prescription medication.	1	2	3	4	5
75. I use prescription drugs that were not prescribed for me.	1	2	3	4	5
76. I see a dentist on a regular basis (e.g. every 6-12 months).	1	2	3	4	5
77. I gamble (e.g. poker, online gaming, bingo, VLTs).	1	2	3	4	5
78. I get an annual flu shot.	1	2	3	4	5
79. My immunizations are up to date.	1	2	3	4	5
80. Exercising daily is a priority for me.	1	2	3	4	5
81. I participate in cardiovascular activities (e.g. running, basketball, swimming, dancing etc.) 4 or more times a week.	1	2	3	4	5
82. I lift weights, or do other strength-building activities at least twice a week.	1	2	3	4	5
83. I stretch or do an activity like yoga at least 4 times a week.	1	2	3	4	5
84. I make an effort to get enough sleep so that I am rested.	1	2	3	4	5
85. I sacrifice sleep in order to get school work done.	1	2	3	4	5
86. I make time for myself daily.	1	2	3	4	5
87. I participate in social events or outings without interfering with my school work.	1	2	3	4	5
88. I play sports, or participate in hobbies I enjoy.	1	2	3	4	5
89. I spend time alone each day.	1	2	3	4	5
90. I rely on my family and friends for support.	1	2	3	4	5
91. I visit with friends every day.	1	2	3	4	5
92. I cope well with stress.	1	2	3	4	5
93. I feel overwhelmed with my current school work.	1	2	3	4	5
94. I become anxious very easily.	1	2	3	4	5
95. My school work load is manageable.	1	2	3	4	5
96. I have a hard time coping with all the stress in my life.	1	2	3	4	5

**Thank you for taking the time to participate in this survey.**